Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS
Method: 6020A **Matrix:** AQ

Method Category: METALS
Method: 6020A **Matrix:** SO

Sample ID: SL-530-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 2:10:00 *Analysis Type:* RES/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0245	J	0.0202	MDL	0.202	PQL	mg/Kg	J	Z
STRONTIUM	10.8		0.0343	MDL	0.404	PQL	mg/Kg	J	Q

Sample ID: SL-531-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 8:55:00 *Analysis Type:* RES/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
THALLIUM	0.198	J	0.0298	MDL	0.199	PQL	mg/Kg	J	Z

Sample ID: SL-533-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 11:25:00 *Analysis Type:* REA/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.231	J	0.0997	MDL	0.399	PQL	mg/Kg	J	Z

Sample ID: SL-533-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 11:25:00 *Analysis Type:* RES/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0368	J	0.0199	MDL	0.199	PQL	mg/Kg	J	Z

Method Category: METALS
Method: 7471B **Matrix:** SO

Sample ID: SL-530-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 2:10:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0151	J	0.0105	MDL	0.0202	PQL	mg/Kg	J	Z

Sample ID: SL-531-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 8:55:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0171	J	0.0106	MDL	0.0204	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS
Method: 7471B **Matrix: SO**

Sample ID: SL-532-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 9:45:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0144	J	0.010	MDL	0.0193	PQL	mg/Kg	J	Z

Method Category: SVOA
Method: 1613B **Matrix: AQ**

Sample ID: EB-041813 *Collected:* 4/18/2013 3:00:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.576	JBQ	0.189	MDL	9.71	PQL	pg/L	U	B
1,2,3,4,6,7,8-HPCDF	0.466	JB	0.103	MDL	9.71	PQL	pg/L	U	B
1,2,3,4,7,8,9-HPCDF	0.358	JBQ	0.122	MDL	9.71	PQL	pg/L	U	B
1,2,3,4,7,8-HXCDF	0.235	JQ	0.103	MDL	9.71	PQL	pg/L	J	Z
1,2,3,6,7,8-HXCDD	0.206	JBQ	0.175	MDL	9.71	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDF	0.191	JBQ	0.102	MDL	9.71	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDF	0.137	JBQ	0.0883	MDL	9.71	PQL	pg/L	U	B
1,2,3,7,8-PECDD	0.420	JBQ	0.232	MDL	9.71	PQL	pg/L	U	B
1,2,3,7,8-PECDF	0.761	JBQ	0.144	MDL	9.71	PQL	pg/L	U	B
2,3,4,6,7,8-HXCDF	0.201	JBQ	0.0943	MDL	9.71	PQL	pg/L	U	B
2,3,4,7,8-PECDF	0.194	JBQ	0.134	MDL	9.71	PQL	pg/L	U	B
OCDD	1.20	JB	0.416	MDL	19.4	PQL	pg/L	U	B
OCDF	1.24	JBQ	0.323	MDL	19.4	PQL	pg/L	U	B

Method Category: SVOA
Method: 1613B **Matrix: SO**

Sample ID: SL-530-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 2:10:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	1.37	JB	0.0168	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.132	JB	0.0234	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.266	JB	0.0310	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.220	JB	0.0281	MDL	5.09	PQL	ng/Kg	U	B

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-530-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 2:10:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,6,7,8-HXCDD	0.462	J	0.0315	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.167	JBQ	0.0256	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.364	JB	0.0291	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0457	JB	0.0280	MDL	5.09	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.208	JB	0.0299	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.327	JBQ	0.0260	MDL	5.09	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.167	JBQ	0.0255	MDL	5.09	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.432	JB	0.0248	MDL	5.09	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.131	JQ	0.0512	MDL	1.02	PQL	ng/Kg	J	Z
OCDF	2.99	JB	0.0281	MDL	10.2	PQL	ng/Kg	J	Z

Sample ID: SL-531-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 8:55:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	0.909	JB	0.0129	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0981	JBQ	0.0165	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.183	JB	0.0309	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.151	JBQ	0.0193	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.391	J	0.0307	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.117	JBQ	0.0183	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.482	JBQ	0.0284	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0578	JBQ	0.0208	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.173	JB	0.0225	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.175	JB	0.0173	MDL	5.01	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.124	JB	0.0183	MDL	5.01	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.272	JB	0.0162	MDL	5.01	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.136	J	0.0330	MDL	1.00	PQL	ng/Kg	J	Z
OCDF	1.92	JB	0.0201	MDL	10.0	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-532-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 9:45:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	2.58	JB	0.0188	MDL	4.95	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.513	JB	0.0104	MDL	4.95	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0834	JB	0.0148	MDL	4.95	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0857	JBQ	0.0230	MDL	4.95	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0810	JBQ	0.0194	MDL	4.95	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.134	J	0.0224	MDL	4.95	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0933	JBQ	0.0177	MDL	4.95	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.123	JB	0.0208	MDL	4.95	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0403	JBQ	0.0189	MDL	4.95	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0570	JBQ	0.0176	MDL	4.95	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.159	JB	0.0157	MDL	4.95	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0854	JBQ	0.0173	MDL	4.95	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.172	JB	0.0154	MDL	4.95	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0663	JQ	0.0278	MDL	0.991	PQL	ng/Kg	J	Z
OCDF	0.858	JB	0.0216	MDL	9.91	PQL	ng/Kg	J	Z

Sample ID: SL-533-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 11:25:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	0.909	JB	0.0167	MDL	5.19	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.122	JBQ	0.0224	MDL	5.19	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.128	JB	0.0289	MDL	5.19	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.130	JB	0.0207	MDL	5.19	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.344	J	0.0290	MDL	5.19	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0771	JBQ	0.0193	MDL	5.19	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.298	JB	0.0276	MDL	5.19	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0392	JBQ	0.0233	MDL	5.19	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.107	JB	0.0221	MDL	5.19	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.158	JBQ	0.0188	MDL	5.19	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.128	JB	0.0203	MDL	5.19	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.224	JB	0.0182	MDL	5.19	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0326	JQ	0.0236	MDL	1.04	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 1613B **Matrix: SO**

Sample ID: SL-533-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 11:25:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.0789	JQ	0.0351	MDL	1.04	PQL	ng/Kg	J	Z
OCDF	2.02	JB	0.0237	MDL	10.4	PQL	ng/Kg	J	Z

Method Category: SVOA
Method: 8015M **Matrix: AQ**

Sample ID: EB-041813 *Collected:* 4/18/2013 3:00:00 *Analysis Type:* REA *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	0.62	U	0.10	MDL	0.62	PQL	mg/L	UJ	L
EFH (C8-C11)	0.62	U	0.10	MDL	0.62	PQL	mg/L	UJ	L

Method Category: SVOA
Method: 8015M **Matrix: SO**

Sample ID: SL-530-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 2:10:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	44		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: SL-531-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 8:55:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	4.9	J	2.0	MDL	5.1	PQL	mg/Kg	J	Z
EFH (C30-C40)	84		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: SL-532-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 9:45:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	40		4.1	MDL	10	PQL	mg/Kg	J	L

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8015M **Matrix:** SO

Sample ID: SL-533-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 11:25:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	26		4.1	MDL	10	PQL	mg/Kg	J	L

Method Category: SVOA
Method: 8270D SIM **Matrix:** AQ

Sample ID: EB-041813 *Collected:* 4/18/2013 3:00:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.014	J	0.010	MDL	0.051	PQL	ug/L	J	Z
2-METHYLNAPHTHALENE	0.018	J	0.010	MDL	0.051	PQL	ug/L	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	0.11	J	0.051	MDL	1.0	PQL	ug/L	U	B
Diethylphthalate	0.071	J	0.051	MDL	1.0	PQL	ug/L	J	Z
Di-n-butylphthalate	0.11	J	0.051	MDL	1.0	PQL	ug/L	J	Z

Method Category: SVOA
Method: 8270D SIM **Matrix:** SO

Sample ID: SL-530-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 2:10:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	1.4	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.5	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	1.2	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-531-SA7-SB-0.0-0.5 *Collected:* 4/18/2013 8:55:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.90	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	0.87	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(B)FLUORANTHENE	1.4	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.86	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
CHRYSENE	1.4	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-531-SA7-SB-0.0-0.5** ***Collected:*** **4/18/2013 8:55:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
FLUORANTHENE	1.5	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.86	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PHENANTHRENE	1.3	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	1.4	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-532-SA7-SB-0.0-0.5** ***Collected:*** **4/18/2013 9:45:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTHRACENE	0.40	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
CHRYSENE	0.61	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
FLUORANTHENE	0.96	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	0.92	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PHENANTHRENE	1.5	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	0.80	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-533-SA7-SB-0.0-0.5** ***Collected:*** **4/18/2013 11:25:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.86	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.0	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.82	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	6.5	J	6.2	MDL	19	PQL	ug/Kg	J	Z
Butylbenzylphthalate	12	J	6.2	MDL	19	PQL	ug/Kg	J	Z
CHRYSENE	1.6	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
FLUORENE	0.86	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.77	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PHENANTHRENE	0.95	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	1.5	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034

Laboratory: LL

EDD Filename: PrepPH034

eQAPP Name: CDM_SSFL_130621_Lan

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
B	Calibration Blank Contamination
B	Method Blank Contamination
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
L	Laboratory Control Spike Lower Estimation
L	Laboratory Control Spike Upper Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH034

Method Blank Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1120B372247	4/23/2013 10:47:00 PM	1,2,3,4,6,7,8-HPCDD	0.304 pg/L	EB-041813
		1,2,3,4,6,7,8-HPCDF	0.268 pg/L	
		1,2,3,4,7,8,9-HPCDF	0.249 pg/L	
		1,2,3,6,7,8-HXCDD	0.209 pg/L	
		1,2,3,6,7,8-HXCDF	0.192 pg/L	
		1,2,3,7,8,9-HXCDD	0.143 pg/L	
		1,2,3,7,8,9-HXCDF	0.213 pg/L	
		1,2,3,7,8-PECDD	0.478 pg/L	
		1,2,3,7,8-PECDF	0.459 pg/L	
		2,3,4,6,7,8-HXCDF	0.148 pg/L	
		2,3,4,7,8-PECDF	0.221 pg/L	
		OCDD	0.400 pg/L	
		OCDF	0.832 pg/L	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB-041813(RES)	1,2,3,4,6,7,8-HPCDD	0.576 pg/L	0.576U pg/L
EB-041813(RES)	1,2,3,4,6,7,8-HPCDF	0.466 pg/L	0.466U pg/L
EB-041813(RES)	1,2,3,4,7,8,9-HPCDF	0.358 pg/L	0.358U pg/L
EB-041813(RES)	1,2,3,6,7,8-HXCDD	0.206 pg/L	0.206U pg/L
EB-041813(RES)	1,2,3,6,7,8-HXCDF	0.191 pg/L	0.191U pg/L
EB-041813(RES)	1,2,3,7,8,9-HXCDF	0.137 pg/L	0.137U pg/L
EB-041813(RES)	1,2,3,7,8-PECDD	0.420 pg/L	0.420U pg/L
EB-041813(RES)	1,2,3,7,8-PECDF	0.761 pg/L	0.761U pg/L
EB-041813(RES)	2,3,4,6,7,8-HXCDF	0.201 pg/L	0.201U pg/L
EB-041813(RES)	2,3,4,7,8-PECDF	0.194 pg/L	0.194U pg/L
EB-041813(RES)	OCDD	1.20 pg/L	1.20U pg/L
EB-041813(RES)	OCDF	1.24 pg/L	1.24U pg/L

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1140B372001	4/25/2013 8:01:00 PM	1,2,3,4,6,7,8-HPCDD	0.0680 ng/Kg	SL-530-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0378 ng/Kg	SL-531-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0182 ng/Kg	SL-532-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HxCDD	0.0132 ng/Kg	SL-533-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HXCDF	0.0510 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0214 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0184 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0300 ng/Kg	
		1,2,3,7,8-PECDD	0.0221 ng/Kg	
		1,2,3,7,8-PECDF	0.0555 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0286 ng/Kg	
		2,3,4,7,8-PECDF	0.0295 ng/Kg	
		OCDD	0.148 ng/Kg	
		OCDF	0.0895 ng/Kg	

Method Blank Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-530-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.220 ng/Kg	0.220U ng/Kg
SL-530-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0457 ng/Kg	0.0457U ng/Kg
SL-531-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.151 ng/Kg	0.151U ng/Kg
SL-531-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0578 ng/Kg	0.0578U ng/Kg
SL-531-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.175 ng/Kg	0.175U ng/Kg
SL-531-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.124 ng/Kg	0.124U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0834 ng/Kg	0.0834U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0810 ng/Kg	0.0810U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.0933 ng/Kg	0.0933U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0403 ng/Kg	0.0403U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.0570 ng/Kg	0.0570U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.159 ng/Kg	0.159U ng/Kg
SL-532-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0854 ng/Kg	0.0854U ng/Kg
SL-533-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.130 ng/Kg	0.130U ng/Kg
SL-533-SA7-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.0771 ng/Kg	0.0771U ng/Kg
SL-533-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0392 ng/Kg	0.0392U ng/Kg
SL-533-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.107 ng/Kg	0.107U ng/Kg
SL-533-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.158 ng/Kg	0.158U ng/Kg
SL-533-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.128 ng/Kg	0.128U ng/Kg

Method: **6010C**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11435AB221838	4/26/2013 6:38:00 PM	COPPER	0.0024 mg/L	EB-041813

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11537AB221818	4/28/2013 6:18:00 PM	ALUMINUM BORON CALCIUM PHOSPHORUS TIN	10.3 mg/Kg 1.62 mg/Kg 25.6 mg/Kg 1.45 mg/Kg 1.45 mg/Kg	SL-530-SA7-SB-0.0-0.5 SL-531-SA7-SB-0.0-0.5 SL-532-SA7-SB-0.0-0.5 SL-533-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-530-SA7-SB-0.0-0.5(REA/TOT)	BORON	3.08 mg/Kg	3.08U mg/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PrepPH034 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-530-SA7-SB-0.0-0.5(REA/TOT)	TIN	2.98 mg/Kg	2.98U mg/Kg
SL-531-SA7-SB-0.0-0.5(REA/TOT)	BORON	2.91 mg/Kg	2.91U mg/Kg
SL-531-SA7-SB-0.0-0.5(REA/TOT)	TIN	2.97 mg/Kg	2.97U mg/Kg
SL-532-SA7-SB-0.0-0.5(REA/TOT)	BORON	1.98 mg/Kg	1.98U mg/Kg
SL-532-SA7-SB-0.0-0.5(REA/TOT)	TIN	3.04 mg/Kg	3.04U mg/Kg
SL-533-SA7-SB-0.0-0.5(REA/TOT)	BORON	2.64 mg/Kg	2.64U mg/Kg
SL-533-SA7-SB-0.0-0.5(REA/TOT)	TIN	3.36 mg/Kg	3.36U mg/Kg

Method: **6020A**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11537AB220821A	4/29/2013 8:21:00 AM	STRONTIUM	0.179 mg/Kg	SL-530-SA7-SB-0.0-0.5 SL-531-SA7-SB-0.0-0.5 SL-532-SA7-SB-0.0-0.5 SL-533-SA7-SB-0.0-0.5

Method: **8270D SIM**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
PLKWC11B262011	4/28/2013 8:11:00 PM	BIS(2-ETHYLHEXYL)PHTHALATE	0.054 ug/L	EB-041813

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB-041813(RES)	BIS(2-ETHYLHEXYL)PHTHALATE	0.11 ug/L	1.0U ug/L

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB-041813(RES/TOT)	4/18/2013 3:00:00 PM	MOLYBDENUM	0.0036 mg/L	SL-530-SA7-SB-0.0-0.5 SL-531-SA7-SB-0.0-0.5 SL-532-SA7-SB-0.0-0.5 SL-533-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-533-SA7-SB-0.0-0.5(REA/TOT)	MOLYBDENUM	0.423 mg/Kg	0.423U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-530-SA7-SB-0.0-0.5 SL-531-SA7-SB-0.0-0.5 SL-532-SA7-SB-0.0-0.5 SL-533-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-533-SA7-SB-0.0-0.5(REA/TOT)	MOLYBDENUM	0.423 mg/Kg	0.423U mg/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8082A**
Matrix: **AQ**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
EB-041813	TETRACHLORO-M-XYLENE	123	45.00-120.00	All Target Analytes	J (all detects)

Method: **8082A**
Matrix: **SO**

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SL-533-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	125	45.00-120.00	All Target Analytes	J(all detects)

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8270D SIM
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P3WCLCSQ262038 **P3WCLCSY262105** (EB-041813)	BENZO(A)PYRENE	177	177	72.00-120.00	-	BENZO(A)PYRENE	J (all detects)

Method: 8015M
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31133AQ321247A **P31133AY321308A** (EB-041813)	EFH (C30-C40) EFH (C8-C11)	- 63	67 62	70.00-130.00 70.00-130.00	- -	EFH (C30-C40) EFH (C8-C11)	J(all detects) UJ(all non-detects)

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31149AQ320500A (SL-530-SA7-SB-0.0-0.5 SL-531-SA7-SB-0.0-0.5 SL-532-SA7-SB-0.0-0.5 SL-533-SA7-SB-0.0-0.5)	EFH (C30-C40)	55	-	65.00-128.00	-	EFH (C30-C40)	J(all detects) UJ(all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-041813	1,2,3,4,6,7,8-HPCDD	JBQ	0.576	9.71	PQL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.466	9.71	PQL	pg/L	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.358	9.71	PQL	pg/L	
	1,2,3,4,7,8-HXCDF	JQ	0.235	9.71	PQL	pg/L	
	1,2,3,6,7,8-HXCDD	JBQ	0.206	9.71	PQL	pg/L	
	1,2,3,6,7,8-HXCDF	JBQ	0.191	9.71	PQL	pg/L	
	1,2,3,7,8,9-HXCDF	JBQ	0.137	9.71	PQL	pg/L	
	1,2,3,7,8-PECDD	JBQ	0.420	9.71	PQL	pg/L	
	1,2,3,7,8-PECDF	JBQ	0.761	9.71	PQL	pg/L	
	2,3,4,6,7,8-HXCDF	JBQ	0.201	9.71	PQL	pg/L	
	2,3,4,7,8-PECDF	JBQ	0.194	9.71	PQL	pg/L	
	OCDD	JB	1.20	19.4	PQL	pg/L	
	OCDF	JBQ	1.24	19.4	PQL	pg/L	

Method: 6010C
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-041813	MOLYBDENUM	J	0.0036	0.0200	PQL	mg/L	J (all detects)

Method: 6020A
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-041813	STRONTIUM	J	0.00028	0.0020	PQL	mg/L	J (all detects)

Method: 8270D SIM
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-041813	1-METHYLNAPHTHALENE	J	0.014	0.051	PQL	ug/L	J (all detects)
	2-METHYLNAPHTHALENE	J	0.018	0.051	PQL	ug/L	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	0.11	1.0	PQL	ug/L	
	Diethylphthalate	J	0.071	1.0	PQL	ug/L	
	Di-n-butylphthalate	J	0.11	1.0	PQL	ug/L	

Reporting Limit Outliers

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-530-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	1.37	5.09	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.132	5.09	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.266	5.09	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.220	5.09	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.462	5.09	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.167	5.09	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.364	5.09	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.0457	5.09	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.208	5.09	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.327	5.09	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.167	5.09	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.432	5.09	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.131	1.02	PQL	ng/Kg	
	OCDF	JB	2.99	10.2	PQL	ng/Kg	
SL-531-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	0.909	5.01	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0981	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.183	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.151	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.391	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.117	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.482	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0578	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.173	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.175	5.01	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.124	5.01	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.272	5.01	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.136	1.00	PQL	ng/Kg	
	OCDF	JB	1.92	10.0	PQL	ng/Kg	
SL-532-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	2.58	4.95	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.513	4.95	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.0834	4.95	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0857	4.95	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0810	4.95	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.134	4.95	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0933	4.95	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.123	4.95	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0403	4.95	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0570	4.95	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.159	4.95	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0854	4.95	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.172	4.95	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0663	0.991	PQL	ng/Kg	
	OCDF	JB	0.858	9.91	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-533-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	0.909	5.19	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JBQ	0.122	5.19	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.128	5.19	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.130	5.19	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.344	5.19	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0771	5.19	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.298	5.19	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0392	5.19	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.107	5.19	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.158	5.19	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.128	5.19	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.224	5.19	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0326	1.04	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0789	1.04	PQL	ng/Kg	
	OCDF	JB	2.02	10.4	PQL	ng/Kg	

Method: **6010C**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-530-SA7-SB-0.0-0.5	BERYLLIUM	J	0.395	1.01	PQL	mg/Kg	J (all detects)
	BORON	J	3.08	10.1	PQL	mg/Kg	
	CADMIUM	J	0.194	1.01	PQL	mg/Kg	
	SODIUM	J	57.4	101	PQL	mg/Kg	
	TIN	J	2.98	10.1	PQL	mg/Kg	
	Zirconium	J	1.59	5.05	PQL	mg/Kg	
SL-531-SA7-SB-0.0-0.5	ARSENIC	J	3.82	3.97	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.463	0.993	PQL	mg/Kg	
	BORON	J	2.91	9.93	PQL	mg/Kg	
	CADMIUM	J	0.139	0.993	PQL	mg/Kg	
	SODIUM	J	56.5	99.3	PQL	mg/Kg	
	TIN	J	2.97	9.93	PQL	mg/Kg	
	Zirconium	J	1.97	4.96	PQL	mg/Kg	
SL-532-SA7-SB-0.0-0.5	ARSENIC	J	3.93	3.99	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.382	0.998	PQL	mg/Kg	
	BORON	J	1.98	9.98	PQL	mg/Kg	
	CADMIUM	J	0.106	0.998	PQL	mg/Kg	
	SODIUM	J	53.0	99.8	PQL	mg/Kg	
	TIN	J	3.04	9.98	PQL	mg/Kg	
	Zirconium	J	1.58	4.99	PQL	mg/Kg	
SL-533-SA7-SB-0.0-0.5	ANTIMONY	J	0.770	3.99	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.669	0.997	PQL	mg/Kg	
	BORON	J	2.64	9.97	PQL	mg/Kg	
	CADMIUM	J	0.0439	0.997	PQL	mg/Kg	
	MOLYBDENUM	J	0.423	1.99	PQL	mg/Kg	
	SODIUM	J	63.6	99.7	PQL	mg/Kg	
	TIN	J	3.36	9.97	PQL	mg/Kg	
	Zirconium	J	3.18	4.99	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-530-SA7-SB-0.0-0.5	SILVER	J	0.0245	0.202	PQL	mg/Kg	J (all detects)
SL-531-SA7-SB-0.0-0.5	THALLIUM	J	0.198	0.199	PQL	mg/Kg	J (all detects)
SL-533-SA7-SB-0.0-0.5	SELENIUM	J	0.231	0.399	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0368	0.199	PQL	mg/Kg	

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-530-SA7-SB-0.0-0.5	MERCURY	J	0.0151	0.0202	PQL	mg/Kg	J (all detects)
SL-531-SA7-SB-0.0-0.5	MERCURY	J	0.0171	0.0204	PQL	mg/Kg	J (all detects)
SL-532-SA7-SB-0.0-0.5	MERCURY	J	0.0144	0.0193	PQL	mg/Kg	J (all detects)

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-531-SA7-SB-0.0-0.5	EFH (C15-C20)	J	4.9	5.1	PQL	mg/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-530-SA7-SB-0.0-0.5	BENZO(A)ANTHRACENE	J	1.4	1.7	PQL	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	1.5	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	1.2	1.7	PQL	ug/Kg	
SL-531-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	0.90	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	0.87	1.7	PQL	ug/Kg	
	BENZO(B)FLUORANTHENE	J	1.4	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	0.86	1.7	PQL	ug/Kg	
	CHRYSENE	J	1.4	1.7	PQL	ug/Kg	
	FLUORANTHENE	J	1.5	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.86	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	1.3	1.7	PQL	ug/Kg	
	PYRENE	J	1.4	1.7	PQL	ug/Kg	
SL-532-SA7-SB-0.0-0.5	ANTHRACENE	J	0.40	1.7	PQL	ug/Kg	J (all detects)
	CHRYSENE	J	0.61	1.7	PQL	ug/Kg	
	FLUORANTHENE	J	0.96	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	0.92	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	1.5	1.7	PQL	ug/Kg	
	PYRENE	J	0.80	1.7	PQL	ug/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH034 **Laboratory: LL**

EDD Filename: PH034_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
SL-533-SA7-SB-0.0-0.5	2-METHYLNAPHTHALENE	J	0.86	1.7	PQL	ug/Kg	
	BENZO(A)PYRENE	J	1.0	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	0.82	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	6.5	19	PQL	ug/Kg	
	Butylbenzylphthalate	J	12	19	PQL	ug/Kg	
	CHRYSENE	J	1.6	1.7	PQL	ug/Kg	J (all detects)
	FLUORENE	J	0.86	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.77	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	0.95	1.7	PQL	ug/Kg	
	PYRENE	J	1.5	1.7	PQL	ug/Kg	

LDC #: 29836H4
SDG #: PH034
Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET
ADR

Date: 6/11/13
Page: 1 of 1
Reviewer: CL
2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	–	Sampling dates: 4/18/13
II.	ICP/MS Tune	–	
III.	Calibration	–	
IV.	Blanks	~~A~~ SW	
V.	ICP Interference Check Sample (ICS) Analysis	–	
VI.	Matrix Spike Analysis	N	~~esa~~ MS/D (from PH036)
VII.	Duplicate Sample Analysis	N	Dup ↓
VIII.	Laboratory Control Samples (LCS)	A	LCS/D
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	A ~~N~~	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	–	
XV	Field Blanks	SW	EB=5 FB= FB-041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	SL-531-SA7-SB-0.0-0.5	11		21		31	
2	SL-532-SA7-SB-0.0-0.5	12		22		32	
3	SL-533-SA7-SB-0.0-0.5	13		23		33	
4	SL-530-SA7-SB-0.0-0.5	14		24		34	
5	EB-041813	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 29836H4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x Reason: B

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All Water

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	5								
Mo			4.6	0.023	0.0036								

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 29836H4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: CR
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/18/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All Soil

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-041813	FB-041113	Action Limit	3									
Cu		0.0036	1.8										
Mo	0.0036	0.0036	1.8	0.42									
Sr	0.000028		0.014										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	3050B	6010C	III
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	3050B	6020A	III
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	3546	8015M	III
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	3546	8082A	III
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	3546	8270D SIM	III
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	METHOD	1613B	III
19-Apr-2013	SL-518-SA7-SB-0.0-0.5	7029644	N	METHOD	7471B	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	3050B	6010C	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	3050B	6020A	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	3546	8015M	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	3546	8082A	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	3546	8270D SIM	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	METHOD	1613B	III
19-Apr-2013	SL-520-SA7-SB-0.0-0.5	7029645	N	METHOD	7471B	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	3050B	6010C	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	3050B	6020A	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	3546	8015M	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	3546	8081B	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	3546	8082A	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	3546	8270D SIM	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	METHOD	1613B	III
19-Apr-2013	SL-511-SA7-SB-0.0-0.5	7029646	N	METHOD	7471B	III
19-Apr-2013	EB-041913	7029647	EB	3510C	8081B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-511-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 11:05:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.585	J	0.508	MDL	4.06	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.487	J	0.0680	MDL	1.02	PQL	mg/Kg	J	Z
BORON	4.33	J	0.843	MDL	10.2	PQL	mg/Kg	U	B
CADMIUM	0.336	J	0.0335	MDL	1.02	PQL	mg/Kg	J	Z
LEAD	15.0		0.477	MDL	3.05	PQL	mg/Kg	J	E, Q, E
MOLYBDENUM	0.429	J	0.173	MDL	2.03	PQL	mg/Kg	U	F, F
POTASSIUM	4240		13.7	MDL	102	PQL	mg/Kg	J	Q
SODIUM	67.7	J	17.0	MDL	102	PQL	mg/Kg	J	Z
TIN	3.20	J	0.223	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.17	J	0.843	MDL	5.08	PQL	mg/Kg	J	Z

Sample ID: **SL-518-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 8:50:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.777	J	0.497	MDL	3.98	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.544	J	0.0666	MDL	0.995	PQL	mg/Kg	J	Z
BORON	3.73	J	0.826	MDL	9.95	PQL	mg/Kg	U	B
CADMIUM	0.606	J	0.0328	MDL	0.995	PQL	mg/Kg	J	Z
LEAD	24.1		0.468	MDL	2.98	PQL	mg/Kg	J	E, Q, E
MOLYBDENUM	0.359	J	0.169	MDL	1.99	PQL	mg/Kg	U	F, F
POTASSIUM	4520		13.4	MDL	99.5	PQL	mg/Kg	J	Q
SODIUM	77.0	J	16.6	MDL	99.5	PQL	mg/Kg	J	Z
TIN	3.33	J	0.219	MDL	9.95	PQL	mg/Kg	U	B
Zirconium	2.82	J	0.826	MDL	4.97	PQL	mg/Kg	J	Z

Sample ID: **SL-520-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 9:50:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.00	U	0.500	MDL	4.00	PQL	mg/Kg	UJ	Q
BERYLLIUM	0.522	J	0.0670	MDL	1.00	PQL	mg/Kg	J	Z
BORON	4.32	J	0.830	MDL	10.0	PQL	mg/Kg	U	B
CADMIUM	0.128	J	0.0330	MDL	1.00	PQL	mg/Kg	J	Z
LEAD	13.5		0.470	MDL	3.00	PQL	mg/Kg	J	E, Q, E
MOLYBDENUM	0.297	J	0.170	MDL	2.00	PQL	mg/Kg	U	F, F
POTASSIUM	4220		13.5	MDL	100	PQL	mg/Kg	J	Q

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS

Method: 6010C **Matrix: SO**

Sample ID: SL-520-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 9:50:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SODIUM	63.2	J	16.7	MDL	100	PQL	mg/Kg	J	Z
TIN	3.13	J	0.220	MDL	10.0	PQL	mg/Kg	U	B
Zirconium	2.43	J	0.830	MDL	5.00	PQL	mg/Kg	J	Z

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-511-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 11:05:00 **Analysis Type:** REA/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.129	J	0.102	MDL	0.406	PQL	mg/Kg	J	Z

Sample ID: SL-511-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 11:05:00 **Analysis Type:** RES/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0715	J	0.0203	MDL	0.203	PQL	mg/Kg	J	Z
STRONTIUM	16.7		0.0345	MDL	0.406	PQL	mg/Kg	J	Q

Sample ID: SL-518-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 8:50:00 **Analysis Type:** RES/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0918	J	0.0199	MDL	0.199	PQL	mg/Kg	J	Z
STRONTIUM	12.9		0.0338	MDL	0.398	PQL	mg/Kg	J	Q

Sample ID: SL-520-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 9:50:00 **Analysis Type:** RES/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0306	J	0.0200	MDL	0.200	PQL	mg/Kg	J	Z
STRONTIUM	14.3		0.0340	MDL	0.400	PQL	mg/Kg	J	Q

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-511-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 11:05:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	3.99	JB	0.0556	MDL	5.18	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	4.09	JB	0.0449	MDL	5.18	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	2.86	JB	0.0465	MDL	5.18	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	1.89	JB	0.0422	MDL	5.18	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	1.94	JB	0.0624	MDL	5.18	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	1.52	JB	0.0390	MDL	5.18	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	2.35	JB	0.0407	MDL	5.18	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	1.77	JB	0.0387	MDL	5.18	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.279	J	0.0479	MDL	1.04	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.972	J	0.0855	MDL	1.04	PQL	ng/Kg	J	Z
OCDD	5740	BE	0.0722	MDL	10.4	PQL	ng/Kg	J	*XIII

Sample ID: **SL-518-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	1.36	JB	0.0354	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	1.39	JB	0.0356	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	2.24	JB	0.0369	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	4.08	J	0.0360	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	1.23	JB	0.0352	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	2.53	JB	0.0332	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.600	JBQ	0.0460	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	5.05	JB	0.0448	MDL	5.10	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	1.12	JB	0.0361	MDL	5.10	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	1.73	JB	0.0419	MDL	5.10	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.139	J	0.0266	MDL	1.02	PQL	ng/Kg	J	Z

Sample ID: **SL-520-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 9:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	2.42	JB	0.0219	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.219	JB	0.0319	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.209	JB	0.0295	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.327	JB	0.0268	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.770	J	0.0292	MDL	5.04	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-520-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 9:50:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,6,7,8-HXCDF	0.270	JB	0.0242	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.479	JB	0.0261	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.174	JBQ	0.0272	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.693	JB	0.0229	MDL	5.04	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.234	JB	0.0237	MDL	5.04	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.497	JB	0.0226	MDL	5.04	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0444	JQ	0.0266	MDL	1.01	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.244	JQ	0.0435	MDL	1.01	PQL	ng/Kg	J	Z
OCDF	5.85	JB	0.0236	MDL	10.1	PQL	ng/Kg	J	Z

Method Category: SVOA

Method: 8015M **Matrix:** SO

Sample ID: SL-511-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 11:05:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	3.5	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z
EFH (C30-C40)	66		4.2	MDL	10	PQL	mg/Kg	J	L

Sample ID: SL-518-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 8:50:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	35		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: SL-520-SA7-SB-0.0-0.5 **Collected:** 4/19/2013 9:50:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	21		4.1	MDL	10	PQL	mg/Kg	J	L

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8081B **Matrix:** SO

Sample ID: SL-511-SA7-SB-0.0-0.5 *Collected:* 4/19/2013 11:05:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
HEPTACHLOR	0.18	J	0.18	MDL	0.87	PQL	ug/Kg	J	Z

Method Category: SVOA
Method: 8082A **Matrix:** SO

Sample ID: SL-511-SA7-SB-0.0-0.5 *Collected:* 4/19/2013 11:05:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	13	J	4.6	MDL	18	PQL	ug/Kg	J	Z
AROCLOR 1260	7.8	J	4.1	MDL	18	PQL	ug/Kg	J	Z

Sample ID: SL-518-SA7-SB-0.0-0.5 *Collected:* 4/19/2013 8:50:00 *Analysis Type:* RES *Dilution:* 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5460	110	J	51	MDL	170	PQL	ug/Kg	J	Z

Sample ID: SL-520-SA7-SB-0.0-0.5 *Collected:* 4/19/2013 9:50:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1260	5.0	J	3.9	MDL	17	PQL	ug/Kg	J	Z
Aroclor 5460	24	J	10	MDL	33	PQL	ug/Kg	J	Z

Method Category: SVOA
Method: 8270D SIM **Matrix:** SO

Sample ID: SL-511-SA7-SB-0.0-0.5 *Collected:* 4/19/2013 11:05:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.6	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.73	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	4.2	J	3.5	MDL	18	PQL	ug/Kg	J	Z
DIBENZO(A,H)ANTHRACENE	1.2	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
FLUORENE	0.98	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-518-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 8:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	13	J	6.8	MDL	17	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	14	J	6.8	MDL	17	PQL	ug/Kg	J	Z
CHRYSENE	7.5	J	3.4	MDL	17	PQL	ug/Kg	J	Z
FLUORANTHENE	7.7	J	6.8	MDL	17	PQL	ug/Kg	J	Z
PYRENE	7.7	J	6.8	MDL	17	PQL	ug/Kg	J	Z

Sample ID: **SL-520-SA7-SB-0.0-0.5** ***Collected:*** **4/19/2013 9:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	10	J	6.1	MDL	18	PQL	ug/Kg	J	Z
Butylbenzylphthalate	14	J	6.1	MDL	18	PQL	ug/Kg	J	Z
FLUORANTHENE	1.6	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.86	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	0.69	J	0.68	MDL	1.7	PQL	ug/Kg	U	F
PHENANTHRENE	0.91	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	1.6	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
*XIII	Exceeded Calibration Range
A	Professional Judgment
B	Method Blank Contamination
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
L	Laboratory Control Spike Lower Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH035

Method Blank Outlier Report

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PrepPH035 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1140B372001	4/25/2013 8:01:00 PM	1,2,3,4,6,7,8-HPCDD	0.0680 ng/Kg	SL-511-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0378 ng/Kg	SL-518-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0182 ng/Kg	SL-520-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HxCDD	0.0132 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0510 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0214 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0184 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0300 ng/Kg	
		1,2,3,7,8-PECDD	0.0221 ng/Kg	
		1,2,3,7,8-PECDF	0.0555 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0286 ng/Kg	
		2,3,4,7,8-PECDF	0.0295 ng/Kg	
		OCDD	0.148 ng/Kg	
		OCDF	0.085 ng/Kg	

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11537AB221818	4/28/2013 6:18:00 PM	ALUMINUM	10.3 mg/Kg	SL-511-SA7-SB-0.0-0.5
		BORON	1.62 mg/Kg	SL-518-SA7-SB-0.0-0.5
		CALCIUM	25.6 mg/Kg	SL-520-SA7-SB-0.0-0.5
		PHOSPHORUS	1.45 mg/Kg	
		TIN	1.45 mg/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-511-SA7-SB-0.0-0.5(RES/TOT)	BORON	4.33 mg/Kg	4.33U mg/Kg
SL-511-SA7-SB-0.0-0.5(RES/TOT)	TIN	3.20 mg/Kg	3.20U mg/Kg
SL-518-SA7-SB-0.0-0.5(RES/TOT)	BORON	3.73 mg/Kg	3.73U mg/Kg
SL-518-SA7-SB-0.0-0.5(RES/TOT)	TIN	3.33 mg/Kg	3.33U mg/Kg
SL-520-SA7-SB-0.0-0.5(RES/TOT)	BORON	4.32 mg/Kg	4.32U mg/Kg
SL-520-SA7-SB-0.0-0.5(RES/TOT)	TIN	3.13 mg/Kg	3.13U mg/Kg

Method: **6020A**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11537AB220821A	4/29/2013 8:21:00 AM	STRONTIUM	0.179 mg/Kg	SL-511-SA7-SB-0.0-0.5
				SL-518-SA7-SB-0.0-0.5
				SL-520-SA7-SB-0.0-0.5

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PH035_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB-041813(RES)	4/18/2013 3:00:00 PM	MOLYBDENUM	0.0036 mg/L	SL-511-SA7-SB-0.0-0.5 SL-518-SA7-SB-0.0-0.5 SL-520-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-511-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.429 mg/Kg	0.429U mg/Kg
SL-518-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.359 mg/Kg	0.359U mg/Kg
SL-520-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.297 mg/Kg	0.297U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PH035_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-511-SA7-SB-0.0-0.5 SL-518-SA7-SB-0.0-0.5 SL-520-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-511-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.429 mg/Kg	0.429U mg/Kg
SL-518-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.359 mg/Kg	0.359U mg/Kg
SL-520-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.297 mg/Kg	0.297U mg/Kg

Method: **8270D SIM**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(RES)	4/11/2013 3:00:00 PM	1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE BIS(2-ETHYLHEXYL)PHTHALATE Diethylphthalate Di-n-butylphthalate NAPHTHALENE	0.019 ug/L 0.024 ug/L 0.082 ug/L 0.18 ug/L 0.17 ug/L 0.17 ug/L	SL-511-SA7-SB-0.0-0.5 SL-518-SA7-SB-0.0-0.5 SL-520-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-520-SA7-SB-0.0-0.5(RES)	NAPHTHALENE	0.69 ug/Kg	1.7U ug/Kg

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PH035_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8015M**
Matrix: **SO**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
P31149AQ320500A (SL-511-SA7-SB-0.0-0.5 SL-518-SA7-SB-0.0-0.5 SL-520-SA7-SB-0.0-0.5)	EFH (C30-C40)	55	-	65.00-128.00	-	EFH (C30-C40)	J (all detects) UJ (all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PH035_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	3.99	5.18	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	4.09	5.18	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	2.86	5.18	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	1.89	5.18	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	1.94	5.18	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	1.52	5.18	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	2.35	5.18	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	1.77	5.18	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.279	1.04	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.972	1.04	PQL	ng/Kg	
SL-518-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	1.36	5.10	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	1.39	5.10	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	2.24	5.10	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	4.08	5.10	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	1.23	5.10	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	2.53	5.10	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.600	5.10	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	5.05	5.10	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	1.12	5.10	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	1.73	5.10	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.139	1.02	PQL	ng/Kg	
SL-520-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	2.42	5.04	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.219	5.04	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.209	5.04	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.327	5.04	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.770	5.04	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.270	5.04	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.479	5.04	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.174	5.04	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.693	5.04	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.234	5.04	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.497	5.04	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0444	1.01	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.244	1.01	PQL	ng/Kg	
	OCDF	JB	5.85	10.1	PQL	ng/Kg	

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	ANTIMONY	J	0.585	4.06	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.487	1.02	PQL	mg/Kg	
	BORON	J	4.33	10.2	PQL	mg/Kg	
	CADMIUM	J	0.336	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.429	2.03	PQL	mg/Kg	
	SODIUM	J	67.7	102	PQL	mg/Kg	
	TIN	J	3.20	10.2	PQL	mg/Kg	
	Zirconium	J	2.17	5.08	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PH035_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-518-SA7-SB-0.0-0.5	ANTIMONY	J	0.777	3.98	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.544	0.995	PQL	mg/Kg	
	BORON	J	3.73	9.95	PQL	mg/Kg	
	CADMIUM	J	0.606	0.995	PQL	mg/Kg	
	MOLYBDENUM	J	0.359	1.99	PQL	mg/Kg	
	SODIUM	J	77.0	99.5	PQL	mg/Kg	
	TIN	J	3.33	9.95	PQL	mg/Kg	
	Zirconium	J	2.82	4.97	PQL	mg/Kg	
SL-520-SA7-SB-0.0-0.5	BERYLLIUM	J	0.522	1.00	PQL	mg/Kg	J (all detects)
	BORON	J	4.32	10.0	PQL	mg/Kg	
	CADMIUM	J	0.128	1.00	PQL	mg/Kg	
	MOLYBDENUM	J	0.297	2.00	PQL	mg/Kg	
	SODIUM	J	63.2	100	PQL	mg/Kg	
	TIN	J	3.13	10.0	PQL	mg/Kg	
	Zirconium	J	2.43	5.00	PQL	mg/Kg	

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	SELENIUM	J	0.129	0.406	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0715	0.203	PQL	mg/Kg	
SL-518-SA7-SB-0.0-0.5	SILVER	J	0.0918	0.199	PQL	mg/Kg	J (all detects)
SL-520-SA7-SB-0.0-0.5	SILVER	J	0.0306	0.200	PQL	mg/Kg	J (all detects)

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	EFH (C15-C20)	J	3.5	5.2	PQL	mg/Kg	J (all detects)

Method: 8081B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	HEPTACHLOR	J	0.18	0.87	PQL	ug/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH035 **Laboratory: LL**

EDD Filename: PH035_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8082A

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	AROCLOR 1254	J	13	18	PQL	ug/Kg	J (all detects)
	AROCLOR 1260	J	7.8	18	PQL	ug/Kg	
SL-518-SA7-SB-0.0-0.5	Aroclor 5460	J	110	170	PQL	ug/Kg	J (all detects)
SL-520-SA7-SB-0.0-0.5	AROCLOR 1260	J	5.0	17	PQL	ug/Kg	J (all detects)
	Aroclor 5460	J	24	33	PQL	ug/Kg	

Method: 8270D SIM

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.6	1.7	PQL	ug/Kg	J (all detects)
	ANTHRACENE	J	0.73	1.7	PQL	ug/Kg	
	BENZO(E)PYRENE	J	4.2	18	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	1.2	1.7	PQL	ug/Kg	
	FLUORENE	J	0.98	1.7	PQL	ug/Kg	
SL-518-SA7-SB-0.0-0.5	BENZO(B)FLUORANTHENE	J	13	17	PQL	ug/Kg	J (all detects)
	BENZO(K)FLUORANTHENE	J	14	17	PQL	ug/Kg	
	CHRYSENE	J	7.5	17	PQL	ug/Kg	
	FLUORANTHENE	J	7.7	17	PQL	ug/Kg	
	PYRENE	J	7.7	17	PQL	ug/Kg	
SL-520-SA7-SB-0.0-0.5	BENZO(A)PYRENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	1.1	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	10	18	PQL	ug/Kg	
	Butylbenzylphthalate	J	14	18	PQL	ug/Kg	
	FLUORANTHENE	J	1.6	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.86	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	0.69	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	0.91	1.7	PQL	ug/Kg	
	PYRENE	J	1.6	1.7	PQL	ug/Kg	

LDC #: 29836I4

SDG #: PH035

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 6/11/13

Page: 1 of 1

Reviewer: 02

2nd Reviewer: V

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	–	Sampling dates: 4/19/13
II.	ICP/MS Tune	–	
III.	Calibration	–	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	–	
VI.	Matrix Spike Analysis	N	~~CS~~ MS/D (from PH036)
VII.	Duplicate Sample Analysis	N	~~S~~ Dup ↓
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	~~N~~ NOA	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	–	
XV	Field Blanks	SW	FB= FB041113 (PH029) EB= EB041813 (PH034)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	SL-518-SA7-SB-0.0-0.5	11		21		31	
2	SL-520-SA7-SB-0.0-0.5	12		22		32	
3	SL-511-SA7-SB-0.0-0.5	13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 29836I4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/18/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-041813	FB-041113	Action Limit	1	2	3							
Cu		0.0036	1.8										
Mo	0.0036	0.0036	1.8	0.36	0.30	0.43							
Sr	0.000028		0.014										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-Apr-2013	TB-042213	7031221	TB	5030B	8015M	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	3050B	6010C	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	3050B	6020A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	3546	8015M	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	3546	8081B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	3546	8082A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	3546	8270D SIM	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	METHOD	1613B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5	7031213	N	METHOD	7471B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	3050B	6010C	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	3050B	6020A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	3546	8015M	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	3546	8081B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	3546	8082A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	3546	8270D SIM	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	METHOD	1613B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MS	7031214	MS	METHOD	7471B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	3050B	6010C	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	3050B	6020A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	3546	8015M	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	3546	8081B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	3546	8082A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	3546	8270D SIM	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	METHOD	1613B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5MSD	7031215	MSD	METHOD	7471B	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5DUP	7031216	DUP	3050B	6010C	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-Apr-2013	SL-510-SA7-SB-0.0-0.5DUP	7031216	DUP	3050B	6020A	III
22-Apr-2013	SL-510-SA7-SB-0.0-0.5DUP	7031216	DUP	METHOD	7471B	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	3050B	6010C	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	3050B	6020A	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	3546	8015M	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	3546	8081B	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	3546	8082A	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	3546	8270D SIM	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	METHOD	1613B	III
22-Apr-2013	SL-810-SA7-SB-0.0-0.5	7031217	FD	METHOD	7471B	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	3050B	6010C	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	3050B	6020A	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	3546	8015M	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	3546	8081B	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	3546	8082A	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	3546	8270D SIM	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	METHOD	1613B	III
22-Apr-2013	SL-503-SA7-SB-0.0-0.5	7031218	N	METHOD	7471B	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	3050B	6010C	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	3050B	6020A	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	3546	8015M	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	3546	8081B	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	3546	8082A	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	3546	8270D SIM	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	METHOD	1613B	III
22-Apr-2013	SL-504-SA7-SB-0.0-0.5	7031219	N	METHOD	7471B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	3050B	6010C	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	3050B	6020A	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	3546	8015M	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	3546	8081B	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	3546	8082A	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	3546	8270D SIM	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	5035A	8015M	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	METHOD	1613B	III
22-Apr-2013	SL-504-SA7-SB-4.0-5.0	7031220	N	METHOD	7471B	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	3050B	6010C	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	3050B	6020A	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	3546	8015M	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	3546	8082A	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	3546	8270D SIM	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	METHOD	1613B	III
22-Apr-2013	SL-517-SA7-SB-0.0-0.5	7031222	N	METHOD	7471B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-503-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 10:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.05	U	0.507	MDL	4.05	PQL	mg/Kg	UJ	Q
BERYLLIUM	0.454	J	0.0679	MDL	1.01	PQL	mg/Kg	J	Z
BORON	6.61	J	0.841	MDL	10.1	PQL	mg/Kg	U	B, F
CADMIUM	0.462	J	0.0334	MDL	1.01	PQL	mg/Kg	J	Z
LEAD	23.7		0.476	MDL	3.04	PQL	mg/Kg	J	Q, E, E
MOLYBDENUM	0.331	J	0.172	MDL	2.03	PQL	mg/Kg	U	F
POTASSIUM	3420		13.7	MDL	101	PQL	mg/Kg	J	Q
SODIUM	70.3	J	16.9	MDL	101	PQL	mg/Kg	U	F
TIN	2.92	J	0.223	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.45	J	0.841	MDL	5.07	PQL	mg/Kg	J	Z

Sample ID: **SL-504-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 12:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.866	J	0.496	MDL	3.97	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.515	J	0.0664	MDL	0.991	PQL	mg/Kg	J	Z
BORON	2.39	J	0.823	MDL	9.91	PQL	mg/Kg	U	B, F
CADMIUM	0.239	J	0.0327	MDL	0.991	PQL	mg/Kg	J	Z
LEAD	11.3		0.466	MDL	2.97	PQL	mg/Kg	J	Q, E, E
MOLYBDENUM	0.279	J	0.169	MDL	1.98	PQL	mg/Kg	U	F
POTASSIUM	3580		13.4	MDL	99.1	PQL	mg/Kg	J	Q
SODIUM	107		16.6	MDL	99.1	PQL	mg/Kg	U	F
TIN	3.18	J	0.218	MDL	9.91	PQL	mg/Kg	U	B
Zirconium	2.35	J	0.823	MDL	4.96	PQL	mg/Kg	J	Z

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.826	J	0.519	MDL	4.15	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.657	J	0.0695	MDL	1.04	PQL	mg/Kg	J	Z
BORON	1.56	J	0.861	MDL	10.4	PQL	mg/Kg	U	B, F
CADMIUM	0.0757	J	0.0342	MDL	1.04	PQL	mg/Kg	J	Z
LEAD	7.48		0.488	MDL	3.11	PQL	mg/Kg	J	Q, E, E
MOLYBDENUM	0.289	J	0.176	MDL	2.07	PQL	mg/Kg	U	F
POTASSIUM	3060		14.0	MDL	104	PQL	mg/Kg	J	Q

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SODIUM	98.1	J	17.3	MDL	104	PQL	mg/Kg	U	F
TIN	3.42	J	0.228	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	2.53	J	0.861	MDL	5.19	PQL	mg/Kg	J	Z

Sample ID: **SL-510-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.11	U	0.514	MDL	4.11	PQL	mg/Kg	UJ	Q, FD
BERYLLIUM	0.542	J	0.0689	MDL	1.03	PQL	mg/Kg	J	Z
BORON	5.94	J	0.853	MDL	10.3	PQL	mg/Kg	UJ	B, FD, F
CADMIUM	0.120	J	0.0339	MDL	1.03	PQL	mg/Kg	J	Z
LEAD	29.2		0.483	MDL	3.08	PQL	mg/Kg	J	Q, E, E, FD
MOLYBDENUM	0.302	J	0.175	MDL	2.06	PQL	mg/Kg	U	F
POTASSIUM	3480		13.9	MDL	103	PQL	mg/Kg	J	Q
SODIUM	75.9	J	17.2	MDL	103	PQL	mg/Kg	U	F
TIN	3.14	J	0.226	MDL	10.3	PQL	mg/Kg	U	B
Zirconium	2.52	J	0.853	MDL	5.14	PQL	mg/Kg	J	Z

Sample ID: **SL-517-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 2:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	1.06	J	0.506	MDL	4.05	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.510	J	0.0678	MDL	1.01	PQL	mg/Kg	J	Z
BORON	3.35	J	0.839	MDL	10.1	PQL	mg/Kg	U	B, F
CADMIUM	0.399	J	0.0334	MDL	1.01	PQL	mg/Kg	J	Z
LEAD	17.5		0.475	MDL	3.03	PQL	mg/Kg	J	Q, E, E
MOLYBDENUM	0.345	J	0.172	MDL	2.02	PQL	mg/Kg	U	F
POTASSIUM	3300		13.7	MDL	101	PQL	mg/Kg	J	Q
SODIUM	86.4	J	16.9	MDL	101	PQL	mg/Kg	U	F
TIN	3.19	J	0.222	MDL	10.1	PQL	mg/Kg	U	B

Sample ID: **SL-810-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.940	J	0.510	MDL	4.08	PQL	mg/Kg	J	Z, Q, FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS

Method: 6010C **Matrix: SO**

Sample ID: SL-810-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:50:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BERYLLIUM	0.589	J	0.0684	MDL	1.02	PQL	mg/Kg	J	Z
BORON	2.59	J	0.847	MDL	10.2	PQL	mg/Kg	UJ	B, FD, F
CADMIUM	0.0868	J	0.0337	MDL	1.02	PQL	mg/Kg	J	Z
LEAD	81.7		0.480	MDL	3.06	PQL	mg/Kg	J	Q, E, E, FD
MOLYBDENUM	0.290	J	0.174	MDL	2.04	PQL	mg/Kg	U	F
POTASSIUM	4010		13.8	MDL	102	PQL	mg/Kg	J	Q
SODIUM	73.3	J	17.0	MDL	102	PQL	mg/Kg	U	F
TIN	3.05	J	0.225	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.72	J	0.847	MDL	5.10	PQL	mg/Kg	J	Z

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-503-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 10:45:00 *Analysis Type:* REA *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.131	J	0.101	MDL	0.405	PQL	mg/Kg	J	Z

Sample ID: SL-503-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 10:45:00 *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0521	J	0.0203	MDL	0.203	PQL	mg/Kg	J	Z
STRONTIUM	37.0		0.0345	MDL	0.405	PQL	mg/Kg	J	Q

Sample ID: SL-504-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 12:50:00 *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0222	J	0.0198	MDL	0.198	PQL	mg/Kg	J	Z
STRONTIUM	15.8		0.0337	MDL	0.397	PQL	mg/Kg	J	Q

Sample ID: SL-504-SA7-SB-4.0-5.0 *Collected:* 4/22/2013 1:55:00 *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0686	J	0.0207	MDL	0.207	PQL	mg/Kg	J	Z
STRONTIUM	16.3		0.0353	MDL	0.415	PQL	mg/Kg	J	Q

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-510-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:45:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.411	U	0.103	MDL	0.411	PQL	mg/Kg	UJ	FD

Sample ID: **SL-510-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0279	J	0.0206	MDL	0.206	PQL	mg/Kg	J	Z
STRONTIUM	13.2		0.0350	MDL	0.411	PQL	mg/Kg	J	Q

Sample ID: **SL-517-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 2:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0593	J	0.0202	MDL	0.202	PQL	mg/Kg	J	Z
STRONTIUM	16.7		0.0344	MDL	0.405	PQL	mg/Kg	J	Q

Sample ID: **SL-810-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:50:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.144	J	0.102	MDL	0.408	PQL	mg/Kg	J	Z, FD

Sample ID: **SL-810-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0404	J	0.0204	MDL	0.204	PQL	mg/Kg	J	Z
STRONTIUM	11.4		0.0347	MDL	0.408	PQL	mg/Kg	J	Q

Method Category: **METALS**

Method: **7471B** ***Matrix:*** **SO**

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0170	J	0.0108	MDL	0.0175	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-503-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 10:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	2.35	JB	0.0240	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.247	JB	0.0357	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.442	J	0.0245	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.420	JB	0.0228	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	1.09	JQ	0.0246	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.402	JB	0.0212	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	1.00	JB	0.0232	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.141	JB	0.0241	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.335	J	0.0396	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.856	JB	0.0213	MDL	4.99	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.309	JB	0.0220	MDL	4.99	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.547	JB	0.0206	MDL	4.99	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0642	JQ	0.0291	MDL	0.998	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.815	J	0.0465	MDL	0.998	PQL	ng/Kg	J	Z
OCDF	4.30	JB	0.0227	MDL	9.98	PQL	ng/Kg	J	Z

Sample ID: **SL-504-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 12:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	2.32	JB	0.0471	MDL	5.13	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	3.10	J	0.0381	MDL	5.13	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	1.49	JB	0.0398	MDL	5.13	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	1.22	JB	0.0383	MDL	5.13	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	1.13	J	0.0473	MDL	5.13	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	1.35	JB	0.0266	MDL	5.13	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	1.70	JB	0.0373	MDL	5.13	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.950	JB	0.0248	MDL	5.13	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0782	J	0.0251	MDL	1.03	PQL	ng/Kg	J	Z

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	3.96	JB	0.0236	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.313	JBQ	0.0322	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.329	JQ	0.0280	MDL	5.20	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HXCDF	0.235	JBQ	0.0240	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.835	J	0.0286	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.206	JBQ	0.0232	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.755	JB	0.0275	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.181	JB	0.0246	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.163	J	0.0254	MDL	5.20	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.203	JBQ	0.0152	MDL	5.20	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.255	JBQ	0.0227	MDL	5.20	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.187	JB	0.0145	MDL	5.20	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.133	J	0.0306	MDL	1.04	PQL	ng/Kg	J	Z

Sample ID: **SL-510-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	4.70	JB	0.0174	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.416	JB	0.0267	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.317	J	0.0266	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	1.97	JB	0.0228	MDL	5.00	PQL	ng/Kg	J	Z, FD
1,2,3,6,7,8-HXCDD	0.925	J	0.0266	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.497	JB	0.0210	MDL	5.00	PQL	ng/Kg	J	Z, FD
1,2,3,7,8,9-HXCDD	0.703	JB	0.0260	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.175	JBQ	0.0249	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.203	J	0.0248	MDL	5.00	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.591	JB	0.0160	MDL	5.00	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.478	JB	0.0225	MDL	5.00	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.824	JB	0.0159	MDL	5.00	PQL	ng/Kg	J	Z, FD
2,3,7,8-TCDF	0.258	J	0.0331	MDL	0.999	PQL	ng/Kg	J	Z
OCDD	177	B	0.0224	MDL	9.99	PQL	ng/Kg	J	Q, Q

Sample ID: **SL-517-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 2:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	1.86	JB	0.0435	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	1.84	J	0.0378	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	2.90	JB	0.0455	MDL	5.08	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 1613B **Matrix:** SO

Sample ID: SL-517-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 2:50:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,6,7,8-HXCDF	4.56	JB	0.0434	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	3.72	JB	0.0388	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.758	JQ	0.0555	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	2.02	JB	0.0439	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	2.93	JB	0.0331	MDL	5.08	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.126	J	0.0248	MDL	1.02	PQL	ng/Kg	J	Z

Sample ID: SL-810-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:50:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	4.40	JB	0.0240	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.396	JB	0.0369	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.357	JQ	0.0388	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.435	JB	0.0270	MDL	4.97	PQL	ng/Kg	J	Z, FD
1,2,3,6,7,8-HXCDD	0.790	J	0.0407	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.267	JB	0.0249	MDL	4.97	PQL	ng/Kg	J	Z, FD
1,2,3,7,8,9-HXCDD	0.622	JB	0.0375	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.111	JB	0.0300	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.135	JQ	0.0284	MDL	4.97	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.591	JB	0.0200	MDL	4.97	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.315	JB	0.0270	MDL	4.97	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.375	JB	0.0194	MDL	4.97	PQL	ng/Kg	J	Z, FD
2,3,7,8-TCDF	0.249	JQ	0.0395	MDL	0.994	PQL	ng/Kg	J	Z

Method Category: SVOA
Method: 8015M **Matrix:** SO

Sample ID: SL-503-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 10:45:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	2.3	J	2.0	MDL	5.1	PQL	mg/Kg	J	Z
EFH (C30-C40)	48		4.1	MDL	10	PQL	mg/Kg	J	L

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 8015M **Matrix: SO**

Sample ID: SL-504-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 12:50:00 *Analysis Type:* RES *Dilution:* 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	230		21	MDL	52	PQL	mg/Kg	J	L

Sample ID: SL-504-SA7-SB-4.0-5.0 *Collected:* 4/22/2013 1:55:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	4.7	J	2.1	MDL	5.3	PQL	mg/Kg	J	Z
EFH (C30-C40)	77		4.2	MDL	11	PQL	mg/Kg	J	L

Sample ID: SL-510-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:45:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	6.9		2.1	MDL	5.2	PQL	mg/Kg	J	Q, FD
EFH (C30-C40)	21		4.2	MDL	10	PQL	mg/Kg	J	L, FD

Sample ID: SL-517-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 2:50:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	29		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: SL-810-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:50:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	13		2.1	MDL	5.2	PQL	mg/Kg	J	FD
EFH (C30-C40)	39		4.1	MDL	10	PQL	mg/Kg	J	L, FD

Method Category: SVOA

Method: 8081B **Matrix: SO**

Sample ID: SL-503-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 10:45:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDT	0.83	J	0.36	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 8081B **Matrix: SO**

Sample ID: SL-510-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:45:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	0.67	J	0.34	MDL	1.8	PQL	ug/Kg	J	Z, FD
4,4'-DDT	0.72	J	0.36	MDL	1.8	PQL	ug/Kg	J	Z, FD

Sample ID: SL-810-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:50:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	1.4	J	0.34	MDL	1.8	PQL	ug/Kg	J	Z, FD
4,4'-DDT	1.8	U	0.59	MDL	1.8	PQL	ug/Kg	UJ	FD

Method Category: SVOA

Method: 8082A **Matrix: SO**

Sample ID: SL-503-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 10:45:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	11	J	4.5	MDL	17	PQL	ug/Kg	J	Z, S
Aroclor 5460	16	J	10	MDL	34	PQL	ug/Kg	J	Z, S

Sample ID: SL-504-SA7-SB-4.0-5.0 *Collected:* 4/22/2013 1:55:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	8.3	J	4.6	MDL	18	PQL	ug/Kg	J	Z, S
Aroclor 5460	13	J	10	MDL	35	PQL	ug/Kg	J	Z, S

Sample ID: SL-510-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 8:45:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	14	J	4.6	MDL	18	PQL	ug/Kg	J	Z, FD
Aroclor 5460	17	J	10	MDL	34	PQL	ug/Kg	J	Z, FD

Sample ID: SL-517-SA7-SB-0.0-0.5 *Collected:* 4/22/2013 2:50:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1260	280		20	MDL	87	PQL	ug/Kg	J	S
Aroclor 5460	250		51	MDL	170	PQL	ug/Kg	J	S

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8082A** ***Matrix:*** **SO**

Sample ID: **SL-810-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	25		4.5	MDL	17	PQL	ug/Kg	J	S, FD
Aroclor 5460	32	J	10	MDL	34	PQL	ug/Kg	J	Z, S, FD

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-503-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 10:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.0	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	1.6	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.45	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.3	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.92	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	8.4	J	6.1	MDL	18	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.77	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-504-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 12:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	8.7	J	6.9	MDL	17	PQL	ug/Kg	J	Z
CHRYSENE	8.2	J	3.4	MDL	17	PQL	ug/Kg	J	Z
FLUORANTHENE	10	J	6.9	MDL	17	PQL	ug/Kg	J	Z
PYRENE	8.7	J	6.9	MDL	17	PQL	ug/Kg	J	Z

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	0.85	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.74	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	6.6	J	6.3	MDL	19	PQL	ug/Kg	J	Z
FLUORANTHENE	1.3	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
FLUORENE	0.86	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
PHENANTHRENE	0.84	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-504-SA7-SB-4.0-5.0** ***Collected:*** **4/22/2013 1:55:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
PYRENE	1.1	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: **SL-510-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:45:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	1.3	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
BENZO(A)PYRENE	1.8		0.69	MDL	1.7	PQL	ug/Kg	J	FD
BENZO(B)FLUORANTHENE	5.0		0.69	MDL	1.7	PQL	ug/Kg	J	FD
BENZO(G,H,I)PERYLENE	1.4	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
BIS(2-ETHYLHEXYL)PHTHALATE	7.3	J	6.2	MDL	19	PQL	ug/Kg	J	Z, FD
FLUORANTHENE	4.1		0.69	MDL	1.7	PQL	ug/Kg	J	FD
FLUORENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD
INDENO(1,2,3-CD)PYRENE	2.0		0.69	MDL	1.7	PQL	ug/Kg	J	FD
NAPHTHALENE	0.93	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	3.4		0.69	MDL	1.7	PQL	ug/Kg	J	FD

Sample ID: **SL-517-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 2:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	13	J	6.8	MDL	17	PQL	ug/Kg	J	Z
BENZO(B)FLUORANTHENE	14	J	6.8	MDL	17	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	8.6	J	6.8	MDL	17	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	150	J	61	MDL	180	PQL	ug/Kg	J	Z
CHRYSENE	9.1	J	3.4	MDL	17	PQL	ug/Kg	J	Z
FLUORANTHENE	11	J	6.8	MDL	17	PQL	ug/Kg	J	Z
NAPHTHALENE	8.6	J	6.8	MDL	17	PQL	ug/Kg	J	Z
PHENANTHRENE	14	J	6.8	MDL	17	PQL	ug/Kg	J	Z
PYRENE	10	J	6.8	MDL	17	PQL	ug/Kg	J	Z

Sample ID: **SL-810-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	0.74	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
BENZO(A)PYRENE	1.0	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
BENZO(B)FLUORANTHENE	2.4		0.69	MDL	1.7	PQL	ug/Kg	J	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-810-SA7-SB-0.0-0.5** ***Collected:*** **4/22/2013 8:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(G,H,I)PERYLENE	0.83	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
BIS(2-ETHYLHEXYL)PHTHALATE	76		6.2	MDL	19	PQL	ug/Kg	J	FD
FLUORANTHENE	2.1		0.69	MDL	1.7	PQL	ug/Kg	J	FD
FLUORENE	0.69	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
INDENO(1,2,3-CD)PYRENE	0.69	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
NAPHTHALENE	1.2	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PHENANTHRENE	1.3	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	1.8		0.69	MDL	1.7	PQL	ug/Kg	J	FD

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
B	Method Blank Contamination
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
FD	Field Duplicate Precision
L	Laboratory Control Spike Lower Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH036

Method Blank Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1200B371904	5/1/2013 7:04:00 PM	1,2,3,4,6,7,8-HPCDD	0.0731 ng/Kg	SL-503-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0401 ng/Kg	SL-504-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0269 ng/Kg	SL-504-SA7-SB-4.0-5.0
		1,2,3,4,7,8-HXCDF	0.0375 ng/Kg	SL-510-SA7-SB-0.0-0.5
		1,2,3,6,7,8-HXCDF	0.0203 ng/Kg	SL-517-SA7-SB-0.0-0.5
		1,2,3,7,8,9-HXCDD	0.0225 ng/Kg	SL-810-SA7-SB-0.0-0.5
		1,2,3,7,8,9-HXCDF	0.0140 ng/Kg	
		1,2,3,7,8-PECDF	0.0365 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0283 ng/Kg	
		2,3,4,7,8-PECDF	0.0100 ng/Kg	
		OCDD	0.155 ng/Kg	
		OCDF	0.107 ng/Kg	

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11537AB221818	4/28/2013 6:18:00 PM	ALUMINUM	10.3 mg/Kg	SL-503-SA7-SB-0.0-0.5
		BORON	1.62 mg/Kg	SL-504-SA7-SB-0.0-0.5
		CALCIUM	25.6 mg/Kg	SL-504-SA7-SB-4.0-5.0
		PHOSPHORUS	1.45 mg/Kg	SL-510-SA7-SB-0.0-0.5
		TIN	1.45 mg/Kg	SL-517-SA7-SB-0.0-0.5
				SL-810-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-503-SA7-SB-0.0-0.5(RES)	BORON	6.61 mg/Kg	6.61U mg/Kg
SL-503-SA7-SB-0.0-0.5(RES)	TIN	2.92 mg/Kg	2.92U mg/Kg
SL-504-SA7-SB-0.0-0.5(RES)	BORON	2.39 mg/Kg	2.39U mg/Kg
SL-504-SA7-SB-0.0-0.5(RES)	TIN	3.18 mg/Kg	3.18U mg/Kg
SL-504-SA7-SB-4.0-5.0(RES)	BORON	1.56 mg/Kg	1.56U mg/Kg
SL-504-SA7-SB-4.0-5.0(RES)	TIN	3.42 mg/Kg	3.42U mg/Kg
SL-510-SA7-SB-0.0-0.5(RES)	BORON	5.94 mg/Kg	5.94U mg/Kg
SL-510-SA7-SB-0.0-0.5(RES)	TIN	3.14 mg/Kg	3.14U mg/Kg
SL-517-SA7-SB-0.0-0.5(RES)	BORON	3.35 mg/Kg	3.35U mg/Kg
SL-517-SA7-SB-0.0-0.5(RES)	TIN	3.19 mg/Kg	3.19U mg/Kg
SL-810-SA7-SB-0.0-0.5(RES)	BORON	2.59 mg/Kg	2.59U mg/Kg
SL-810-SA7-SB-0.0-0.5(RES)	TIN	3.05 mg/Kg	3.05U mg/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6020A**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P11537AB220821A	4/29/2013 8:21:00 AM	STRONTIUM	0.179 mg/Kg	SL-503-SA7-SB-0.0-0.5 SL-504-SA7-SB-0.0-0.5 SL-504-SA7-SB-4.0-5.0 SL-510-SA7-SB-0.0-0.5 SL-517-SA7-SB-0.0-0.5 SL-810-SA7-SB-0.0-0.5

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB-042413(RES)	4/24/2013 3:00:00 PM	BORON SODIUM TIN	0.0319 mg/L 0.228 mg/L 0.0035 mg/L	SL-503-SA7-SB-0.0-0.5 SL-504-SA7-SB-0.0-0.5 SL-504-SA7-SB-4.0-5.0 SL-510-SA7-SB-0.0-0.5 SL-517-SA7-SB-0.0-0.5 SL-810-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-503-SA7-SB-0.0-0.5(RES)	BORON	6.61 mg/Kg	6.61U mg/Kg
SL-503-SA7-SB-0.0-0.5(RES)	SODIUM	70.3 mg/Kg	70.3U mg/Kg
SL-504-SA7-SB-0.0-0.5(RES)	BORON	2.39 mg/Kg	2.39U mg/Kg
SL-504-SA7-SB-0.0-0.5(RES)	SODIUM	107 mg/Kg	107U mg/Kg
SL-504-SA7-SB-4.0-5.0(RES)	BORON	1.56 mg/Kg	1.56U mg/Kg
SL-504-SA7-SB-4.0-5.0(RES)	SODIUM	98.1 mg/Kg	98.1U mg/Kg
SL-510-SA7-SB-0.0-0.5(RES)	BORON	5.94 mg/Kg	5.94U mg/Kg
SL-510-SA7-SB-0.0-0.5(RES)	SODIUM	75.9 mg/Kg	75.9U mg/Kg
SL-517-SA7-SB-0.0-0.5(RES)	BORON	3.35 mg/Kg	3.35U mg/Kg
SL-517-SA7-SB-0.0-0.5(RES)	SODIUM	86.4 mg/Kg	86.4U mg/Kg
SL-810-SA7-SB-0.0-0.5(RES)	BORON	2.59 mg/Kg	2.59U mg/Kg
SL-810-SA7-SB-0.0-0.5(RES)	SODIUM	73.3 mg/Kg	73.3U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PrepPH036 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-503-SA7-SB-0.0-0.5 SL-504-SA7-SB-0.0-0.5 SL-504-SA7-SB-4.0-5.0 SL-510-SA7-SB-0.0-0.5 SL-517-SA7-SB-0.0-0.5 SL-810-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-503-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.331 mg/Kg	0.331U mg/Kg
SL-504-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.279 mg/Kg	0.279U mg/Kg
SL-504-SA7-SB-4.0-5.0(RES)	MOLYBDENUM	0.289 mg/Kg	0.289U mg/Kg
SL-510-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.302 mg/Kg	0.302U mg/Kg
SL-517-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.345 mg/Kg	0.345U mg/Kg
SL-810-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.290 mg/Kg	0.290U mg/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8082A**
Matrix: **SO**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
SL-503-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	129	45.00-120.00	All Target Analytes	J (all detects)
SL-504-SA7-SB-4.0 -5.0	TETRACHLORO-M-XYLENE	127	45.00-120.00	All Target Analytes	J(all detects)
SL-517-SA7-SB-0.0 -0.5	DECACHLOROBIPHENYL TETRACHLORO-M-XYLENE	132 123	45.00-120.00 45.00-120.00	All Target Analytes	J(all detects)
SL-810-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	122	45.00-120.00	All Target Analytes	J(all detects)

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-510-SA7-SB-0.0-0.5MS (TOT) **SL-510-SA7-SB-0.0-0.5MSD (TOT)** (SL-503-SA7-SB-0.0-0.5 SL -504-SA7-SB-0.0-0.5 SL -504-SA7-SB-4.0-5.0 SL -510-SA7-SB-0.0-0.5 SL -517-SA7-SB-0.0-0.5 SL -810-SA7-SB-0.0-0.5)	ALUMINUM CALCIUM IRON MAGNESIUM MANGANESE POTASSIUM TITANIUM	2585 140 3126 249 145 140 359	2282 198 2463 221 132 137 334	75.00-125.00 75.00-125.00 75.00-125.00 75.00-125.00 75.00-125.00 75.00-125.00 75.00-125.00	- - - - - - -	ALUMINUM CALCIUM IRON MAGNESIUM MANGANESE POTASSIUM TITANIUM	J (all detects) Al, Ca, Fe, Mg, Mn, Ti, No Qual, >4x
SL-510-SA7-SB-0.0-0.5MS (TOT) **SL-510-SA7-SB-0.0-0.5MSD (TOT)** (SL-503-SA7-SB-0.0-0.5 SL -504-SA7-SB-0.0-0.5 SL -504-SA7-SB-4.0-5.0 SL -510-SA7-SB-0.0-0.5 SL -517-SA7-SB-0.0-0.5 SL -810-SA7-SB-0.0-0.5)	ANTIMONY LEAD	67 -	64 185	75.00-125.00 75.00-125.00	- 24 (20.00)	ANTIMONY LEAD	J(all detects) UJ(all non-detects)

Method: 6020A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-510-SA7-SB-0.0-0.5MS (TOT) (SL-503-SA7-SB-0.0-0.5 SL -504-SA7-SB-0.0-0.5 SL -504-SA7-SB-4.0-5.0 SL -510-SA7-SB-0.0-0.5 SL -517-SA7-SB-0.0-0.5 SL -810-SA7-SB-0.0-0.5)	STRONTIUM	69	-	75.00-125.00	-	STRONTIUM	J(all detects) UJ(all non-detects)

Method: 8270D SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-510-SA7-SB-0.0-0.5MS **SL-510-SA7-SB-0.0-0.5MSD** (SL-510-SA7-SB-0.0-0.5)	N-NITROSODIMETHYLAMINE	131	135	48.00-113.00	-	N-NITROSODIMETHYLAMINE	J(all detects)

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-510-SA7-SB-0.0-0.5MS **SL-510-SA7-SB-0.0-0.5MSD** (SL-510-SA7-SB-0.0-0.5)	EFH (C15-C20) EFH (C21-C30) EFH (C30-C40)	124 127 203	137 182 296	49.00-123.00 49.00-123.00 49.00-123.00	- - -	EFH (C15-C20) EFH (C21-C30) EFH (C30-C40)	J(all detects) EFH (C30-C40), No Qual, >4x

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
SL-510-SA7-SB-0.0-0.5MSD (SL-510-SA7-SB-0.0-0.5)	OCDD	-	139	40.00-135.00	21 (20.00)	OCDD	J(all detects)

Lab Duplicate Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-510-SA7-SB-0.0-0.5DUP (TOT) (SL-503-SA7-SB-0.0-0.5 SL -504-SA7-SB-0.0-0.5 SL -504-SA7-SB-4.0-5.0 SL -510-SA7-SB-0.0-0.5 SL -517-SA7-SB-0.0-0.5 SL -810-SA7-SB-0.0-0.5)	ANTIMONY	200	20.00	J (all detects) UJ (all non-detects) Sb, B, No Qual, OK by Difference
	BORON	33	20.00	
	LEAD	43	20.00	

Method: 6020A
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-510-SA7-SB-0.0-0.5DUP (TOT) (SL-503-SA7-SB-0.0-0.5 SL -504-SA7-SB-0.0-0.5 SL -504-SA7-SB-4.0-5.0 SL -510-SA7-SB-0.0-0.5 SL -517-SA7-SB-0.0-0.5 SL -810-SA7-SB-0.0-0.5)	SILVER	44	20.00	No Qual, OK by Difference

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8015M**
Matrix: **SO**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
P31149AQ320500A (SL-503-SA7-SB-0.0-0.5 SL-504-SA7-SB-0.0-0.5 SL-504-SA7-SB-4.0-5.0 SL-510-SA7-SB-0.0-0.5 SL-517-SA7-SB-0.0-0.5 SL-810-SA7-SB-0.0-0.5)	EFH (C30-C40)	55	-	65.00-128.00	-	EFH (C30-C40)	J (all detects) UJ (all non-detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 160.3M
Matrix: SO

Analyte	Concentration (%) SL-510-SA7-SB-0.0-0.5	Concentration (%) SL-810-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
MOISTURE	3.7	3.0	21		No Qualifiers Applied

Method: 1613B
Matrix: SO

Analyte	Concentration (ng/Kg) SL-510-SA7-SB-0.0-0.5	Concentration (ng/Kg) SL-810-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
1,2,3,4,6,7,8-HPCDD	23.2	22.3	4	50.00	No Qualifiers Applied
1,2,3,4,6,7,8-HPCDF	4.70	4.40	7	50.00	
1,2,3,4,7,8,9-HPCDF	0.416	0.396	5	50.00	
1,2,3,4,7,8-HxCDD	0.317	0.357	12	50.00	
1,2,3,6,7,8-HXCDD	0.925	0.790	16	50.00	
1,2,3,7,8,9-HXCDD	0.703	0.622	12	50.00	
1,2,3,7,8,9-HXCDF	0.175	0.111	45	50.00	
1,2,3,7,8-PECDD	0.203	0.135	40	50.00	
1,2,3,7,8-PECDF	0.591	0.591	0	50.00	
2,3,4,6,7,8-HXCDF	0.478	0.315	41	50.00	
2,3,7,8-TCDF	0.258	0.249	4	50.00	
OCDD	177	171	3	50.00	
OCDF	10.9	11.8	8	50.00	
1,2,3,4,7,8-HXCDF	1.97	0.435	128	50.00	J(all detects)
1,2,3,6,7,8-HXCDF	0.497	0.267	60	50.00	
2,3,4,7,8-PECDF	0.824	0.375	75	50.00	

Method: 6010C
Matrix: SO

Analyte	Concentration (mg/Kg) SL-510-SA7-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-810-SA7-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
ALUMINUM	13600	14600	7	50.00	No Qualifiers Applied
ARSENIC	5.14	5.19	1	50.00	
BARIUM	73.5	74.3	1	50.00	
BERYLLIUM	0.542	0.589	8	50.00	
CADMIUM	0.120	0.0868	32	50.00	
CALCIUM	2950	2670	10	50.00	
CHROMIUM	20.4	19.7	3	50.00	
COBALT	4.80	5.14	7	50.00	
COPPER	12.8	13.2	3	50.00	
IRON	22600	24100	6	50.00	
LITHIUM	26.6	26.9	1	50.00	
MAGNESIUM	5300	5060	5	50.00	
MANGANESE	276	299	8	50.00	
MOLYBDENUM	0.302	0.290	4	50.00	
NICKEL	10.9	10.5	4	50.00	
PHOSPHORUS	436	486	11	50.00	
POTASSIUM	3480	4010	14	50.00	
SODIUM	75.9	73.3	3	50.00	
TIN	3.14	3.05	3	50.00	
TITANIUM	1170	1190	2	50.00	
VANADIUM	36.7	38.6	5	50.00	
ZINC	62.4	69.1	10	50.00	
Zirconium	2.52	2.72	8	50.00	
ANTIMONY	4.11 U	0.940	200	50.00	J(all detects) UJ(all non-detects)
BORON	5.94	2.59	79	50.00	
LEAD	29.2	81.7	95	50.00	

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Field Duplicate RPD Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6020A
Matrix: SO

Analyte	Concentration (mg/Kg) SL-510-SA7-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-810-SA7-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
SILVER	0.0279	0.0404	37	50.00	No Qualifiers Applied
STRONTIUM	13.2	11.4	15	50.00	
THALLIUM	0.283	0.211	29	50.00	
SELENIUM	0.411 U	0.144	200	50.00	J(all detects) UJ(all non-detects)

Method: 7471B
Matrix: SO

Analyte	Concentration (mg/Kg) SL-510-SA7-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-810-SA7-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
MERCURY	0.0167	0.0219	27	50.00	No Qualifiers Applied

Method: 8015M
Matrix: SO

Analyte	Concentration (mg/Kg) SL-510-SA7-SB-0.0-0.5	Concentration (mg/Kg) SL-810-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
EFH (C21-C30)	6.9	13	61	50.00	J(all detects)
EFH (C30-C40)	21	39	60	50.00	

Method: 8081B
Matrix: SO

Analyte	Concentration (ug/Kg) SL-510-SA7-SB-0.0-0.5	Concentration (ug/Kg) SL-810-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
4,4'-DDE	0.67	1.4	71	50.00	J(all detects)
4,4'-DDT	0.72	1.8 U	200	50.00	UJ(all non-detects)

Method: 8082A
Matrix: SO

Analyte	Concentration (ug/Kg) SL-510-SA7-SB-0.0-0.5	Concentration (ug/Kg) SL-810-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
AROCLOR 1254	14	25	56	50.00	J(all detects)
Aroclor 5460	17	32	61	50.00	

Method: 8270D SIM
Matrix: SO

Analyte	Concentration (ug/Kg) SL-510-SA7-SB-0.0-0.5	Concentration (ug/Kg) SL-810-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
BENZO(K)FLUORANTHENE	9.4	8.5	10	50.00	No Qualifiers Applied
CHRYSENE	2.9	1.9	42	50.00	
NAPHTHALENE	0.93	1.2	25	50.00	
PHENANTHRENE	1.9	1.3	37	50.00	

Field Duplicate RPD Report

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8270D SIM
Matrix: SO

BENZO(A)ANTHRACENE	1.3	0.74	55	50.00	J(all detects) UJ(all non-detects)
BENZO(A)PYRENE	1.8	1.0	57	50.00	
BENZO(B)FLUORANTHENE	5.0	2.4	70	50.00	
BENZO(G,H,I)PERYLENE	1.4	0.83	51	50.00	
BIS(2-ETHYLHEXYL)PHTHALATE	7.3	76	165	50.00	
FLUORANTHENE	4.1	2.1	65	50.00	
FLUORENE	1.7 U	0.69	200	50.00	
INDENO(1,2,3-CD)PYRENE	2.0	0.69	97	50.00	
PYRENE	3.4	1.8	62	50.00	

Method: 9045M
Matrix: SO

Analyte	Concentration (pH unit)		Sample RPD	eQAPP RPD	Flag
	SL-510-SA7-SB-0.0-0.5	SL-810-SA7-SB-0.0-0.5			
PH	6.77	6.68	1	50.00	No Qualifiers Applied

Reporting Limit Outliers

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	2.35	4.99	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.247	4.99	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	0.442	4.99	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.420	4.99	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JQ	1.09	4.99	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.402	4.99	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	1.00	4.99	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.141	4.99	PQL	ng/Kg	J (all detects)
	1,2,3,7,8-PECDD	J	0.335	4.99	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.856	4.99	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.309	4.99	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.547	4.99	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0642	0.998	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.815	0.998	PQL	ng/Kg	
	OCDF	JB	4.30	9.98	PQL	ng/Kg	
SL-504-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	2.32	5.13	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	3.10	5.13	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	1.49	5.13	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	1.22	5.13	PQL	ng/Kg	
	1,2,3,7,8-PECDD	J	1.13	5.13	PQL	ng/Kg	J (all detects)
	1,2,3,7,8-PECDF	JB	1.35	5.13	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	1.70	5.13	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.950	5.13	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.0782	1.03	PQL	ng/Kg	
SL-504-SA7-SB-4.0-5.0	1,2,3,4,6,7,8-HPCDF	JB	3.96	5.20	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.313	5.20	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.329	5.20	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.235	5.20	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.835	5.20	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.206	5.20	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.755	5.20	PQL	ng/Kg	J (all detects)
	1,2,3,7,8,9-HXCDF	JB	0.181	5.20	PQL	ng/Kg	
	1,2,3,7,8-PECDD	J	0.163	5.20	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.203	5.20	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.255	5.20	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.187	5.20	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.133	1.04	PQL	ng/Kg	
SL-510-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	4.70	5.00	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.416	5.00	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	0.317	5.00	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	1.97	5.00	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.925	5.00	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.497	5.00	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.703	5.00	PQL	ng/Kg	J (all detects)
	1,2,3,7,8,9-HXCDF	JBQ	0.175	5.00	PQL	ng/Kg	
	1,2,3,7,8-PECDD	J	0.203	5.00	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.591	5.00	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.478	5.00	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.824	5.00	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.258	0.999	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-517-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	1.86	5.08	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	J	1.84	5.08	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	2.90	5.08	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	4.56	5.08	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	3.72	5.08	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.758	5.08	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	2.02	5.08	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	2.93	5.08	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.126	1.02	PQL	ng/Kg	
SL-810-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	4.40	4.97	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.396	4.97	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.357	4.97	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.435	4.97	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.790	4.97	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.267	4.97	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.622	4.97	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.111	4.97	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.135	4.97	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.591	4.97	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.315	4.97	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.375	4.97	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.249	0.994	PQL	ng/Kg	

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	BERYLLIUM	J	0.454	1.01	PQL	mg/Kg	J (all detects)
	BORON	J	6.61	10.1	PQL	mg/Kg	
	CADMIUM	J	0.462	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.331	2.03	PQL	mg/Kg	
	SODIUM	J	70.3	101	PQL	mg/Kg	
	TIN	J	2.92	10.1	PQL	mg/Kg	
	Zirconium	J	2.45	5.07	PQL	mg/Kg	
SL-504-SA7-SB-0.0-0.5	ANTIMONY	J	0.866	3.97	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.515	0.991	PQL	mg/Kg	
	BORON	J	2.39	9.91	PQL	mg/Kg	
	CADMIUM	J	0.239	0.991	PQL	mg/Kg	
	MOLYBDENUM	J	0.279	1.98	PQL	mg/Kg	
	TIN	J	3.18	9.91	PQL	mg/Kg	
	Zirconium	J	2.35	4.96	PQL	mg/Kg	
SL-504-SA7-SB-4.0-5.0	ANTIMONY	J	0.826	4.15	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.657	1.04	PQL	mg/Kg	
	BORON	J	1.56	10.4	PQL	mg/Kg	
	CADMIUM	J	0.0757	1.04	PQL	mg/Kg	
	MOLYBDENUM	J	0.289	2.07	PQL	mg/Kg	
	SODIUM	J	98.1	104	PQL	mg/Kg	
	TIN	J	3.42	10.4	PQL	mg/Kg	
	Zirconium	J	2.53	5.19	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-510-SA7-SB-0.0-0.5	BERYLLIUM	J	0.542	1.03	PQL	mg/Kg	J (all detects)
	BORON	J	5.94	10.3	PQL	mg/Kg	
	CADMIUM	J	0.120	1.03	PQL	mg/Kg	
	MOLYBDENUM	J	0.302	2.06	PQL	mg/Kg	
	SODIUM	J	75.9	103	PQL	mg/Kg	
	TIN	J	3.14	10.3	PQL	mg/Kg	
	Zirconium	J	2.52	5.14	PQL	mg/Kg	
SL-517-SA7-SB-0.0-0.5	ANTIMONY	J	1.06	4.05	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.510	1.01	PQL	mg/Kg	
	BORON	J	3.35	10.1	PQL	mg/Kg	
	CADMIUM	J	0.399	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.345	2.02	PQL	mg/Kg	
	SODIUM	J	86.4	101	PQL	mg/Kg	
	TIN	J	3.19	10.1	PQL	mg/Kg	
SL-810-SA7-SB-0.0-0.5	ANTIMONY	J	0.940	4.08	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.589	1.02	PQL	mg/Kg	
	BORON	J	2.59	10.2	PQL	mg/Kg	
	CADMIUM	J	0.0868	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.290	2.04	PQL	mg/Kg	
	SODIUM	J	73.3	102	PQL	mg/Kg	
	TIN	J	3.05	10.2	PQL	mg/Kg	
	Zirconium	J	2.72	5.10	PQL	mg/Kg	

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	SELENIUM	J	0.131	0.405	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0521	0.203	PQL	mg/Kg	
SL-504-SA7-SB-0.0-0.5	SILVER	J	0.0222	0.198	PQL	mg/Kg	J (all detects)
SL-504-SA7-SB-4.0-5.0	SILVER	J	0.0686	0.207	PQL	mg/Kg	J (all detects)
SL-510-SA7-SB-0.0-0.5	SILVER	J	0.0279	0.206	PQL	mg/Kg	J (all detects)
SL-517-SA7-SB-0.0-0.5	SILVER	J	0.0593	0.202	PQL	mg/Kg	J (all detects)
SL-810-SA7-SB-0.0-0.5	SELENIUM	J	0.144	0.408	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0404	0.204	PQL	mg/Kg	

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-504-SA7-SB-4.0-5.0	MERCURY	J	0.0170	0.0175	PQL	mg/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	EFH (C15-C20)	J	2.3	5.1	PQL	mg/Kg	J (all detects)
SL-504-SA7-SB-4.0-5.0	EFH (C15-C20)	J	4.7	5.3	PQL	mg/Kg	J (all detects)

Method: 8081B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	4,4'-DDT	J	0.83	1.7	PQL	ug/Kg	J (all detects)
SL-510-SA7-SB-0.0-0.5	4,4'-DDE 4,4'-DDT	J J	0.67 0.72	1.8 1.8	PQL PQL	ug/Kg ug/Kg	J (all detects)
SL-810-SA7-SB-0.0-0.5	4,4'-DDE	J	1.4	1.8	PQL	ug/Kg	J (all detects)

Method: 8082A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	AROCLOR 1254 Aroclor 5460	J J	11 16	17 34	PQL PQL	ug/Kg ug/Kg	J (all detects)
SL-504-SA7-SB-4.0-5.0	AROCLOR 1254 Aroclor 5460	J J	8.3 13	18 35	PQL PQL	ug/Kg ug/Kg	J (all detects)
SL-510-SA7-SB-0.0-0.5	AROCLOR 1254 Aroclor 5460	J J	14 17	18 34	PQL PQL	ug/Kg ug/Kg	J (all detects)
SL-810-SA7-SB-0.0-0.5	Aroclor 5460	J	32	34	PQL	ug/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ANTHRACENE BENZO(A)ANTHRACENE BENZO(A)PYRENE BENZO(G,H,I)PERYLENE BIS(2-ETHYLHEXYL)PHTHALATE INDENO(1,2,3-CD)PYRENE	J J J J J J J J	1.0 1.6 0.45 1.1 1.3 0.92 8.4 0.77	1.7 1.7 1.7 1.7 1.7 1.7 18 1.7	PQL PQL PQL PQL PQL PQL PQL PQL	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	J (all detects)
SL-504-SA7-SB-0.0-0.5	BENZO(B)FLUORANTHENE CHRYSENE FLUORANTHENE PYRENE	J J J J	8.7 8.2 10 8.7	17 17 17 17	PQL PQL PQL PQL	ug/Kg ug/Kg ug/Kg ug/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH036 **Laboratory: LL**

EDD Filename: PH036_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-504-SA7-SB-4.0-5.0	BENZO(A)PYRENE	J	0.85	1.8	PQL	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	0.74	1.8	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	6.6	19	PQL	ug/Kg	
	FLUORANTHENE	J	1.3	1.8	PQL	ug/Kg	
	FLUORENE	J	0.86	1.8	PQL	ug/Kg	
	PHENANTHRENE	J	0.84	1.8	PQL	ug/Kg	
	PYRENE	J	1.1	1.8	PQL	ug/Kg	
SL-510-SA7-SB-0.0-0.5	BENZO(A)ANTHRACENE	J	1.3	1.7	PQL	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	1.4	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	7.3	19	PQL	ug/Kg	
	NAPHTHALENE	J	0.93	1.7	PQL	ug/Kg	
SL-517-SA7-SB-0.0-0.5	2-METHYLNAPHTHALENE	J	13	17	PQL	ug/Kg	J (all detects)
	BENZO(B)FLUORANTHENE	J	14	17	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	8.6	17	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	150	180	PQL	ug/Kg	
	CHRYSENE	J	9.1	17	PQL	ug/Kg	
	FLUORANTHENE	J	11	17	PQL	ug/Kg	
	NAPHTHALENE	J	8.6	17	PQL	ug/Kg	
	PHENANTHRENE	J	14	17	PQL	ug/Kg	
	PYRENE	J	10	17	PQL	ug/Kg	
SL-810-SA7-SB-0.0-0.5	BENZO(A)ANTHRACENE	J	0.74	1.7	PQL	ug/Kg	J (all detects)
	BENZO(A)PYRENE	J	1.0	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	0.83	1.7	PQL	ug/Kg	
	FLUORENE	J	0.69	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.69	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.2	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	1.3	1.7	PQL	ug/Kg	

LDC #: 29836J4

SDG #: PH036

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 6/11/13

Page: 1 of 1

Reviewer: CR

2nd Reviewer: ✓

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	–	Sampling dates: 4/22/13
II.	ICP/MS Tune	–	
III.	Calibration	–	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	–	
VI.	Matrix Spike Analysis	SW	MS/D
VII.	Duplicate Sample Analysis	SW	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	A	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	–	
XV	Field Blanks	SW	FB= FB-041113 (PH029) EB= EB-042413 (PH038)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1 13	SL-510-SA7-SB-0.0-0.5	11		21		31	
2 17	SL-810-SA7-SB-0.0-0.5	12		22		32	
3 18	SL-503-SA7-SB-0.0-0.5	13		23		33	
4 19	SL-504-SA7-SB-0.0-0.5	14		24		34	
5 20	SL-504-SA7-SB-4.0-5.0	15		25		35	
6 22	SL-517-SA7-SB-0.0-0.5	16		26		36	
7	SL-510-SA7-SB-0.0-0.5MS	17		27		37	
8	SL-510-SA7-SB-0.0-0.5MSD	18		28		38	
9	SL-510-SA7-SB-0.0-0.5DUP	19		29		39	
10		20		30		40	

Notes:

LDC #: 29836J4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: CR
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/24/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-042413	FB-041113	Action Limit	1	2	3	4	5	6				
B	0.0319		15.95	5.9	2.6	6.6	2.4	1.6	3.3				
Cu		0.0036	1.8										
Mo		0.0036	1.8	0.30	0.29	0.33	0.28	0.29	0.34				
Na	0.228		114	75.9	73.3	70.3	107	98.1	86.4				
Sn	0.0035		1.75										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

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[redacted]

QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PH036
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7031213BKG Matrix Spike Lab Sample ID: 7031214MS Matrix Spike Duplicate Lab Sample ID: 7031215MSD
Batch Id(s): P11537A, P11538A

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	Control Limit RPD	M
Aluminum		13055.5842		18174.6980		17574.0624		198.0198	198.0198	MG/KG	2585		2282		3			20	P
Antimony		0.4950	U	33.0871		31.7772		49.5050	49.5050	MG/KG	67	N	64	N	4		75 - 125	20	P
Arsenic		4.9535		19.0772		20.5337		14.8515	14.8515	MG/KG	95		105		7		75 - 125	20	P
Barium		70.7465		277.4911		280.3436		198.0198	198.0198	MG/KG	104		106		1		75 - 125	20	P
Beryllium		0.5218	B	5.7465		5.6762		4.9505	4.9505	MG/KG	106		104		1		75 - 125	20	P
Boron		5.7238	B	205.0119		203.9525		198.0198	198.0198	MG/KG	101		100		1		75 - 125	20	P
Cadmium		0.1158	B	4.9277		4.9911		4.9505	4.9505	MG/KG	97		98		1		75 - 125	20	P
Calcium		2837.9713		3392.9188		3620.8891		396.0396	396.0396	MG/KG	140		198		7			20	P
Chromium		19.6812		40.8624		40.2050		19.8020	19.8020	MG/KG	107		104		2		75 - 125	20	P
Cobalt		4.6188		54.2059		54.1099		49.5050	49.5050	MG/KG	100		100		0		75 - 125	20	P
Copper		12.3624		39.8010		39.6396		24.7525	24.7525	MG/KG	111		110		0		75 - 125	20	P
Iron		21799.8050		24894.9406		24238.8356		99.0099	99.0099	MG/KG	3126		2463		3			20	P
Lead		28.1188		43.6218		55.6139		14.8515	14.8515	MG/KG	104		185	N	24	*	75 - 125	20	P
Lithium		25.6307		127.2257		125.7139		99.0099	99.0099	MG/KG	103		101		1		75 - 125	20	P
Magnesium		5099.7802		5593.6198		5537.1941		198.0198	198.0198	MG/KG	249		221		1			20	P
Manganese		265.7693		337.7327		330.8832		49.5050	49.5050	MG/KG	145		132		2			20	P
Mercury		0.0161		0.1857		0.1819		0.1613	0.1599	MG/KG	105		104		2		65 - 135	20	CV
Molybdenum		0.2911	B	195.8297		195.5812		198.0198	198.0198	MG/KG	99		99		0		75 - 125	20	P
Nickel		10.5436		61.3792		60.5426		49.5050	49.5050	MG/KG	103		101		1		75 - 125	20	P
Phosphorus		419.5990		497.2386		531.2683		99.0099	99.0099	MG/KG	78		113		7			20	P
Potassium		3349.7356		4739.7426		4705.9772		990.0990	990.0990	MG/KG	140	N	137	N	1		75 - 125	20	P
Selenium	78	0.0990	U	1.8723		1.7873		1.9802	1.9802	MG/KG	95		90		5		75 - 125	20	MS
Silver	107	0.0269	B	9.5188		9.7287		9.9010	9.9010	MG/KG	96		98		2		75 - 125	20	MS
Sodium		73.1257	B	1052.5950		1044.8911		990.0990	990.0990	MG/KG	99		98		1		75 - 125	20	P
Strontium	88	12.6772		18.1030		18.6178		7.9208	7.9208	MG/KG	69	N	75		3		75 - 125	20	MS
Thallium	203	0.2721		0.6164		0.6297		0.3960	0.3960	MG/KG	87		90		2		75 - 125	20	MS
Tin		3.0198	B	376.9842		379.1960		396.0396	396.0396	MG/KG	94		95		1		75 - 125	20	P
Titanium		1124.1772		1479.8980		1455.3624		99.0099	99.0099	MG/KG	359		334		2			20	P
Vanadium		35.3881		91.7436		90.6317		49.5050	49.5050	MG/KG	114		112		1		75 - 125	20	P
Zinc		60.0772		112.5149		112.6594		49.5050	49.5050	MG/KG	106		106		0		75 - 125	20	P
Zirconium		2.4277	B	100.4238		99.0079		99.0099	99.0099	MG/KG	99		98		1		75 - 125	20	P

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
CV = Cold Vapor
MS = ICP Mass Spectrometry
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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Normal labs by discrepance

QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: PH036
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7031213BKG
Duplicate Lab Sample ID: 7031216DUP
Batch ID(s): P11537A, P11538A
Concentration Units: MG/KG

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum			13055.5842		14577.3594		11		P
Antimony			0.4950	U	0.5396	B	200		P
Arsenic		4.0	4.9535		5.1198		3		P
Barium			70.7465		77.8525		10		P
Beryllium			0.5218	B	0.5792	B	10		P
Boron			5.7238	B	7.9891	B	33		P
Cadmium			0.1158	B	0.1376	B	17		P
Calcium			2837.9713		3064.0950		8		P
Chromium			19.6812		20.3525		3		P
Cobalt		1.0	4.6188		5.2752		13		P
Copper			12.3624		13.2485		7		P
Iron			21799.8050		23474.8178		7		P
Lead			28.1188		43.6267		43	*	P
Lithium			25.6307		25.7208		0		P
Magnesium			5099.7802		5184.6317		2		P
Manganese			265.7693		297.5257		11		P
Mercury		0.0	0.0161		0.0142	B	13		CV
Molybdenum			0.2911	B	0.3139	B	8		P
Nickel			10.5436		11.2050		6		P
Phosphorus			419.5990		438.5455		4		P
Potassium			3349.7356		3625.6059		8		P
Selenium	78		0.0990	U	0.0990	U			MS
Silver	107		0.0269	B	0.0419	B	44		MS
Sodium			73.1257	B	77.5347	B	6		P
Strontium	88		12.6772		12.9921		2		MS
Thallium	203	0.2	0.2721		0.2644		3		MS
Tin			3.0198	B	3.2386	B	7		P
Titanium			1124.1772		1232.5713		9		P
Vanadium			35.3881		39.0624		10		P
Zinc			60.0772		62.1208		3		P
Zirconium			2.4277	B	2.7624	B	13		P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
23-Apr-2013	TB-042313	7032823	TB	5030B	8015M	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	3050B	6010C	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	3050B	6020A	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	3546	8015M	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	3546	8082A	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	3546	8270D SIM	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	METHOD	1613B	III
23-Apr-2013	SL-526-SA7-SB-0.0-0.5	7032824	N	METHOD	7471B	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	3050B	6010C	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	3050B	6020A	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	3546	8015M	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	3546	8082A	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	3546	8270D SIM	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	5035A	8015M	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	METHOD	1613B	III
23-Apr-2013	SL-526-SA7-SB-3.5-4.5	7032825	N	METHOD	7471B	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	3050B	6010C	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	3050B	6020A	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	3546	8015M	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	3546	8082A	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	3546	8270D SIM	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	METHOD	1613B	III
23-Apr-2013	SL-512-SA7-SB-0.0-0.5	7032826	N	METHOD	7471B	III
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	3050B	6010C	III
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	3050B	6020A	III
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	3546	8015M	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	3546	8082A	III
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	3546	8270D SIM	III
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	METHOD	1613B	III
23-Apr-2013	SL-525-SA7-SB-0.0-0.5	7032827	N	METHOD	7471B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-512-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 11:35:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.627	J	0.508	MDL	4.06	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.556	J	0.0680	MDL	1.02	PQL	mg/Kg	J	Z
BORON	1.09	J	0.843	MDL	10.2	PQL	mg/Kg	U	F
CADMIUM	0.152	J	0.0335	MDL	1.02	PQL	mg/Kg	J	Z
CALCIUM	3070		4.08	MDL	20.3	PQL	mg/Kg	J	E
COBALT	4.43		0.0914	MDL	1.02	PQL	mg/Kg	J	E
LEAD	5.65		0.477	MDL	3.05	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.186	J	0.173	MDL	2.03	PQL	mg/Kg	U	F
NICKEL	8.79		0.112	MDL	2.03	PQL	mg/Kg	J	A
PHOSPHORUS	315		0.518	MDL	10.2	PQL	mg/Kg	J	A, E
POTASSIUM	2670		13.7	MDL	102	PQL	mg/Kg	J	Q
SODIUM	63.8	J	17.0	MDL	102	PQL	mg/Kg	U	F
TIN	2.76	J	0.223	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.31	J	0.843	MDL	5.08	PQL	mg/Kg	J	Z

Sample ID: **SL-525-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 2:20:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.545	J	0.511	MDL	4.09	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.510	J	0.0685	MDL	1.02	PQL	mg/Kg	J	Z
BORON	3.20	J	0.849	MDL	10.2	PQL	mg/Kg	U	F
CADMIUM	0.231	J	0.0337	MDL	1.02	PQL	mg/Kg	J	Z
CALCIUM	3910		4.11	MDL	20.4	PQL	mg/Kg	J	E
COBALT	3.90		0.0920	MDL	1.02	PQL	mg/Kg	J	E
LEAD	12.5		0.480	MDL	3.07	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.388	J	0.174	MDL	2.04	PQL	mg/Kg	U	F
NICKEL	8.31		0.112	MDL	2.04	PQL	mg/Kg	J	A
PHOSPHORUS	305		0.521	MDL	10.2	PQL	mg/Kg	J	A, E
POTASSIUM	3300		13.8	MDL	102	PQL	mg/Kg	J	Q
SODIUM	67.4	J	17.1	MDL	102	PQL	mg/Kg	U	F
TIN	2.79	J	0.225	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.29	J	0.849	MDL	5.11	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-526-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 9:25:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.33	U	0.542	MDL	4.33	PQL	mg/Kg	UJ	Q
BERYLLIUM	0.629	J	0.0726	MDL	1.08	PQL	mg/Kg	J	Z
BORON	12.6		0.899	MDL	10.8	PQL	mg/Kg	U	F
CADMIUM	0.233	J	0.0357	MDL	1.08	PQL	mg/Kg	J	Z
CALCIUM	3050		4.35	MDL	21.7	PQL	mg/Kg	J	E
COBALT	4.64		0.0975	MDL	1.08	PQL	mg/Kg	J	E
LEAD	6.86		0.509	MDL	3.25	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.354	J	0.184	MDL	2.17	PQL	mg/Kg	U	F
NICKEL	9.24		0.119	MDL	2.17	PQL	mg/Kg	J	A
PHOSPHORUS	300		0.552	MDL	10.8	PQL	mg/Kg	J	A, E
POTASSIUM	2980		14.6	MDL	108	PQL	mg/Kg	J	Q
SODIUM	90.5	J	18.1	MDL	108	PQL	mg/Kg	U	F
TIN	3.05	J	0.238	MDL	10.8	PQL	mg/Kg	U	B
Zirconium	2.78	J	0.899	MDL	5.42	PQL	mg/Kg	J	Z

Sample ID: **SL-526-SA7-SB-3.5-4.5** ***Collected:*** **4/23/2013 10:55:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.729	J	0.518	MDL	4.14	PQL	mg/Kg	UJ	B, Q
BERYLLIUM	0.817	J	0.0693	MDL	1.04	PQL	mg/Kg	J	Z
BORON	11.6		0.859	MDL	10.4	PQL	mg/Kg	U	F
CADMIUM	0.0952	J	0.0342	MDL	1.04	PQL	mg/Kg	J	Z
CALCIUM	2520		4.16	MDL	20.7	PQL	mg/Kg	J	E
COBALT	3.89		0.0932	MDL	1.04	PQL	mg/Kg	J	E
LEAD	6.34		0.486	MDL	3.11	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.528	J	0.176	MDL	2.07	PQL	mg/Kg	U	F
NICKEL	9.17		0.114	MDL	2.07	PQL	mg/Kg	J	A
PHOSPHORUS	164		0.528	MDL	10.4	PQL	mg/Kg	J	A, E
POTASSIUM	1370		14.0	MDL	104	PQL	mg/Kg	J	Q
TIN	3.24	J	0.228	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	2.90	J	0.859	MDL	5.18	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-512-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 11:35:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.164	J	0.102	MDL	0.406	PQL	mg/Kg	J	Z

Sample ID: **SL-525-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 2:20:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.182	J	0.102	MDL	0.409	PQL	mg/Kg	J	Z

Sample ID: **SL-525-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 2:20:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0696	J	0.0204	MDL	0.204	PQL	mg/Kg	J	Z

Sample ID: **SL-526-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 9:25:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.159	J	0.108	MDL	0.433	PQL	mg/Kg	J	Z

Sample ID: **SL-526-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 9:25:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0470	J	0.0217	MDL	0.217	PQL	mg/Kg	J	Z

Sample ID: **SL-526-SA7-SB-3.5-4.5** ***Collected:*** **4/23/2013 10:55:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.104	J	0.104	MDL	0.414	PQL	mg/Kg	J	Z

Sample ID: **SL-526-SA7-SB-3.5-4.5** ***Collected:*** **4/23/2013 10:55:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0711	J	0.0207	MDL	0.207	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS
Method: 7471B **Matrix:** SO

Sample ID: SL-512-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 11:35:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0133	J	0.0100	MDL	0.0162	PQL	mg/Kg	J	Z

Sample ID: SL-526-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 9:25:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0165	J	0.0110	MDL	0.0178	PQL	mg/Kg	J	Z

Sample ID: SL-526-SA7-SB-3.5-4.5 **Collected:** 4/23/2013 10:55:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0156	J	0.0108	MDL	0.0174	PQL	mg/Kg	J	Z

Method Category: SVOA
Method: 1613B **Matrix:** SO

Sample ID: SL-512-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 11:35:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	3.84	JB	0.0188	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.796	JB	0.0119	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0704	JBQ	0.0178	MDL	4.99	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0741	J	0.0222	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0849	JBQ	0.0180	MDL	4.99	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.196	JQ	0.0219	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0905	JBQ	0.0167	MDL	4.99	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.187	JB	0.0213	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0642	JBQ	0.0193	MDL	4.99	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0631	JQ	0.0196	MDL	4.99	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.175	JB	0.0122	MDL	4.99	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0843	JB	0.0169	MDL	4.99	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0832	JBQ	0.0121	MDL	4.99	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0662	JQ	0.0189	MDL	0.999	PQL	ng/Kg	J	Z
OCDF	1.66	JB	0.0189	MDL	9.99	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-525-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 2:20:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	0.351	JB	0.0483	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.290	J	0.0472	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.393	JB	0.0433	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	1.23	J	0.0476	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.544	JB	0.0411	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.719	JB	0.0451	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.129	JB	0.0474	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.235	J	0.0588	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	4.47	JB	0.0426	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.571	JB	0.0440	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.726	JBQ	0.0416	MDL	5.08	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.350	J	0.0780	MDL	1.02	PQL	ng/Kg	J	Z
OCDF	7.98	JB	0.0340	MDL	10.2	PQL	ng/Kg	J	Z

Sample ID: **SL-526-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 9:25:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	1.65	JB	0.0225	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.149	JB	0.0299	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.212	JQ	0.0341	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.206	JB	0.0283	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.518	J	0.0355	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.226	JB	0.0256	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.401	JB	0.0337	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.129	JBQ	0.0282	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.231	JQ	0.0330	MDL	5.30	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	1.70	JB	0.0193	MDL	5.30	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.184	JB	0.0250	MDL	5.30	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.258	JBQ	0.0184	MDL	5.30	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0301	JQ	0.0258	MDL	1.06	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0866	JQ	0.0331	MDL	1.06	PQL	ng/Kg	J	Z
OCDF	2.71	JB	0.0267	MDL	10.6	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 1613B **Matrix:** SO

Sample ID: SL-526-SA7-SB-3.5-4.5 **Collected:** 4/23/2013 10:55:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	1.41	JB	0.0233	MDL	5.16	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.358	JB	0.0141	MDL	5.16	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0558	JBQ	0.0174	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0344	JQ	0.0198	MDL	5.16	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0698	JB	0.0156	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0768	JQ	0.0201	MDL	5.16	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0623	JBQ	0.0150	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0729	JB	0.0187	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0848	JQ	0.0208	MDL	5.16	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.316	JB	0.0134	MDL	5.16	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.0431	JBQ	0.0144	MDL	5.16	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0855	JB	0.0128	MDL	5.16	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0316	J	0.0198	MDL	1.03	PQL	ng/Kg	J	Z
OCDF	0.578	JB	0.0202	MDL	10.3	PQL	ng/Kg	J	Z

Method Category: SVOA
Method: 8015M **Matrix:** SO

Sample ID: SL-512-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 11:35:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	29		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: SL-525-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 2:20:00 **Analysis Type:** RES **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	23	J	10	MDL	26	PQL	mg/Kg	J	Z
EFH (C30-C40)	72		21	MDL	52	PQL	mg/Kg	J	L

Sample ID: SL-526-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 9:25:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	27		4.4	MDL	11	PQL	mg/Kg	J	L

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8015M **Matrix:** SO

Sample ID: SL-526-SA7-SB-3.5-4.5 **Collected:** 4/23/2013 10:55:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	24		4.3	MDL	11	PQL	mg/Kg	J	L

Method Category: SVOA
Method: 8270D SIM **Matrix:** SO

Sample ID: SL-512-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 11:35:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
CHRYSENE	0.90	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
FLUORANTHENE	1.0	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	0.99	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-525-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 2:20:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.81	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.50	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.1	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.6	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	1.6	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	11	J	6.3	MDL	19	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	1.5	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	0.96	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-526-SA7-SB-0.0-0.5 **Collected:** 4/23/2013 9:25:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	0.88	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	0.86	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.94	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	0.75	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
FLUORENE	1.3	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	1.0	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-526-SA7-SB-0.0-0.5** ***Collected:*** **4/23/2013 9:25:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
NAPHTHALENE	1.2	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
N-NITROSODIMETHYLAMINE	0.81	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z
PHENANTHRENE	1.4	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Calibration Blank Contamination
B	Method Blank Contamination
E	Laboratory Duplicate Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
L	Laboratory Control Spike Lower Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH037

Method Blank Outlier Report

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1200B371904	5/1/2013 7:04:00 PM	1,2,3,4,6,7,8-HPCDD	0.0731 ng/Kg	SL-512-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0401 ng/Kg	SL-525-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0269 ng/Kg	SL-526-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HXCDF	0.0375 ng/Kg	SL-526-SA7-SB-3.5-4.5
		1,2,3,6,7,8-HXCDF	0.0203 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0225 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0140 ng/Kg	
		1,2,3,7,8-PECDF	0.0365 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0283 ng/Kg	
		2,3,4,7,8-PECDF	0.0100 ng/Kg	
		OCDD	0.155 ng/Kg	
		OCDF	0.107 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-512-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0704 ng/Kg	0.0704U ng/Kg
SL-512-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0849 ng/Kg	0.0849U ng/Kg
SL-512-SA7-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.0905 ng/Kg	0.0905U ng/Kg
SL-512-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0642 ng/Kg	0.0642U ng/Kg
SL-512-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.175 ng/Kg	0.175U ng/Kg
SL-512-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0843 ng/Kg	0.0843U ng/Kg
SL-526-SA7-SB-3.5-4.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0558 ng/Kg	0.0558U ng/Kg
SL-526-SA7-SB-3.5-4.5(RES)	1,2,3,4,7,8-HXCDF	0.0698 ng/Kg	0.0698U ng/Kg
SL-526-SA7-SB-3.5-4.5(RES)	1,2,3,6,7,8-HXCDF	0.0623 ng/Kg	0.0623U ng/Kg
SL-526-SA7-SB-3.5-4.5(RES)	1,2,3,7,8,9-HXCDD	0.0729 ng/Kg	0.0729U ng/Kg
SL-526-SA7-SB-3.5-4.5(RES)	2,3,4,6,7,8-HXCDF	0.0431 ng/Kg	0.0431U ng/Kg

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P12237AB221100	5/3/2013 11:00:00 AM	PHOSPHORUS	1.44 mg/Kg	SL-512-SA7-SB-0.0-0.5
		TIN	1.47 mg/Kg	SL-525-SA7-SB-0.0-0.5
				SL-526-SA7-SB-0.0-0.5
				SL-526-SA7-SB-3.5-4.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-512-SA7-SB-0.0-0.5(RES/TOT)	TIN	2.76 mg/Kg	2.76U mg/Kg
SL-525-SA7-SB-0.0-0.5(RES/TOT)	TIN	2.79 mg/Kg	2.79U mg/Kg
SL-526-SA7-SB-0.0-0.5(RES/TOT)	TIN	3.05 mg/Kg	3.05U mg/Kg
SL-526-SA7-SB-3.5-4.5(RES/TOT)	TIN	3.24 mg/Kg	3.24U mg/Kg

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB-042413(RES)	4/24/2013 3:00:00 PM	BORON SODIUM TIN	0.0319 mg/L 0.228 mg/L 0.0035 mg/L	SL-512-SA7-SB-0.0-0.5 SL-525-SA7-SB-0.0-0.5 SL-526-SA7-SB-0.0-0.5 SL-526-SA7-SB-3.5-4.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-512-SA7-SB-0.0-0.5(RES/TOT)	BORON	1.09 mg/Kg	1.09U mg/Kg
SL-512-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	63.8 mg/Kg	63.8U mg/Kg
SL-525-SA7-SB-0.0-0.5(RES/TOT)	BORON	3.20 mg/Kg	3.20U mg/Kg
SL-525-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	67.4 mg/Kg	67.4U mg/Kg
SL-526-SA7-SB-0.0-0.5(RES/TOT)	BORON	12.6 mg/Kg	12.6U mg/Kg
SL-526-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	90.5 mg/Kg	90.5U mg/Kg
SL-526-SA7-SB-3.5-4.5(RES/TOT)	BORON	11.6 mg/Kg	11.6U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PrepPH037 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-512-SA7-SB-0.0-0.5 SL-525-SA7-SB-0.0-0.5 SL-526-SA7-SB-0.0-0.5 SL-526-SA7-SB-3.5-4.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-512-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.186 mg/Kg	0.186U mg/Kg
SL-525-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.388 mg/Kg	0.388U mg/Kg
SL-526-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.354 mg/Kg	0.354U mg/Kg
SL-526-SA7-SB-3.5-4.5(RES/TOT)	MOLYBDENUM	0.528 mg/Kg	0.528U mg/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PH037_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8082A**
Matrix: **SO**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
SL-512-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	129	45.00-120.00	All Target Analytes	J (all detects)
SL-526-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	123	45.00-120.00	All Target Analytes	J(all detects)
SL-526-SA7-SB-3.5 -4.5	TETRACHLORO-M-XYLENE	121	45.00-120.00	All Target Analytes	J(all detects)

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PH037_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

***Method:* 8015M**
***Matrix:* SO**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
P31149AQ320500A (SL-512-SA7-SB-0.0-0.5 SL-525-SA7-SB-0.0-0.5 SL-526-SA7-SB-0.0-0.5 SL-526-SA7-SB-3.5-4.5)	EFH (C30-C40)	55	-	65.00-128.00	-	EFH (C30-C40)	J (all detects) UJ (all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PH037_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-512-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	3.84	4.99	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.796	4.99	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0704	4.99	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	0.0741	4.99	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0849	4.99	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JQ	0.196	4.99	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0905	4.99	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.187	4.99	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0642	4.99	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.0631	4.99	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.175	4.99	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0843	4.99	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0832	4.99	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0662	0.999	PQL	ng/Kg	
	OCDF	JB	1.66	9.99	PQL	ng/Kg	
SL-525-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	0.351	5.08	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	J	0.290	5.08	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.393	5.08	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	1.23	5.08	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.544	5.08	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.719	5.08	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.129	5.08	PQL	ng/Kg	
	1,2,3,7,8-PECDD	J	0.235	5.08	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	4.47	5.08	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.571	5.08	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.726	5.08	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.350	1.02	PQL	ng/Kg	
	OCDF	JB	7.98	10.2	PQL	ng/Kg	
SL-526-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	1.65	5.30	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.149	5.30	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.212	5.30	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.206	5.30	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.518	5.30	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.226	5.30	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.401	5.30	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.129	5.30	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.231	5.30	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	1.70	5.30	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.184	5.30	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.258	5.30	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0301	1.06	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0866	1.06	PQL	ng/Kg	
	OCDF	JB	2.71	10.6	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PH037_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-526-SA7-SB-3.5-4.5	1,2,3,4,6,7,8-HPCDD	JB	1.41	5.16	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.358	5.16	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0558	5.16	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0344	5.16	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0698	5.16	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JQ	0.0768	5.16	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0623	5.16	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.0729	5.16	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.0848	5.16	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.316	5.16	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0431	5.16	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.0855	5.16	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.0316	1.03	PQL	ng/Kg	
	OCDF	JB	0.578	10.3	PQL	ng/Kg	

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-512-SA7-SB-0.0-0.5	ANTIMONY	J	0.627	4.06	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.556	1.02	PQL	mg/Kg	
	BORON	J	1.09	10.2	PQL	mg/Kg	
	CADMIUM	J	0.152	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.186	2.03	PQL	mg/Kg	
	SODIUM	J	63.8	102	PQL	mg/Kg	
	TIN	J	2.76	10.2	PQL	mg/Kg	
	Zirconium	J	2.31	5.08	PQL	mg/Kg	
SL-525-SA7-SB-0.0-0.5	ANTIMONY	J	0.545	4.09	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.510	1.02	PQL	mg/Kg	
	BORON	J	3.20	10.2	PQL	mg/Kg	
	CADMIUM	J	0.231	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.388	2.04	PQL	mg/Kg	
	SODIUM	J	67.4	102	PQL	mg/Kg	
	TIN	J	2.79	10.2	PQL	mg/Kg	
	Zirconium	J	2.29	5.11	PQL	mg/Kg	
SL-526-SA7-SB-0.0-0.5	BERYLLIUM	J	0.629	1.08	PQL	mg/Kg	J (all detects)
	CADMIUM	J	0.233	1.08	PQL	mg/Kg	
	MOLYBDENUM	J	0.354	2.17	PQL	mg/Kg	
	SODIUM	J	90.5	108	PQL	mg/Kg	
	TIN	J	3.05	10.8	PQL	mg/Kg	
	Zirconium	J	2.78	5.42	PQL	mg/Kg	
SL-526-SA7-SB-3.5-4.5	ANTIMONY	J	0.729	4.14	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.817	1.04	PQL	mg/Kg	
	CADMIUM	J	0.0952	1.04	PQL	mg/Kg	
	MOLYBDENUM	J	0.528	2.07	PQL	mg/Kg	
	TIN	J	3.24	10.4	PQL	mg/Kg	
	Zirconium	J	2.90	5.18	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PH037_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-512-SA7-SB-0.0-0.5	SELENIUM	J	0.164	0.406	PQL	mg/Kg	J (all detects)
SL-525-SA7-SB-0.0-0.5	SELENIUM	J	0.182	0.409	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0696	0.204	PQL	mg/Kg	
SL-526-SA7-SB-0.0-0.5	SELENIUM	J	0.159	0.433	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0470	0.217	PQL	mg/Kg	
SL-526-SA7-SB-3.5-4.5	SELENIUM	J	0.104	0.414	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0711	0.207	PQL	mg/Kg	

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-512-SA7-SB-0.0-0.5	MERCURY	J	0.0133	0.0162	PQL	mg/Kg	J (all detects)
SL-526-SA7-SB-0.0-0.5	MERCURY	J	0.0165	0.0178	PQL	mg/Kg	J (all detects)
SL-526-SA7-SB-3.5-4.5	MERCURY	J	0.0156	0.0174	PQL	mg/Kg	J (all detects)

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-0.0-0.5	EFH (C21-C30)	J	23	26	PQL	mg/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-512-SA7-SB-0.0-0.5	BENZO(B)FLUORANTHENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	CHRYSENE	J	0.90	1.7	PQL	ug/Kg	
	FLUORANTHENE	J	1.0	1.7	PQL	ug/Kg	
	PYRENE	J	0.99	1.7	PQL	ug/Kg	
SL-525-SA7-SB-0.0-0.5	2-METHYLNAPHTHALENE	J	0.81	1.7	PQL	ug/Kg	J (all detects)
	ANTHRACENE	J	0.50	1.7	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.1	1.7	PQL	ug/Kg	
	BENZO(A)PYRENE	J	1.6	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.4	1.7	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	1.6	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	11	19	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	1.5	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	0.96	1.7	PQL	ug/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH037 **Laboratory: LL**

EDD Filename: PH037_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
SL-526-SA7-SB-0.0-0.5	BENZO(A)ANTHRACENE	J	0.88	1.8	PQL	ug/Kg	
	BENZO(A)PYRENE	J	0.86	1.8	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	0.94	1.8	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	0.75	1.8	PQL	ug/Kg	
	FLUORENE	J	1.3	1.8	PQL	ug/Kg	J (all detects)
	INDENO(1,2,3-CD)PYRENE	J	1.0	1.8	PQL	ug/Kg	
	NAPHTHALENE	J	1.2	1.8	PQL	ug/Kg	
	N-NITROSODIMETHYLAMINE	J	0.81	1.8	PQL	ug/Kg	
	PHENANTHRENE	J	1.4	1.8	PQL	ug/Kg	

LDC #: 29836K4

SDG #: PH037

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 6/11/13

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	—	Sampling dates: 4/23/13
II.	ICP/MS Tune	—	
III.	Calibration	—	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	—	
VI.	Matrix Spike Analysis	N	MS/D (from PH039)
VII.	Duplicate Sample Analysis	N	Dup ↓
VIII.	Laboratory Control Samples (LCS)	~~N~~ A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	(from PH039) (Ni, P: J/UJ)
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	—	
XV	Field Blanks	SW	EB=EB042413 (PH038) FB=FB-041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1 24	SL-526-SA7-SB-0.0-0.5	11		21		31	
2 25	SL-526-SA7-SB-3.5-4.5	12		22		32	
3 26	SL-512-SA7-SB-0.0-0.5	13		23		33	
4 27	SL-525-SA7-SB-0.0-0.5	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 29836K4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x Reason: B

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1, 2

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	2								
Sb			2.5	1.25	0.73								

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 29836K4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/24/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-042413	FB-041113	Action Limit	1	2	3	4						
B	0.0319		15.95	12.6	11.6	1.1	3.2						
Cu		0.0036	1.8										
Mo		0.0036	1.8	0.35	0.53	0.19	0.39						
Na	0.228		114	90.5		63.8	67.4						
Sn	0.0035		1.75										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
24-Apr-2013	TB-042413	7034498	TB	5030B	8015M	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	3050B	6010C	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	3050B	6020A	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	3546	8015M	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	3546	8082A	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	3546	8270D SIM	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	5035A	8015M	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	METHOD	1613B	III
24-Apr-2013	SL-525-SA7-SB-6.5-7.5	7034499	N	METHOD	7471B	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	3050B	6010C	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	3050B	6020A	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	3546	8015M	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	3546	8082A	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	3546	8270D SIM	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	METHOD	1613B	III
24-Apr-2013	SL-529-SA7-SB-0.0-0.5	7034500	N	METHOD	7471B	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	3050B	6010C	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	3050B	6020A	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	3546	8015M	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	3546	8082A	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	3546	8270D SIM	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	METHOD	1613B	III
24-Apr-2013	SL-528-SA7-SB-0.0-0.5	7034501	N	METHOD	7471B	III
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	3050B	6010C	III
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	3050B	6020A	III
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	3546	8015M	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	3546	8082A	III
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	3546	8270D SIM	III
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	METHOD	1613B	III
24-Apr-2013	SL-527-SA7-SB-0.0-0.5	7034502	N	METHOD	7471B	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	3050B	6010C	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	3050B	6020A	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	3546	8015M	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	3546	8082A	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	3546	8270D SIM	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	5035A	8015M	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	METHOD	1613B	III
24-Apr-2013	SL-527-SA7-SB-2.5-3.5	7034503	N	METHOD	7471B	III
24-Apr-2013	EB-042413	7034504	EB	3005A	6010C	III
24-Apr-2013	EB-042413	7034504	EB	3510C	8015M	III
24-Apr-2013	EB-042413	7034504	EB	3510C	8081B	III
24-Apr-2013	EB-042413	7034504	EB	3510C	8082A	III
24-Apr-2013	EB-042413	7034504	EB	3510C	8270D SIM	III
24-Apr-2013	EB-042413	7034504	EB	5030B	8015M	III
24-Apr-2013	EB-042413	7034504	EB	M3010A	6020A	III
24-Apr-2013	EB-042413	7034504	EB	METHOD	1613B	III
24-Apr-2013	EB-042413	7034504	EB	METHOD	7470A	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS
Method: 6010C **Matrix:** AQ

Sample ID: EB-042413 **Collected:** 4/24/2013 3:00:00 **Analysis Type:** RES/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BORON	0.0319	J	0.0083	MDL	0.100	PQL	mg/L	J	Z
SODIUM	0.228	J	0.167	MDL	2.00	PQL	mg/L	J	Z
TIN	0.0035	J	0.0022	MDL	0.0400	PQL	mg/L	J	Z

Method Category: METALS
Method: 6010C **Matrix:** SO

Sample ID: SL-525-SA7-SB-6.5-7.5 **Collected:** 4/24/2013 9:10:00 **Analysis Type:** REA/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.754	J	0.515	MDL	4.12	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.603	J	0.0691	MDL	1.03	PQL	mg/Kg	J	Z
BORON	10.3	J	0.856	MDL	10.3	PQL	mg/Kg	U	F
CADMIUM	0.142	J	0.0340	MDL	1.03	PQL	mg/Kg	J	Z
CALCIUM	3680		4.14	MDL	20.6	PQL	mg/Kg	J	E
COBALT	4.23		0.0928	MDL	1.03	PQL	mg/Kg	J	E
LEAD	7.48		0.485	MDL	3.09	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.641	J	0.175	MDL	2.06	PQL	mg/Kg	U	F
NICKEL	8.84		0.113	MDL	2.06	PQL	mg/Kg	J	A
PHOSPHORUS	255		0.526	MDL	10.3	PQL	mg/Kg	J	A, E
POTASSIUM	2490		13.9	MDL	103	PQL	mg/Kg	J	Q
SODIUM	84.5	J	17.2	MDL	103	PQL	mg/Kg	U	F
TIN	2.76	J	0.227	MDL	10.3	PQL	mg/Kg	U	B
Zirconium	2.41	J	0.856	MDL	5.15	PQL	mg/Kg	J	Z

Sample ID: SL-527-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 1:15:00 **Analysis Type:** REA/TOT **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.726	J	0.504	MDL	4.03	PQL	mg/Kg	J	Z, Q
ARSENIC	3.93	J	0.332	MDL	4.03	PQL	mg/Kg	J	Z
BERYLLIUM	0.569	J	0.0675	MDL	1.01	PQL	mg/Kg	J	Z
BORON	11.9		0.836	MDL	10.1	PQL	mg/Kg	U	F
CADMIUM	0.294	J	0.0332	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	3850		4.05	MDL	20.1	PQL	mg/Kg	J	E

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-527-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 1:15:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
COBALT	5.80		0.0906	MDL	1.01	PQL	mg/Kg	J	E
LEAD	13.2		0.473	MDL	3.02	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.370	J	0.171	MDL	2.01	PQL	mg/Kg	U	F
NICKEL	14.6		0.111	MDL	2.01	PQL	mg/Kg	J	A
PHOSPHORUS	437		0.514	MDL	10.1	PQL	mg/Kg	J	A, E
POTASSIUM	3590		13.6	MDL	101	PQL	mg/Kg	J	Q
SODIUM	66.6	J	16.8	MDL	101	PQL	mg/Kg	U	F
TIN	3.03	J	0.222	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.54	J	0.836	MDL	5.04	PQL	mg/Kg	J	Z

Sample ID: **SL-527-SA7-SB-2.5-3.5** ***Collected:*** **4/24/2013 2:40:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.830	J	0.513	MDL	4.10	PQL	mg/Kg	J	Z, Q
ARSENIC	3.93	J	0.339	MDL	4.10	PQL	mg/Kg	J	Z
BERYLLIUM	0.795	J	0.0687	MDL	1.03	PQL	mg/Kg	J	Z
BORON	9.37	J	0.852	MDL	10.3	PQL	mg/Kg	U	F
CADMIUM	0.189	J	0.0339	MDL	1.03	PQL	mg/Kg	J	Z
CALCIUM	1740		4.12	MDL	20.5	PQL	mg/Kg	J	E
COBALT	7.28		0.0923	MDL	1.03	PQL	mg/Kg	J	E
LEAD	4.78		0.482	MDL	3.08	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.238	J	0.174	MDL	2.05	PQL	mg/Kg	U	F
NICKEL	13.0		0.113	MDL	2.05	PQL	mg/Kg	J	A
PHOSPHORUS	349		0.523	MDL	10.3	PQL	mg/Kg	J	A, E
POTASSIUM	2210		13.9	MDL	103	PQL	mg/Kg	J	Q
SODIUM	97.8	J	17.1	MDL	103	PQL	mg/Kg	U	F
TIN	2.90	J	0.226	MDL	10.3	PQL	mg/Kg	U	B
Zirconium	2.63	J	0.852	MDL	5.13	PQL	mg/Kg	J	Z

Sample ID: **SL-528-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:55:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.903	J	0.503	MDL	4.03	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.560	J	0.0674	MDL	1.01	PQL	mg/Kg	J	Z
BORON	10.1		0.835	MDL	10.1	PQL	mg/Kg	U	F

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-528-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:55:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CADMIUM	0.181	J	0.0332	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	3850		4.05	MDL	20.1	PQL	mg/Kg	J	E
COBALT	6.60		0.0906	MDL	1.01	PQL	mg/Kg	J	E
LEAD	6.10		0.473	MDL	3.02	PQL	mg/Kg	J	Q, E
MOLYBDENUM	1.49	J	0.171	MDL	2.01	PQL	mg/Kg	U	F
NICKEL	11.7		0.111	MDL	2.01	PQL	mg/Kg	J	A
PHOSPHORUS	401		0.513	MDL	10.1	PQL	mg/Kg	J	A, E
POTASSIUM	2130		13.6	MDL	101	PQL	mg/Kg	J	Q
SODIUM	55.9	J	16.8	MDL	101	PQL	mg/Kg	U	F
TIN	2.86	J	0.221	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.30	J	0.835	MDL	5.03	PQL	mg/Kg	J	Z

Sample ID: **SL-529-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:00:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
POTASSIUM	1850		13.7	MDL	102	PQL	mg/Kg	J	Q
SODIUM	45.9	J	17.0	MDL	102	PQL	mg/Kg	U	F
TIN	2.84	J	0.224	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	1.55	J	0.845	MDL	5.09	PQL	mg/Kg	J	Z

Sample ID: **SL-529-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:00:00** ***Analysis Type:*** **REA2/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.598	J	0.509	MDL	4.07	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.536	J	0.0682	MDL	1.02	PQL	mg/Kg	J	Z
BORON	3.76	J	0.845	MDL	10.2	PQL	mg/Kg	U	F
CADMIUM	0.151	J	0.0336	MDL	1.02	PQL	mg/Kg	J	Z
CALCIUM	2830		4.09	MDL	20.4	PQL	mg/Kg	J	E
COBALT	4.26		0.0916	MDL	1.02	PQL	mg/Kg	J	E
LEAD	8.52		0.478	MDL	3.05	PQL	mg/Kg	J	Q, E
NICKEL	9.25		0.112	MDL	2.04	PQL	mg/Kg	J	A
PHOSPHORUS	338		0.519	MDL	10.2	PQL	mg/Kg	J	A, E

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-525-SA7-SB-6.5-7.5** ***Collected:*** **4/24/2013 9:10:00** ***Analysis Type:*** **REA2/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0459	J	0.0206	MDL	0.206	PQL	mg/Kg	J	Z

Sample ID: **SL-527-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 1:15:00** ***Analysis Type:*** **REA2/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0447	J	0.0201	MDL	0.201	PQL	mg/Kg	J	Z

Sample ID: **SL-527-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 1:15:00** ***Analysis Type:*** **REA3/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.182	J	0.101	MDL	0.403	PQL	mg/Kg	J	Z

Sample ID: **SL-527-SA7-SB-2.5-3.5** ***Collected:*** **4/24/2013 2:40:00** ***Analysis Type:*** **REA3/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.109	J	0.103	MDL	0.410	PQL	mg/Kg	J	Z

Sample ID: **SL-528-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:55:00** ***Analysis Type:*** **REA2/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0256	J	0.0201	MDL	0.201	PQL	mg/Kg	J	Z

Sample ID: **SL-528-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:55:00** ***Analysis Type:*** **REA3/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.180	J	0.101	MDL	0.403	PQL	mg/Kg	J	Z

Sample ID: **SL-529-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:00:00** ***Analysis Type:*** **REA2/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0393	J	0.0204	MDL	0.204	PQL	mg/Kg	J	Z

Sample ID: **SL-529-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:00:00** ***Analysis Type:*** **REA3/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.358	J	0.102	MDL	0.407	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS
Method: 6020A **Matrix:** SO

Method Category: METALS
Method: 7471B **Matrix:** SO

Sample ID: SL-525-SA7-SB-6.5-7.5 *Collected:* 4/24/2013 9:10:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0155	J	0.0103	MDL	0.0172	PQL	mg/Kg	J	Z

Sample ID: SL-528-SA7-SB-0.0-0.5 *Collected:* 4/24/2013 10:55:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0122	J	0.0102	MDL	0.0170	PQL	mg/Kg	J	Z

Sample ID: SL-529-SA7-SB-0.0-0.5 *Collected:* 4/24/2013 10:00:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0141	J	0.010	MDL	0.0167	PQL	mg/Kg	J	Z

Method Category: SVOA
Method: 1613B **Matrix:** AQ

Sample ID: EB-042413 *Collected:* 4/24/2013 3:00:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.448	JB	0.152	MDL	9.65	PQL	pg/L	U	B
1,2,3,4,6,7,8-HPCDF	0.199	JBQ	0.0523	MDL	9.65	PQL	pg/L	U	B
1,2,3,4,7,8,9-HPCDF	0.191	JBQ	0.0633	MDL	9.65	PQL	pg/L	U	B
1,2,3,4,7,8-HXCDF	0.251	JB	0.0877	MDL	9.65	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDF	0.255	JB	0.0881	MDL	9.65	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDD	0.282	JBQ	0.136	MDL	9.65	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDF	0.240	JB	0.0831	MDL	9.65	PQL	pg/L	U	B
1,2,3,7,8-PECDF	0.561	JBQ	0.137	MDL	9.65	PQL	pg/L	U	B
2,3,4,6,7,8-HXCDF	0.178	JB	0.0900	MDL	9.65	PQL	pg/L	U	B
2,3,4,7,8-PECDF	0.409	JBQ	0.152	MDL	9.65	PQL	pg/L	U	B
OCDD	0.854	JBQ	0.234	MDL	19.3	PQL	pg/L	U	B
OCDF	0.673	JBQ	0.175	MDL	19.3	PQL	pg/L	U	B

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-525-SA7-SB-6.5-7.5** ***Collected:*** **4/24/2013 9:10:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	2.28	JB	0.0174	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.166	JB	0.0234	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.138	J	0.0277	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.179	JBQ	0.0240	MDL	5.25	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.432	J	0.0276	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.237	JB	0.0234	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.248	JB	0.0271	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0412	JBQ	0.0250	MDL	5.25	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0676	JQ	0.0269	MDL	5.25	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	1.81	JB	0.0204	MDL	5.25	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.232	JB	0.0231	MDL	5.25	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.368	JB	0.0201	MDL	5.25	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0980	J	0.0371	MDL	1.05	PQL	ng/Kg	J	Z
OCDF	3.30	JB	0.0180	MDL	10.5	PQL	ng/Kg	J	Z

Sample ID: **SL-527-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 1:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	1.69	JB	0.0308	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.143	JB	0.0407	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.215	J	0.0381	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.209	JB	0.0261	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.460	J	0.0382	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.197	JB	0.0251	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.373	JB	0.0384	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0452	JB	0.0267	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.140	J	0.0328	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.254	JB	0.0245	MDL	5.17	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.206	JB	0.0247	MDL	5.17	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.433	JB	0.0245	MDL	5.17	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0353	JQ	0.0264	MDL	1.03	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.214	JQ	0.0470	MDL	1.03	PQL	ng/Kg	J	Z
OCDF	3.64	JB	0.0228	MDL	10.3	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-527-SA7-SB-2.5-3.5** ***Collected:*** **4/24/2013 2:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.254	JB	0.0165	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.0800	JB	0.0115	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0654	JBQ	0.0176	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0312	JQ	0.0173	MDL	5.07	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0547	JBQ	0.0118	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0901	J	0.0170	MDL	5.07	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0489	JB	0.0110	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0781	JBQ	0.0165	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0360	JBQ	0.0134	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0809	JQ	0.0213	MDL	5.07	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.146	JBQ	0.0115	MDL	5.07	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0390	JB	0.0117	MDL	5.07	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.109	JB	0.0112	MDL	5.07	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0364	JQ	0.0230	MDL	1.01	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0271	J	0.0220	MDL	1.01	PQL	ng/Kg	J	Z
OCDD	1.67	JB	0.0178	MDL	10.1	PQL	ng/Kg	J	Z
OCDF	0.145	JB	0.0246	MDL	10.1	PQL	ng/Kg	U	B

Sample ID: **SL-528-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 10:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.988	JB	0.0139	MDL	4.98	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.247	JB	0.00962	MDL	4.98	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0394	JBQ	0.0131	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0758	JQ	0.0170	MDL	4.98	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0558	JB	0.0126	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0704	JQ	0.0176	MDL	4.98	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0417	JBQ	0.0120	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0866	JBQ	0.0174	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0289	JBQ	0.0137	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0390	JQ	0.0158	MDL	4.98	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.0856	JB	0.00936	MDL	4.98	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0444	JB	0.0125	MDL	4.98	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0636	JBQ	0.00892	MDL	4.98	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 1613B **Matrix:** SO

Sample ID: SL-528-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 10:55:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDF	0.0416	JQ	0.0191	MDL	0.996	PQL	ng/Kg	J	Z
OCDD	7.79	JB	0.0134	MDL	9.96	PQL	ng/Kg	J	Z
OCDF	0.507	JB	0.0170	MDL	9.96	PQL	ng/Kg	U	B

Sample ID: SL-529-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 10:00:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	4.89	JB	0.0180	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.599	JB	0.0175	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0441	JBQ	0.0222	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.182	JQ	0.0248	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0820	JB	0.0176	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	1.05	J	0.0263	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.544	JB	0.0163	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	1.43	JB	0.0256	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0871	JB	0.0187	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.117	J	0.0213	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.103	JB	0.0120	MDL	5.04	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0783	JB	0.0167	MDL	5.04	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.141	JB	0.0112	MDL	5.04	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0747	JQ	0.0255	MDL	1.01	PQL	ng/Kg	J	Z
OCDF	1.07	JB	0.0157	MDL	10.1	PQL	ng/Kg	J	Z

Method Category: SVOA
Method: 8015M **Matrix:** AQ

Sample ID: EB-042413 **Collected:** 4/24/2013 3:00:00 **Analysis Type:** REA **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C12-C14)	0.58	U	0.097	MDL	0.58	PQL	mg/L	UJ	S
EFH (C15-C20)	0.58	U	0.097	MDL	0.58	PQL	mg/L	UJ	S
EFH (C21-C30)	0.58	U	0.097	MDL	0.58	PQL	mg/L	UJ	S
EFH (C30-C40)	0.58	U	0.097	MDL	0.58	PQL	mg/L	UJ	L, S
EFH (C8-C11)	0.58	U	0.097	MDL	0.58	PQL	mg/L	UJ	L, S

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 8015M **Matrix:** SO

Sample ID: SL-525-SA7-SB-6.5-7.5 **Collected:** 4/24/2013 9:10:00 **Analysis Type:** REA **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	4.4	J	2.1	MDL	5.3	PQL	mg/Kg	J	Z
EFH (C30-C40)	81		4.2	MDL	11	PQL	mg/Kg	J	L

Sample ID: SL-527-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 1:15:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	7.8	J	4.1	MDL	10	PQL	mg/Kg	J	Z, L

Sample ID: SL-527-SA7-SB-2.5-3.5 **Collected:** 4/24/2013 2:40:00 **Analysis Type:** REA **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.1	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z
EFH (C30-C40)	8.8	J	4.1	MDL	10	PQL	mg/Kg	J	Z, L

Sample ID: SL-527-SA7-SB-2.5-3.5 **Collected:** 4/24/2013 2:40:00 **Analysis Type:** RES **Dilution:** 27.41

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
GASOLINE RANGE ORGANICS (C5-C12)	0.3	J	0.2	MDL	1.1	PQL	mg/Kg	J	Z

Sample ID: SL-528-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 10:55:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.0	J	2.1	MDL	5.1	PQL	mg/Kg	J	Z
EFH (C30-C40)	8.3	J	4.1	MDL	10	PQL	mg/Kg	J	Z, L

Sample ID: SL-529-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 10:00:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	5.0	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z
EFH (C30-C40)	11		4.2	MDL	10	PQL	mg/Kg	J	L

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8082A **Matrix:** SO

Sample ID: SL-525-SA7-SB-6.5-7.5 **Collected:** 4/24/2013 9:10:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	14	J	4.6	MDL	18	PQL	ug/Kg	J	Z

Method Category: SVOA
Method: 8270D SIM **Matrix:** AQ

Sample ID: EB-042413 **Collected:** 4/24/2013 3:00:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.011	J	0.011	MDL	0.054	PQL	ug/L	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	0.20	J	0.054	MDL	1.1	PQL	ug/L	U	B
Diethylphthalate	0.089	J	0.054	MDL	1.1	PQL	ug/L	J	Z
Di-n-butylphthalate	0.15	J	0.054	MDL	1.1	PQL	ug/L	J	Z
NAPHTHALENE	0.053	J	0.033	MDL	0.054	PQL	ug/L	J	Z

Method Category: SVOA
Method: 8270D SIM **Matrix:** SO

Sample ID: SL-525-SA7-SB-6.5-7.5 **Collected:** 4/24/2013 9:10:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.73	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	0.99	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(B)FLUORANTHENE	1.0	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z
Butylbenzylphthalate	7.9	J	6.3	MDL	19	PQL	ug/Kg	J	Z
CHRYSENE	0.72	J	0.35	MDL	1.8	PQL	ug/Kg	J	Z
FLUORANTHENE	0.79	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z
FLUORENE	0.98	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: SL-527-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 1:15:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.42	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.2	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 8270D SIM **Matrix:** SO

Sample ID: SL-527-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 1:15:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	1.6	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.2	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
DIBENZO(A,H)ANTHRACENE	0.90	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	1.4	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	1.6	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-527-SA7-SB-2.5-3.5 **Collected:** 4/24/2013 2:40:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(K)FLUORANTHENE	0.77	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-528-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 10:55:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	0.85	J	0.68	MDL	1.7	PQL	ug/Kg	U	F

Sample ID: SL-529-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 10:00:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.96	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(B)FLUORANTHENE	1.2	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	6.7	J	6.3	MDL	19	PQL	ug/Kg	J	Z
Butylbenzylphthalate	9.0	J	6.3	MDL	19	PQL	ug/Kg	J	Z
CHRYSENE	1.0	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
FLUORANTHENE	1.2	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
FLUORENE	1.1	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	1.0	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	0.96	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Method Blank Contamination
E	Laboratory Duplicate Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
L	Laboratory Control Spike Lower Estimation
L	Laboratory Control Spike Upper Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Lower Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH038

Method Blank Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1220B372025	5/3/2013 8:25:00 PM	1,2,3,4,6,7,8-HPCDD	0.480 pg/L	EB-042413
		1,2,3,4,6,7,8-HPCDF	0.366 pg/L	
		1,2,3,4,7,8,9-HPCDF	0.365 pg/L	
		1,2,3,4,7,8-HxCDD	0.249 pg/L	
		1,2,3,4,7,8-HXCDF	0.185 pg/L	
		1,2,3,6,7,8-HXCDD	0.211 pg/L	
		1,2,3,6,7,8-HXCDF	0.186 pg/L	
		1,2,3,7,8,9-HXCDD	0.197 pg/L	
		1,2,3,7,8,9-HXCDF	0.423 pg/L	
		1,2,3,7,8-PECDD	0.315 pg/L	
		1,2,3,7,8-PECDF	0.487 pg/L	
		2,3,4,6,7,8-HXCDF	0.377 pg/L	
		2,3,4,7,8-PECDF	0.214 pg/L	
		2,3,7,8-TCDD	0.231 pg/L	
		2,3,7,8-TCDF	0.183 pg/L	
		OCDD	0.631 pg/L	
		OCDF	0.595 pg/L	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB-042413(RES)	1,2,3,4,6,7,8-HPCDD	0.448 pg/L	0.448U pg/L
EB-042413(RES)	1,2,3,4,6,7,8-HPCDF	0.199 pg/L	0.199U pg/L
EB-042413(RES)	1,2,3,4,7,8,9-HPCDF	0.191 pg/L	0.191U pg/L
EB-042413(RES)	1,2,3,4,7,8-HXCDF	0.251 pg/L	0.251U pg/L
EB-042413(RES)	1,2,3,6,7,8-HXCDF	0.255 pg/L	0.255U pg/L
EB-042413(RES)	1,2,3,7,8,9-HXCDD	0.282 pg/L	0.282U pg/L
EB-042413(RES)	1,2,3,7,8,9-HXCDF	0.240 pg/L	0.240U pg/L
EB-042413(RES)	1,2,3,7,8-PECDF	0.561 pg/L	0.561U pg/L
EB-042413(RES)	2,3,4,6,7,8-HXCDF	0.178 pg/L	0.178U pg/L
EB-042413(RES)	2,3,4,7,8-PECDF	0.409 pg/L	0.409U pg/L
EB-042413(RES)	OCDD	0.854 pg/L	0.854U pg/L
EB-042413(RES)	OCDF	0.673 pg/L	0.673U pg/L

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1200B371904	5/1/2013 7:04:00 PM	1,2,3,4,6,7,8-HPCDD	0.0731 ng/Kg	SL-525-SA7-SB-6.5-7.5
		1,2,3,4,6,7,8-HPCDF	0.0401 ng/Kg	SL-527-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0269 ng/Kg	SL-527-SA7-SB-2.5-3.5
		1,2,3,4,7,8-HXCDF	0.0375 ng/Kg	SL-528-SA7-SB-0.0-0.5
		1,2,3,6,7,8-HXCDF	0.0203 ng/Kg	SL-529-SA7-SB-0.0-0.5
		1,2,3,7,8,9-HXCDD	0.0225 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0140 ng/Kg	
		1,2,3,7,8-PECDF	0.0365 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0283 ng/Kg	
		2,3,4,7,8-PECDF	0.0100 ng/Kg	
		OCDD	0.155 ng/Kg	
		OCDF	0.107 ng/Kg	

Method Blank Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-6.5-7.5(RES)	1,2,3,4,7,8-HXCDF	0.179 ng/Kg	0.179U ng/Kg
SL-525-SA7-SB-6.5-7.5(RES)	1,2,3,7,8,9-HXCDF	0.0412 ng/Kg	0.0412U ng/Kg
SL-527-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0452 ng/Kg	0.0452U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDD	0.254 ng/Kg	0.254U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDF	0.0800 ng/Kg	0.0800U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0654 ng/Kg	0.0654U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,4,7,8-HXCDF	0.0547 ng/Kg	0.0547U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDF	0.0489 ng/Kg	0.0489U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDD	0.0781 ng/Kg	0.0781U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDF	0.0360 ng/Kg	0.0360U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	1,2,3,7,8-PECDF	0.146 ng/Kg	0.146U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	2,3,4,6,7,8-HXCDF	0.0390 ng/Kg	0.0390U ng/Kg
SL-527-SA7-SB-2.5-3.5(RES)	OCDF	0.145 ng/Kg	0.145U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0394 ng/Kg	0.0394U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0558 ng/Kg	0.0558U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.0417 ng/Kg	0.0417U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0866 ng/Kg	0.0866U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0289 ng/Kg	0.0289U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.0856 ng/Kg	0.0856U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0444 ng/Kg	0.0444U ng/Kg
SL-528-SA7-SB-0.0-0.5(RES)	OCDF	0.507 ng/Kg	0.507U ng/Kg
SL-529-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0441 ng/Kg	0.0441U ng/Kg
SL-529-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0820 ng/Kg	0.0820U ng/Kg
SL-529-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.103 ng/Kg	0.103U ng/Kg
SL-529-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0783 ng/Kg	0.0783U ng/Kg

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P12237AB221100	5/3/2013 11:00:00 AM	PHOSPHORUS TIN	1.44 mg/Kg 1.47 mg/Kg	SL-525-SA7-SB-6.5-7.5 SL-527-SA7-SB-0.0-0.5 SL-527-SA7-SB-2.5-3.5 SL-528-SA7-SB-0.0-0.5 SL-529-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-6.5-7.5(REA/TOT)	TIN	2.76 mg/Kg	2.76U mg/Kg
SL-527-SA7-SB-0.0-0.5(REA/TOT)	TIN	3.03 mg/Kg	3.03U mg/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PrepPH038 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-527-SA7-SB-2.5-3.5(REA/TOT)	TIN	2.90 mg/Kg	2.90U mg/Kg
SL-528-SA7-SB-0.0-0.5(REA/TOT)	TIN	2.86 mg/Kg	2.86U mg/Kg
SL-529-SA7-SB-0.0-0.5(REA/TOT)	TIN	2.84 mg/Kg	2.84U mg/Kg

Method: **8270D SIM**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
PLKWI11B262311	5/6/2013 11:11:00 PM	BIS(2-ETHYLHEXYL)PHTHALATE	0.16 ug/L	EB-042413

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB-042413(RES)	BIS(2-ETHYLHEXYL)PHTHALATE	0.20 ug/L	1.1U ug/L

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB-042413(RES/TOT)	4/24/2013 3:00:00 PM	BORON SODIUM TIN	0.0319 mg/L 0.228 mg/L 0.0035 mg/L	SL-525-SA7-SB-6.5-7.5 SL-527-SA7-SB-0.0-0.5 SL-527-SA7-SB-2.5-3.5 SL-528-SA7-SB-0.0-0.5 SL-529-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-6.5-7.5(REA/TOT)	BORON	10.3 mg/Kg	10.3U mg/Kg
SL-525-SA7-SB-6.5-7.5(REA/TOT)	SODIUM	84.5 mg/Kg	84.5U mg/Kg
SL-527-SA7-SB-0.0-0.5(REA/TOT)	BORON	11.9 mg/Kg	11.9U mg/Kg
SL-527-SA7-SB-0.0-0.5(REA/TOT)	SODIUM	66.6 mg/Kg	66.6U mg/Kg
SL-527-SA7-SB-2.5-3.5(REA/TOT)	BORON	9.37 mg/Kg	9.37U mg/Kg
SL-527-SA7-SB-2.5-3.5(REA/TOT)	SODIUM	97.8 mg/Kg	97.8U mg/Kg
SL-528-SA7-SB-0.0-0.5(REA/TOT)	BORON	10.1 mg/Kg	10.1U mg/Kg
SL-528-SA7-SB-0.0-0.5(REA/TOT)	SODIUM	55.9 mg/Kg	55.9U mg/Kg
SL-529-SA7-SB-0.0-0.5(REA/TOT)	SODIUM	45.9 mg/Kg	45.9U mg/Kg
SL-529-SA7-SB-0.0-0.5(REA2/TOT)	BORON	3.76 mg/Kg	3.76U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-525-SA7-SB-6.5-7.5 SL-527-SA7-SB-0.0-0.5 SL-527-SA7-SB-2.5-3.5 SL-528-SA7-SB-0.0-0.5 SL-529-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-6.5-7.5(REA/TOT)	MOLYBDENUM	0.641 mg/Kg	0.641U mg/Kg
SL-527-SA7-SB-0.0-0.5(REA/TOT)	MOLYBDENUM	0.370 mg/Kg	0.370U mg/Kg
SL-527-SA7-SB-2.5-3.5(REA/TOT)	MOLYBDENUM	0.238 mg/Kg	0.238U mg/Kg
SL-528-SA7-SB-0.0-0.5(REA/TOT)	MOLYBDENUM	1.49 mg/Kg	1.49U mg/Kg

Method: **8270D SIM**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(RES)	4/11/2013 3:00:00 PM	1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE BIS(2-ETHYLHEXYL)PHTHALATE Diethylphthalate Di-n-butylphthalate NAPHTHALENE	0.019 ug/L 0.024 ug/L 0.082 ug/L 0.18 ug/L 0.17 ug/L 0.17 ug/L	SL-525-SA7-SB-6.5-7.5 SL-527-SA7-SB-0.0-0.5 SL-527-SA7-SB-2.5-3.5 SL-528-SA7-SB-0.0-0.5 SL-529-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-528-SA7-SB-0.0-0.5(RES)	NAPHTHALENE	0.85 ug/Kg	1.7U ug/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8015M
Matrix: AQ

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
EB-042413 (REA)	O-TERPHENYL	67	69.00-119.00	All Target Analytes	J (all detects) UJ (all non-detects)

Method: 8081B
Matrix: AQ

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
EB-042413	DECACHLOROBIPHENYL	137	20.00-120.00	All Target Analytes	J(all detects)

Method: 8082A
Matrix: SO

Sample ID (Analysis Type)	Surrogate	Sample % Recovery	% Recovery Limits	Affected Compounds	Flag
SL-527-SA7-SB-2.5 -3.5	TETRACHLORO-M-XYLENE	128	45.00-120.00	All Target Analytes	J(all detects)
SL-528-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	126	45.00-120.00	All Target Analytes	J(all detects)

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8081B
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31197AQ242035A P31197AY242047A (EB-042413)	4,4'-DDT METHOXYCHLOR	135 154	149 174	45.00-134.00 46.00-134.00	- -	4,4'-DDT METHOXYCHLOR	J (all detects)

Method: 8015M
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31206AQ322139A P31206AY322159A (EB-042413)	EFH (C30-C40) EFH (C8-C11)	64 67	67 -	70.00-130.00 70.00-130.00	- -	EFH (C30-C40) EFH (C8-C11)	J(all detects) UJ(all non-detects)

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31201AQ320351A (SL-525-SA7-SB-6.5-7.5 SL-527-SA7-SB-0.0-0.5 SL-527-SA7-SB-2.5-3.5 SL-528-SA7-SB-0.0-0.5 SL-529-SA7-SB-0.0-0.5)	EFH (C30-C40)	63	-	65.00-128.00	-	EFH (C30-C40)	J(all detects) UJ(all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-042413	1,2,3,4,6,7,8-HPCDD	JB	0.448	9.65	PQL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.199	9.65	PQL	pg/L	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.191	9.65	PQL	pg/L	
	1,2,3,4,7,8-HXCDF	JB	0.251	9.65	PQL	pg/L	
	1,2,3,6,7,8-HXCDF	JB	0.255	9.65	PQL	pg/L	
	1,2,3,7,8,9-HXCDD	JBQ	0.282	9.65	PQL	pg/L	
	1,2,3,7,8,9-HXCDF	JB	0.240	9.65	PQL	pg/L	
	1,2,3,7,8-PECDF	JBQ	0.561	9.65	PQL	pg/L	
	2,3,4,6,7,8-HXCDF	JB	0.178	9.65	PQL	pg/L	
	2,3,4,7,8-PECDF	JBQ	0.409	9.65	PQL	pg/L	
	OCDD	JBQ	0.854	19.3	PQL	pg/L	
	OCDF	JBQ	0.673	19.3	PQL	pg/L	

Method: 6010C

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-042413	BORON	J	0.0319	0.100	PQL	mg/L	J (all detects)
	SODIUM	J	0.228	2.00	PQL	mg/L	
	TIN	J	0.0035	0.0400	PQL	mg/L	

Method: 8270D SIM

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-042413	2-METHYLNAPHTHALENE	J	0.011	0.054	PQL	ug/L	J (all detects)
	BIS(2-ETHYLHEXYL)PHTHALATE	J	0.20	1.1	PQL	ug/L	
	Diethylphthalate	J	0.089	1.1	PQL	ug/L	
	Di-n-butylphthalate	J	0.15	1.1	PQL	ug/L	
	NAPHTHALENE	J	0.053	0.054	PQL	ug/L	

Reporting Limit Outliers

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	1,2,3,4,6,7,8-HPCDF	JB	2.28	5.25	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.166	5.25	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	0.138	5.25	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.179	5.25	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.432	5.25	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.237	5.25	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.248	5.25	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0412	5.25	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.0676	5.25	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	1.81	5.25	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.232	5.25	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.368	5.25	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.0980	1.05	PQL	ng/Kg	
	OCDF	JB	3.30	10.5	PQL	ng/Kg	
SL-527-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	1.69	5.17	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.143	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	0.215	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.209	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.460	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.197	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.373	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.0452	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDD	J	0.140	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.254	5.17	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.206	5.17	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.433	5.17	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0353	1.03	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.214	1.03	PQL	ng/Kg	
	OCDF	JB	3.64	10.3	PQL	ng/Kg	
SL-527-SA7-SB-2.5-3.5	1,2,3,4,6,7,8-HPCDD	JB	0.254	5.07	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.0800	5.07	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0654	5.07	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0312	5.07	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0547	5.07	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.0901	5.07	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.0489	5.07	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0781	5.07	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0360	5.07	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.0809	5.07	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.146	5.07	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0390	5.07	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.109	5.07	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0364	1.01	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.0271	1.01	PQL	ng/Kg	
	OCDD	JB	1.67	10.1	PQL	ng/Kg	
	OCDF	JB	0.145	10.1	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-528-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	0.988	4.98	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.247	4.98	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0394	4.98	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0758	4.98	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0558	4.98	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JQ	0.0704	4.98	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0417	4.98	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0866	4.98	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0289	4.98	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.0390	4.98	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.0856	4.98	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0444	4.98	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0636	4.98	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0416	0.996	PQL	ng/Kg	
	OCDD	JB	7.79	9.96	PQL	ng/Kg	
	OCDF	JB	0.507	9.96	PQL	ng/Kg	
SL-529-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	4.89	5.04	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.599	5.04	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0441	5.04	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.182	5.04	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0820	5.04	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	1.05	5.04	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.544	5.04	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	1.43	5.04	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.0871	5.04	PQL	ng/Kg	
	1,2,3,7,8-PECDD	J	0.117	5.04	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.103	5.04	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0783	5.04	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.141	5.04	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0747	1.01	PQL	ng/Kg	
	OCDF	JB	1.07	10.1	PQL	ng/Kg	

Method: 6010C
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	ANTIMONY	J	0.754	4.12	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.603	1.03	PQL	mg/Kg	
	CADMIUM	J	0.142	1.03	PQL	mg/Kg	
	MOLYBDENUM	J	0.641	2.06	PQL	mg/Kg	
	SODIUM	J	84.5	103	PQL	mg/Kg	
	TIN	J	2.76	10.3	PQL	mg/Kg	
	Zirconium	J	2.41	5.15	PQL	mg/Kg	
SL-527-SA7-SB-0.0-0.5	ANTIMONY	J	0.726	4.03	PQL	mg/Kg	J (all detects)
	ARSENIC	J	3.93	4.03	PQL	mg/Kg	
	BERYLLIUM	J	0.569	1.01	PQL	mg/Kg	
	CADMIUM	J	0.294	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.370	2.01	PQL	mg/Kg	
	SODIUM	J	66.6	101	PQL	mg/Kg	
	TIN	J	3.03	10.1	PQL	mg/Kg	
	Zirconium	J	2.54	5.04	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-527-SA7-SB-2.5-3.5	ANTIMONY	J	0.830	4.10	PQL	mg/Kg	J (all detects)
	ARSENIC	J	3.93	4.10	PQL	mg/Kg	
	BERYLLIUM	J	0.795	1.03	PQL	mg/Kg	
	BORON	J	9.37	10.3	PQL	mg/Kg	
	CADMIUM	J	0.189	1.03	PQL	mg/Kg	
	MOLYBDENUM	J	0.238	2.05	PQL	mg/Kg	
	SODIUM	J	97.8	103	PQL	mg/Kg	
	TIN	J	2.90	10.3	PQL	mg/Kg	
	Zirconium	J	2.63	5.13	PQL	mg/Kg	
SL-528-SA7-SB-0.0-0.5	ANTIMONY	J	0.903	4.03	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.560	1.01	PQL	mg/Kg	
	CADMIUM	J	0.181	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	1.49	2.01	PQL	mg/Kg	
	SODIUM	J	55.9	101	PQL	mg/Kg	
	TIN	J	2.86	10.1	PQL	mg/Kg	
	Zirconium	J	2.30	5.03	PQL	mg/Kg	
SL-529-SA7-SB-0.0-0.5	ANTIMONY	J	0.598	4.07	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.536	1.02	PQL	mg/Kg	
	BORON	J	3.76	10.2	PQL	mg/Kg	
	CADMIUM	J	0.151	1.02	PQL	mg/Kg	
	SODIUM	J	45.9	102	PQL	mg/Kg	
	TIN	J	2.84	10.2	PQL	mg/Kg	
	Zirconium	J	1.55	5.09	PQL	mg/Kg	

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	SILVER	J	0.0459	0.206	PQL	mg/Kg	J (all detects)
SL-527-SA7-SB-0.0-0.5	SELENIUM	J	0.182	0.403	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0447	0.201	PQL	mg/Kg	
SL-527-SA7-SB-2.5-3.5	SELENIUM	J	0.109	0.410	PQL	mg/Kg	J (all detects)
SL-528-SA7-SB-0.0-0.5	SELENIUM	J	0.180	0.403	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0256	0.201	PQL	mg/Kg	
SL-529-SA7-SB-0.0-0.5	SELENIUM	J	0.358	0.407	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0393	0.204	PQL	mg/Kg	

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	MERCURY	J	0.0155	0.0172	PQL	mg/Kg	J (all detects)
SL-528-SA7-SB-0.0-0.5	MERCURY	J	0.0122	0.0170	PQL	mg/Kg	J (all detects)
SL-529-SA7-SB-0.0-0.5	MERCURY	J	0.0141	0.0167	PQL	mg/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	EFH (C15-C20)	J	4.4	5.3	PQL	mg/Kg	J (all detects)
SL-527-SA7-SB-0.0-0.5	EFH (C30-C40)	J	7.8	10	PQL	mg/Kg	J (all detects)
SL-527-SA7-SB-2.5-3.5	EFH (C21-C30)	J	3.1	5.2	PQL	mg/Kg	J (all detects)
	EFH (C30-C40)	J	8.8	10	PQL	mg/Kg	
	GASOLINE RANGE ORGANICS (C5-C12)	J	0.3	1.1	PQL	mg/Kg	
SL-528-SA7-SB-0.0-0.5	EFH (C21-C30)	J	3.0	5.1	PQL	mg/Kg	J (all detects)
	EFH (C30-C40)	J	8.3	10	PQL	mg/Kg	
SL-529-SA7-SB-0.0-0.5	EFH (C21-C30)	J	5.0	5.2	PQL	mg/Kg	J (all detects)

Method: 8082A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	AROCLOR 1254	J	14	18	PQL	ug/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-6.5-7.5	1-METHYLNAPHTHALENE	J	0.73	1.8	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	0.99	1.8	PQL	ug/Kg	
	BENZO(B)FLUORANTHENE	J	1.0	1.8	PQL	ug/Kg	
	Butylbenzylphthalate	J	7.9	19	PQL	ug/Kg	
	CHRYSENE	J	0.72	1.8	PQL	ug/Kg	
	FLUORANTHENE	J	0.79	1.8	PQL	ug/Kg	
	FLUORENE	J	0.98	1.8	PQL	ug/Kg	
SL-527-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	ANTHRACENE	J	0.42	1.7	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.2	1.7	PQL	ug/Kg	
	BENZO(A)PYRENE	J	1.6	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.2	1.7	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	0.90	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	1.4	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.6	1.7	PQL	ug/Kg	
SL-527-SA7-SB-2.5-3.5	BENZO(K)FLUORANTHENE	J	0.77	1.7	PQL	ug/Kg	J (all detects)
SL-528-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	NAPHTHALENE	J	0.85	1.7	PQL	ug/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH038 **Laboratory: LL**

EDD Filename: PH038_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
SL-529-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	0.96	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.4	1.7	PQL	ug/Kg	
	BENZO(B)FLUORANTHENE	J	1.2	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	6.7	19	PQL	ug/Kg	
	Butylbenzylphthalate	J	9.0	19	PQL	ug/Kg	
	CHRYSENE	J	1.0	1.7	PQL	ug/Kg	
	FLUORANTHENE	J	1.2	1.7	PQL	ug/Kg	
	FLUORENE	J	1.1	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.0	1.7	PQL	ug/Kg	
	PYRENE	J	0.96	1.7	PQL	ug/Kg	

LDC #: 29836L4

SDG #: PH038

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 6/11/13

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	–	Sampling dates: 4/24/13
II.	ICP/MS Tune	–	
III.	Calibration	–	
IV.	Blanks	~~SW~~ A	
V.	ICP Interference Check Sample (ICS) Analysis	–	
VI.	Matrix Spike Analysis	N	MS/D (from PH039)
VII.	Duplicate Sample Analysis	N	Dup ↓
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	(from PH039) (Ni, P: J/UJ)
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	–	
XV	Field Blanks	SW	EB=6 FB= FB-041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1 A	SL-525-SA7-SB-6.5-7.5	11		21		31	
2 D	SL-529-SA7-SB-0.0-0.5	12		22		32	
3 B	SL-528-SA7-SB-0.0-0.5	13		23		33	
4 C	SL-527-SA7-SB-0.0-0.5	14		24		34	
5 E	SL-527-SA7-SB-2.5-3.5	15		25		35	
6	EB-042413	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 29836L4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/24/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All Soil

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-042413	FB-041113	Action Limit	1	2	3	4	5					
B	0.0319		15.95	10.3	3.8	10.1	11.9	9.4					
Cu		0.0036	1.8										
Mo		0.0036	1.8	0.64		1.5	0.37	0.24					
Na	0.228		114	84.5	45.9	55.9	66.6	97.8					
Sn	0.0035		1.75										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
24-Apr-2013	TB-042513	7036178	TB	5030B	8015M	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	3050B	6010C	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	3050B	6020A	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	3546	8015M	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	3546	8082A	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	3546	8270D SIM	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	METHOD	1613B	IV
24-Apr-2013	SL-507-SA7-SB-0.0-0.5	7036177	N	METHOD	7471B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	3050B	6010C	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	3050B	6020A	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	3546	8015M	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	3546	8082A	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	3546	8270D SIM	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	METHOD	1613B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5	7036179	N	METHOD	7471B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	3050B	6010C	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	3050B	6020A	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	3546	8015M	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	3546	8082A	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	3546	8270D SIM	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	METHOD	1613B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MS	7036180	MS	METHOD	7471B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	3050B	6010C	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	3050B	6020A	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	3546	8015M	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	3546	8082A	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	3546	8270D SIM	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	METHOD	1613B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5MSD	7036181	MSD	METHOD	7471B	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5DUP	7036182	DUP	3050B	6010C	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5DUP	7036182	DUP	3050B	6020A	IV
25-Apr-2013	SL-519-SA7-SB-0.0-0.5DUP	7036182	DUP	METHOD	7471B	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	3050B	6010C	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	3050B	6020A	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	3546	8015M	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	3546	8082A	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	3546	8270D SIM	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	METHOD	1613B	IV
25-Apr-2013	SL-819-SA7-SB-0.0-0.5	7036183	FD	METHOD	7471B	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	3050B	6010C	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	3050B	6020A	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	3546	8015M	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	3546	8082A	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	3546	8270D SIM	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	5035A	8015M	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	METHOD	1613B	IV
25-Apr-2013	SL-519-SA7-SB-2.0-3.0	7036184	N	METHOD	7471B	IV
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	3050B	6010C	IV
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	3050B	6020A	IV
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	3546	8015M	IV
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	3546	8082A	IV
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	3546	8270D SIM	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	METHOD	1613B	IV
25-Apr-2013	SL-509-SA7-SB-0.0-0.5	7036185	N	METHOD	7471B	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	3050B	6010C	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	3050B	6020A	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	3546	8015M	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	3546	8082A	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	3546	8270D SIM	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	METHOD	1613B	IV
25-Apr-2013	SL-506-SA7-SB-0.0-0.5	7036186	N	METHOD	7471B	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	3050B	6010C	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	3050B	6020A	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	3546	8015M	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	3546	8082A	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	3546	8270D SIM	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	METHOD	1613B	IV
25-Apr-2013	SL-508-SA7-SB-0.0-0.5	7036187	N	METHOD	7471B	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-506-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 11:10:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.916	J	0.504	MDL	4.03	PQL	mg/Kg	J	Z, Q
ARSENIC	3.92	J	0.333	MDL	4.03	PQL	mg/Kg	J	Z
BERYLLIUM	0.573	J	0.0675	MDL	1.01	PQL	mg/Kg	J	Z
BORON	12.0		0.837	MDL	10.1	PQL	mg/Kg	U	F
CADMIUM	0.302	J	0.0333	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	3680		4.05	MDL	20.2	PQL	mg/Kg	J	E
COBALT	6.43		0.0907	MDL	1.01	PQL	mg/Kg	J	E
LEAD	8.97		0.474	MDL	3.02	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.477	J	0.171	MDL	2.02	PQL	mg/Kg	U	F
PHOSPHORUS	504		0.514	MDL	10.1	PQL	mg/Kg	J	E
POTASSIUM	4030		13.6	MDL	101	PQL	mg/Kg	J	Q
SODIUM	80.3	J	16.8	MDL	101	PQL	mg/Kg	U	F
TIN	2.86	J	0.222	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.98	J	0.837	MDL	5.04	PQL	mg/Kg	J	Z

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.03	U	0.504	MDL	4.03	PQL	mg/Kg	UJ	Q
BERYLLIUM	0.526	J	0.0675	MDL	1.01	PQL	mg/Kg	J	Z
BORON	10.5		0.836	MDL	10.1	PQL	mg/Kg	U	F
CADMIUM	0.256	J	0.0332	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	3810		4.05	MDL	20.1	PQL	mg/Kg	J	E
COBALT	4.48		0.0906	MDL	1.01	PQL	mg/Kg	J	E
LEAD	9.87		0.473	MDL	3.02	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.297	J	0.171	MDL	2.01	PQL	mg/Kg	U	F
PHOSPHORUS	382		0.514	MDL	10.1	PQL	mg/Kg	J	E
POTASSIUM	3260		13.6	MDL	101	PQL	mg/Kg	J	Q
SODIUM	65.0	J	16.8	MDL	101	PQL	mg/Kg	U	F
TIN	2.82	J	0.222	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.05	J	0.836	MDL	5.04	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	1.04	J	0.491	MDL	3.93	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.429	J	0.0658	MDL	0.982	PQL	mg/Kg	J	Z
BORON	11.8		0.815	MDL	9.82	PQL	mg/Kg	U	F
CADMIUM	0.260	J	0.0324	MDL	0.982	PQL	mg/Kg	J	Z
CALCIUM	2870		3.95	MDL	19.6	PQL	mg/Kg	J	E
COBALT	8.41		0.0884	MDL	0.982	PQL	mg/Kg	J	E
LEAD	20.2		0.461	MDL	2.95	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.656	J	0.167	MDL	1.96	PQL	mg/Kg	U	F
PHOSPHORUS	448		0.501	MDL	9.82	PQL	mg/Kg	J	E
POTASSIUM	3230		13.3	MDL	98.2	PQL	mg/Kg	J	Q
SODIUM	69.7	J	16.4	MDL	98.2	PQL	mg/Kg	U	F
TIN	3.24	J	0.216	MDL	9.82	PQL	mg/Kg	U	B
Zirconium	2.34	J	0.815	MDL	4.91	PQL	mg/Kg	J	Z

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.692	J	0.507	MDL	4.06	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.486	J	0.0680	MDL	1.01	PQL	mg/Kg	J	Z
BORON	11.7		0.842	MDL	10.1	PQL	mg/Kg	U	F
CADMIUM	0.330	J	0.0335	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	4410		4.08	MDL	20.3	PQL	mg/Kg	J	E
COBALT	5.83		0.0913	MDL	1.01	PQL	mg/Kg	J	E
LEAD	17.0		0.477	MDL	3.04	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.337	J	0.173	MDL	2.03	PQL	mg/Kg	U	F
PHOSPHORUS	422		0.518	MDL	10.1	PQL	mg/Kg	J	E
POTASSIUM	2940		13.7	MDL	101	PQL	mg/Kg	J	Q
SODIUM	77.7	J	16.9	MDL	101	PQL	mg/Kg	U	F
TIN	6.56	J	0.223	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.53	J	0.842	MDL	5.07	PQL	mg/Kg	J	Z

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.63		0.507	MDL	4.06	PQL	mg/Kg	J	Q, FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BERYLLIUM	0.463	J	0.0680	MDL	1.01	PQL	mg/Kg	J	Z
BORON	15.6		0.842	MDL	10.1	PQL	mg/Kg	U	F
CADMIUM	1.19		0.0335	MDL	1.01	PQL	mg/Kg	J	FD
CALCIUM	7940		4.08	MDL	20.3	PQL	mg/Kg	J	E
COBALT	7.61		0.0913	MDL	1.01	PQL	mg/Kg	J	E, FD
LEAD	23.8		0.477	MDL	3.04	PQL	mg/Kg	J	Q, E
MOLYBDENUM	2.79		0.172	MDL	2.03	PQL	mg/Kg	J	FD
NICKEL	8.90		0.112	MDL	2.03	PQL	mg/Kg	J	A
PHOSPHORUS	679		0.517	MDL	10.1	PQL	mg/Kg	J	E, A
POTASSIUM	3090		13.7	MDL	101	PQL	mg/Kg	J	Q
SODIUM	88.9	J	16.9	MDL	101	PQL	mg/Kg	U	F
TIN	10.9		0.223	MDL	10.1	PQL	mg/Kg	J	FD
Zirconium	2.49	J	0.842	MDL	5.07	PQL	mg/Kg	J	Z

Sample ID: **SL-519-SA7-SB-2.0-3.0** ***Collected:*** **4/25/2013 9:50:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.737	J	0.507	MDL	4.06	PQL	mg/Kg	J	Z, Q
ARSENIC	3.96	J	0.335	MDL	4.06	PQL	mg/Kg	J	Z
BERYLLIUM	0.506	J	0.0680	MDL	1.01	PQL	mg/Kg	J	Z
BORON	10.6		0.842	MDL	10.1	PQL	mg/Kg	U	F
CADMIUM	0.239	J	0.0335	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	3800		4.08	MDL	20.3	PQL	mg/Kg	J	E
COBALT	5.56		0.0913	MDL	1.01	PQL	mg/Kg	J	E
LEAD	7.87		0.477	MDL	3.04	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.406	J	0.173	MDL	2.03	PQL	mg/Kg	U	F
PHOSPHORUS	408		0.518	MDL	10.1	PQL	mg/Kg	J	E
POTASSIUM	2850		13.7	MDL	101	PQL	mg/Kg	J	Q
SODIUM	95.0	J	16.9	MDL	101	PQL	mg/Kg	U	F
TIN	2.54	J	0.223	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.27	J	0.842	MDL	5.07	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-819-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:50:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.542	J	0.517	MDL	4.14	PQL	mg/Kg	J	Z, Q, FD
ARSENIC	4.09	J	0.341	MDL	4.14	PQL	mg/Kg	J	Z
BERYLLIUM	0.473	J	0.0693	MDL	1.03	PQL	mg/Kg	J	Z
BORON	13.7		0.859	MDL	10.3	PQL	mg/Kg	U	F
CADMIUM	0.380	J	0.0341	MDL	1.03	PQL	mg/Kg	J	Z, FD
CALCIUM	6150		4.16	MDL	20.7	PQL	mg/Kg	J	E
COBALT	4.40		0.0931	MDL	1.03	PQL	mg/Kg	J	E, FD
LEAD	15.1		0.486	MDL	3.10	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.337	J	0.176	MDL	2.07	PQL	mg/Kg	UJ	FD, F
PHOSPHORUS	515		0.528	MDL	10.3	PQL	mg/Kg	J	E
POTASSIUM	3320		14.0	MDL	103	PQL	mg/Kg	J	Q
SODIUM	84.8	J	17.3	MDL	103	PQL	mg/Kg	U	F
TIN	2.68	J	0.228	MDL	10.3	PQL	mg/Kg	UJ	B, FD
Zirconium	2.54	J	0.859	MDL	5.17	PQL	mg/Kg	J	Z

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-506-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 11:10:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.187	J	0.101	MDL	0.403	PQL	mg/Kg	J	Z

Sample ID: **SL-506-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 11:10:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0605	J	0.0202	MDL	0.202	PQL	mg/Kg	J	Z

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.159	J	0.101	MDL	0.403	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0213	J	0.0201	MDL	0.201	PQL	mg/Kg	J	Z

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.109	J	0.0982	MDL	0.393	PQL	mg/Kg	J	Z

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0678	J	0.0196	MDL	0.196	PQL	mg/Kg	J	Z

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.209	J	0.101	MDL	0.406	PQL	mg/Kg	J	Z

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0409	J	0.0203	MDL	0.203	PQL	mg/Kg	J	Z

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.189	J	0.101	MDL	0.406	PQL	mg/Kg	J	Z

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0351	J	0.0203	MDL	0.203	PQL	mg/Kg	J	Z

Sample ID: **SL-519-SA7-SB-2.0-3.0** ***Collected:*** **4/25/2013 9:50:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.154	J	0.101	MDL	0.406	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS

Method: 6020A **Matrix:** SO

Sample ID: SL-519-SA7-SB-2.0-3.0 **Collected:** 4/25/2013 9:50:00 **Analysis Type:** RES/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0224	J	0.0203	MDL	0.203	PQL	mg/Kg	J	Z

Sample ID: SL-819-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 8:50:00 **Analysis Type:** REA/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.139	J	0.103	MDL	0.414	PQL	mg/Kg	J	Z

Sample ID: SL-819-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 8:50:00 **Analysis Type:** RES/TOT **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0326	J	0.0207	MDL	0.207	PQL	mg/Kg	J	Z

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-506-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 11:10:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	0.952	JB	0.0210	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.118	JBQ	0.0297	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.130	JBQ	0.0316	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.209	JBQ	0.0248	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.257	J	0.0329	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.171	JB	0.0231	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.290	JQ	0.0317	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.110	JB	0.0251	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.0965	JBQ	0.0282	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.217	JB	0.0231	MDL	5.01	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.107	JBQ	0.0239	MDL	5.01	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.253	JBQ	0.0226	MDL	5.01	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0231	JQ	0.0194	MDL	1.00	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.154	J	0.0353	MDL	1.00	PQL	ng/Kg	J	Z
OCDF	1.96	JB	0.0253	MDL	10.0	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	1.80	JB	0.0499	MDL	5.05	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.121	JBQ	0.0683	MDL	5.05	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.144	JBQ	0.0536	MDL	5.05	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.248	JBQ	0.0419	MDL	5.05	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.488	JQ	0.0583	MDL	5.05	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.169	JBQ	0.0390	MDL	5.05	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.374	JQ	0.0492	MDL	5.05	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.177	JBQ	0.0438	MDL	5.05	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.304	JB	0.0337	MDL	5.05	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.167	JBQ	0.0366	MDL	5.05	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.288	JBQ	0.0331	MDL	5.05	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.224	JQ	0.0501	MDL	1.01	PQL	ng/Kg	J	Z
OCDF	4.63	JB	0.0572	MDL	10.1	PQL	ng/Kg	J	Z

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	0.386	JBQ	0.0423	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.257	JB	0.0479	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	1.64	JB	0.0520	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.772	J	0.0503	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.595	JB	0.0507	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.505	JQ	0.0452	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.190	JBQ	0.0471	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.265	JBQ	0.0728	MDL	4.87	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	2.61	JB	0.0556	MDL	4.87	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.481	JB	0.0503	MDL	4.87	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.773	JB	0.0537	MDL	4.87	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0607	J	0.0213	MDL	0.973	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.628	J	0.113	MDL	0.973	PQL	ng/Kg	J	Z

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	2.03	JB	0.0687	MDL	5.08	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HxCDD	1.80	JB	0.0536	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	2.67	JB	0.0567	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	1.26	JB	0.0530	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	3.43	J	0.0560	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	2.32	JB	0.0506	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	1.34	JB	0.0556	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	1.04	JB	0.0442	MDL	5.08	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0597	JQ	0.0279	MDL	1.02	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.880	J	0.0941	MDL	1.02	PQL	ng/Kg	J	Z

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	2.91	JB	0.0437	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.344	JB	0.0554	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.276	JBQ	0.0546	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.486	JB	0.0371	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	1.02	J	0.0589	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.299	JBQ	0.0345	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.691	J	0.0528	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.114	JBQ	0.0310	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.205	JBQ	0.0451	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.711	JB	0.0442	MDL	5.10	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.303	JB	0.0353	MDL	5.10	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.495	JBQ	0.0427	MDL	5.10	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0651	JQ	0.0276	MDL	1.02	PQL	ng/Kg	J	Z, FD
2,3,7,8-TCDF	0.365	JQ	0.0671	MDL	1.02	PQL	ng/Kg	J	Z, FD
OCDD	270	B	0.0500	MDL	10.2	PQL	ng/Kg	J	Q
OCDF	7.75	JB	0.0513	MDL	10.2	PQL	ng/Kg	J	Z, FD

Sample ID: **SL-519-SA7-SB-2.0-3.0** ***Collected:*** **4/25/2013 9:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	4.07	JB	0.0229	MDL	5.06	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.565	JB	0.0154	MDL	5.06	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-519-SA7-SB-2.0-3.0** ***Collected:*** **4/25/2013 9:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	0.0915	JBQ	0.0222	MDL	5.06	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.119	JQ	0.0241	MDL	5.06	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.112	JB	0.0195	MDL	5.06	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.209	JB	0.0248	MDL	5.06	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.118	JBQ	0.0175	MDL	5.06	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.183	JB	0.0253	MDL	5.06	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0583	JBQ	0.0198	MDL	5.06	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0778	JBQ	0.0226	MDL	5.06	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.250	JBQ	0.0156	MDL	5.06	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.103	JBQ	0.0176	MDL	5.06	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.160	JBQ	0.0159	MDL	5.06	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.142	J	0.0309	MDL	1.01	PQL	ng/Kg	J	Z
OCDF	1.54	JB	0.0270	MDL	10.1	PQL	ng/Kg	J	Z

Sample ID: **SL-819-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	3.38	JB	0.0395	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.298	JBQ	0.0648	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.317	JB	0.0540	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.435	JB	0.0413	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.728	J	0.0562	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.307	JBQ	0.0383	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.654	J	0.0537	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.108	JBQ	0.0383	MDL	5.08	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.210	JBQ	0.0444	MDL	5.08	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.577	JBQ	0.0385	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.284	JB	0.0403	MDL	5.08	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.484	JBQ	0.0363	MDL	5.08	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0291	JQ	0.0290	MDL	1.02	PQL	ng/Kg	J	Z, FD
2,3,7,8-TCDF	0.184	JQ	0.0703	MDL	1.02	PQL	ng/Kg	J	Z, FD
OCDF	13.7	B	0.0491	MDL	10.2	PQL	ng/Kg	J	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: **SL-506-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 11:10:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	2.8	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z
EFH (C30-C40)	40		4.2	MDL	10	PQL	mg/Kg	J	L

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	23		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	42		4.0	MDL	10	PQL	mg/Kg	J	L

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **5**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	140		21	MDL	52	PQL	mg/Kg	J	L

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C12-C14)	2.5	J	2.0	MDL	5.1	PQL	mg/Kg	J	Z, Q, FD
EFH (C30-C40)	95		4.1	MDL	10	PQL	mg/Kg	J	L
EFH (C8-C11)	3.0	J	2.0	MDL	5.1	PQL	mg/Kg	J	Z, Q, FD

Sample ID: **SL-519-SA7-SB-2.0-3.0** ***Collected:*** **4/25/2013 9:50:00** ***Analysis Type:*** **REA** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	51		4.1	MDL	10	PQL	mg/Kg	J	L

Sample ID: **SL-819-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C12-C14)	5.2	U	2.1	MDL	5.2	PQL	mg/Kg	UJ	FD
EFH (C30-C40)	79		4.2	MDL	10	PQL	mg/Kg	J	L
EFH (C8-C11)	5.2	U	2.1	MDL	5.2	PQL	mg/Kg	UJ	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**
Method: **8015M** ***Matrix:*** **SO**

Method Category: **SVOA**
Method: **8082A** ***Matrix:*** **SO**

Sample ID: **SL-506-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 11:10:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5442	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5460	34	U	10	MDL	34	PQL	ug/Kg	UJ	E

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5442	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5460	34	U	10	MDL	34	PQL	ug/Kg	UJ	E

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	110		4.4	MDL	17	PQL	ug/Kg	J	S
Aroclor 5432	33	U	9.9	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	9.9	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5460	49		9.9	MDL	33	PQL	ug/Kg	J	S, E

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5442	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5460	57		10	MDL	34	PQL	ug/Kg	J	E

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	7.0	J	4.4	MDL	17	PQL	ug/Kg	J	Z
Aroclor 5432	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8082A **Matrix:** SO

Sample ID: SL-519-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 8:45:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

Sample ID: SL-519-SA7-SB-2.0-3.0 **Collected:** 4/25/2013 9:50:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5442	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5460	34	U	10	MDL	34	PQL	ug/Kg	UJ	E

Sample ID: SL-819-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 8:50:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	6.1	J	4.5	MDL	17	PQL	ug/Kg	J	Z
Aroclor 5432	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5442	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5460	34	U	10	MDL	34	PQL	ug/Kg	UJ	E

Method Category: SVOA
Method: 8270D SIM **Matrix:** SO

Sample ID: SL-506-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 11:10:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.81	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	1.2	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.41	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	0.71	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	0.82	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	7.8	J	6.2	MDL	19	PQL	ug/Kg	J	Z
Butylbenzylphthalate	17	J	6.2	MDL	19	PQL	ug/Kg	J	Z

Sample ID: SL-507-SA7-SB-0.0-0.5 **Collected:** 4/24/2013 3:05:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.84	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-507-SA7-SB-0.0-0.5** ***Collected:*** **4/24/2013 3:05:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	1.4	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.3	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.94	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	9.9	J	6.2	MDL	19	PQL	ug/Kg	J	Z
Butylbenzylphthalate	14	J	6.2	MDL	19	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.84	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	0.97	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-508-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 1:20:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.75	J	0.67	MDL	1.7	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	1.4	J	0.67	MDL	1.7	PQL	ug/Kg	J	Z
ACENAPHTHYLENE	1.0	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.64	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	7.4	J	3.4	MDL	17	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	8.9	J	6.1	MDL	18	PQL	ug/Kg	J	Z
DIBENZO(A,H)ANTHRACENE	1.3	J	0.67	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-509-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 10:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
ACENAPHTHYLENE	0.46	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.60	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	4.5	J	3.4	MDL	18	PQL	ug/Kg	J	Z
Butylbenzylphthalate	17	J	6.2	MDL	19	PQL	ug/Kg	J	Z
DIBENZO(A,H)ANTHRACENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.88	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
2-METHYLNAPHTHALENE	1.5	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-519-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:45:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ACENAPHTHYLENE	0.39	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z, FD
ANTHRACENE	0.52	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	4.5		0.68	MDL	1.7	PQL	ug/Kg	J	Q, Q
BENZO(A)PYRENE	5.0		0.68	MDL	1.7	PQL	ug/Kg	J	Q, Q, FD
BENZO(B)FLUORANTHENE	13		0.68	MDL	1.7	PQL	ug/Kg	J	Q, Q, FD
BENZO(E)PYRENE	5.5	J	3.4	MDL	17	PQL	ug/Kg	J	Z, Q, FD
BENZO(G,H,I)PERYLENE	2.8		0.68	MDL	1.7	PQL	ug/Kg	J	Q, FD
BENZO(K)FLUORANTHENE	9.1		0.68	MDL	1.7	PQL	ug/Kg	J	FD
CHRYSENE	9.0		0.34	MDL	1.7	PQL	ug/Kg	J	Q, Q, FD
DIBENZO(A,H)ANTHRACENE	1.0	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z, FD
FLUORANTHENE	9.1		0.68	MDL	1.7	PQL	ug/Kg	J	Q, Q
INDENO(1,2,3-CD)PYRENE	2.5		0.68	MDL	1.7	PQL	ug/Kg	J	Q, FD
NAPHTHALENE	1.5	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	7.9		0.68	MDL	1.7	PQL	ug/Kg	J	Q, Q

Sample ID: **SL-519-SA7-SB-2.0-3.0** ***Collected:*** **4/25/2013 9:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.96	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	0.68	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	4.1	J	3.4	MDL	18	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	10	J	6.2	MDL	19	PQL	ug/Kg	J	Z
NAPHTHALENE	0.95	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-819-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
ACENAPHTHYLENE	1.7	U	0.35	MDL	1.7	PQL	ug/Kg	UJ	FD
ANTHRACENE	0.59	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	2.7		0.70	MDL	1.7	PQL	ug/Kg	J	FD
BENZO(B)FLUORANTHENE	5.9		0.70	MDL	1.7	PQL	ug/Kg	J	FD
BENZO(E)PYRENE	18	U	3.5	MDL	18	PQL	ug/Kg	UJ	FD
BENZO(G,H,I)PERYLENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z, FD
BENZO(K)FLUORANTHENE	2.4		0.70	MDL	1.7	PQL	ug/Kg	J	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-819-SA7-SB-0.0-0.5** ***Collected:*** **4/25/2013 8:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
BIS(2-ETHYLHEXYL)PHTHALATE	14	J	6.3	MDL	19	PQL	ug/Kg	J	Z
CHRYSENE	5.0		0.35	MDL	1.7	PQL	ug/Kg	J	FD
DIBENZO(A,H)ANTHRACENE	1.7	U	0.70	MDL	1.7	PQL	ug/Kg	UJ	FD
INDENO(1,2,3-CD)PYRENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z, FD

* denotes a non-reportable result

Data Qualifier Summary

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Method Blank Contamination
E	Laboratory Control Precision
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Field Blank Contamination
FD	Field Duplicate Precision
L	Laboratory Control Precision
L	Laboratory Control Spike Lower Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH039

Method Blank Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1230B372212	5/6/2013 10:12:00 PM	1,2,3,4,6,7,8-HPCDD	0.0789 ng/Kg	SL-506-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0301 ng/Kg	SL-507-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0373 ng/Kg	SL-508-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HxCDD	0.0263 ng/Kg	SL-509-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HXCDF	0.0360 ng/Kg	SL-519-SA7-SB-0.0-0.5
		1,2,3,6,7,8-HXCDF	0.0277 ng/Kg	SL-819-SA7-SB-0.0-0.5
		1,2,3,7,8,9-HXCDF	0.0157 ng/Kg	
		1,2,3,7,8-PECDD	0.0477 ng/Kg	
		1,2,3,7,8-PECDF	0.0390 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0328 ng/Kg	
		2,3,4,7,8-PECDF	0.0517 ng/Kg	
		OCDD	0.143 ng/Kg	
		OCDF	0.125 ng/Kg	
BLK1280B371731	5/9/2013 5:31:00 PM	1,2,3,4,6,7,8-HPCDD	0.0475 ng/Kg	SL-519-SA7-SB-2.0-3.0
		1,2,3,4,6,7,8-HPCDF	0.0382 ng/Kg	
		1,2,3,4,7,8,9-HPCDF	0.0528 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0342 ng/Kg	
		1,2,3,6,7,8-HXCDD	0.0224 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0236 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0332 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0403 ng/Kg	
		1,2,3,7,8-PECDD	0.0260 ng/Kg	
		1,2,3,7,8-PECDF	0.0349 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0367 ng/Kg	
		2,3,4,7,8-PECDF	0.0209 ng/Kg	
		OCDD	0.242 ng/Kg	
		OCDF	0.136 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-506-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.118 ng/Kg	0.118U ng/Kg
SL-506-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.130 ng/Kg	0.130U ng/Kg
SL-506-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.0965 ng/Kg	0.0965U ng/Kg
SL-506-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.107 ng/Kg	0.107U ng/Kg
SL-506-SA7-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.253 ng/Kg	0.253U ng/Kg
SL-507-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.121 ng/Kg	0.121U ng/Kg
SL-507-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.177 ng/Kg	0.177U ng/Kg
SL-519-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.205 ng/Kg	0.205U ng/Kg
SL-519-SA7-SB-2.0-3.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0915 ng/Kg	0.0915U ng/Kg
SL-519-SA7-SB-2.0-3.0(RES)	1,2,3,4,7,8-HXCDF	0.112 ng/Kg	0.112U ng/Kg
SL-519-SA7-SB-2.0-3.0(RES)	1,2,3,6,7,8-HXCDF	0.118 ng/Kg	0.118U ng/Kg
SL-519-SA7-SB-2.0-3.0(RES)	1,2,3,7,8,9-HXCDF	0.0583 ng/Kg	0.0583U ng/Kg
SL-519-SA7-SB-2.0-3.0(RES)	1,2,3,7,8-PECDD	0.0778 ng/Kg	0.0778U ng/Kg
SL-519-SA7-SB-2.0-3.0(RES)	2,3,4,6,7,8-HXCDF	0.103 ng/Kg	0.103U ng/Kg
SL-819-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.210 ng/Kg	0.210U ng/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P12237AB221100	5/3/2013 11:00:00 AM	PHOSPHORUS TIN	1.44 mg/Kg 1.47 mg/Kg	SL-506-SA7-SB-0.0-0.5 SL-507-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5 SL-509-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-819-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-506-SA7-SB-0.0-0.5(RES/TOT)	TIN	2.86 mg/Kg	2.86U mg/Kg
SL-507-SA7-SB-0.0-0.5(RES/TOT)	TIN	2.82 mg/Kg	2.82U mg/Kg
SL-508-SA7-SB-0.0-0.5(RES/TOT)	TIN	3.24 mg/Kg	3.24U mg/Kg
SL-509-SA7-SB-0.0-0.5(RES/TOT)	TIN	6.56 mg/Kg	6.56U mg/Kg
SL-519-SA7-SB-2.0-3.0(RES/TOT)	TIN	2.54 mg/Kg	2.54U mg/Kg
SL-819-SA7-SB-0.0-0.5(RES/TOT)	TIN	2.68 mg/Kg	2.68U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PrepPH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-506-SA7-SB-0.0-0.5 SL-507-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5 SL-509-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-819-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-506-SA7-SB-0.0-0.5(RES/TOT)	BORON	12.0 mg/Kg	12.0U mg/Kg
SL-506-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.477 mg/Kg	0.477U mg/Kg
SL-506-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	80.3 mg/Kg	80.3U mg/Kg
SL-507-SA7-SB-0.0-0.5(RES/TOT)	BORON	10.5 mg/Kg	10.5U mg/Kg
SL-507-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.297 mg/Kg	0.297U mg/Kg
SL-507-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	65.0 mg/Kg	65.0U mg/Kg
SL-508-SA7-SB-0.0-0.5(RES/TOT)	BORON	11.8 mg/Kg	11.8U mg/Kg
SL-508-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.656 mg/Kg	0.656U mg/Kg
SL-508-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	69.7 mg/Kg	69.7U mg/Kg
SL-509-SA7-SB-0.0-0.5(RES/TOT)	BORON	11.7 mg/Kg	11.7U mg/Kg
SL-509-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.337 mg/Kg	0.337U mg/Kg
SL-509-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	77.7 mg/Kg	77.7U mg/Kg
SL-519-SA7-SB-0.0-0.5(RES/TOT)	BORON	15.6 mg/Kg	15.6U mg/Kg
SL-519-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	88.9 mg/Kg	88.9U mg/Kg
SL-519-SA7-SB-2.0-3.0(RES/TOT)	BORON	10.6 mg/Kg	10.6U mg/Kg
SL-519-SA7-SB-2.0-3.0(RES/TOT)	MOLYBDENUM	0.406 mg/Kg	0.406U mg/Kg
SL-519-SA7-SB-2.0-3.0(RES/TOT)	SODIUM	95.0 mg/Kg	95.0U mg/Kg
SL-819-SA7-SB-0.0-0.5(RES/TOT)	BORON	13.7 mg/Kg	13.7U mg/Kg
SL-819-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.337 mg/Kg	0.337U mg/Kg
SL-819-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	84.8 mg/Kg	84.8U mg/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8082A**
Matrix: **SO**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
SL-507-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	126	45.00-120.00	All Target Analytes	J (all detects)
SL-508-SA7-SB-0.0 -0.5	TETRACHLORO-M-XYLENE	124	45.00-120.00	All Target Analytes	J(all detects)

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8270D SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-519-SA7-SB-0.0-0.5MS	BENZO(A)ANTHRACENE	159	-	32.00-135.00	55 (30.00)	BENZO(A)ANTHRACENE	
SL-519-SA7-SB-0.0-0.5MSD	BENZO(A)PYRENE	143	-	36.00-138.00	45 (30.00)	BENZO(A)PYRENE	
(SL-519-SA7-SB-0.0-0.5)	BENZO(B)FLUORANTHENE	163	-	26.00-142.00	43 (30.00)	BENZO(B)FLUORANTHENE	
	BENZO(E)PYRENE	-	-	70.00-130.00	31 (30.00)	BENZO(E)PYRENE	
	BENZO(G,H,I)PERYLENE	-	-	33.00-141.00	35 (30.00)	BENZO(G,H,I)PERYLENE	J (all detects)
	CHRYSENE	163	-	29.00-148.00	55 (30.00)	CHRYSENE	
	FLUORANTHENE	205	-	47.00-135.00	70 (30.00)	FLUORANTHENE	
	INDENO(1,2,3-CD)PYRENE	-	-	17.00-136.00	32 (30.00)	INDENO(1,2,3-CD)PYRENE	
	PYRENE	195	-	26.00-143.00	75 (30.00)	PYRENE	

Method: 6010C
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-519-SA7-SB-0.0-0.5MS	ALUMINUM	1523	1646	75.00-125.00	-	ALUMINUM	
(TOT)	IRON	1009	1510	75.00-125.00	-	IRON	
SL-519-SA7-SB-0.0-0.5MSD	MAGNESIUM	264	282	75.00-125.00	-	MAGNESIUM	
(TOT)	POTASSIUM	129	135	75.00-125.00	-	POTASSIUM	J(all detects)
(SL-506-SA7-SB-0.0-0.5	TITANIUM	315	362	75.00-125.00	-	TITANIUM	
SL -507-SA7-SB-0.0-0.5							
SL -508-SA7-SB-0.0-0.5							Al, Fe, Mg, Ti,
SL -509-SA7-SB-0.0-0.5							No Qual, >4x
SL -519-SA7-SB-0.0-0.5							
SL -519-SA7-SB-2.0-3.0							
SL -819-SA7-SB-0.0-0.5)							
SL-519-SA7-SB-0.0-0.5MS	CALCIUM	275	-53	75.00-125.00	-	CALCIUM	
(TOT)	PHOSPHORUS	-28	-49	75.00-125.00	-	PHOSPHORUS	
SL-519-SA7-SB-0.0-0.5MSD							
(TOT)							
(SL-506-SA7-SB-0.0-0.5							No Qual, >4x
SL -507-SA7-SB-0.0-0.5							
SL -508-SA7-SB-0.0-0.5							
SL -509-SA7-SB-0.0-0.5							
SL -519-SA7-SB-0.0-0.5							
SL -519-SA7-SB-2.0-3.0							
SL -819-SA7-SB-0.0-0.5)							
SL-519-SA7-SB-0.0-0.5MS	ANTIMONY	57	57	75.00-125.00	-	ANTIMONY	
(TOT)	LEAD	50	44	75.00-125.00	-	LEAD	
SL-519-SA7-SB-0.0-0.5MSD	MANGANESE	37	41	75.00-125.00	-	MANGANESE	J(all detects)
(TOT)							UJ(all non-detects)
(SL-506-SA7-SB-0.0-0.5							
SL -507-SA7-SB-0.0-0.5							
SL -508-SA7-SB-0.0-0.5							Mn,
SL -509-SA7-SB-0.0-0.5							No Qual, >4x
SL -519-SA7-SB-0.0-0.5							
SL -519-SA7-SB-2.0-3.0							
SL -819-SA7-SB-0.0-0.5)							

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6020A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-519-SA7-SB-0.0-0.5MS (TOT) (SL-506-SA7-SB-0.0-0.5 SL -507-SA7-SB-0.0-0.5 SL -508-SA7-SB-0.0-0.5 SL -509-SA7-SB-0.0-0.5 SL -519-SA7-SB-0.0-0.5 SL -519-SA7-SB-2.0-3.0 SL -819-SA7-SB-0.0-0.5)	STRONTIUM	39	-	75.00-125.00	-	STRONTIUM	No Qual, >4x

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-519-SA7-SB-0.0-0.5MS SL-519-SA7-SB-0.0-0.5MSD (SL-519-SA7-SB-0.0-0.5)	EFH (C12-C14)	147	137	49.00-123.00	-	EFH (C12-C14)	J(all detects)
	EFH (C15-C20)	418	352	49.00-123.00	-	EFH (C15-C20)	
	EFH (C21-C30)	1125	986	49.00-123.00	-	EFH (C21-C30)	EFH (C15-C20), EFH (C21-C30), EFH (C30-C40), No Qual, >4x
	EFH (C30-C40)	406	755	49.00-123.00	-	EFH (C30-C40)	
	EFH (C8-C11)	140	151	49.00-123.00	-	EFH (C8-C11)	

Method: 1613B
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-519-SA7-SB-0.0-0.5MS (SL-519-SA7-SB-0.0-0.5)	OCDD	30	-	40.00-135.00	-	OCDD	J(all detects) UJ(all non-detects)

Lab Duplicate Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 160.3M
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-519-SA7-SB-0.0-0.5DUP (SL-507-SA7-SB-0.0-0.5 SL -819-SA7-SB-0.0-0.5)	MOISTURE	28		

Method: 6010C
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-519-SA7-SB-0.0-0.5DUP (TOT) (SL-506-SA7-SB-0.0-0.5 SL -507-SA7-SB-0.0-0.5 SL -508-SA7-SB-0.0-0.5 SL -509-SA7-SB-0.0-0.5 SL -519-SA7-SB-0.0-0.5 SL -519-SA7-SB-2.0-3.0 SL -819-SA7-SB-0.0-0.5)	ANTIMONY	200	20.00	J(all detects) UJ(all non-detects)
	CADMIUM	124	20.00	
	CALCIUM	26	20.00	
	COBALT	63	20.00	
	LEAD	54	20.00	
	MOLYBDENUM	155	20.00	Sb, Cd, Mo, Sn, No Qual, OK by Difference
	PHOSPHORUS	36	20.00	
	TIN	119	20.00	

Method: 6020A
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-519-SA7-SB-0.0-0.5DUP (TOT) (SL-506-SA7-SB-0.0-0.5 SL -507-SA7-SB-0.0-0.5 SL -508-SA7-SB-0.0-0.5 SL -509-SA7-SB-0.0-0.5 SL -519-SA7-SB-0.0-0.5 SL -519-SA7-SB-2.0-3.0 SL -819-SA7-SB-0.0-0.5)	SILVER	33	20.00	No Qual, OK by Difference

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31201AQ320351A (SL-506-SA7-SB-0.0-0.5 SL -507-SA7-SB-0.0-0.5 SL -508-SA7-SB-0.0-0.5 SL -509-SA7-SB-0.0-0.5 SL -519-SA7-SB-0.0-0.5 SL -519-SA7-SB-2.0-3.0 SL -819-SA7-SB-0.0-0.5)	EFH (C30-C40)	63	-	65.00-128.00	-	EFH (C30-C40)	J (all detects) UJ (all non-detects)

Method: 8082A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31207AY240140A (SL-506-SA7-SB-0.0-0.5 SL -507-SA7-SB-0.0-0.5 SL -508-SA7-SB-0.0-0.5 SL -509-SA7-SB-0.0-0.5 SL -519-SA7-SB-0.0-0.5 SL -519-SA7-SB-2.0-3.0 SL -819-SA7-SB-0.0-0.5)	Aroclor 5442	-	-	36.00-106.00	40 (30.00)	Aroclor 5432 Aroclor 5442 Aroclor 5460	J(all detects) UJ(all non-detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 160.3M
Matrix: SO

Analyte	Concentration (%)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
MOISTURE	2.4	4.3	57		No Qualifiers Applied

Method: 1613B
Matrix: SO

Analyte	Concentration (ng/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
1,2,3,4,6,7,8-HPCDD	25.2	17.1	38	50.00	No Qualifiers Applied
1,2,3,4,6,7,8-HPCDF	2.91	3.38	15	50.00	
1,2,3,4,7,8,9-HPCDF	0.344	0.298	14	50.00	
1,2,3,4,7,8-HxCDD	0.276	0.317	14	50.00	
1,2,3,4,7,8-HXCDF	0.486	0.435	11	50.00	
1,2,3,6,7,8-HXCDD	1.02	0.728	33	50.00	
1,2,3,6,7,8-HXCDF	0.299	0.307	3	50.00	
1,2,3,7,8,9-HXCDD	0.691	0.654	6	50.00	
1,2,3,7,8,9-HXCDF	0.114	0.108	5	50.00	
1,2,3,7,8-PECDD	0.205	0.210	2	50.00	
1,2,3,7,8-PECDF	0.711	0.577	21	50.00	
2,3,4,6,7,8-HXCDF	0.303	0.284	6	50.00	
2,3,4,7,8-PECDF	0.495	0.484	2	50.00	
OCDD	270	174	43	50.00	
2,3,7,8-TCDD	0.0651	0.0291	76	50.00	J(all detects)
2,3,7,8-TCDF	0.365	0.184	66	50.00	
OCDF	7.75	13.7	55	50.00	

Method: 6010C
Matrix: SO

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5 (TOT)	SL-819-SA7-SB-0.0-0.5 (TOT)			
ALUMINUM	11700	12000	3	50.00	No Qualifiers Applied
ARSENIC	4.45	4.09	8	50.00	
BARIUM	104	107	3	50.00	
BERYLLIUM	0.463	0.473	2	50.00	
BORON	15.6	13.7	13	50.00	
CALCIUM	7940	6150	25	50.00	
CHROMIUM	15.4	17.0	10	50.00	
COPPER	12.3	12.0	2	50.00	
IRON	17900	18500	3	50.00	
LEAD	23.8	15.1	45	50.00	
LITHIUM	20.2	19.6	3	50.00	
MAGNESIUM	4490	4550	1	50.00	
MANGANESE	355	328	8	50.00	
NICKEL	8.90	10.1	13	50.00	
PHOSPHORUS	679	515	27	50.00	
POTASSIUM	3090	3320	7	50.00	
SODIUM	88.9	84.8	5	50.00	
TITANIUM	977	1040	6	50.00	
VANADIUM	29.3	30.2	3	50.00	
ZINC	71.0	69.5	2	50.00	
Zirconium	2.49	2.54	2	50.00	

Field Duplicate RPD Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6010C
Matrix: SO

ANTIMONY	4.63	0.542	158	50.00	J(all detects)
CADMIUM	1.19	0.380	103	50.00	
COBALT	7.61	4.40	53	50.00	
MOLYBDENUM	2.79	0.337	157	50.00	
TIN	10.9	2.68	121	50.00	

Method: 6020A
Matrix: SO

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5 (TOT)	SL-819-SA7-SB-0.0-0.5 (TOT)			
SELENIUM	0.189	0.139	30	50.00	No Qualifiers Applied
SILVER	0.0351	0.0326	7	50.00	
STRONTIUM	37.5	36.6	2	50.00	
THALLIUM	0.230	0.259	12	50.00	

Method: 7471B
Matrix: SO

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5 (TOT)	SL-819-SA7-SB-0.0-0.5 (TOT)			
MERCURY	0.0581	0.0492	17	50.00	No Qualifiers Applied

Method: 8015M
Matrix: SO

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
EFH (C15-C20)	14	14	0	50.00	No Qualifiers Applied
EFH (C21-C30)	41	56	31	50.00	
EFH (C30-C40)	95	79	18	50.00	
EFH (C12-C14)	2.5	5.2 U	200	50.00	J(all detects)
EFH (C8-C11)	3.0	5.2 U	200	50.00	UJ(all non-detects)

Method: 8082A
Matrix: SO

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
AROCLOR 1254	7.0	6.1	14	50.00	No Qualifiers Applied

Field Duplicate RPD Report

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8270D SIM
Matrix: SO

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
1-METHYLNAPHTHALENE	0.88	1.1	22	50.00	No Qualifiers Applied
2-METHYLNAPHTHALENE	1.5	1.8	18	50.00	
ANTHRACENE	0.52	0.59	13	50.00	
BENZO(A)ANTHRACENE	4.5	2.8	47	50.00	
BIS(2-ETHYLHEXYL)PHTHALATE	21	14	40	50.00	
FLUORANTHENE	9.1	5.8	44	50.00	
FLUORENE	3.9	3.5	11	50.00	
NAPHTHALENE	1.5	2.1	33	50.00	
PHENANTHRENE	3.1	3.3	6	50.00	
PYRENE	7.9	5.0	45	50.00	
ACENAPHTHYLENE	0.39	1.7 U	200	50.00	J(all detects) UJ(all non-detects)
BENZO(A)PYRENE	5.0	2.7	60	50.00	
BENZO(B)FLUORANTHENE	13	5.9	75	50.00	
BENZO(E)PYRENE	5.5	18 U	200	50.00	
BENZO(G,H,I)PERYLENE	2.8	1.4	67	50.00	
BENZO(K)FLUORANTHENE	9.1	2.4	117	50.00	
CHRYSENE	9.0	5.0	57	50.00	
DIBENZO(A,H)ANTHRACENE	1.0	1.7 U	200	50.00	
INDENO(1,2,3-CD)PYRENE	2.5	1.4	56	50.00	

Method: 9045M
Matrix: SO

Analyte	Concentration (pH unit)		Sample RPD	eQAPP RPD	Flag
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
PH	7.32	7.59	4	50.00	No Qualifiers Applied

Reporting Limit Outliers

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-506-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	0.952	5.01	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JBQ	0.118	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.130	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.209	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.257	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.171	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JQ	0.290	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.110	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0965	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.217	5.01	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.107	5.01	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.253	5.01	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0231	1.00	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.154	1.00	PQL	ng/Kg	
	OCDF	JB	1.96	10.0	PQL	ng/Kg	
SL-507-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	1.80	5.05	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JBQ	0.121	5.05	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.144	5.05	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.248	5.05	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JQ	0.488	5.05	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.169	5.05	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JQ	0.374	5.05	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.177	5.05	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.304	5.05	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.167	5.05	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.288	5.05	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.224	1.01	PQL	ng/Kg	
	OCDF	JB	4.63	10.1	PQL	ng/Kg	
SL-508-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JBQ	0.386	4.87	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	0.257	4.87	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	1.64	4.87	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.772	4.87	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.595	4.87	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JQ	0.505	4.87	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.190	4.87	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.265	4.87	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	2.61	4.87	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.481	4.87	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.773	4.87	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.0607	0.973	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.628	0.973	PQL	ng/Kg	
SL-509-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	2.03	5.08	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	1.80	5.08	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	2.67	5.08	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	1.26	5.08	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	J	3.43	5.08	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	2.32	5.08	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	1.34	5.08	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	1.04	5.08	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0597	1.02	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.880	1.02	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-519-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	2.91	5.10	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.344	5.10	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.276	5.10	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.486	5.10	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	1.02	5.10	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.299	5.10	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	J	0.691	5.10	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.114	5.10	PQL	ng/Kg	J (all detects)
	1,2,3,7,8-PECDD	JBQ	0.205	5.10	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.711	5.10	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.303	5.10	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.495	5.10	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0651	1.02	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.365	1.02	PQL	ng/Kg	
	OCDF	JB	7.75	10.2	PQL	ng/Kg	
SL-519-SA7-SB-2.0-3.0	1,2,3,4,6,7,8-HPCDD	JB	4.07	5.06	PQL	ng/Kg	
	1,2,3,4,6,7,8-HPCDF	JB	0.565	5.06	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0915	5.06	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.119	5.06	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.112	5.06	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.209	5.06	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.118	5.06	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.183	5.06	PQL	ng/Kg	J (all detects)
	1,2,3,7,8,9-HXCDF	JBQ	0.0583	5.06	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0778	5.06	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.250	5.06	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.103	5.06	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.160	5.06	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.142	1.01	PQL	ng/Kg	
	OCDF	JB	1.54	10.1	PQL	ng/Kg	
SL-819-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	3.38	5.08	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.298	5.08	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.317	5.08	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.435	5.08	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.728	5.08	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.307	5.08	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	J	0.654	5.08	PQL	ng/Kg	J (all detects)
	1,2,3,7,8,9-HXCDF	JBQ	0.108	5.08	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.210	5.08	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.577	5.08	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.284	5.08	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.484	5.08	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0291	1.02	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.184	1.02	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-506-SA7-SB-0.0-0.5	ANTIMONY	J	0.916	4.03	PQL	mg/Kg	J (all detects)
	ARSENIC	J	3.92	4.03	PQL	mg/Kg	
	BERYLLIUM	J	0.573	1.01	PQL	mg/Kg	
	CADMIUM	J	0.302	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.477	2.02	PQL	mg/Kg	
	SODIUM	J	80.3	101	PQL	mg/Kg	
	TIN	J	2.86	10.1	PQL	mg/Kg	
	Zirconium	J	2.98	5.04	PQL	mg/Kg	
SL-507-SA7-SB-0.0-0.5	BERYLLIUM	J	0.526	1.01	PQL	mg/Kg	J (all detects)
	CADMIUM	J	0.256	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.297	2.01	PQL	mg/Kg	
	SODIUM	J	65.0	101	PQL	mg/Kg	
	TIN	J	2.82	10.1	PQL	mg/Kg	
	Zirconium	J	2.05	5.04	PQL	mg/Kg	
SL-508-SA7-SB-0.0-0.5	ANTIMONY	J	1.04	3.93	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.429	0.982	PQL	mg/Kg	
	CADMIUM	J	0.260	0.982	PQL	mg/Kg	
	MOLYBDENUM	J	0.656	1.96	PQL	mg/Kg	
	SODIUM	J	69.7	98.2	PQL	mg/Kg	
	TIN	J	3.24	9.82	PQL	mg/Kg	
	Zirconium	J	2.34	4.91	PQL	mg/Kg	
SL-509-SA7-SB-0.0-0.5	ANTIMONY	J	0.692	4.06	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.486	1.01	PQL	mg/Kg	
	CADMIUM	J	0.330	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.337	2.03	PQL	mg/Kg	
	SODIUM	J	77.7	101	PQL	mg/Kg	
	TIN	J	6.56	10.1	PQL	mg/Kg	
	Zirconium	J	2.53	5.07	PQL	mg/Kg	
SL-519-SA7-SB-0.0-0.5	BERYLLIUM	J	0.463	1.01	PQL	mg/Kg	J (all detects)
	SODIUM	J	88.9	101	PQL	mg/Kg	
	Zirconium	J	2.49	5.07	PQL	mg/Kg	
SL-519-SA7-SB-2.0-3.0	ANTIMONY	J	0.737	4.06	PQL	mg/Kg	J (all detects)
	ARSENIC	J	3.96	4.06	PQL	mg/Kg	
	BERYLLIUM	J	0.506	1.01	PQL	mg/Kg	
	CADMIUM	J	0.239	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.406	2.03	PQL	mg/Kg	
	SODIUM	J	95.0	101	PQL	mg/Kg	
	TIN	J	2.54	10.1	PQL	mg/Kg	
	Zirconium	J	2.27	5.07	PQL	mg/Kg	
SL-819-SA7-SB-0.0-0.5	ANTIMONY	J	0.542	4.14	PQL	mg/Kg	J (all detects)
	ARSENIC	J	4.09	4.14	PQL	mg/Kg	
	BERYLLIUM	J	0.473	1.03	PQL	mg/Kg	
	CADMIUM	J	0.380	1.03	PQL	mg/Kg	
	MOLYBDENUM	J	0.337	2.07	PQL	mg/Kg	
	SODIUM	J	84.8	103	PQL	mg/Kg	
	TIN	J	2.68	10.3	PQL	mg/Kg	
	Zirconium	J	2.54	5.17	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-506-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.187 0.0605	0.403 0.202	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-507-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.159 0.0213	0.403 0.201	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-508-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.109 0.0678	0.393 0.196	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-509-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.209 0.0409	0.406 0.203	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-519-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.189 0.0351	0.406 0.203	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-519-SA7-SB-2.0-3.0	SELENIUM SILVER	J J	0.154 0.0224	0.406 0.203	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-819-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.139 0.0326	0.414 0.207	PQL PQL	mg/Kg mg/Kg	J (all detects)

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-506-SA7-SB-0.0-0.5	EFH (C15-C20)	J	2.8	5.2	PQL	mg/Kg	J (all detects)
SL-519-SA7-SB-0.0-0.5	EFH (C12-C14) EFH (C8-C11)	J J	2.5 3.0	5.1 5.1	PQL PQL	mg/Kg mg/Kg	J (all detects)

Method: 8082A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-519-SA7-SB-0.0-0.5	AROCLOR 1254	J	7.0	17	PQL	ug/Kg	J (all detects)
SL-819-SA7-SB-0.0-0.5	AROCLOR 1254	J	6.1	17	PQL	ug/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-506-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE 2-METHYLNAPHTHALENE ANTHRACENE BENZO(A)ANTHRACENE BENZO(A)PYRENE BIS(2-ETHYLHEXYL)PHTHALATE Butylbenzylphthalate	J J J J J J J	0.81 1.2 0.41 0.71 0.82 7.8 17	1.7 1.7 1.7 1.7 1.7 19 19	PQL PQL PQL PQL PQL PQL PQL	ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg ug/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH039 **Laboratory: LL**

EDD Filename: PH039_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-507-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	0.84	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.4	1.7	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.1	1.7	PQL	ug/Kg	
	BENZO(A)PYRENE	J	1.3	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	0.94	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	9.9	19	PQL	ug/Kg	
	Butylbenzylphthalate	J	14	19	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.84	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	0.97	1.7	PQL	ug/Kg	
SL-508-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	0.75	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.4	1.7	PQL	ug/Kg	
	ACENAPHTHYLENE	J	1.0	1.7	PQL	ug/Kg	
	ANTHRACENE	J	0.64	1.7	PQL	ug/Kg	
	BENZO(E)PYRENE	J	7.4	17	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	8.9	18	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	1.3	1.7	PQL	ug/Kg	
SL-509-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	ACENAPHTHYLENE	J	0.46	1.7	PQL	ug/Kg	
	ANTHRACENE	J	0.60	1.7	PQL	ug/Kg	
	BENZO(E)PYRENE	J	4.5	18	PQL	ug/Kg	
	Butylbenzylphthalate	J	17	19	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	1.1	1.7	PQL	ug/Kg	
SL-519-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	0.88	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.5	1.7	PQL	ug/Kg	
	ACENAPHTHYLENE	J	0.39	1.7	PQL	ug/Kg	
	ANTHRACENE	J	0.52	1.7	PQL	ug/Kg	
	BENZO(E)PYRENE	J	5.5	17	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	1.0	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.5	1.7	PQL	ug/Kg	
SL-519-SA7-SB-2.0-3.0	2-METHYLNAPHTHALENE	J	0.96	1.7	PQL	ug/Kg	J (all detects)
	ANTHRACENE	J	0.68	1.7	PQL	ug/Kg	
	BENZO(E)PYRENE	J	4.1	18	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	10	19	PQL	ug/Kg	
	NAPHTHALENE	J	0.95	1.7	PQL	ug/Kg	
SL-819-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	ANTHRACENE	J	0.59	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.4	1.7	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	14	19	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	1.4	1.7	PQL	ug/Kg	

Enclosure II

Level IV Validation Reports

LDC Report# 29836M2b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	April 24 through April 25, 2013
LDC Report Date:	June 18, 2013
Matrix:	Soil
Parameters:	Semivolatiles
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH039

Sample Identification

SL-507-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5
SL-819-SA7-SB-0.0-0.5
SL-519-SA7-SB-2.0-3.0
SL-509-SA7-SB-0.0-0.5
SL-506-SA7-SB-0.0-0.5
SL-508-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5MS
SL-519-SA7-SB-0.0-0.5MSD

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs) and 25.0% for all other compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method.

Sample EB-042413 (from SDG PH035) was identified as an equipment blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB-042413	4/24/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate 2-Methylnaphthalene Naphthalene	0.15 ug/L 0.089 ug/L 0.20 ug/L 0.011 ug/L 0.053 ug/L	All samples in SDG PH039

Sample FB-041113 (from SDG PH029) was identified as a field blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041113	4/11/12	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate 1-Methylnaphthalene 2-Methylnaphthalene Naphthalene	0.17 ug/L 0.18 ug/L 0.082 ug/L 0.019 ug/L 0.024 ug/L 0.17 ug/L	All samples in SDG PH039

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-519-SA7-SB-0.0-0.5MS/MSD (SL-519-SA7-SB-0.0-0.5)	Fluoranthene	205 (47-135)	-	70 (≤30)	J (all detects)	A
	Pyrene	195 (26-143)	-	75 (≤30)	J (all detects)	
	Benzo(a)anthracene	159 (32-135)	-	55 (≤30)	J (all detects)	
	Chrysene	163 (29-148)	-	55 (≤30)	J (all detects)	
	Benzo(b)fluoranthene	163 (26-142)	-	43 (≤30)	J (all detects)	
	Benzo(a)pyrene	143 (36-138)	-	45 (≤30)	J (all detects)	
	Indeno(1,2,3-cd)pyrene	-	-	32 (≤30)	J (all detects)	
	Benzo(g,h,i)perylene	-	-	35 (≤30)	J (all detects)	
	Benzo(e)pyrene	-	-	31 (≤30)	J (all detects)	

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation

All compound quantitation were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH039	All compounds reported below the RL.	J (all detects)	A

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples SL-519-SA7-SB-0.0-0.5 and SL-819-SA7-SB-0.0-0.5 were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/L)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
1-Methylnapthalene	0.88	1.1	22 (≤50)	-	-
2-Methylnaphthalene	1.5	1.8	18 (≤50)	-	-
Acenaphthylene	0.39	1.7U	200 (≤50)	J (all detects) UJ (all non-detects)	A
Anthracene	0.52	0.59	13 (≤50)	-	-
Benzo(a)anthracene	4.5	2.8	47 (≤50)	-	-
Benzo(a)pyrene	5.0	2.7	60 (≤50)	J (all detects)	A
Benzo(b)fluoranthene	13	5.9	75 (≤50)	J (all detects)	A
Benzo(g,h,i)perylene	2.8	1.4	67 (≤50)	J (all detects)	A
Benzo(k)fluoranthene	9.1	2.4	117 (≤50)	J (all detects)	A
Chrysene	9.0	5.0	57 (≤50)	J (all detects)	A
Dibenzo(a,h)anthracene	1.0	1.7U	200 (≤50)	J (all detects) UJ (all non-detects)	A
Fluoranthene	9.1	5.8	44 (≤50)	-	-
Fluorene	3.9	3.5	11 (≤50)	-	-
Indeno(1,2,3-cd)pyrene	2.5	1.4	56 (≤50)	J (all detects)	A
Naphthalene	1.5	2.1	33 (≤50)	-	-
Phenanthrene	3.1	3.3	6 (≤50)	-	-
Bis(2-Ethyhexyl)phtalate	21	14	40 (≤50)	-	-
Pyrene	7.9	5.0	45 (≤50)	-	-
Benzo(e)pyrene	5.5	18U	200 (≤50)	J (all detects) UJ (all non-detects)	A

Santa Susana Field Laboratory
Semivolatiles - Data Qualification Summary - SDG PH039

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH039	SL-819-SA7-SB-0.0-0.5	Fluoranthene Pyrene Benzo(a)anthracene Chrysene Benzo(b)fluoranthene Benzo(a)pyrene	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R)(RPD) (Q)
PH039	SL-819-SA7-SB-0.0-0.5	Indeno(1,2,3-cd)pyrene Benzo(g,h,i)perylene Benzo(e)pyrene	J (all detects) J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (RPD) (Q)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)
PH039	SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5	Acenaphthylene Dibenzo(a,h)anthracene Benzo(e)pyrene	J (all detects) UJ (all non-detects)	A	Field duplicates (RPD) (FD)
PH039	SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5	Benzo(a)pyrene Benzo(b)fluoranthene Benzo(g,h,i)perylene Benzo(k)fluoranthene Chrysene Indeno(1,2,3-cd)pyrene	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Semivolatiles - Field Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

LDC #: 29836M2b **VALIDATION COMPLETENESS WORKSHEET** Date: 6/5/13

SDG #: PH039 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC/MS ~~Polynuclear Aromatic Hydrocarbons~~ SVOA (EPA SW 846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/24 - 4/25/13
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD ≤ 30
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 25
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	D = 2, 3

XVII.	Field blanks	SW	EB = EB-042413 (SDG # PH035)
			FB = FB-041113 (SDG # PH039)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

SOIL

1	SL-507-SA7-SB-0.0-0.5	11	SBLKLC119	21		31	
2	SL-519-SA7-SB-0.0-0.5	12		22		32	
3	SL-819-SA7-SB-0.0-0.5	13		23		33	
4	SL-519-SA7-SB-2.0-3.0	14		24		34	
5	SL-509-SA7-SB-0.0-0.5	15		25		35	
6	SL-506-SA7-SB-0.0-0.5	16		26		36	
7	SL-508-SA7-SB-0.0-0.5	17		27		37	
8	SL-519-SA7-SB-0.0-0.5MS	18		28		38	
9	SL-519-SA7-SB-0.0-0.5MSD	19		29		39	
10		20		30		40	

LDC #: 28836M2b

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 20% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 29836M2b

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN. Benzo(e) pyrene
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 29836M26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: FT
2nd Reviewer: A

EB- EB-042413

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 4/24/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All > 5x, 10x + ND

Compound	Blank ID	Sample Identification								
	EB	5x/10x								
XX	0.15	1.5								
LL	0.089	0.89								
EEE	0.20	2.0								
W	0.011	0.055								
S	0.053	0.265								

Blank units:_____ **Associated sample units:**_____
Sampling date:_____
Field blank type: (circle one) Field Blank / Rinsate / Other:_____ Associated Samples:_____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 29836M2b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		8 + 9	YY	205 (47-135)	( )	70 (30)		J/A det
			ZZ	195 (26-143)	( )	75 ( )		
			CCC	159 (32-135)	( )	55 ( )		
			DDD	163 (29-148)	( )	55 ( )		
			GGG	163 (26-142)	( )	43 ( )		
			III	143 (36-138)	( )	45 ( )		
			JJJ	( )	( )	32 ( )		
			LLL	( )	( )	35 ( )		
		Benzo(a)pyrene		( )	( )	31 ( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

LDC #: 29836Mab

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

FB = FB - 041113

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Blank units: ug/L **Associated sample units:** ug/L
Sampling date: 4/11/12
Field blank type: (circle one) Field Blank / Rinsate / Other: FB Associated Samples: All > 5x, 10, x ND

Compound	Blank ID	Sample Identification								
	FB	5x 10x								
XX	0.17	1.7								
LL	0.18	1.8								
EEE	0.082	0.82								
TTT	0.019	0.095								
W	0.024	0.12								
S	0.17	0.85								

Blank units: _____ **Associated sample units:** _____
Sampling date: _____
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: _____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC#: 29836M2b **VALIDATION FINDINGS WORKSHEET**
Field Duplicates

Page: 1 of 1
Reviewer: B
2nd Reviewer: A

METHOD: GC/MS PAH (EPA SW 846 Method 8270C-SIM)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ug/kg)		≤50 RPD	
	2	3		
1-Methylnapthalene	0.88	1.1	22	
2-Methylnaphthalene	1.5	1.8	18	
Acenaphthylene	0.39	1.7U	200	J/UJ/A
Anthracene	0.52	0.59	13	
Benzo(a)anthracene	4.5	2.8	47	
Benzo(a)pyrene	5.0	2.7	60	J/A det
Benzo(b)fluoranthene	13	5.9	75	
Benzo(g,h,i)perylene	2.8	1.4	67	
Benzo(k)fluoranthene	9.1	2.4	117	
Chrysene	9.0	5.0	57	
Dibenzo(a,h)anthracene	1.0	1.7U	200	J/UJ/A
Fluoranthene	9.1	5.8	44	
Fluorene	3.9	3.5	11	
Indeno(1,2,3-cd)pyrene	2.5	1.4	56	J/A det
Naphthalene	1.5	2.1	33	
Phenanthrene	3.1	3.3	6	
Bis(2-Ethyhexyl)phtalate	21	14	40	
Pyrene	7.9	5.0	45	
Benzo(e)pyrene	5.5	18U	200	J/UJ/A

LDC #: 29836M2b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (/ std)	Recalculated RRF (/ std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	1 CAL	5/1/13	N-Nitrosodimethylamine (1st internal standard)	1.263	1.263	1.233	1.233	7	7
			Naphthalene (2nd internal standard)	1.070	1.070	1.046	1.046	2	2
			Fluorene (3rd internal standard)	1.380	1.380	1.350	1.350	4	4
			Anthracene (4th internal standard)	1.205	1.205	1.158	1.158	6	6
			Chrysene (5th internal standard)	1.383	1.383	1.333	1.333	2	2
			Benzo(a)pyrene (6th internal standard)	1.277	1.277	1.256	1.256	4	4
2									
3									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M2b

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported %D	Recalculated %D
1	ccv 7:48	5/1/13	N-Nitrosodimethylamine (1st internal standard)	1.233	1.350	1.350	9	9
			Naphthalene (2nd internal standard)	1.046	1.080	1.080	3	3
			Fluorene (3rd internal standard)	1.350	1.376	1.376	2	2
			Anthracene (4th internal standard)	1.158	1.194	1.194	3	3
			Chrysene (5th internal standard)	1.333	1.366	1.366	2	2
			Benzo(a)pyrene (6th internal standard)	1.252	1.252	1.252	0	0
2	ccv 02:05	5/2/13	(1st internal standard)		1.200	1.200	3	3
			(2nd internal standard)		1.077	1.077	3	3
			(3rd internal standard)		1.385	1.385	3	3
			(4th internal standard)		FT ~~1.360~~ 1.190	1.190	~~3~~	3
			(5th internal standard)		1.360	1.360	2	2
			(6th internal standard)		1.253	1.253	0	0
3								
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
			(5th internal standard)					
			(6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 87826M0D

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: [illegible]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
~~Nitrobenzene-d5~~ Fluoranthene-d10	1.0	0.902	90	90	0
2-Fluorobiphenyl Benzo(a)pyrene-d12	↓	1.00	100	100	↓
Terphenyl-d14 1-Methylnaphthalene-d10		0.995	99	99	
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
~~1,2-Dichlorobenzene-d4~~					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 29836M26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = | MSC - MSC | * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 8 + 9

Compound	Spike Added (ug/kg)		Sample Concentration (ug/kg)	Spiked Sample Concentration (ug/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene	33.33	33.33	ND	31.7	30.49	95	95	91	91	4	4
Pentachlorophenol											
Pyrene	↓	↓	7.69	72.79	32.98	195	195	76	76	75	75

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M20

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA

Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 119 LCS/~~0~~ FT

Compound	Spike Added (ug/kg)		Spike Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol		NA								
Acenaphthene	33.33	~~33.33~~ FT	32.94	NA	99	99				
Pentachlorophenol										
Pyrene	33.33	NA	29.98	NA	90	90	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M2b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: C

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. #1 , S :

Conc. = $\frac{(\cancel{5666}\ 6496)(1.0)(1)(1000)(\ )}{(220677)(1.046)(30)(0.96)(\ )}$

= 0.9277 ug/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

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Analysis Report

Sample Description: SL-819-SA7-SB-0.0-0.5 Soil
SSFL Phase 3 Subarea 7

LLI Sample # SW 7036183
LLI Group # 1385735
Account # 13013

Project Name: Phase 3 Subarea 7

Collected: 04/25/2013 08:50 by SM

Submitted: 04/26/2013 09:15
Reported: 05/10/2013 10:53

CDM Federal Programs Corp.
3201 Jermantown Road
Suite 400
Fairfax VA 22030

SL819 SDG#: PH039-04

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D SIM**		ug/kg		ug/kg	ug/kg	
12969	Acenaphthene	83-32-9	1.7	U	1.7	0.70	1
12969	Acenaphthylene	208-96-8	1.7	U	1.7	0.35	1
12969	Anthracene	120-12-7	0.59	J	1.7	0.35	1
12969	Benzo(a)anthracene	56-55-3	2.8		1.7	0.70	1
12969	Benzo(a)pyrene	50-32-8	2.7		1.7	0.70	1
12969	Benzo(b)fluoranthene	205-99-2	5.9		1.7	0.70	1
12969	Benzo(e)pyrene	192-97-2	18	U	18	3.5	1
12969	Benzo(g,h,i)perylene	191-24-2	1.4	J	1.7	0.70	1
12969	Benzo(k)fluoranthene	207-08-9	2.4		1.7	0.70	1
12969	Butylbenzylphthalate	85-68-7	19	U	19	6.3	1
12969	Di-n-butylphthalate	84-74-2	19	U	19	6.3	1
12969	Chrysene	218-01-9	5.0		1.7	0.35	1
12969	Dibenz(a,h)anthracene	53-70-3	1.7	U	1.7	0.70	1
12969	Diethylphthalate	84-66-2	19	U	19	6.3	1
12969	Dimethylphthalate	131-11-3	19	U	19	6.3	1
12969	Bis(2-Ethylhexyl)phthalate	117-81-7	14	J	19	6.3	1
12969	Fluoranthene	206-44-0	5.8		1.7	0.70	1
12969	Fluorene	86-73-7	3.5		1.7	0.70	1
12969	Indeno(1,2,3-cd)pyrene	193-39-5	1.4	J	1.7	0.70	1
12969	1-Methylnaphthalene	90-12-0	1.1	J	1.7	0.70	1
12969	2-Methylnaphthalene	91-57-6	1.8		1.7	0.70	1
12969	Naphthalene	91-20-3	2.1		1.7	0.70	1
12969	N-Nitrosodimethylamine	62-75-9	1.7	U	1.7	0.70	1
12969	Di-n-octylphthalate	117-84-0	19	U	19	6.3	1
12969	Phenanthrene	85-01-8	3.3		1.7	0.70	1
12969	Pyrene	129-00-0	5.0		1.7	0.70	1
Pesticides/PCBs	**SW-846 8082A**		ug/kg		ug/kg	ug/kg	
10592	Aroclor 5432	63496-31-1	34	U	34	10	1
10592	Aroclor 5442	12642-23-8	34	U	34	10	1
10592	Aroclor 5460	11126-42-4	34	U	34	10	1
10592	PCB-1016	12674-11-2	17	U	17	3.4	1
10592	PCB-1221	11104-28-2	17	U	17	5.2	1
10592	PCB-1232	11141-16-5	17	U	17	4.2	1
10592	PCB-1242	53469-21-9	17	U	17	3.4	1
10592	PCB-1248	12672-29-6	17	U	17	3.4	1
10592	PCB-1254	11097-69-1	6.1	J	17	4.5	1
10592	PCB-1260	11096-82-5	17	U	17	4.0	1
10592	PCB-1262	37324-23-5	17	U	17	3.4	1
10592	PCB-1268	11100-14-4	17	U	17	3.4	1
GC Petroleum Hydrocarbons	**SW-846 8015B modified**		mg/kg		mg/kg	mg/kg	
12952	EFH (C12-C14)	n.a.	5.2	U	5.2	2.1	1
12952	EFH (C15-C20)	n.a.	14		5.2	2.1	1
12952	EFH (C21-C30)	n.a.	56		5.2	2.1	1
12952	EFH (C30-C40)	n.a.	79		10	4.2	1
12952	EFH (C8-C11)	n.a.	5.2	U	5.2	2.1	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

*=This limit was used in the evaluation of the final result

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Analysis Report

Sample Description: SL-519-SA7-SB-0.0-0.5 Soil
SSFL Phase 3 Subarea 7

LLI Sample # SW 7036179
LLI Group # 1385735
Account # 13013

Project Name: Phase 3 Subarea 7

Collected: 04/25/2013 08:45 by SM

Submitted: 04/26/2013 09:15
Reported: 05/10/2013 10:53

CDM Federal Programs Corp.
3201 Jermantown Road
Suite 400
Fairfax VA 22030

SL519 SDG#: PH039-03BKG

CAT No.	Analysis Name	CAS Number	Dry Result		Dry Limit of Quantitation*	Dry Method Detection Limit	Dilution Factor
GC/MS Semivolatiles	**SW-846 8270D SIM**		ug/kg		ug/kg	ug/kg	
12969	Acenaphthene	83-32-9	1.7	U	1.7	0.68	1
12969	Acenaphthylene	208-96-8	0.39	J	1.7	0.34	1
12969	Anthracene	120-12-7	0.52	J	1.7	0.34	1
12969	Benzo(a)anthracene	56-55-3	4.5		1.7	0.68	1
12969	Benzo(a)pyrene	50-32-8	5.0		1.7	0.68	1
12969	Benzo(b)fluoranthene	205-99-2	13		1.7	0.68	1
12969	Benzo(e)pyrene	192-97-2	5.5	J	17	3.4	1
12969	Benzo(g,h,i)perylene	191-24-2	2.8		1.7	0.68	1
12969	Benzo(k)fluoranthene	207-08-9	9.1		1.7	0.68	1
12969	Butylbenzylphthalate	85-68-7	18	U	18	6.1	1
12969	Di-n-butylphthalate	84-74-2	18	U	18	6.1	1
12969	Chrysene	218-01-9	9.0		1.7	0.34	1
12969	Dibenz(a,h)anthracene	53-70-3	1.0	J	1.7	0.68	1
12969	Diethylphthalate	84-66-2	18	U	18	6.1	1
12969	Dimethylphthalate	131-11-3	18	U	18	6.1	1
12969	Bis(2-Ethylhexyl)phthalate	117-81-7	21		18	6.1	1
12969	Fluoranthene	206-44-0	9.1		1.7	0.68	1
12969	Fluorene	86-73-7	3.9		1.7	0.68	1
12969	Indeno(1,2,3-cd)pyrene	193-39-5	2.5		1.7	0.68	1
12969	1-Methylnaphthalene	90-12-0	0.88	J	1.7	0.68	1
12969	2-Methylnaphthalene	91-57-6	1.5	J	1.7	0.68	1
12969	Naphthalene	91-20-3	1.5	J	1.7	0.68	1
12969	N-Nitrosodimethylamine	62-75-9	1.7	U	1.7	0.68	1
12969	Di-n-octylphthalate	117-84-0	18	U	18	6.1	1
12969	Phenanthrene	85-01-8	3.1		1.7	0.68	1
12969	Pyrene	129-00-0	7.9		1.7	0.68	1
Pesticides/PCBs	**SW-846 8082A**		ug/kg		ug/kg	ug/kg	
10592	Aroclor 5432	63496-31-1	33	U	33	10	1
10592	Aroclor 5442	12642-23-8	33	U	33	10	1
10592	Aroclor 5460	11126-42-4	33	U	33	10	1
10592	PCB-1016	12674-11-2	17	U	17	3.3	1
10592	PCB-1221	11104-28-2	17	U	17	5.1	1
10592	PCB-1232	11141-16-5	17	U	17	4.1	1
10592	PCB-1242	53469-21-9	17	U	17	3.3	1
10592	PCB-1248	12672-29-6	17	U	17	3.3	1
10592	PCB-1254	11097-69-1	7.0	J	17	4.4	1
10592	PCB-1260	11096-82-5	17	U	17	3.9	1
10592	PCB-1262	37324-23-5	17	U	17	3.3	1
10592	PCB-1268	11100-14-4	17	U	17	3.3	1
GC Petroleum Hydrocarbons	**SW-846 8015B modified**		mg/kg		mg/kg	mg/kg	
12952	EFH (C12-C14)	n.a.	2.5	J	5.1	2.0	1
12952	EFH (C15-C20)	n.a.	14		5.1	2.0	1
12952	EFH (C21-C30)	n.a.	41		5.1	2.0	1
12952	EFH (C30-C40)	n.a.	95		10	4.1	1
12952	EFH (C8-C11)	n.a.	3.0	J	5.1	2.0	1

The stated QC limits are advisory only until sufficient data points can be obtained to calculate statistical limits.

*=This limit was used in the evaluation of the final result

LDC Report# 29836M3b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	April 24 through April 25, 2013
LDC Report Date:	June 24, 2013
Matrix:	Soil
Parameters:	Polychlorinated Biphenyls
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH039

Sample Identification

SL-507-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5
SL-819-SA7-SB-0.0-0.5
SL-519-SA7-SB-2.0-3.0
SL-509-SA7-SB-0.0-0.5
SL-506-SA7-SB-0.0-0.5
SL-508-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5MS
SL-519-SA7-SB-0.0-0.5MSD

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082A for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Sample EB-042413 (from SDG PH035) was identified as an equipment blank. No polychlorinated biphenyl contaminants were found.

Sample FB-041113 (from SDG PH029) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
PBLK17120	ZBmultiR2	Tetrachloro-m-xylene	129 (45-120)	All TCL compounds	J (all detects)	P
SL-507-SA7-SB-0.0-0.5	ZBmultiR2	Tetrachloro-m-xylene	126 (45-120)	All TCL compounds	J (all detects)	P
SL-508-SA7-SB-0.0-0.5	ZBmultiR2	Tetrachloro-m-xylene	124 (45-120)	All TCL compounds	J (all detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

LCS ID (Associated Samples)	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Affected Compound	Flag	A or P
LCS17120 (All samples in SDG PH039)	Aroclor-5442	-	-	40 (≤30)	Aroclor-5432 Aroclor-5442 Aroclor-5460	J (all detects) UJ (all non-detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XII. Target Compound Identification

All target compound identifications were within validation criteria.

XIII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH039	All compounds reported below the RL.	J (all detects)	A

XIV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XV. Field Duplicates

Samples SL-519-SA7-SB-0.0-0.5 and SL-819-SA7-SB-0.0-0.5 were identified as field duplicates. No polychlorinated biphenyls were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
Aroclor-1254	7.0	6.1	14 (≤50)	-	-

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Data Qualification Summary - SDG PH039

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH039	SL-507-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	All TCL compounds	J (all detects)	P	Surrogate spikes (%R) (S)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	Aroclor-5432 Aroclor-5442 Aroclor-5460	J (all detects) UJ (all non-detects)	P	Laboratory control samples (RPD) (E)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

LDC #: 29836M3b

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 6/5/13

SDG #: PH039

Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories

Reviewer: P

2nd Reviewer: A

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/24 - 4/25/13
II.	GC/ECD Instrument Performance Check	NA	
III.	Initial calibration	A	% RSD ≤ 20
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	SW	
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	SW	D = 2 + 3

XVI.	Field blanks	ND	EB = EB-042413 (SDG # PH035)
			FB = FB-041113 (SDG # PH0~~3~~9) 2

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: SOIL

1	SL-507-SA7-SB-0.0-0.5	11	PBLK17120	21		31	
2	SL-519-SA7-SB-0.0-0.5	12		22		32	
3	SL-819-SA7-SB-0.0-0.5	13		23		33	
4	SL-519-SA7-SB-2.0-3.0	14		24		34	
5	SL-509-SA7-SB-0.0-0.5	15		25		35	
6	SL-506-SA7-SB-0.0-0.5	16		26		36	
7	SL-508-SA7-SB-0.0-0.5	17		27		37	
8	SL-519-SA7-SB-0.0-0.5MS	18		28		38	
9	SL-519-SA7-SB-0.0-0.5MSD	19		29		39	
10		20		30		40	

Notes:

LDC #: 29836M3h

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: C

Method: ✓ GC ____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	~~✓~~	✓		
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?		✓		
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 29836M3b

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 29836M36

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: FT
2nd Reviewer:

METHOD: ___ GC ___ HPLC

Are surrogates required by the method? Yes____ or No____.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were surrogates spiked into all samples and blanks?

Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	PBLK17120	ZB multi R2	Y	129 (45-120)	J /Pdet (S)
				( )	
	1	ZB MULTI R2	↓	126 (45-120)	↓ (S)
				( )	
	7	↓	↓	124 (45-120)	↓ (S)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene		
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer: A

METHOD: ✓ GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	LCS17120	Aroclor	( )	( )	40 (30)	All	J/UJ/P (E)
		5442	( )	( )	( )		qualify
			( )	( )	( )		Aroclor 5432
			( )	( )	( )		5442
			( )	( )	( )		5460
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: PT
2nd reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (ug/kg)		%RPD Limit 50	Qualification Parent only / All Samples
	2	3		
Aroclor 1254	7.0	6.1	14	

Compound	Concentration ( )		%RPD Limit _____	Qualification Parent only / All Samples

LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC_____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (200 std)	Recalculated CF (200 std)	Reported Ave CF (initial)	Recalculated Ave CF (intial)	Reported %RSD	Recalculated %RSD
1	ICAL ZBR1	5/2/13	Aroclor 1260-1	13240	13240	13276	13276	14	14
	ZBR2		↓	48103	48103	47740	47740	8	8
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

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LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 21:40	5/2/13	Aroclor 1260 ZBR1	200.00	203.33	203.33	2	2
			ZBR2	200.00	194.38	194.38	2	2
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M3h

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
TCMX	ZB MR2	10	12.50224	126	125	1
DCB	↓	10	10.885857	109	109	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: KT
2nd Reviewer: Q

METHOD: ✓ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked sample concentration SC = Sample concentration
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 8 + 9

Compound	Spike Added (ug/kg)		Sample Conc. (ug/kg)	Spike Sample Concentration (ug/kg)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
PCB-1260	164	164	ND	141.68	149.59	86	86	91	91	5	5

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT

2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; LCS = Laboratory Control Sample; SC = Sample concentration; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS ID 17120

Compound	Spike Added (ug/kg)		Sample Conc (ug/kg)	Spike Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
PCB - 1260	167	NA	ND	166.04	NA	99	99	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M3b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: A

METHOD: ✓ GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #1 Compound Name Aroclor 1254

Concentration = 6.5417 / 0.976

= 6.7 ug/kg ≈ 7.0 ug/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications
	1254-1 = 134	643.79687 (10)		1254-1 = 4.87742	
		9051 (30.5)		-2 = 4.6204	
				-3 = 7.039211	
	=	4.87742		-4 = 4.401997	
				-5 = 11.769691	
				6.5417	

Comments:

SAMPCALew.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	April 24 through April 25, 2013
LDC Report Date:	July 1, 2013
Matrix:	Soil
Parameters:	Metals
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH039

Sample Identification

SL-507-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5
SL-819-SA7-SB-0.0-0.5
SL-519-SA7-SB-2.0-3.0
SL-509-SA7-SB-0.0-0.5
SL-506-SA7-SB-0.0-0.5
SL-508-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5MS
SL-519-SA7-SB-0.0-0.5MSD
SL-519-SA7-SB-0.0-0.5DUP

Introduction

This data review covers 10 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C, 6020A, and 7471B for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Molybdenum, Mercury, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, and Zirconium.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Phosphorus Tin	1.439 mg/Kg 1.474 mg/Kg	All samples in SDG PH039
ICB/CCB	Thallium	0.17 ug/L	All samples in SDG PH039
ICB/CCB	Antimony	2.5 ug/L	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0
ICB/CCB	Nickel	1.0 ug/L	SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-507-SA7-SB-0.0-0.5	Tin	2.8 mg/Kg	2.8U mg/Kg
SL-819-SA7-SB-0.0-0.5	Tin Antimony	2.7 mg/Kg 0.54 mg/Kg	2.7U mg/Kg 0.54U mg/Kg
SL-519-SA7-SB-2.0-3.0	Tin Antimony	2.5 mg/Kg 0.74 mg/Kg	2.5U mg/Kg 0.74U mg/Kg
SL-509-SA7-SB-0.0-0.5	Tin	6.6 mg/Kg	6.6U mg/Kg
SL-506-SA7-SB-0.0-0.5	Tin	2.9 mg/Kg	2.9U mg/Kg
SL-508-SA7-SB-0.0-0.5	Tin	3.2 mg/Kg	3.2U mg/Kg

Samples EB-042413 (from SDG PH038) was identified as an equipment blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB-042413	4/24/13	Boron Sodium Tin	0.0319 mg/L 0.228 mg/L 0.0035 mg/L	All samples in SDG PH039

Sample FB-041113 (from SDG PH029) was identified as a field blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB-041113	4/11/13	Copper Molybdenum	0.0036 mg/L 0.0036 mg/L	All samples in SDG PH039

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were not detected with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-507-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	10.5 mg/Kg 0.30 mg/Kg 65.0 mg/Kg	10.5U mg/Kg 0.30U mg/Kg 65.0U mg/Kg
SL-519-SA7-SB-0.0-0.5	Boron Sodium	15.6 mg/Kg 88.9 mg/Kg	15.6U mg/Kg 88.9U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-819-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	13.7 mg/Kg 0.34 mg/Kg 84.8 mg/Kg	13.7U mg/Kg 0.34U mg/Kg 84.8U mg/Kg
SL-519-SA7-SB-2.0-3.0	Boron Molybdenum Sodium	10.6 mg/Kg 0.41 mg/Kg 95.0 mg/Kg	10.6U mg/Kg 0.41U mg/Kg 95.0U mg/Kg
SL-509-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	11.7 mg/Kg 0.34 mg/Kg 77.7 mg/Kg	11.7U mg/Kg 0.34U mg/Kg 77.7U mg/Kg
SL-506-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	12.0 mg/Kg 0.48 mg/Kg 80.3 mg/Kg	12.0U mg/Kg 0.48U mg/Kg 80.3U mg/Kg
SL-508-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	11.8 mg/Kg 0.66 mg/Kg 69.7 mg/Kg	11.8U mg/Kg 0.66U mg/Kg 69.7U mg/Kg

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-519-SA7-SB-0.0-0.5MS/MSD (All samples in SDG PH039)	Antimony Lead	57 (75-125) 50 (75-125)	57 (75-125) 44 (75-125)	- -	J (all detects) UJ (all non-detects)	A
SL-519-SA7-SB-0.0-0.5MS/MSD (All samples in SDG PH039)	Potassium	129 (75-125)	135 (75-125)	-	J (all detects)	A

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
SL-519-SA7-SB-0.0-0.5DUP (All samples in SDG PH039)	Calcium Cobalt Lead Phosphorus	26 (≤20) - - 36 (≤20)	- 3.5663 (≤2.02) 9.8327 (≤6.08) -	J (all detects) UJ (all non-detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Internal Standards

All internal standard percent recoveries (%R) were within QC limits.

X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
SL-519-SA7-SB-0.0-0.5	Nickel Phosphorus	24 (≤10) 17 (≤10)	All samples in SDG PH039	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A

XII. Sample Result Verification

All sample result verifications were acceptable.

All metals reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG PH039	All analytes reported below the RL and above the MDL.	J (all detects)	A

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

Samples SL-519-SA7-SB-0.0-0.5 and SL-819-SA7-SB-0.0-0.5 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
Aluminum	11700	12000	3 (≤50)	-	-
Antimony	4.6	0.54	158 (≤50)	J (all detects)	A
Arsenic	4.4	4.1	7 (≤50)	-	-
Barium	104	107	3 (≤50)	-	-
Beryllium	0.46	0.47	2 (≤50)	-	-
Boron	15.6	13.7	13 (≤50)	-	-
Cadmium	1.19	0.38	103 (≤50)	J (all detects)	A
Calcium	7940	6150	25 (≤50)	-	-
Chromium	15.4	17.0	10 (≤50)	-	-
Cobalt	7.6	4.4	53 (≤50)	J (all detects)	A
Copper	12.3	12.0	2 (≤50)	-	-
Iron	17900	18500	3 (≤50)	-	-
Lead	23.8	15.1	45 (≤50)	-	-
Lithium	20.2	19.6	3 (≤50)	-	-
Magnesium	4490	4550	1 (≤50)	-	-
Manganese	355	328	8 (≤50)	-	-
Mercury	0.058	0.049	17 (≤50)	-	-
Molybdenum	2.8	0.34	157 (≤50)	J (all detects)	A
Nickel	8.9	10.1	13 (≤50)	-	-

Analyte	Concentration (mg/Kg)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
Phosphorus	679	515	27 (≤50)	-	-
Potassium	3090	3320	7 (≤50)	-	-
Selenium	0.19	0.14	30 (≤50)	-	-
Silver	0.035	0.033	6 (≤50)	-	-
Sodium	88.9	84.8	5 (≤50)	-	-
Strontium	37.5	36.6	2 (≤50)	-	-
Thallium	0.23	0.26	12 (≤50)	-	-
Tin	10.9	2.7	121 (≤50)	J (all detects)	A
Titanium	977	1040	6 (≤50)	-	-
Vanadium	29.3	30.2	3 (≤50)	-	-
Zinc	71.0	69.5	2 (≤50)	-	-
Zirconium	2.5	2.5	0 (≤50)	-	-

Santa Susana Field Laboratory
Metals - Data Qualification Summary - SDG PH039

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	Antimony Lead	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	Potassium	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	Calcium Phosphorus	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (RPD) (E)
	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	Cobalt Lead	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (difference) (E)
PH039	SL-519-SA7-SB-0.0-0.5	Nickel Phosphorus	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	ICP serial dilution (%D) (A)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (Z)
PH039	SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5	Antimony Cadmium Cobalt Molybdenum Tin	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Metals - Laboratory Blank Data Qualification Summary - SDG PH039

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH039	SL-507-SA7-SB-0.0-0.5	Tin	2.8U mg/Kg	A	B
PH039	SL-819-SA7-SB-0.0-0.5	Tin Antimony	2.7U mg/Kg 0.54U mg/Kg	A	B
PH039	SL-519-SA7-SB-2.0-3.0	Tin Antimony	2.5U mg/Kg 0.74U mg/Kg	A	B
PH039	SL-509-SA7-SB-0.0-0.5	Tin	6.6U mg/Kg	A	B
PH039	SL-506-SA7-SB-0.0-0.5	Tin	2.9U mg/Kg	A	B
PH039	SL-508-SA7-SB-0.0-0.5	Tin	3.2U mg/Kg	A	B

Santa Susana Field Laboratory
Metals - Field Blank Data Qualification Summary - SDG PH039

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH039	SL-507-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	10.5U mg/Kg 0.30U mg/Kg 65.0U mg/Kg	A	F
PH039	SL-519-SA7-SB-0.0-0.5	Boron Sodium	15.6U mg/Kg 88.9U mg/Kg	A	F
PH039	SL-819-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	13.7U mg/Kg 0.34U mg/Kg 84.8U mg/Kg	A	F
PH039	SL-519-SA7-SB-2.0-3.0	Boron Molybdenum Sodium	10.6U mg/Kg 0.41U mg/Kg 95.0U mg/Kg	A	F
PH039	SL-509-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	11.7U mg/Kg 0.34U mg/Kg 77.7U mg/Kg	A	F
PH039	SL-506-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	12.0U mg/Kg 0.48U mg/Kg 80.3U mg/Kg	A	F

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH039	SL-508-SA7-SB-0.0-0.5	Boron Molybdenum Sodium	11.8U mg/Kg 0.66U mg/Kg 69.7U mg/Kg	A	F

LDC #: 29836M4

SDG #: PH039

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 6/11/13

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/~~7000~~ 7471B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: ~~4/25/13~~ 4/24 - 4/25/13
II.	ICP/MS Tune	A	C
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS/D
VII.	Duplicate Sample Analysis	SW	Dup
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	
XII.	Sample Result Verification	A	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	SW	(2,3)
XV	Field Blanks	SW	FB= FB-041113 (PH029) EB= EB-042413 (PH038)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1 77	SL-507-SA7-SB-0.0-0.5	11		21		31	
2 79	SL-519-SA7-SB-0.0-0.5	12		22		32	
3 83	SL-819-SA7-SB-0.0-0.5	13		23		33	
4 84	SL-519-SA7-SB-2.0-3.0	14		24		34	
5 85	SL-509-SA7-SB-0.0-0.5	15		25		35	
6 86	SL-506-SA7-SB-0.0-0.5	16		26		36	
7 87	SL-508-SA7-SB-0.0-0.5	17		27		37	
8	SL-519-SA7-SB-0.0-0.5MS	18		28		38	
9	SL-519-SA7-SB-0.0-0.5MSD	19		29		39	
10	SL-519-SA7-SB-0.0-0.5DUP	20		30		40	

Notes:

LDC #: 29836M4

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: [illegible]

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.		✓		
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 29836M4

VALIDATION FINDINGS CHECKLIST

Reviewer: QR
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?		✓		
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 29836M 4

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: CR
2nd reviewer: A

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-7		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
QC-8/10		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
Analysis Method		
ICP		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
ICP-MS		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr

Comments: Mercury by CVAA if performed

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: a
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x Reason: B

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/l)	Maximum ICB/CCB[a] (ug/l)	Action Level	1	3	4	5	6	7			
P	1.439			7.195									
Sn	1.474			7.37	2.8	2.7	2.5	6.6	2.9	3.2			
Tl			0.17	0.17									

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1-4

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/l)	Maximum ICB/CCB[a] (ug/l)	Action Level	3	4							
Sb			2.5	1.25	0.54	0.74							

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 5-7

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/l)	Maximum ICB/CCB[a] (ug/l)	Action Level	No Qualifiers								
Ni			1.0	0.5									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: CL
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/24/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-042413	FB-041113	Action Limit	1	2	3	4	5	6	7			
B	0.0319		15.95	10.5	15.6	13.7	10.6	11.7	12.0	11.8			
Cu		0.0036	1.8										
Mo		0.0036	1.8	0.30		0.34	0.41	0.34	0.48	0.66			
Na	0.228		114	65.0	88.9	84.8	95.0	77.7	80.3	69.7			
Sn	0.0035		1.75										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: QR
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 846 Method 6010B/6020A/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	8/9	S	Sb	57	57		All	J/UJ/A (Q)
			Pb	50	44			↓
			K	129	135			Jdet/A ↓

Comments: 8/9: Al, Ca, Fe, Mg, Mn, P, Sr, Ti 74x

MSD.4SW

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

Page: 1 of 1
Reviewer: CR
2nd Reviewer: A

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a duplicate sample analyzed for each matrix in this SDG?

Y N N/A Were all duplicate sample reiative percent differences (RPD) ≤ 20% for water samples and ≤ 35% for soil samples? If no, see qualifications below. A control limit of ±R.L. (±2X R.L. for soil) was used for sample values that were <5X the R.L., including the case when only one of the duplicate sample values was <5X R.L.. If field blanks were used for laboratory duplicates, note in the Overall Assessment.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Duplicate ID	Matrix	Analyte	RPD (Limits)	Difference (Limits) mg/kg	Associated Samples	Qualifications
		10	S	Ca	26 (≤20)		All	J/UJ/A (E)
				Co		3.5663 (≤2.02)		
				Pb		9.8327 (≤6.08)		
				P	36			

Comments: Sb, Cd, Mo, Ag, Sn ok by difference

DUP.4SW

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Page: 1 of 1
Reviewer: QR
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y N N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y N N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
	2	S	Ni	24	All	J/UJ/A (A)
			P	17	↓	↓

Comments:

SerDil.wpd

LDC#: 29836M4

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: CR
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 6010B/7000)

Analyte	Concentration (mg/Kg)		RPD (≤50)	Qualifiers (Parents Only)
	2	3		
Aluminum	11700	12000	3	
Antimony	4.6	0.54	158	Jdet/A (FD)
Arsenic	4.4	4.1	7	
Barium	104	107	3	
Beryllium	0.46	0.47	2	
Boron	15.6	13.7	13	
Cadmium	1.19	0.38	103	Jdet/A (FD)
Calcium	7940	6150	25	
Chromium	15.4	17.0	10	
Cobalt	7.6	4.4	53	Jdet/A (FD)
Copper	12.3	12.0	2	
Iron	17900	18500	3	
Lead	23.8	15.1	45	
Lithium	20.2	19.6	3	
Magnesium	4490	4550	1	
Manganese	355	328	8	
Mercury	0.058	0.049	17	
Molybdenum	2.8	0.34	157	Jdet/A (FD)
Nickel	8.9	10.1	13	

LDC#: 29836M4

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: CR
2nd Reviewer: [illegible]

METHOD: Metals (EPA Method 6010B/7000)

Analyte	Concentration (mg/Kg)		RPD (≤50)	Qualifiers (Parents Only)
	2	3		
Phosphorus	679	515	27	
Potassium	3090	3320	7	
Selenium	0.19	0.14	30	
Silver	0.035	0.033	6	
Sodium	88.9	84.8	5	
Strontium	37.5	36.6	2	
Thallium	0.23	0.26	12	
Tin	10.9	2.7	121	Jdet/A (FD)
Titanium	977	1040	6	
Vanadium	29.3	30.2	3	
Zinc	71.0	69.5	2	
Zirconium	2.5	2.5	0	

V:\FIELD DUPLICATES\FD_inorganic\29836M4.wpd

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: QR
2nd Reviewer: Q

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Sb	599.7	600	100	100	Y
ICV	ICP/MS (Initial calibration)	Sr	50.15	50	100.3	100.3	
ICV	CVAA (Initial calibration)	Hg	2.46	2.5	98.4	98.4	
CCV3	ICP (Continuing calibration)	P	507.37	500	101.5	101.5	
CCV3	ICP/MS (Continuing calibration)	Tl	25.78	25	103.1	103.1	
CCV3	CVAA (Continuing calibration)	Hg	0.99	1.0	99.0	99.0	
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 99836MS

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Reviewer: 92
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Ni	896.8	1000	89.7	89.7	Y
LCS	Laboratory control sample	As	0.100	0.1	100	100	
8	Matrix spike	As	(SSR-SR) 10.9875	9.901	111	111	
10	Duplicate	Ti	953.4208	968.4208	2	2	
2	ICP serial dilution	Zn	699.59	724.8	4	4	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: CR
2nd reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for Sr were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$\frac{100mL(2)(185mg/L)}{0.976(1.01g)(1000)} = 37.53mg/kg$$

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
	2	Al	11700	11700	Y
		Sb	4.6	4.6	
		As	4.4	4.4	
		Ba	104	104	
		Be	0.46	0.46	
		B	15.6	15.6	
		Cd	1.2	1.2	
		Ca	7940	7940	
		Cr	15.4	15.4	
		Co	7.6	7.6	
		Cu	12.3	12.3	
		Fe	17900	17900	
		Pb	23.8	23.8	
		Li	20.2	20.2	
		Mg	4490	4490	
		Mn	355	355	
		Hg	0.058	0.058	
		Mo	2.8	2.8	
		Ni	8.9	8.9	
		P	679	679	

Note:

LDC #: 29836M4

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: CR
2nd reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for _____ were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

see pg. 1

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
	2	K	3090	3090	Y
		Se	0.19	0.19	
		Ag	0.035	0.035	
		Na	88.9	88.9	
		Sr	37.5	37.5	
		Tl	0.23	0.23	
		Sn	10.9	10.9	
		Ti	977	977	
		V	29.3	29.3	
		Zn	71.0	71.0	
		Zr	2.5	2.5	

Note: _____

LDC Report# 29836M7

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	April 25, 2013
LDC Report Date:	June 26, 2013
Matrix:	Soil/Water
Parameters:	Total Petroleum Hydrocarbons as Gasoline
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH039

Sample Identification

TB-042513
SL-519-SA7-SB-2.0-3.0

Introduction

This data review covers one soil sample and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB-042513 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample EB-042413 (from SDG PH035) was identified as an equipment blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample FB-041113 (from SDG PH029) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Target Compound Identification

All target compound identifications were within validation criteria.

IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH039	All compounds reported below the RL.	J (all detects)	A

X. System Performance

The system performance was acceptable.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG PH039

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH039	TB-042513 SL-519-SA7-SB-2.0-3.0	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

LDC #: 29836M7 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/6/13

SDG #: PH039 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: B

2nd Reviewer: C

METHOD: GC TPH as Gasoline (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/25/13
II	Initial calibration	A	% RSD ≤ 20
III.	Calibration verification/ICV	A	ICV/CCV ≤ 20
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	client specified
VII.	Laboratory control samples	A	LCS/D
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	TB = 1 EB = EB-042413 (SDG # PH035) FB = FB-041113 (SDG # PH039)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: SOIL + water

~~1~~ 1	~~TB-042413~~ 042513	~~11~~ 1	BLK5Z	21		31	
~~2~~ 2	SL-519-SA7-SB-2.0-3.0	~~12~~ 2	BLK5W	22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 29836M7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: [illegible]

Method: ✓ GC ____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 29836M7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 29836M7

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (550 std)	Recalculated CF (550 std)	Reported Ave CF (initial)	Recalculated Ave CF (intial)	Reported %RSD	Recalculated %RSD
1	ICAL	1/12/12	GRO	6717	6717	6269	6269	9.2	9.2
				(220)	(220)				
2	ICAL	7/23/12	GRO	62559	62559	62999	62999	3.7	3.7
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M7

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FJ
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 10:42	5/1/13	GRO	550.0	562.51	562.51	2	2
2	CCV 13:58	4/30/13	↓	220.00	224.51	224.51	2	2
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #2

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Trifluorotoluene	NS	900	736.4180	82	82	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 29836M7

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FD

2nd Reviewer: C

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; LCS = Laboratory Control Sample; SC = Sample concentration; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS/D

Compound	Spike Added (ug/L)		Sample Conc. (ug/L)	Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1100	1100	ND	1073.17	1127.51	98	98	100	100	5	5
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 2983647

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

wt = 4.17
extvo = 5.00 ml MeOH
M% = 3.4
S% = 96.6

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #2 Compound Name GRO

Concentration = $\frac{(6216252 - 3383232)\ (5)(25)}{(62999)\ (4.17)(1)(0.966)(1000)}$

~~6216252~~ F7

1.395 mg/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments: _____

SAMPCALew.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	April 24 through April 25, 2013
LDC Report Date:	June 24, 2013
Matrix:	Soil
Parameters:	Total Petroleum Hydrocarbons as Extractables
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH039

Sample Identification

SL-507-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5
SL-819-SA7-SB-0.0-0.5
SL-519-SA7-SB-2.0-3.0
SL-509-SA7-SB-0.0-0.5
SL-506-SA7-SB-0.0-0.5
SL-508-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5MS
SL-519-SA7-SB-0.0-0.5MSD

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractables contaminants were found in the method blanks.

Sample EB-042413 (from SDG PH035) was identified as an equipment blank. No total petroleum hydrocarbons as extractables contaminants were found.

Sample FB-041113 (from SDG PH029) was identified as a field blank. No total petroleum hydrocarbons as extractables contaminants were found.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-519-SA7-SB-0.0-0.5MS/MSD (SL-519-SA7-SB-0.0-0.5)	Extractable fuel hydrocarbons (C8-C11) Extractable fuel hydrocarbons (C12-C14)	140 (49-123) 147 (49-123)	151 (49-123) 137 (49-123)	- -	J (all detects) J (all detects)	A

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS01120	Extractable fuel hydrocarbons (C30-C40)	63 (65-128)	All samples in SDG PH039	J (all detects) UJ (all non-detects)	P

VIII. Target Compound Identification

All target compound identifications were within validation criteria.

IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH039	All compounds reported below the RL.	J (all detects)	A

X. System Performance

The system performance was acceptable.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

Samples SL-519-SA7-SB-0.0-0.5 and SL-819-SA7-SB-0.0-0.5 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples with the following exceptions:

Compound	Concentration (mg/Kg)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
Extractable fuel hydrocarbons (C12-C14)	2.5	5.2U	200 (≤50)	J (all detects) UJ (all non-detects)	A
Extractable fuel hydrocarbons (C15-C20)	14	14	0 (≤50)	-	-
Extractable fuel hydrocarbons (C21-C30)	41	56	31 (≤50)	-	-
Extractable fuel hydrocarbons (C30-C40)	95	79	18 (≤50)	-	-
Extractable fuel hydrocarbons (C8-C11)	3.0	5.2U	200 (≤50)	J (all detects) UJ (all non-detects)	A

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG PH039

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH039	SL-519-SA7-SB-0.0-0.5	Extractable fuel hydrocarbons (C8-C11) Extractable fuel hydrocarbons (C12-C14)	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	Extractable fuel hydrocarbons (C30-C40)	J (all detects) UJ (all non-detects)	P	Laboratory control samples (%R) (L)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)
PH039	SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5	Extractable fuel hydrocarbons (C12-C14) Extractable fuel hydrocarbons (C8-C11)	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

LDC #: 29836M8 **VALIDATION COMPLETENESS WORKSHEET** Date: 6/5/13

SDG #: PH039 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/24 – 4/25/13
II	Initial calibration	A	% RSD ≤ 20
III.	Calibration verification/ICV	A	ICV/CCV ≤ 20
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	SW	LCS
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	SW	D = ~~3~~ 4 3 PH035
XIII.	Field blanks	ND	EB = EB-042413 (SDG # ~~298361~~) PH035 FB = FB-041113 (SDG # ~~298~~ PH029 PH035

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

SOIL

1	SL-507-SA7-SB-0.0-0.5	11	PBLK01120	21		31	
2	SL-519-SA7-SB-0.0-0.5	12		22		32	
3	SL-819-SA7-SB-0.0-0.5	13		23		33	
4	SL-519-SA7-SB-2.0-3.0	14		24		34	
5	SL-509-SA7-SB-0.0-0.5	15		25		35	
6	SL-506-SA7-SB-0.0-0.5	16		26		36	
7	SL-508-SA7-SB-0.0-0.5	17		27		37	
8	SL-519-SA7-SB-0.0-0.5MS	18		28		38	
9	SL-519-SA7-SB-0.0-0.5MSD	19		29		39	
10		20		30		40	

Notes:

LDC #: 29836M8

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 29836M8

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 29836M8

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
Y N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	8 + 9	EFH (C8-C11)	140 (49-123)	151 (49-123)	( )	2	J/Adet Q
		EFH (C12-C14)	147 (49-123)	137 (49-123)	( )	↓	↓ ↓
		EFH (C15-C20)	418 (↓)	352 (↓)	( )	↓	no gud parent 7 4X
		EFH (C21-C30)	1125 (↓)	986 (↓)	( )	↓	↓
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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LDC #: 29836M8

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	LCS01120	EFH (C30-C40)	63 (65-128)	( )	( )	All	J/UJ/P (L)
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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LDC#: 29836M8

VALIDATION FINDINGS WORKSHEET

Field Duplicates

Page: 1 of 1
Reviewer: B
2nd Reviewer: C

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (mg/Kg)		≤50 RPD	
	12	23		
EFH (C12-C14)	2.5	5.2U	200	J/UJ/A
EFH (C15-C20)	14	14	0	
EFH (C21-C30)	41	56	31	
EFH (C30-C40)	95	79	18	
EFH (C8-C11)	3.0	5.2U	200	J/UJ/A

LDC #: 29836M8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC ____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (288 std)	Recalculated CF (288 std)	Reported Ave CF (initial)	Recalculated Ave CF (intial)	Reported %RSD	Recalculated %RSD
1	ICAL	4/9/13	TPF (C8 - C40)	23800.41	23800.41	23651.44	23651.44	7.938	7.938
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

INICLCrev.wpd

LDC #: 29836M8

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: A

METHOD: GC _____ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	5/2/13 CCV 3:09	5/2/13	C8-C40	288.01	283.46	283.46	2	2
2	CCV 7:59	5/2/13	↓	↓	320.59	320.59	11	11
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

CONCLC.wpd

LDC #: 29836M8

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: A

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: H1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
chlorobenzene	NS	2.0	2.0326	102	102	0
orthoterphenyl	↓	2.0	2.128269	106	106	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 29836 08

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: EJ
2nd Reviewer: [illegible]

METHOD: ✓ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked sample concentration SC = Sample concentration
SA = Spike added

RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 8 + 9

Compound	Spike Added (ug/kg)		Sample Conc. (ug/kg)	Spike Sample Concentration (ug/kg)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
EPH (C30- C40)	5.01	5.01	92.33	112.67	130.15	406	406	755	755	14	14

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836H8

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FD

2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; LCS = Laboratory Control Sample; SC = Sample concentration; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS 0112 U

Compound	Spike Added (mg/kg)		Sample Conc. (mg/kg)	Spike Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
EPH (C30 – C40)	5.01	NA	ND	3.13	NA	63	63	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M8

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #1 Compound Name $C_{30}-C_{40}$

Concentration = $\frac{15833948\ (1000)}{(23651.44)\ (30)\ (0.9640)(1000)}$

= 23.14 mg/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments:

SAMPCALew.wpd

LDC Report# 29836M21

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	April 24 through April 25, 2013
LDC Report Date:	June 6, 2013
Matrix:	Soil
Parameters:	Dioxins/Dibenzofurans
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH039

Sample Identification

SL-507-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5
SL-819-SA7-SB-0.0-0.5
SL-519-SA7-SB-2.0-3.0
SL-509-SA7-SB-0.0-0.5
SL-506-SA7-SB-0.0-0.5
SL-508-SA7-SB-0.0-0.5
SL-519-SA7-SB-0.0-0.5MS
SL-519-SA7-SB-0.0-0.5MSD

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1613B for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

PFK and static resolving power were within validation criteria.

III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within QC limits.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BLK123001	5/3/13	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.0477 ng/Kg 0.0263 ng/Kg 0.0789 ng/Kg 0.143 ng/Kg 0.0390 ng/Kg 0.0517 ng/Kg 0.0360 ng/Kg 0.0277 ng/Kg 0.0328 ng/Kg 0.0157 ng/Kg 0.0301 ng/Kg 0.0373 ng/Kg 0.125 ng/Kg	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5
BLK128001	5/8/13	1,2,3,7,8-PeCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.0260 ng/Kg 0.0224 ng/Kg 0.0332 ng/Kg 0.0475 ng/Kg 0.242 ng/Kg 0.0349 ng/Kg 0.0209 ng/Kg 0.0342 ng/Kg 0.0236 ng/Kg 0.0367 ng/Kg 0.0403 ng/Kg 0.0382 ng/Kg 0.0528 ng/Kg 0.136 ng/Kg	SL-519-SA7-SB-2.0-3.0

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
SL-507-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD 1,2,3,4,7,8,9-HpCDF	0.177 ng/Kg 0.121 ng/Kg	0.177U ng/Kg 0.121U ng/Kg
SL-519-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD	0.205 ng/Kg	0.205U ng/Kg
SL-819-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD	0.210 ng/Kg	0.210U ng/Kg
SL-506-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 2,3,4,7,8-PeCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,7,8,9-HpCDF	0.0965 ng/Kg 0.130 ng/Kg 0.253 ng/Kg 0.107 ng/Kg 0.118 ng/Kg	0.0965U ng/Kg 0.130U ng/Kg 0.253U ng/Kg 0.107U ng/Kg 0.118U ng/Kg
SL-519-SA7-SB-2.0-3.0	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8,9-HpCDF	0.0778 ng/Kg 0.112 ng/Kg 0.118 ng/Kg 0.103 ng/Kg 0.0583 ng/Kg 0.0915 ng/Kg	0.0778U ng/Kg 0.112U ng/Kg 0.118U ng/Kg 0.103U ng/Kg 0.0583U ng/Kg 0.0915U ng/Kg

Samples EB-042413 (from SDG PH038) was identified as an equipment blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB-042413	4/24/13	1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.282 pg/L 0.448 pg/L 0.854 pg/L 0.561 pg/L 0.409 pg/L 0.251 pg/L 0.255 pg/L 0.240 pg/L 0.178 pg/L 0.199 pg/L 0.191 pg/L 0.673 pg/L	All samples in SDG PH039

Sample FB-041113 (from SDG PH029) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041113	4/11/13	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF	0.125 pg/L 0.134 pg/L 0.402 pg/L 0.298 pg/L 0.316 pg/L 0.324 pg/L 0.221 pg/L 0.211 pg/L 0.149 pg/L 0.254 pg/L 0.840 pg/L	All samples in SDG PH039

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-519-SA7-SB-0.0-0.5MS/MSD (SL-519-SA7-SB-0.0-0.5)	OCDD	30 (40-135)	-	-	J (all detects) UJ (all non-detects)	A

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. The percent recoveries (%R) were within the QC limits.

VIII. Regional Quality Assurance and Quality Control

Not applicable.

IX. Internal Standards

All internal and recovery standard recoveries were within QC limits.

X. Target Compound Identifications

All target compound identifications were within validation criteria.

XI. Compound Quantitation

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH039	All compounds reported below the RL.	J (all detects)	A

XII. System Performance

The system performance was acceptable.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

Samples SL-519-SA7-SB-0.0-0.5 and SL-819-SA7-SB-0.0-0.5 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (ng/Kg)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
2,3,7,8-TCDD	0.0651	0.0291	76 (≤50)	J (all detects)	A

Compound	Concentration (ng/Kg)		RPD (Limits)	Flag	A or P
	SL-519-SA7-SB-0.0-0.5	SL-819-SA7-SB-0.0-0.5			
1,2,3,7,8-PeCDD	0.205	0.210	2 (≤50)	-	-
1,2,3,4,7,8-HxCDD	0.276	0.317	14 (≤50)	-	-
1,2,3,6,7,8-HxCDD	1.02	0.728	33 (≤50)	-	-
1,2,3,7,8,9-HxCDD	0.691	0.654	6 (≤50)	-	-
1,2,3,4,6,7,8-HpCDD	25.2	17.1	38 (≤50)	-	-
OCDD	270	174	43 (≤50)	-	-
2,3,7,8-TCDF	0.365	0.184	66 (≤50)	J (all detects)	A
1,2,3,7,8-PeCDF	0.711	0.577	21 (≤50)	-	-
2,3,4,7,8-PeCDF	0.495	0.484	2 (≤50)	-	-
1,2,3,4,7,8-HxCDF	0.486	0.435	11 (≤50)	-	-
1,2,3,6,7,8-HxCDF	0.299	0.307	3 (≤50)	-	-
2,3,4,6,7,8-HxCDF	0.303	0.284	6 (≤50)	-	-
1,2,3,7,8,9-HxCDF	0.114	0.108	5 (≤50)	-	-
1,2,3,4,6,7,8-HpCDF	2.91	3.38	15 (≤50)	-	-
1,2,3,4,7,8,9-HpCDF	0.344	0.298	14 (≤50)	-	-
OCDF	7.75	13.7	55 (≤50)	J (all detects)	A

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Data Qualification Summary - SDG PH039

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH039	SL-519-SA7-SB-0.0-0.5	OCDD	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH039	SL-507-SA7-SB-0.0-0.5 SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5 SL-519-SA7-SB-2.0-3.0 SL-509-SA7-SB-0.0-0.5 SL-506-SA7-SB-0.0-0.5 SL-508-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)
PH039	SL-519-SA7-SB-0.0-0.5 SL-819-SA7-SB-0.0-0.5	2,3,7,8-TCDD 2,3,7,8-TCDF OCDF	J (all detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG PH039

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
PH039	SL-507-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD 1,2,3,4,7,8,9-HpCDF	0.177U ng/Kg 0.121U ng/Kg	A	B
PH039	SL-519-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD	0.205U ng/Kg	A	B
PH039	SL-819-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD	0.210U ng/Kg	A	B
PH039	SL-506-SA7-SB-0.0-0.5	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDD 2,3,4,7,8-PeCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,7,8,9-HpCDF	0.0965U ng/Kg 0.130U ng/Kg 0.253U ng/Kg 0.107U ng/Kg 0.118U ng/Kg	A	B
PH039	SL-519-SA7-SB-2.0-3.0	1,2,3,7,8-PeCDD 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8,9-HpCDF	0.0778U ng/Kg 0.112U ng/Kg 0.118U ng/Kg 0.103U ng/Kg 0.0583U ng/Kg 0.0915U ng/Kg	A	B

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG PH039

No Sample Data Qualified in this SDG

LDC #: 29836M21 **VALIDATION COMPLETENESS WORKSHEET** Date: 6-5-13
SDG #: PH039 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 4/24/13 → 4/25/13
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	~~≤20/35 ab ~~ ≤20/35 QC Limit
IV.	Continuing Calibration	A	~~QC limits ab ≤100 ≤85 ICV/CCV~~
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	OPR
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation/~~RL/LOQ/LODs~~	SW	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	~~A~~ SW	D = 2+3
XV.	Field blanks	SW	EB=EB-042413(PH038) ; FB=FB-041113(PH028)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1 1	SL-507-SA7-SB-0.0-0.5	11		21		31	
2 1	SL-519-SA7-SB-0.0-0.5	12		22		32	
3 1	SL-819-SA7-SB-0.0-0.5	13		23		33	
4 2	SL-519-SA7-SB-2.0-3.0	14		24		34	
5 1	SL-509-SA7-SB-0.0-0.5	15		25		35	
6 1	SL-506-SA7-SB-0.0-0.5	16		26		36	
7 1	SL-508-SA7-SB-0.0-0.5	17		27		37	
8 1	SL-519-SA7-SB-0.0-0.5MS	18		28		38	
9 1	SL-519-SA7-SB-0.0-0.5MSD	19		29 1	BLK123001	39	
10 1		20		30 2	BLK128001	40	

Notes:

LDC #: 29836M21

VALIDATION FINDINGS CHECKLIST

Reviewer: YM
2nd Reviewer: [illegible]

Method: Dioxins/Dibenzofurans (EPA Method 1613B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?				
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for labeled compounds ?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Continuing calibration				
Was a routine calibration performed at the beginning and end of each 12 hour period?	✓			
Were all the concentrations for the unlabeled compounds and labeled compounds within the QC limits (Method 1613B, Table 6)?	✓			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 29832M21

VALIDATION FINDINGS CHECKLIST

Reviewer: [illegible]
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
IX. Internal standards				
Were internal standard recoveries within the 25-150% criteria?	✓			
Was the minimum S/N ratio of all internal standard peaks ≥ 10?	✓			
X. Target compound identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	✓			
Did compound spectra contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?		✓		
Was the signal to noise ratio for each target compound and labeled standard ≥ 2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?		✓		
Was an acceptable lock mass recorded and monitored?	✓			
XI. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: 9m
2nd Reviewer: 9

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was method blank contamination less < CRQL for all target compounds?

Blank extraction date: 05/03/13 **Blank analysis date:** 05/06/13 **Associated samples:** 1-3, 5-7 Qual U (B)
Conc. units: ng/kg

Compound	Blank ID	Sample Identification										
	BLK123001	5x	1	2	3	6						
B	0.0477*	0.2385	0.177*	0.205*	0.210*	0.0965*						
C	0.0263*	0.1315				0.130*						
F	0.0789	0.3945										
G	0.143	0.715										
I	0.0390	0.195										
J	0.0517*	0.2585				0.253*						
K	0.0360	0.18										
L	0.0277	0.1385										
M	0.0328*	0.164				0.107*						
N	0.0157*	0.0785										
O	0.0301*	0.1505										
P	0.0373*	0.1865	0.121*			0.118*						
Q	0.125*	0.625										

*EMPC

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer:
2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was method blank contamination less < CRQL for all target compounds?

Blank extraction date: 05/08/13 **Blank analysis date:** 05/09/13 **Associated samples:** 4 Qual U (B)

Conc. units: ~~pg/g~~ ng/Kg ug

Compound	Blank ID	Sample Identification										
	BLK128001	5x	4									
B	0.0260*	0.13	0.0778*									
D	0.0224	0.112										
E	0.0332*	0.166										
F	0.0475	0.2375										
G	0.242*	1.21										
I	0.0349*	0.1745										
J	0.0209*	0.1045										
K	0.0342*	0.171	0.112									
L	0.0236*	0.118	0.118*									
M	0.0367	0.1835	0.103*									
N	0.0403*	0.2015	0.0583*									
O	0.0382*	0.191										
P	0.0528*	0.264	0.0915*									
Q	0.136	0.68										

*EMPC

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: 9m
2nd Reviewer: 9

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 04/24/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All >5x

Compound	Blank ID	Sample Identification								
	EB-042413	5X								
E	0.282*	1.41								
F	0.448	2.24								
G	0.854*	4.27								
I	0.561*	2.805								
J	0.409*	2.045								
K	0.251	1.255								
L	0.255	1.275								
N	0.240	1.2								
M	0.178	0.89								
O	0.199*	0.995								
P	0.191*	0.955								
Q	0.673*	3.365								

* EMPC

EB-042413 (PH038)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\29836M21_EB.wpd

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: 9m
2nd Reviewer: 9

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 04/11/13
Field blank type: (circle one) Field Blank / Rinsate / Other: FB Associated Samples: All >5x

Compound	Blank ID	Sample Identification								
	FB-041113	5X								
C	0.125	0.625								
E	0.134*	0.67								
F	0.402*	2.01								
I	0.398*	1.99								
J	0.316*	1.58								
K	0.324	1.62								
L	0.221	1.105								
N	0.211*	1.055								
M	0.149	0.745								
O	0.254*	1.27								
Q	0.840*	4.2								

* EMPC

FB-041113 (PH029)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\29836M21_FB.wpd

LDC #29836M2-1

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: 2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
		8/9	G	30 (40-135)	( )	( )	2	J/UJ/A (G) (Q)
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		

LDC#: 29836M21

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: [illegible]
2nd Reviewer: _____

METHOD: HRGC/HRMS Semivolatiles (EPA Method 1613B)

Y N NA Were field duplicate pairs identified in this SDG?
Y N NA Were target analytes detected in the field duplicate pairs?

Compound	Concentration (ng/kg)		RPD (<50%)	Qualifications (Parent Only)
	2	3		
A	0.0651*	0.0291*	76	Jdets/A (FD)
B	0.205*	0.210*	2	--
C	0.276*	0.317	14	--
D	1.02	0.728	33	--
E	0.691	0.654	6	--
F	25.2	17.1	38	--
G	270	174	43	--
H	0.365*	0.184*	66	Jdets/A (FD)
I	0.711	0.577*	21	--
J	0.495*	0.484*	2	--
K	0.486	0.435	11	--
L	0.299*	0.307*	3	--
M	0.303	0.284	6	--
N	0.114*	0.108*	5	--
O	2.91	3.38	15	--
P	0.344	0.298*	14	--
Q	7.75	13.7	55	Jdets/A (FD)

~~P:\FD %RPD Q.wpd~~
V:\FieldDuplicates\29836M21

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: 9m
2nd Reviewer: CL

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported RRF (CS3 std)	Recalculated RRF (CS3 std)	Reported %RSD	Recalculated %RSD
1	ICAL	3.22-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	1.043	1.043	1.025	1.024	5.23	5.24
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.207	1.207	1.182	1.182	9.04	9.04
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	0.957	0.9575	0.947	0.947	2.62	2.62
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.048	1.048	1.028	1.028	3.46	3.47
			OCDF (^{13}C-~~OCDD~~) OCDF	0.933	0.933	0.920	0.920	5.76	5.76
2			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDD)						
3			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDD)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Routine Calibration Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Spiked Conc (ng/mL)	Reported Conc (ng/mL)	Recalculated Conc (ng/mL)	Reported %R	Recalculated %R
1	CS3CC02	5-6-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	9.97	9.97	100	100
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10	9.32	9.32	93	93
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50	52.2	52.2	104	104
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50	52.23	52.22	104	104
			OCDF (^{13}C-OCDF)	100	105.16	105.15	105	105
2	CS3CC04	5-7-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	10.01	10.01	100	100
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10	9.34	9.34	93	93
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50	52.62	52.64	105	105
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50	52.43	52.42	105	105
			OCDF (^{13}C-OCDF)	100	106.4	106.4	106	106
3	CS3CC02	5-9-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	9.94	9.94	99	99
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10	9.59	9.59	96	96
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50	52.79	52.81	106	106
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50	52.05	52.04	104	104
			OCDF (^{13}C-OCDF)	100	105.11	105.11	105	105

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Page: 1 of 1
Reviewer: Am
2nd Reviewer: ✓

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSR - SR)/SA Where: SSR = Spiked sample result, SR = Sample result
SA = Spike added

RPD = I MSR - MSDR I * 2/(MSR + MSDR) MSR = Matrix spike percent recovery MSDR = Matrix spike duplicate percent recovery

MS/MSD samples: 8|9

Compound	Spike Added (ng/kg)		Sample Concentration (ng/kg)	Spiked Sample Concentration (ng/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		Reported RPD	Recalculated RPD
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	----	----
2,3,7,8-TCDD	20.4	20.4	0.0651	17.8	18.0	87	87	89	88	1	1
1,2,3,7,8-PeCDD	102	102	0.205	93.7	94.6	92	92	93	92.5	1	1
1,2,3,4,7,8-HxCDD	102	102	0.276	102	102	100	100	101	100	0	0
1,2,3,4,7,8,9-HpCDF	102	102	0.344	99.2	97.9	97	97	96	96	1	1
OCDF	204	204	7.75	203	204	96	96	97	96	1	0.5

Comments: Refer to Matrix Spike/Matrix Spike Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer:
2nd Reviewer:

METHOD: GC/MS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: OPR123001

Compound	Spike Added (ng/Kg)		Spiked Sample Concentration (ng/Kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc	Reported	Recalculated
2,3,7,8-TCDD	20.0	NA	17.8	NA	89	89				
1,2,3,7,8-PeCDD	100		92.5		92	92.5				
1,2,3,4,7,8-HxCDD	100		99.7		100	100				
1,2,3,4,7,8,9-HpCDF	100		96.2		96	96				
OCDF	200		197		99	98.5				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 29836M21

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: SM
2nd reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
RRF	=	Relative Response Factor (average) from the initial calibration
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 4, Q:

Conc. = $\frac{(5742+4865)(4000)(1)}{(1566313+1423088)(0.933)(10.22)(0.966)}$

= 1.54 ng/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
25-Apr-2013	SL-543A-SA7-SB-0.0-0.5	7037614	N	3546	8082A	III
25-Apr-2013	SL-543B-SA7-SB-0.0-0.5	7037615	N	3546	8082A	III
25-Apr-2013	SL-543C-SA7-SB-0.0-0.5	7037616	N	3546	8082A	III
25-Apr-2013	SL-543D-SA7-SB-0.0-0.5	7037617	N	3546	8082A	III
26-Apr-2013	TB-042613	7037618	TB	5030B	8015M	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	3050B	6010C	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	3050B	6020A	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	3546	8015M	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	3546	8082A	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	3546	8270D SIM	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	METHOD	1613B	III
26-Apr-2013	SL-562-SA7-SB-0.0-0.5	7037619	N	METHOD	7471B	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	3050B	6010C	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	3050B	6020A	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	3546	8015M	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	3546	8082A	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	3546	8270D SIM	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	5035A	8015M	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	METHOD	1613B	III
26-Apr-2013	SL-562-SA7-SB-2.0-3.0	7037620	N	METHOD	7471B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-562-SA7-SB-0.0-0.5** ***Collected:*** **4/26/2013 8:25:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.665	J	0.509	MDL	4.07	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.491	J	0.0681	MDL	1.02	PQL	mg/Kg	J	Z
BORON	10.9		0.844	MDL	10.2	PQL	mg/Kg	U	F
CADMIUM	0.270	J	0.0336	MDL	1.02	PQL	mg/Kg	J	Z
CALCIUM	3400		4.09	MDL	20.3	PQL	mg/Kg	J	E
COBALT	4.54		0.0915	MDL	1.02	PQL	mg/Kg	J	E
LEAD	10.5		0.478	MDL	3.05	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.278	J	0.173	MDL	2.03	PQL	mg/Kg	U	F
NICKEL	9.24		0.112	MDL	2.03	PQL	mg/Kg	J	A
PHOSPHORUS	427		0.519	MDL	10.2	PQL	mg/Kg	J	A, E
POTASSIUM	3300		13.7	MDL	102	PQL	mg/Kg	J	Q
SODIUM	71.9	J	17.0	MDL	102	PQL	mg/Kg	U	F
TIN	2.82	J	0.224	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.87	J	0.844	MDL	5.09	PQL	mg/Kg	J	Z

Sample ID: **SL-562-SA7-SB-2.0-3.0** ***Collected:*** **4/26/2013 9:20:00** ***Analysis Type:*** **RES/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.557	J	0.515	MDL	4.12	PQL	mg/Kg	J	Z, Q
BERYLLIUM	0.487	J	0.0690	MDL	1.03	PQL	mg/Kg	J	Z
BORON	9.62	J	0.855	MDL	10.3	PQL	mg/Kg	U	F
CADMIUM	0.399	J	0.0340	MDL	1.03	PQL	mg/Kg	J	Z
CALCIUM	3250		4.14	MDL	20.6	PQL	mg/Kg	J	E
COBALT	4.50		0.0927	MDL	1.03	PQL	mg/Kg	J	E
LEAD	15.8		0.484	MDL	3.09	PQL	mg/Kg	J	Q, E
MOLYBDENUM	0.334	J	0.175	MDL	2.06	PQL	mg/Kg	U	F
NICKEL	13.8		0.113	MDL	2.06	PQL	mg/Kg	J	A
PHOSPHORUS	370		0.525	MDL	10.3	PQL	mg/Kg	J	A, E
POTASSIUM	3150		13.9	MDL	103	PQL	mg/Kg	J	Q
SODIUM	73.0	J	17.2	MDL	103	PQL	mg/Kg	U	F
TIN	2.92	J	0.227	MDL	10.3	PQL	mg/Kg	U	B
Zirconium	2.56	J	0.855	MDL	5.15	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-562-SA7-SB-0.0-0.5 *Collected:* 4/26/2013 8:25:00 *Analysis Type:* REA/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.143	J	0.102	MDL	0.407	PQL	mg/Kg	J	Z

Sample ID: SL-562-SA7-SB-0.0-0.5 *Collected:* 4/26/2013 8:25:00 *Analysis Type:* RES/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0337	J	0.0203	MDL	0.203	PQL	mg/Kg	J	Z

Sample ID: SL-562-SA7-SB-2.0-3.0 *Collected:* 4/26/2013 9:20:00 *Analysis Type:* REA/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.145	J	0.103	MDL	0.412	PQL	mg/Kg	J	Z

Sample ID: SL-562-SA7-SB-2.0-3.0 *Collected:* 4/26/2013 9:20:00 *Analysis Type:* RES/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0694	J	0.0206	MDL	0.206	PQL	mg/Kg	J	Z

Method Category: METALS

Method: 7471B **Matrix: SO**

Sample ID: SL-562-SA7-SB-0.0-0.5 *Collected:* 4/26/2013 8:25:00 *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0118	J	0.0098	MDL	0.0163	PQL	mg/Kg	J	Z

Method Category: SVOA

Method: 1613B **Matrix: SO**

Sample ID: SL-562-SA7-SB-0.0-0.5 *Collected:* 4/26/2013 8:25:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	0.570	JB	0.0555	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	1.56	JB	0.0804	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.813	JB	0.0513	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	4.50	J	0.0822	MDL	5.09	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-562-SA7-SB-0.0-0.5 **Collected:** 4/26/2013 8:25:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,6,7,8-HXCDF	0.584	JB	0.0482	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	2.84	J	0.0719	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.740	JB	0.0621	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.557	JB	0.0364	MDL	5.09	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.560	JB	0.0426	MDL	5.09	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.677	JB	0.0374	MDL	5.09	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.140	JQ	0.0255	MDL	1.02	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.192	JQ	0.0409	MDL	1.02	PQL	ng/Kg	J	Z

Sample ID: SL-562-SA7-SB-2.0-3.0 **Collected:** 4/26/2013 9:20:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	1.64	JB	0.0705	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	1.54	JB	0.0601	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	1.77	JB	0.0604	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	1.49	JB	0.0594	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	3.27	J	0.0580	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.745	JB	0.0617	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.735	JB	0.0657	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.995	JB	0.0669	MDL	5.01	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	1.52	JB	0.0604	MDL	5.01	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	1.79	JB	0.0634	MDL	5.01	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.116	J	0.0266	MDL	1.00	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.830	J	0.0983	MDL	1.00	PQL	ng/Kg	J	Z

Method Category: SVOA

Method: 8015M **Matrix:** SO

Sample ID: SL-562-SA7-SB-0.0-0.5 **Collected:** 4/26/2013 8:25:00 **Analysis Type:** RES **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	130		21	MDL	52	PQL	mg/Kg	J	L

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8015M **Matrix:** SO

Sample ID: SL-562-SA7-SB-2.0-3.0 **Collected:** 4/26/2013 9:20:00 **Analysis Type:** REA **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	220		21	MDL	51	PQL	mg/Kg	J	L

Method Category: SVOA
Method: 8082A **Matrix:** SO

Sample ID: SL-543A-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 2:25:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

Sample ID: SL-543B-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 2:40:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

Sample ID: SL-543C-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 2:50:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

Sample ID: SL-543D-SA7-SB-0.0-0.5 **Collected:** 4/25/2013 3:00:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method Category: SVOA
Method: 8082A **Matrix:** SO

Sample ID: SL-562-SA7-SB-0.0-0.5 **Collected:** 4/26/2013 8:25:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5442	34	U	10	MDL	34	PQL	ug/Kg	UJ	E
Aroclor 5460	34	U	10	MDL	34	PQL	ug/Kg	UJ	E

Sample ID: SL-562-SA7-SB-2.0-3.0 **Collected:** 4/26/2013 9:20:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Aroclor 5432	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5442	33	U	10	MDL	33	PQL	ug/Kg	UJ	E
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	E

Method Category: SVOA
Method: 8270D SIM **Matrix:** SO

Sample ID: SL-562-SA7-SB-0.0-0.5 **Collected:** 4/26/2013 8:25:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)PYRENE	12	J	6.9	MDL	17	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	9.8	J	6.9	MDL	17	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	7.9	J	6.9	MDL	17	PQL	ug/Kg	J	Z
CHRYSENE	16	J	3.5	MDL	17	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	7.8	J	6.9	MDL	17	PQL	ug/Kg	J	Z
PHENANTHRENE	12	J	6.9	MDL	17	PQL	ug/Kg	J	Z

Sample ID: SL-562-SA7-SB-2.0-3.0 **Collected:** 4/26/2013 9:20:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	7.9	J	6.9	MDL	17	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	100	J	34	MDL	180	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	150	J	62	MDL	190	PQL	ug/Kg	J	Z
FLUORANTHENE	15	J	6.9	MDL	17	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	15	J	6.9	MDL	17	PQL	ug/Kg	J	Z
PYRENE	13	J	6.9	MDL	17	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Method Blank Contamination
E	Laboratory Control Precision
E	Laboratory Duplicate Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
L	Laboratory Control Precision
L	Laboratory Control Spike Lower Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH040

Method Blank Outlier Report

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1230B372212	5/6/2013 10:12:00 PM	1,2,3,4,6,7,8-HPCDD	0.0789 ng/Kg	SL-562-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0301 ng/Kg	SL-562-SA7-SB-2.0-3.0
		1,2,3,4,7,8,9-HPCDF	0.0373 ng/Kg	
		1,2,3,4,7,8-HxCDD	0.0263 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0360 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0277 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0157 ng/Kg	
		1,2,3,7,8-PECDD	0.0477 ng/Kg	
		1,2,3,7,8-PECDF	0.0390 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0328 ng/Kg	
		2,3,4,7,8-PECDF	0.0517 ng/Kg	
		OCDD	0.143 ng/Kg	
		OCDF	0.125 ng/Kg	

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P12237AB221100	5/3/2013 11:00:00 AM	PHOSPHORUS	1.44 mg/Kg	SL-562-SA7-SB-0.0-0.5
		TIN	1.47 mg/Kg	SL-562-SA7-SB-2.0-3.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-562-SA7-SB-0.0-0.5(RES/TOT)	TIN	2.82 mg/Kg	2.82U mg/Kg
SL-562-SA7-SB-2.0-3.0(RES/TOT)	TIN	2.92 mg/Kg	2.92U mg/Kg

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB-042413(RES)	4/24/2013 3:00:00 PM	BORON SODIUM TIN	0.0319 mg/L 0.228 mg/L 0.0035 mg/L	SL-543A-SA7-SB-0.0-0.5 SL-543B-SA7-SB-0.0-0.5 SL-543C-SA7-SB-0.0-0.5 SL-543D-SA7-SB-0.0-0.5 SL-562-SA7-SB-0.0-0.5 SL-562-SA7-SB-2.0-3.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-562-SA7-SB-0.0-0.5(RES/TOT)	BORON	10.9 mg/Kg	10.9U mg/Kg
SL-562-SA7-SB-0.0-0.5(RES/TOT)	SODIUM	71.9 mg/Kg	71.9U mg/Kg
SL-562-SA7-SB-2.0-3.0(RES/TOT)	BORON	9.62 mg/Kg	9.62U mg/Kg
SL-562-SA7-SB-2.0-3.0(RES/TOT)	SODIUM	73.0 mg/Kg	73.0U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PrepPH040 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-543A-SA7-SB-0.0-0.5 SL-543B-SA7-SB-0.0-0.5 SL-543C-SA7-SB-0.0-0.5 SL-543D-SA7-SB-0.0-0.5 SL-562-SA7-SB-0.0-0.5 SL-562-SA7-SB-2.0-3.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-562-SA7-SB-0.0-0.5(RES/TOT)	MOLYBDENUM	0.278 mg/Kg	0.278U mg/Kg
SL-562-SA7-SB-2.0-3.0(RES/TOT)	MOLYBDENUM	0.334 mg/Kg	0.334U mg/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PH040_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: **8082A**
Matrix: **SO**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
SL-543A-SA7-SB-0.0-0.5	TETRACHLORO-M-XYLENE	122	45.00-120.00	All Target Analytes	J (all detects)

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PH040_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31201AQ320351A (SL-562-SA7-SB-0.0-0.5 SL -562-SA7-SB-2.0-3.0)	EFH (C30-C40)	63	-	65.00-128.00	-	EFH (C30-C40)	J (all detects) UJ (all non-detects)

Method: 8082A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31207AY240140A (SL-543A-SA7-SB-0.0-0.5 SL -543B-SA7-SB-0.0-0.5 SL -543C-SA7-SB-0.0-0.5 SL -543D-SA7-SB-0.0-0.5 SL -562-SA7-SB-0.0-0.5 SL -562-SA7-SB-2.0-3.0)	Aroclor 5442	-	-	36.00-106.00	40 (30.00)	Aroclor 5432 Aroclor 5442 Aroclor 5460	J(all detects) UJ(all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PH040_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 1613B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-562-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	0.570	5.09	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	1.56	5.09	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.813	5.09	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	4.50	5.09	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.584	5.09	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	J	2.84	5.09	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.740	5.09	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.557	5.09	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.560	5.09	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.677	5.09	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.140	1.02	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.192	1.02	PQL	ng/Kg	
SL-562-SA7-SB-2.0-3.0	1,2,3,4,7,8,9-HPCDF	JB	1.64	5.01	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	1.54	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	1.77	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	1.49	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	J	3.27	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.745	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.735	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.995	5.01	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	1.52	5.01	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	1.79	5.01	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.116	1.00	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.830	1.00	PQL	ng/Kg	

Method: 6010C
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-562-SA7-SB-0.0-0.5	ANTIMONY	J	0.665	4.07	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.491	1.02	PQL	mg/Kg	
	CADMIUM	J	0.270	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.278	2.03	PQL	mg/Kg	
	SODIUM	J	71.9	102	PQL	mg/Kg	
	TIN	J	2.82	10.2	PQL	mg/Kg	
	Zirconium	J	2.87	5.09	PQL	mg/Kg	
SL-562-SA7-SB-2.0-3.0	ANTIMONY	J	0.557	4.12	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.487	1.03	PQL	mg/Kg	
	BORON	J	9.62	10.3	PQL	mg/Kg	
	CADMIUM	J	0.399	1.03	PQL	mg/Kg	
	MOLYBDENUM	J	0.334	2.06	PQL	mg/Kg	
	SODIUM	J	73.0	103	PQL	mg/Kg	
	TIN	J	2.92	10.3	PQL	mg/Kg	
	Zirconium	J	2.56	5.15	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH040 **Laboratory: LL**

EDD Filename: PH040_v1 **eQAPP Name: CDM_SSFL_130621_Lan**

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-562-SA7-SB-0.0-0.5	SELENIUM	J	0.143	0.407	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0337	0.203	PQL	mg/Kg	
SL-562-SA7-SB-2.0-3.0	SELENIUM	J	0.145	0.412	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0694	0.206	PQL	mg/Kg	

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-562-SA7-SB-0.0-0.5	MERCURY	J	0.0118	0.0163	PQL	mg/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-562-SA7-SB-0.0-0.5	BENZO(A)PYRENE	J	12	17	PQL	ug/Kg	J (all detects)
	BENZO(G,H,I)PERYLENE	J	9.8	17	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	7.9	17	PQL	ug/Kg	
	CHRYSENE	J	16	17	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	7.8	17	PQL	ug/Kg	
	PHENANTHRENE	J	12	17	PQL	ug/Kg	
SL-562-SA7-SB-2.0-3.0	BENZO(A)ANTHRACENE	J	7.9	17	PQL	ug/Kg	J (all detects)
	BENZO(E)PYRENE	J	100	180	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	150	190	PQL	ug/Kg	
	FLUORANTHENE	J	15	17	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	15	17	PQL	ug/Kg	
	PYRENE	J	13	17	PQL	ug/Kg	

LDC #: 29836N4

SDG #: PH040

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 6/11/13

Page: 1 of 1

Reviewer: OR

2nd Reviewer: ✓

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	–	Sampling dates: 4/26/13
II.	ICP/MS Tune	–	
III.	Calibration	–	
IV.	Blanks	A	
V.	ICP Interference Check Sample (ICS) Analysis	–	
VI.	Matrix Spike Analysis	N	MS/D (from PH039)
VII.	Duplicate Sample Analysis	N	Dup ↓
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	(from PH039) (Ni, P: J/UJ)
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	–	
XV	Field Blanks	SW	EB = EB-042413 (PH038) FB = FB-041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: 5

1 19	SL-562-SA7B-SB-0.0-0.5	11		21		31	
2 20	SL-562-SA7B-SB-2.0-3.0	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 29836N4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/24/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Blank ID	Sample Identification										
	EB-042413	FB-041113	Action Limit	1	2								
B	0.0319		15.95	10.9	9.6								
Cu		0.0036	1.8										
Mo		0.0036	1.8	0.28	0.33								
Na	0.228		114	71.9	73.0								
Sn	0.0035		1.75										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

Laboratory Data Consultants, Inc.

7750 El Camino Real, Ste. 2L Carlsbad, CA 92009

Phone 760.634.0437 **Web** www.lab-data.com **Fax** 760.634.0439

CDM
555 17th Street, Suite 1100
Denver, CO 80202
ATTN: Mrs. Cherie Zakowski

July 29, 2013

SUBJECT: Santa Susana Field Laboratory, Data Validation

Dear Mrs. Zakowski,

Enclosed is the final validation report for the fractions listed below. These SDGs were received on July 10, 2013.

LDC project# 30022:

SDG #	Fraction
PH045, PH046, PH049	Semivolatiles (EPA SW 846 Method 8270D-SIM) Chlorinated Pesticides (EPA SW 846 Method 8081B) PCBs (EPA SW 846 Method 8082A) Metals (EPA SW 846 Method 6010C/6020A/7471A/7470A) TPH-G (EPA SW 846 Method 8015M) TPH-E (EPA SW 846 Method 8015M) Dioxins/Dibenzofurans (EPA Method 1613B)

The following deliverables are submitted under this report:

- Attachment I — Sample ID Cross Reference and Data Review Level
- Attachment II — Overall Data Qualification Summary
- Enclosure I — Level III ADR Outliers (including manual review outliers)
- Enclosure II — Level IV Validation Reports

The data validation was performed in accordance to the Quality Assurance Project Plan for Santa Susana Field Laboratory, RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4), USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008), Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005), and for Inorganic Data Review (January 2010). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience. The following items were evaluated during the review:

- Holding Times
- Sample Preservation
- Cooler Temperatures
- Initial Calibration (Level IV only)
- Continuing Calibration (Level IV only)

- Blanks
- Surrogates
- Matrix Spike/Matrix Spike Duplicates
- Laboratory Duplicates
- Laboratory Control Samples
- Internal Standards (Level IV only)
- ICP Serial Dilution (Manual Review)
- Detection and Quantitation Limits
- Field QC Samples

Please feel free to contact us if you have any questions.

Sincerely,

Shauna McKellar
Project Manager/Chemist

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Jun-2013	TB-060313	7079478	TB	5030B	8015M	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	3050B	6010C	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	3050B	6020A	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	3546	8015M	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	3546	8082A	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	3546	8270D SIM	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	5035A	8015M	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	METHOD	1613B	III
03-Jun-2013	SL-533-SA7-SB-2.5-3.5	7079477	N	METHOD	7471B	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	3050B	6010C	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	3050B	6020A	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	3546	8015M	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	3546	8082A	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	3546	8270D SIM	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	5035A	8015M	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	METHOD	1613B	III
03-Jun-2013	SL-532-SA7-SB-3.0-4.0	7079476	N	METHOD	7471B	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	3050B	6010C	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	3050B	6020A	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	3546	8015M	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	3546	8082A	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	3546	8270D SIM	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	5035A	8015M	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	METHOD	1613B	III
03-Jun-2013	SL-526-SA7-SB-9.0-10.0	7079475	N	METHOD	7471B	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	3050B	6010C	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	3050B	6020A	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	3546	8015M	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	3546	8082A	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	3546	8270D SIM	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	5035A	8015M	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	METHOD	1613B	III
03-Jun-2013	SL-525-SA7-SB-4.0-5.0	7079479	N	METHOD	7471B	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	3050B	6010C	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	3050B	6020A	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	3546	8015M	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	3546	8082A	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	3546	8270D SIM	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	5035A	8015M	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	METHOD	1613B	III
03-Jun-2013	SL-525-SA7-SB-9.5-10.5	7079480	N	METHOD	7471B	III
03-Jun-2013	EB1-060313	7079473	EB	3005A	6010C	III
03-Jun-2013	EB1-060313	7079473	EB	3510C	8015M	III
03-Jun-2013	EB1-060313	7079473	EB	3510C	8081B	III
03-Jun-2013	EB1-060313	7079473	EB	3510C	8082A	III
03-Jun-2013	EB1-060313	7079473	EB	3510C	8270D SIM	III
03-Jun-2013	EB1-060313	7079473	EB	5030B	8015M	III
03-Jun-2013	EB1-060313	7079473	EB	M3010A	6020A	III
03-Jun-2013	EB1-060313	7079473	EB	METHOD	1613B	III
03-Jun-2013	EB1-060313	7079473	EB	METHOD	7470A	III
03-Jun-2013	EB2-060313	7079474	EB	3005A	6010C	III
03-Jun-2013	EB2-060313	7079474	EB	3510C	8015M	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Jun-2013	EB2-060313	7079474	EB	3510C	8081B	III
03-Jun-2013	EB2-060313	7079474	EB	3510C	8082A	III
03-Jun-2013	EB2-060313	7079474	EB	3510C	8270D SIM	III
03-Jun-2013	EB2-060313	7079474	EB	5030B	8015M	III
03-Jun-2013	EB2-060313	7079474	EB	M3010A	6020A	III
03-Jun-2013	EB2-060313	7079474	EB	METHOD	1613B	III
03-Jun-2013	EB2-060313	7079474	EB	METHOD	7470A	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-525-SA7-SB-4.0-5.0** ***Collected:*** **6/3/2013 1:30:00 PM** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.736	J	0.506	MDL	4.05	PQL	mg/Kg	J	Z
BERYLLIUM	0.740	J	0.0678	MDL	1.01	PQL	mg/Kg	J	Z
BORON	6.22	J	0.840	MDL	10.1	PQL	mg/Kg	J	Z
CADMIUM	0.381	J	0.0334	MDL	1.01	PQL	mg/Kg	J	Z
MOLYBDENUM	0.886	J	0.172	MDL	2.02	PQL	mg/Kg	U	B, F
POTASSIUM	1140		13.7	MDL	101	PQL	mg/Kg	J	Q
TIN	2.86	J	0.223	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	3.13	J	0.840	MDL	5.06	PQL	mg/Kg	J	Z

Sample ID: **SL-525-SA7-SB-9.5-10.5** ***Collected:*** **6/3/2013 2:00:00 PM** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.721	J	0.504	MDL	4.03	PQL	mg/Kg	J	Z
BERYLLIUM	0.630	J	0.0675	MDL	1.01	PQL	mg/Kg	J	Z
BORON	6.43	J	0.837	MDL	10.1	PQL	mg/Kg	J	Z
CADMIUM	0.349	J	0.0333	MDL	1.01	PQL	mg/Kg	J	Z
MOLYBDENUM	0.860	J	0.171	MDL	2.02	PQL	mg/Kg	U	B, F
POTASSIUM	1300		13.6	MDL	101	PQL	mg/Kg	J	Q
TIN	2.98	J	0.222	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	3.20	J	0.837	MDL	5.04	PQL	mg/Kg	J	Z

Sample ID: **SL-526-SA7-SB-9.0-10.0** ***Collected:*** **6/3/2013 11:35:00** ***Analysis Type:*** **REA/TOT** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.959	J	0.531	MDL	4.25	PQL	mg/Kg	J	Z
BERYLLIUM	0.789	J	0.0712	MDL	1.06	PQL	mg/Kg	J	Z
BORON	7.42	J	0.882	MDL	10.6	PQL	mg/Kg	J	Z
CADMIUM	0.402	J	0.0351	MDL	1.06	PQL	mg/Kg	J	Z
MOLYBDENUM	1.15	J	0.181	MDL	2.12	PQL	mg/Kg	U	B, F
POTASSIUM	1330		14.3	MDL	106	PQL	mg/Kg	J	Q
TIN	2.95	J	0.234	MDL	10.6	PQL	mg/Kg	U	B
Zirconium	2.93	J	0.882	MDL	5.31	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: METALS

Method: 6010C **Matrix: SO**

Sample ID: SL-532-SA7-SB-3.0-4.0 *Collected:* 6/3/2013 10:00:00 *Analysis Type:* REA/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.822	J	0.521	MDL	4.17	PQL	mg/Kg	J	Z
BERYLLIUM	0.802	J	0.0699	MDL	1.04	PQL	mg/Kg	J	Z
BORON	7.47	J	0.865	MDL	10.4	PQL	mg/Kg	J	Z
CADMIUM	0.667	J	0.0344	MDL	1.04	PQL	mg/Kg	J	Z
MOLYBDENUM	0.514	J	0.177	MDL	2.09	PQL	mg/Kg	U	B, F
POTASSIUM	3310		14.1	MDL	104	PQL	mg/Kg	J	Q
TIN	3.48	J	0.229	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	3.05	J	0.865	MDL	5.21	PQL	mg/Kg	J	Z

Sample ID: SL-533-SA7-SB-2.5-3.5 *Collected:* 6/3/2013 9:10:00 AM *Analysis Type:* REA/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.653	J	0.509	MDL	4.07	PQL	mg/Kg	J	Z
BERYLLIUM	0.543	J	0.0682	MDL	1.02	PQL	mg/Kg	J	Z
BORON	6.47	J	0.845	MDL	10.2	PQL	mg/Kg	J	Z
CADMIUM	0.485	J	0.0336	MDL	1.02	PQL	mg/Kg	J	Z
MOLYBDENUM	0.383	J	0.173	MDL	2.04	PQL	mg/Kg	U	B, F
POTASSIUM	2070		13.7	MDL	102	PQL	mg/Kg	J	Q
TIN	2.74	J	0.224	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.07	J	0.845	MDL	5.09	PQL	mg/Kg	J	Z

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-525-SA7-SB-4.0-5.0 *Collected:* 6/3/2013 1:30:00 PM *Analysis Type:* REA2/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
THALLIUM	0.176	J	0.0304	MDL	0.202	PQL	mg/Kg	J	Z

Sample ID: SL-525-SA7-SB-4.0-5.0 *Collected:* 6/3/2013 1:30:00 PM *Analysis Type:* REA3/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.103	J	0.101	MDL	0.405	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-525-SA7-SB-9.5-10.5 *Collected:* 6/3/2013 2:00:00 PM *Analysis Type:* REA2/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0319	J	0.0202	MDL	0.202	PQL	mg/Kg	J	Z
THALLIUM	0.185	J	0.0302	MDL	0.202	PQL	mg/Kg	J	Z

Sample ID: SL-526-SA7-SB-9.0-10.0 *Collected:* 6/3/2013 11:35:00 *Analysis Type:* REA2/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0362	J	0.0212	MDL	0.212	PQL	mg/Kg	J	Z
THALLIUM	0.176	J	0.0319	MDL	0.212	PQL	mg/Kg	J	Z

Sample ID: SL-526-SA7-SB-9.0-10.0 *Collected:* 6/3/2013 11:35:00 *Analysis Type:* REA3/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.112	J	0.106	MDL	0.425	PQL	mg/Kg	J	Z

Sample ID: SL-532-SA7-SB-3.0-4.0 *Collected:* 6/3/2013 10:00:00 *Analysis Type:* REA3/TOT *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.151	J	0.104	MDL	0.417	PQL	mg/Kg	J	Z

Method Category: METALS

Method: 7471B **Matrix: SO**

Sample ID: SL-525-SA7-SB-4.0-5.0 *Collected:* 6/3/2013 1:30:00 PM *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0166	J	0.0102	MDL	0.0170	PQL	mg/Kg	J	Z

Sample ID: SL-525-SA7-SB-9.5-10.5 *Collected:* 6/3/2013 2:00:00 PM *Analysis Type:* RES/TOT *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0110	J	0.0101	MDL	0.0169	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **AQ**

Sample ID: **EB1-060313** ***Collected:*** **6/3/2013 3:00:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.318	JB	0.0961	MDL	10.2	PQL	pg/L	U	B
1,2,3,4,6,7,8-HPCDF	0.285	JB	0.0394	MDL	10.2	PQL	pg/L	U	B
1,2,3,4,7,8,9-HPCDF	0.192	JBQ	0.0467	MDL	10.2	PQL	pg/L	U	B
1,2,3,4,7,8-HXCDF	0.262	JBQ	0.0620	MDL	10.2	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDD	0.112	JBQ	0.0984	MDL	10.2	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDF	0.119	JB	0.0615	MDL	10.2	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDD	0.142	JB	0.0980	MDL	10.2	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDF	0.205	JBQ	0.0596	MDL	10.2	PQL	pg/L	U	B
1,2,3,7,8-PECDD	0.160	JBQ	0.118	MDL	10.2	PQL	pg/L	U	B
1,2,3,7,8-PECDF	0.438	JB	0.0688	MDL	10.2	PQL	pg/L	U	B
2,3,4,6,7,8-HXCDF	0.178	JB	0.0594	MDL	10.2	PQL	pg/L	U	B
2,3,4,7,8-PECDF	0.201	JBQ	0.0621	MDL	10.2	PQL	pg/L	U	B
2,3,7,8-TCDF	0.112	J	0.0880	MDL	2.04	PQL	pg/L	J	Z
OCDD	0.856	JBQ	0.0988	MDL	20.4	PQL	pg/L	U	B
OCDF	0.449	JBQ	0.124	MDL	20.4	PQL	pg/L	U	B

Sample ID: **EB2-060313** ***Collected:*** **6/3/2013 3:30:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.372	JBQ	0.106	MDL	10.1	PQL	pg/L	U	B
1,2,3,4,6,7,8-HPCDF	0.275	JBQ	0.0407	MDL	10.1	PQL	pg/L	U	B
1,2,3,4,7,8,9-HPCDF	0.202	JB	0.0468	MDL	10.1	PQL	pg/L	U	B
1,2,3,4,7,8-HXCDF	0.300	JBQ	0.0631	MDL	10.1	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDF	0.137	JB	0.0590	MDL	10.1	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDD	0.162	JBQ	0.105	MDL	10.1	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDF	0.129	JBQ	0.0607	MDL	10.1	PQL	pg/L	U	B
1,2,3,7,8-PECDF	0.405	JBQ	0.0693	MDL	10.1	PQL	pg/L	U	B
2,3,4,6,7,8-HXCDF	0.195	JBQ	0.0585	MDL	10.1	PQL	pg/L	U	B
2,3,4,7,8-PECDF	0.250	JBQ	0.0669	MDL	10.1	PQL	pg/L	U	B
OCDD	0.871	JB	0.0919	MDL	20.2	PQL	pg/L	U	B
OCDF	0.688	JB	0.119	MDL	20.2	PQL	pg/L	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-525-SA7-SB-4.0-5.0** ***Collected:*** **6/3/2013 1:30:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	1.75	JB	0.0429	MDL	5.11	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.572	JB	0.0211	MDL	5.11	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0515	JBQ	0.0379	MDL	5.11	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0574	JQ	0.0297	MDL	5.11	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0438	JB	0.0265	MDL	5.11	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.133	JBQ	0.0312	MDL	5.11	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.0492	JBQ	0.0244	MDL	5.11	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0915	JBQ	0.0296	MDL	5.11	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0414	JB	0.0347	MDL	5.11	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.747	JB	0.0244	MDL	5.11	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.0827	JBQ	0.0273	MDL	5.11	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0910	JBQ	0.0233	MDL	5.11	PQL	ng/Kg	U	B
OCDF	0.912	JB	0.0448	MDL	10.2	PQL	ng/Kg	J	Z

Sample ID: **SL-525-SA7-SB-9.5-10.5** ***Collected:*** **6/3/2013 2:00:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.237	JB	0.0284	MDL	5.13	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.0917	JBQ	0.0108	MDL	5.13	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0228	JBQ	0.0212	MDL	5.13	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0282	JBQ	0.0123	MDL	5.13	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0414	JB	0.0251	MDL	5.13	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.0149	JB	0.0115	MDL	5.13	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0821	JBQ	0.0173	MDL	5.13	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0190	JBQ	0.0178	MDL	5.13	PQL	ng/Kg	U	B
OCDD	2.30	JB	0.0343	MDL	10.3	PQL	ng/Kg	J	Z
OCDF	0.115	JB	0.0361	MDL	10.3	PQL	ng/Kg	U	B

Sample ID: **SL-526-SA7-SB-9.0-10.0** ***Collected:*** **6/3/2013 11:35:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	1.52	JB	0.0889	MDL	5.38	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.0935	JBQ	0.0143	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0301	JBQ	0.0222	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0742	JQ	0.0215	MDL	5.38	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-526-SA7-SB-9.0-10.0** ***Collected:*** **6/3/2013 11:35:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8-HXCDF	0.117	JB	0.0201	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0844	JB	0.0235	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.114	JB	0.0189	MDL	5.38	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.0441	JBQ	0.0239	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0525	JBQ	0.0233	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.174	JB	0.0352	MDL	5.38	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.218	JBQ	0.0172	MDL	5.38	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0671	JB	0.0201	MDL	5.38	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.163	JBQ	0.0161	MDL	5.38	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0454	JQ	0.0255	MDL	1.08	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0708	JQ	0.0293	MDL	1.08	PQL	ng/Kg	J	Z
OCDF	0.293	JBQ	0.0341	MDL	10.8	PQL	ng/Kg	U	B

Sample ID: **SL-532-SA7-SB-3.0-4.0** ***Collected:*** **6/3/2013 10:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	1.98	JB	0.0457	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.304	JB	0.0185	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0590	JBQ	0.0307	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0946	JQ	0.0340	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0819	JBQ	0.0226	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.139	JB	0.0375	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.101	JBQ	0.0211	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.119	JBQ	0.0398	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.167	JB	0.0449	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.181	JB	0.0208	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0621	JBQ	0.0214	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.208	JB	0.0203	MDL	5.17	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0439	JQ	0.0405	MDL	1.03	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0561	JQ	0.0465	MDL	1.03	PQL	ng/Kg	J	Z
OCDF	0.619	JB	0.0373	MDL	10.3	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-533-SA7-SB-2.5-3.5 *Collected:* 6/3/2013 9:10:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.256	JB	0.0332	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.0702	JB	0.0126	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0505	JBQ	0.0212	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0529	J	0.0210	MDL	5.16	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.0593	JBQ	0.0224	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.0570	JBQ	0.0131	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0908	JBQ	0.0221	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0271	JBQ	0.0162	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0985	JBQ	0.0341	MDL	5.16	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0979	JB	0.0165	MDL	5.16	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0598	JBQ	0.0140	MDL	5.16	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.101	JBQ	0.0158	MDL	5.16	PQL	ng/Kg	U	B
OCDD	1.40	JB	0.0313	MDL	10.3	PQL	ng/Kg	J	Z
OCDF	0.162	JB	0.0387	MDL	10.3	PQL	ng/Kg	U	B

Method Category: SVOA

Method: 8015M **Matrix:** AQ

Sample ID: EB1-060313 *Collected:* 6/3/2013 3:00:00 PM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C8-C11)	0.098	U	0.049	MDL	0.098	PQL	mg/L	UJ	L

Sample ID: EB2-060313 *Collected:* 6/3/2013 3:30:00 PM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C8-C11)	0.10	U	0.050	MDL	0.10	PQL	mg/L	UJ	L

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 8015M **Matrix: SO**

Sample ID: SL-525-SA7-SB-9.5-10.5 *Collected:* 6/3/2013 2:00:00 PM *Analysis Type:* REA *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	5.8	J	4.1	MDL	10	PQL	mg/Kg	J	Z

Sample ID: SL-533-SA7-SB-2.5-3.5 *Collected:* 6/3/2013 9:10:00 AM *Analysis Type:* REA *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	2.6	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z
EFH (C30-C40)	5.6	J	4.2	MDL	10	PQL	mg/Kg	J	Z

Method Category: SVOA

Method: 8081B **Matrix: AQ**

Sample ID: EB1-060313 *Collected:* 6/3/2013 3:00:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHOXYCHLOR	0.083	U	0.025	MDL	0.083	PQL	ug/L	UJ	E

Sample ID: EB2-060313 *Collected:* 6/3/2013 3:30:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
METHOXYCHLOR	0.082	U	0.025	MDL	0.082	PQL	ug/L	UJ	E

Method Category: SVOA

Method: 8082A **Matrix: SO**

Sample ID: SL-525-SA7-SB-4.0-5.0 *Collected:* 6/3/2013 1:30:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1260	9.5	J	4.1	MDL	18	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 8270D SIM **Matrix: AQ**

Sample ID: EB1-060313 *Collected:* 6/3/2013 3:00:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BIS(2-ETHYLHEXYL)PHTHALATE	0.16	J	0.053	MDL	1.1	PQL	ug/L	U	B
Diethylphthalate	0.11	J	0.053	MDL	1.1	PQL	ug/L	U	B
Di-n-butylphthalate	0.16	J	0.053	MDL	1.1	PQL	ug/L	U	B

Sample ID: EB2-060313 *Collected:* 6/3/2013 3:30:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BIS(2-ETHYLHEXYL)PHTHALATE	0.12	J	0.052	MDL	1.0	PQL	ug/L	U	B
Diethylphthalate	0.12	J	0.052	MDL	1.0	PQL	ug/L	U	B
Di-n-butylphthalate	0.12	J	0.052	MDL	1.0	PQL	ug/L	U	B

Method Category: SVOA

Method: 8270D SIM **Matrix: SO**

Sample ID: SL-525-SA7-SB-4.0-5.0 *Collected:* 6/3/2013 1:30:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHRYSENE	0.43	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	1.3	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-525-SA7-SB-9.5-10.5 *Collected:* 6/3/2013 2:00:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NAPHTHALENE	1.0	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-532-SA7-SB-3.0-4.0 *Collected:* 6/3/2013 10:00:00 *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BIS(2-ETHYLHEXYL)PHTHALATE	7.5	J	6.3	MDL	19	PQL	ug/Kg	J	Z
CHRYSENE	0.58	J	0.35	MDL	1.7	PQL	ug/Kg	J	Z
FLUORANTHENE	0.75	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	1.0	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-533-SA7-SB-2.5-3.5** ***Collected:*** **6/3/2013 9:10:00 AM** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
NAPHTHALENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Reason Code Legend

Reason Code	*Description*
B	Calibration Blank Contamination
B	Method Blank Contamination
E	Laboratory Control Precision
F	Field Blank Contamination
L	Laboratory Control Precision
L	Laboratory Control Spike Lower Estimation
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH045

Method Blank Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1550B370622	6/7/2013 6:22:00 AM	1,2,3,4,6,7,8-HPCDD	0.337 pg/L	EB1-060313
		1,2,3,4,6,7,8-HPCDF	0.359 pg/L	EB2-060313
		1,2,3,4,7,8,9-HPCDF	0.195 pg/L	
		1,2,3,4,7,8-HxCDD	0.226 pg/L	
		1,2,3,4,7,8-HXCDF	0.339 pg/L	
		1,2,3,6,7,8-HXCDD	0.224 pg/L	
		1,2,3,6,7,8-HXCDF	0.205 pg/L	
		1,2,3,7,8,9-HXCDD	0.103 pg/L	
		1,2,3,7,8,9-HXCDF	0.297 pg/L	
		1,2,3,7,8-PECDD	0.271 pg/L	
		1,2,3,7,8-PECDF	0.516 pg/L	
		2,3,4,6,7,8-HXCDF	0.203 pg/L	
		2,3,4,7,8-PECDF	0.268 pg/L	
		2,3,7,8-TCDD	0.133 pg/L	
		OCDD	0.859 pg/L	
		OCDF	0.843 pg/L	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB1-060313(RES)	1,2,3,4,6,7,8-HPCDD	0.318 pg/L	0.318U pg/L
EB1-060313(RES)	1,2,3,4,6,7,8-HPCDF	0.285 pg/L	0.285U pg/L
EB1-060313(RES)	1,2,3,4,7,8,9-HPCDF	0.192 pg/L	0.192U pg/L
EB1-060313(RES)	1,2,3,4,7,8-HXCDF	0.262 pg/L	0.262U pg/L
EB1-060313(RES)	1,2,3,6,7,8-HXCDD	0.112 pg/L	0.112U pg/L
EB1-060313(RES)	1,2,3,6,7,8-HXCDF	0.119 pg/L	0.119U pg/L
EB1-060313(RES)	1,2,3,7,8,9-HXCDD	0.142 pg/L	0.142U pg/L
EB1-060313(RES)	1,2,3,7,8,9-HXCDF	0.205 pg/L	0.205U pg/L
EB1-060313(RES)	1,2,3,7,8-PECDD	0.160 pg/L	0.160U pg/L
EB1-060313(RES)	1,2,3,7,8-PECDF	0.438 pg/L	0.438U pg/L
EB1-060313(RES)	2,3,4,6,7,8-HXCDF	0.178 pg/L	0.178U pg/L
EB1-060313(RES)	2,3,4,7,8-PECDF	0.201 pg/L	0.201U pg/L
EB1-060313(RES)	OCDD	0.856 pg/L	0.856U pg/L
EB1-060313(RES)	OCDF	0.449 pg/L	0.449U pg/L
EB2-060313(RES)	1,2,3,4,6,7,8-HPCDD	0.372 pg/L	0.372U pg/L
EB2-060313(RES)	1,2,3,4,6,7,8-HPCDF	0.275 pg/L	0.275U pg/L
EB2-060313(RES)	1,2,3,4,7,8,9-HPCDF	0.202 pg/L	0.202U pg/L
EB2-060313(RES)	1,2,3,4,7,8-HXCDF	0.300 pg/L	0.300U pg/L
EB2-060313(RES)	1,2,3,6,7,8-HXCDF	0.137 pg/L	0.137U pg/L
EB2-060313(RES)	1,2,3,7,8,9-HXCDD	0.162 pg/L	0.162U pg/L
EB2-060313(RES)	1,2,3,7,8,9-HXCDF	0.129 pg/L	0.129U pg/L
EB2-060313(RES)	1,2,3,7,8-PECDF	0.405 pg/L	0.405U pg/L
EB2-060313(RES)	2,3,4,6,7,8-HXCDF	0.195 pg/L	0.195U pg/L
EB2-060313(RES)	2,3,4,7,8-PECDF	0.250 pg/L	0.250U pg/L
EB2-060313(RES)	OCDD	0.871 pg/L	0.871U pg/L
EB2-060313(RES)	OCDF	0.688 pg/L	0.688U pg/L

Method Blank Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1610B371903	6/11/2013 7:03:00 PM	1,2,3,4,6,7,8-HPCDD	0.109 ng/Kg	SL-525-SA7-SB-4.0-5.0
		1,2,3,4,6,7,8-HPCDF	0.0530 ng/Kg	SL-525-SA7-SB-9.5-10.5
		1,2,3,4,7,8,9-HPCDF	0.0357 ng/Kg	SL-526-SA7-SB-9.0-10.0
		1,2,3,4,7,8-HXCDF	0.0410 ng/Kg	SL-532-SA7-SB-3.0-4.0
		1,2,3,6,7,8-HXCDD	0.0393 ng/Kg	SL-533-SA7-SB-2.5-3.5
		1,2,3,6,7,8-HXCDF	0.0219 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0384 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0272 ng/Kg	
		1,2,3,7,8-PECDD	0.0895 ng/Kg	
		1,2,3,7,8-PECDF	0.0769 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0370 ng/Kg	
		2,3,4,7,8-PECDF	0.0332 ng/Kg	
		OCDD	0.225 ng/Kg	
		OCDF	0.145 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-4.0-5.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0515 ng/Kg	0.0515U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	1,2,3,4,7,8-HXCDF	0.0438 ng/Kg	0.0438U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	1,2,3,6,7,8-HXCDD	0.133 ng/Kg	0.133U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	1,2,3,6,7,8-HXCDF	0.0492 ng/Kg	0.0492U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	1,2,3,7,8,9-HXCDD	0.0915 ng/Kg	0.0915U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	1,2,3,7,8,9-HXCDF	0.0414 ng/Kg	0.0414U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	2,3,4,6,7,8-HXCDF	0.0827 ng/Kg	0.0827U ng/Kg
SL-525-SA7-SB-4.0-5.0(RES)	2,3,4,7,8-PECDF	0.0910 ng/Kg	0.0910U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,4,6,7,8-HPCDD	0.237 ng/Kg	0.237U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,4,6,7,8-HPCDF	0.0917 ng/Kg	0.0917U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0228 ng/Kg	0.0228U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,4,7,8-HXCDF	0.0282 ng/Kg	0.0282U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,6,7,8-HXCDD	0.0414 ng/Kg	0.0414U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,6,7,8-HXCDF	0.0149 ng/Kg	0.0149U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	1,2,3,7,8-PECDF	0.0821 ng/Kg	0.0821U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	2,3,4,7,8-PECDF	0.0190 ng/Kg	0.0190U ng/Kg
SL-525-SA7-SB-9.5-10.5(RES)	OCDF	0.115 ng/Kg	0.115U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,4,6,7,8-HPCDF	0.0935 ng/Kg	0.0935U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0301 ng/Kg	0.0301U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,4,7,8-HXCDF	0.117 ng/Kg	0.117U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,6,7,8-HXCDD	0.0844 ng/Kg	0.0844U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,7,8,9-HXCDD	0.0441 ng/Kg	0.0441U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,7,8,9-HXCDF	0.0525 ng/Kg	0.0525U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,7,8-PECDD	0.174 ng/Kg	0.174U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	1,2,3,7,8-PECDF	0.218 ng/Kg	0.218U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	2,3,4,6,7,8-HXCDF	0.0671 ng/Kg	0.0671U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	2,3,4,7,8-PECDF	0.163 ng/Kg	0.163U ng/Kg
SL-526-SA7-SB-9.0-10.0(RES)	OCDF	0.293 ng/Kg	0.293U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0590 ng/Kg	0.0590U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,4,7,8-HXCDF	0.0819 ng/Kg	0.0819U ng/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,6,7,8-HXCDD	0.139 ng/Kg	0.139U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,6,7,8-HXCDF	0.101 ng/Kg	0.101U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,7,8,9-HXCDD	0.119 ng/Kg	0.119U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,7,8-PECDD	0.167 ng/Kg	0.167U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	1,2,3,7,8-PECDF	0.181 ng/Kg	0.181U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	2,3,4,6,7,8-HXCDF	0.0621 ng/Kg	0.0621U ng/Kg
SL-532-SA7-SB-3.0-4.0(RES)	OCDF	0.619 ng/Kg	0.619U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDD	0.256 ng/Kg	0.256U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDF	0.0702 ng/Kg	0.0702U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0505 ng/Kg	0.0505U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDD	0.0593 ng/Kg	0.0593U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDF	0.0570 ng/Kg	0.0570U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDD	0.0908 ng/Kg	0.0908U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDF	0.0271 ng/Kg	0.0271U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,7,8-PECDD	0.0985 ng/Kg	0.0985U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	1,2,3,7,8-PECDF	0.0979 ng/Kg	0.0979U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	2,3,4,6,7,8-HXCDF	0.0598 ng/Kg	0.0598U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	2,3,4,7,8-PECDF	0.101 ng/Kg	0.101U ng/Kg
SL-533-SA7-SB-2.5-3.5(RES)	OCDF	0.162 ng/Kg	0.162U ng/Kg

Method: **6010C**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P15635AB221848	6/6/2013 6:48:00 PM	ANTIMONY CALCIUM	0.0037 mg/L 0.0711 mg/L	EB1-060313 EB2-060313

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P16037AB221648	6/11/2013 4:48:00 PM	CALCIUM PHOSPHORUS TIN	11.1 mg/Kg 1.14 mg/Kg 1.50 mg/Kg	SL-525-SA7-SB-4.0-5.0 SL-525-SA7-SB-9.5-10.5 SL-526-SA7-SB-9.0-10.0 SL-532-SA7-SB-3.0-4.0 SL-533-SA7-SB-2.5-3.5

Method Blank Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 6010C
Matrix: SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-4.0-5.0(REA/TOT)	TIN	2.86 mg/Kg	2.86U mg/Kg
SL-525-SA7-SB-9.5-10.5(REA/TOT)	TIN	2.98 mg/Kg	2.98U mg/Kg
SL-526-SA7-SB-9.0-10.0(REA/TOT)	TIN	2.95 mg/Kg	2.95U mg/Kg
SL-532-SA7-SB-3.0-4.0(REA/TOT)	TIN	3.48 mg/Kg	3.48U mg/Kg
SL-533-SA7-SB-2.5-3.5(REA/TOT)	TIN	2.74 mg/Kg	2.74U mg/Kg

Method: 6020A
Matrix: SO

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P16037AB221759A	6/11/2013 5:59:00 PM	STRONTIUM	0.0780 mg/Kg	SL-525-SA7-SB-4.0-5.0 SL-525-SA7-SB-9.5-10.5 SL-526-SA7-SB-9.0-10.0 SL-532-SA7-SB-3.0-4.0 SL-533-SA7-SB-2.5-3.5

Method: 8270D SIM
Matrix: AQ

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
PLKWL15B261349	6/10/2013 1:49:00 PM	BIS(2-ETHYLHEXYL)PHTHALATE Diethylphthalate Di-n-butylphthalate	0.88 ug/L 0.092 ug/L 0.069 ug/L	EB1-060313 EB2-060313

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB1-060313(RES)	BIS(2-ETHYLHEXYL)PHTHALATE	0.16 ug/L	1.1U ug/L
EB1-060313(RES)	Diethylphthalate	0.11 ug/L	1.1U ug/L
EB1-060313(RES)	Di-n-butylphthalate	0.16 ug/L	1.1U ug/L
EB2-060313(RES)	BIS(2-ETHYLHEXYL)PHTHALATE	0.12 ug/L	1.0U ug/L
EB2-060313(RES)	Diethylphthalate	0.12 ug/L	1.0U ug/L
EB2-060313(RES)	Di-n-butylphthalate	0.12 ug/L	1.0U ug/L

Field Blank Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PrepPH045 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-525-SA7-SB-4.0-5.0 SL-525-SA7-SB-9.5-10.5 SL-526-SA7-SB-9.0-10.0 SL-532-SA7-SB-3.0-4.0 SL-533-SA7-SB-2.5-3.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-525-SA7-SB-4.0-5.0(REA/TOT)	MOLYBDENUM	0.886 mg/Kg	0.886U mg/Kg
SL-525-SA7-SB-9.5-10.5(REA/TOT)	MOLYBDENUM	0.860 mg/Kg	0.860U mg/Kg
SL-526-SA7-SB-9.0-10.0(REA/TOT)	MOLYBDENUM	1.15 mg/Kg	1.15U mg/Kg
SL-532-SA7-SB-3.0-4.0(REA/TOT)	MOLYBDENUM	0.514 mg/Kg	0.514U mg/Kg
SL-533-SA7-SB-2.5-3.5(REA/TOT)	MOLYBDENUM	0.383 mg/Kg	0.383U mg/Kg

Surrogate Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **8082A**
Matrix: **SO**

Sample ID (Analysis Type)	*Surrogate*	*Sample % Recovery*	*% Recovery Limits*	*Affected Compounds*	*Flag*
SL-526-SA7-SB-9.0 -10.0	DECACHLOROBIPHENYL	130	45-120	All Target Analytes	J (all detects)
SL-532-SA7-SB-3.0 -4.0	DECACHLOROBIPHENYL	122	45-120	All Target Analytes	J(all detects)

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 8081B
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31570AY240053A (EB1-060313 EB2-060313)	METHOXYCHLOR	-	-	46.00-134.00	32 (30.00)	METHOXYCHLOR	J (all detects) UJ (all non-detects)

Method: 8015M
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31573AQ321756A P31573AY321817A (EB1-060313 EB2-060313)	EFH (C8-C11)	68	65	70.00-130.00	-	EFH (C8-C11)	J(all detects) UJ(all non-detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 1613B

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB1-060313	1,2,3,4,6,7,8-HPCDD	JB	0.318	10.2	PQL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.285	10.2	PQL	pg/L	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.192	10.2	PQL	pg/L	
	1,2,3,4,7,8-HXCDF	JBQ	0.262	10.2	PQL	pg/L	
	1,2,3,6,7,8-HXCDD	JBQ	0.112	10.2	PQL	pg/L	
	1,2,3,6,7,8-HXCDF	JB	0.119	10.2	PQL	pg/L	
	1,2,3,7,8,9-HXCDD	JB	0.142	10.2	PQL	pg/L	
	1,2,3,7,8,9-HXCDF	JBQ	0.205	10.2	PQL	pg/L	
	1,2,3,7,8-PECDD	JBQ	0.160	10.2	PQL	pg/L	
	1,2,3,7,8-PECDF	JB	0.438	10.2	PQL	pg/L	
	2,3,4,6,7,8-HXCDF	JB	0.178	10.2	PQL	pg/L	
	2,3,4,7,8-PECDF	JBQ	0.201	10.2	PQL	pg/L	
	2,3,7,8-TCDF	J	0.112	2.04	PQL	pg/L	
	OCDD	JBQ	0.856	20.4	PQL	pg/L	
	OCDF	JBQ	0.449	20.4	PQL	pg/L	
EB2-060313	1,2,3,4,6,7,8-HPCDD	JBQ	0.372	10.1	PQL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.275	10.1	PQL	pg/L	
	1,2,3,4,7,8,9-HPCDF	JB	0.202	10.1	PQL	pg/L	
	1,2,3,4,7,8-HXCDF	JBQ	0.300	10.1	PQL	pg/L	
	1,2,3,6,7,8-HXCDF	JB	0.137	10.1	PQL	pg/L	
	1,2,3,7,8,9-HXCDD	JBQ	0.162	10.1	PQL	pg/L	
	1,2,3,7,8,9-HXCDF	JBQ	0.129	10.1	PQL	pg/L	
	1,2,3,7,8-PECDF	JBQ	0.405	10.1	PQL	pg/L	
	2,3,4,6,7,8-HXCDF	JBQ	0.195	10.1	PQL	pg/L	
	2,3,4,7,8-PECDF	JBQ	0.250	10.1	PQL	pg/L	
	OCDD	JB	0.871	20.2	PQL	pg/L	
	OCDF	JB	0.688	20.2	PQL	pg/L	

Method: 8270D SIM

Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB1-060313	BIS(2-ETHYLHEXYL)PHTHALATE	J	0.16	1.1	PQL	ug/L	J (all detects)
	Diethylphthalate	J	0.11	1.1	PQL	ug/L	
	Di-n-butylphthalate	J	0.16	1.1	PQL	ug/L	
EB2-060313	BIS(2-ETHYLHEXYL)PHTHALATE	J	0.12	1.0	PQL	ug/L	J (all detects)
	Diethylphthalate	J	0.12	1.0	PQL	ug/L	
	Di-n-butylphthalate	J	0.12	1.0	PQL	ug/L	

Reporting Limit Outliers

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-4.0-5.0	1,2,3,4,6,7,8-HPCDD	JB	1.75	5.11	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.572	5.11	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0515	5.11	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0574	5.11	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0438	5.11	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.133	5.11	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0492	5.11	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0915	5.11	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.0414	5.11	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.747	5.11	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0827	5.11	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0910	5.11	PQL	ng/Kg	
	OCDF	JB	0.912	10.2	PQL	ng/Kg	
SL-525-SA7-SB-9.5-10.5	1,2,3,4,6,7,8-HPCDD	JB	0.237	5.13	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0917	5.13	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0228	5.13	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0282	5.13	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.0414	5.13	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.0149	5.13	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0821	5.13	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0190	5.13	PQL	ng/Kg	
	OCDD	JB	2.30	10.3	PQL	ng/Kg	
	OCDF	JB	0.115	10.3	PQL	ng/Kg	
SL-526-SA7-SB-9.0-10.0	1,2,3,4,6,7,8-HPCDD	JB	1.52	5.38	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0935	5.38	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0301	5.38	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0742	5.38	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.117	5.38	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.0844	5.38	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.114	5.38	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0441	5.38	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0525	5.38	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.174	5.38	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.218	5.38	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0671	5.38	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.163	5.38	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0454	1.08	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0708	1.08	PQL	ng/Kg	
	OCDF	JBQ	0.293	10.8	PQL	ng/Kg	
SL-532-SA7-SB-3.0-4.0	1,2,3,4,6,7,8-HPCDD	JB	1.98	5.17	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.304	5.17	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0590	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0946	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0819	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.139	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.101	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.119	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.167	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.181	5.17	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0621	5.17	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.208	5.17	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0439	1.03	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0561	1.03	PQL	ng/Kg	
	OCDF	JB	0.619	10.3	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-533-SA7-SB-2.5-3.5	1,2,3,4,6,7,8-HPCDD	JB	0.256	5.16	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.0702	5.16	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0505	5.16	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	J	0.0529	5.16	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0593	5.16	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0570	5.16	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0908	5.16	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0271	5.16	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0985	5.16	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.0979	5.16	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0598	5.16	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.101	5.16	PQL	ng/Kg	
	OCDD	JB	1.40	10.3	PQL	ng/Kg	
	OCDF	JB	0.162	10.3	PQL	ng/Kg	

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-4.0-5.0	ANTIMONY	J	0.736	4.05	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.740	1.01	PQL	mg/Kg	
	BORON	J	6.22	10.1	PQL	mg/Kg	
	CADMIUM	J	0.381	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.886	2.02	PQL	mg/Kg	
	TIN	J	2.86	10.1	PQL	mg/Kg	
	Zirconium	J	3.13	5.06	PQL	mg/Kg	
SL-525-SA7-SB-9.5-10.5	ANTIMONY	J	0.721	4.03	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.630	1.01	PQL	mg/Kg	
	BORON	J	6.43	10.1	PQL	mg/Kg	
	CADMIUM	J	0.349	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.860	2.02	PQL	mg/Kg	
	TIN	J	2.98	10.1	PQL	mg/Kg	
	Zirconium	J	3.20	5.04	PQL	mg/Kg	
SL-526-SA7-SB-9.0-10.0	ANTIMONY	J	0.959	4.25	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.789	1.06	PQL	mg/Kg	
	BORON	J	7.42	10.6	PQL	mg/Kg	
	CADMIUM	J	0.402	1.06	PQL	mg/Kg	
	MOLYBDENUM	J	1.15	2.12	PQL	mg/Kg	
	TIN	J	2.95	10.6	PQL	mg/Kg	
	Zirconium	J	2.93	5.31	PQL	mg/Kg	
SL-532-SA7-SB-3.0-4.0	ANTIMONY	J	0.822	4.17	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.802	1.04	PQL	mg/Kg	
	BORON	J	7.47	10.4	PQL	mg/Kg	
	CADMIUM	J	0.667	1.04	PQL	mg/Kg	
	MOLYBDENUM	J	0.514	2.09	PQL	mg/Kg	
	TIN	J	3.48	10.4	PQL	mg/Kg	
	Zirconium	J	3.05	5.21	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 6010C
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-533-SA7-SB-2.5-3.5	ANTIMONY	J	0.653	4.07	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.543	1.02	PQL	mg/Kg	
	BORON	J	6.47	10.2	PQL	mg/Kg	
	CADMIUM	J	0.485	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.383	2.04	PQL	mg/Kg	
	TIN	J	2.74	10.2	PQL	mg/Kg	
	Zirconium	J	2.07	5.09	PQL	mg/Kg	

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-4.0-5.0	SELENIUM	J	0.103	0.405	PQL	mg/Kg	J (all detects)
	THALLIUM	J	0.176	0.202	PQL	mg/Kg	
SL-525-SA7-SB-9.5-10.5	SILVER	J	0.0319	0.202	PQL	mg/Kg	J (all detects)
	THALLIUM	J	0.185	0.202	PQL	mg/Kg	
SL-526-SA7-SB-9.0-10.0	SELENIUM	J	0.112	0.425	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0362	0.212	PQL	mg/Kg	
	THALLIUM	J	0.176	0.212	PQL	mg/Kg	
SL-532-SA7-SB-3.0-4.0	SELENIUM	J	0.151	0.417	PQL	mg/Kg	J (all detects)

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-4.0-5.0	MERCURY	J	0.0166	0.0170	PQL	mg/Kg	J (all detects)
SL-525-SA7-SB-9.5-10.5	MERCURY	J	0.0110	0.0169	PQL	mg/Kg	J (all detects)

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-9.5-10.5	EFH (C30-C40)	J	5.8	10	PQL	mg/Kg	J (all detects)
SL-533-SA7-SB-2.5-3.5	EFH (C21-C30)	J	2.6	5.2	PQL	mg/Kg	J (all detects)
	EFH (C30-C40)	J	5.6	10	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH045 **Laboratory: LL**

EDD Filename: PH045_v1. **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 8082A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-4.0-5.0	AROCLOR 1260	J	9.5	18	PQL	ug/Kg	J (all detects)

Method: 8270D SIM
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-525-SA7-SB-4.0-5.0	CHRYSENE	J	0.43	1.7	PQL	ug/Kg	J (all detects)
	NAPHTHALENE	J	1.3	1.7	PQL	ug/Kg	
SL-525-SA7-SB-9.5-10.5	NAPHTHALENE	J	1.0	1.7	PQL	ug/Kg	J (all detects)
SL-532-SA7-SB-3.0-4.0	BIS(2-ETHYLHEXYL)PHTHALATE	J	7.5	19	PQL	ug/Kg	J (all detects)
	CHRYSENE	J	0.58	1.7	PQL	ug/Kg	
	FLUORANTHENE	J	0.75	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	1.0	1.7	PQL	ug/Kg	
SL-533-SA7-SB-2.5-3.5	NAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)

LDC #: 30022A4

SDG #: PH045

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 7/22/13

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	—	Sampling dates:
II.	ICP/MS Tune	—	
III.	Calibration	—	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	—	
VI.	Matrix Spike Analysis	SW	MS/D (soil from PH046)
VII.	Duplicate Sample Analysis	~~N~~ A	Dup ↓
VIII.	Laboratory Control Samples (LCS)	~~N~~ A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	A	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	—	
XV	Field Blanks	SW	*EB=1,2 FB=FB-041113 (PH029)

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet

*ND = No compounds detected
R = Rinsate
FB = Field blank

D = Duplicate
TB = Trip blank
EB = Equipment blank

Validated Samples: soil/water

1	EB1-060313 W	11		21		31		
2	EB2-060313 W	12		22		32		
3	SL-526-SA7-SB-9.0-10.0	13		23		33		
4	SL-532-SA7-SB-3.0-4.0	14		24		34		
5	SL-533-SA7-SB-2.5-3.5	15		25		35		
6	SL-525-SA7-SB-4.0-5.0	16		26		36		
7	SL-525-SA7-SB-9.5-10.5	17		27		37		
8		18		28		38		
9		19		29		39		
10		20		30		40		

Notes:

LDC #: 30025A4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: CR
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x Reason Code: B
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/l)	Maximum ICB/CCB[a] (ug/l)	Action Level	3	4	5	6	7				
Mo			3.6	1.8	1.1	0.51	0.38	0.89	0.86				

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 30022A4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: 4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All Soil

Analyte	Blank ID	Sample Identification										
	FB-041113 (SDG: PH029)	Action Limit	3	4	5	6	7					
Cu	0.0036	1.8										
Mo	0.0036	1.8	1.1	0.51	0.38	0.89	0.86					

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

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from PH046
qualify all soil samples; K: Jdet/A

QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PH046
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7081058BKG Matrix Spike Lab Sample ID: 7081059MS Matrix Spike Duplicate Lab Sample ID: 7081060MSD
Batch Id(s): P16037A, P16038B

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	RPD	M
Aluminum		8891.2580		12135.0200		11977.2100		200.0000	200.0000	MG/KG	1622		1543		1			20	P
Antimony		0.5630	B	41.0390		41.2710		50.0000	50.0000	MG/KG	81		81		1		75 - 125	20	P
Arsenic		4.1040		20.0340		20.0180		15.0000	15.0000	MG/KG	106		106		0		75 - 125	20	P
Barium		60.2450		265.8500		275.3810		200.0000	200.0000	MG/KG	103		108		4		75 - 125	20	P
Beryllium		0.3970	B	5.4840		5.5600		5.0000	5.0000	MG/KG	102		103		1		75 - 125	20	P
Boron		6.0500	B	198.1100		201.8330		200.0000	200.0000	MG/KG	96		98		2		75 - 125	20	P
Cadmium		0.5040	B	5.4030		5.4390		5.0000	5.0000	MG/KG	98		99		1		75 - 125	20	P
Calcium		2409.4590		2916.1790		2852.7140		400.0000	400.0000	MG/KG	127		111		2			20	P
Chromium		11.3860		33.1480		32.2420		20.0000	20.0000	MG/KG	109		104		3		75 - 125	20	P
Cobalt		3.7010		52.4120		52.6470		50.0000	50.0000	MG/KG	97		98		0		75 - 125	20	P
Copper		5.2730		30.0230		31.2060		25.0000	25.0000	MG/KG	99		104		4		75 - 125	20	P
Iron		16068.9670		17681.3510		17419.9070		100.0000	100.0000	MG/KG	1612		1351		1			20	P
Lead		7.6700		22.8300		22.7040		15.0000	15.0000	MG/KG	101		100		1		75 - 125	20	P
Lithium		21.8040		126.5500		127.2380		100.0000	100.0000	MG/KG	105		105		1		75 - 125	20	P
Magnesium		3488.8380		4195.6450		4237.5910		200.0000	200.0000	MG/KG	353		374		1			20	P
Manganese		239.0870		301.4110		303.3800		50.0000	50.0000	MG/KG	125		129		1			20	P
Mercury		0.0148	B	0.1793		0.1743		0.1606	0.1603	MG/KG	102		100		3		65 - 135	20	CV
Molybdenum		0.7590	B	196.3880		198.4310		200.0000	200.0000	MG/KG	98		99		1		75 - 125	20	P
Nickel		6.6990		56.8560		56.3950		50.0000	50.0000	MG/KG	100		99		1		75 - 125	20	P
Phosphorus		378.4570		481.2100		492.2680		100.0000	100.0000	MG/KG	103		114		2		75 - 125	20	P
Potassium		2929.6960		4434.0770		4423.3090		1000.0000	1000.0000	MG/KG	150	N	149	N	0		75 - 125	20	P
Selenium	78	0.1000	U	2.1300		2.1680		2.0000	2.0000	MG/KG	107		108		2		75 - 125	20	MS
Silver	107	0.0317	B	9.7260		9.8560		10.0000	10.0000	MG/KG	97		98		1		75 - 125	20	MS
Sodium		62.6850	B	1062.2240		1070.8190		1000.0000	1000.0000	MG/KG	100		101		1		75 - 125	20	P
Strontium	88	8.5360		16.0780		16.0520		8.0000	8.0000	MG/KG	94		94		0		75 - 125	20	MS
Thallium	203	0.1980	B	0.6462		0.6244		0.4000	0.4000	MG/KG	112		107		3		75 - 125	20	MS
Tin		2.6620	B	373.2980		372.4550		400.0000	400.0000	MG/KG	93		92		0		75 - 125	20	P
Titanium		928.0980		1368.6410		1333.8010		100.0000	100.0000	MG/KG	441		406		3			20	P
Vanadium		24.5540		76.3400		76.8470		50.0000	50.0000	MG/KG	104		105		1		75 - 125	20	P
Zinc		66.1420		120.9410		121.5600		50.0000	50.0000	MG/KG	110		111		1		75 - 125	20	P
Zirconium		2.1780	B	102.4020		103.1070		100.0000	100.0000	MG/KG	100		101		1		75 - 125	20	P

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Jun-2013	SL-545A-SA7-SB-0.0-0.5	7081055	N	3546	8082A	III
03-Jun-2013	SL-545B-SA7-SB-0.0-0.5	7081056	N	3546	8082A	III
03-Jun-2013	SL-545C-SA7-SB-0.0-0.5	7081057	N	3546	8082A	III
04-Jun-2013	TB-060413	7081070	TB	5030B	8015M	IV
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	3050B	6010C	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	3050B	6020A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	3546	8015M	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	3546	8081B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	3546	8082A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	3546	8270D SIM	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	METHOD	1613B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5	7081058	N	METHOD	7471B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	3050B	6010C	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	3050B	6020A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	3546	8015M	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	3546	8081B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	3546	8082A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	3546	8270D SIM	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	METHOD	1613B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MS	7081059	MS	METHOD	7471B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	3050B	6010C	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	3050B	6020A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	3546	8015M	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	3546	8081B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	3546	8082A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	3546	8270D SIM	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	METHOD	1613B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5MSD	7081060	MSD	METHOD	7471B	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5DUP	7081061	DUP	3050B	6010C	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5DUP	7081061	DUP	3050B	6020A	III
04-Jun-2013	SL-513-SA7-SB-0.0-0.5DUP	7081061	DUP	METHOD	7471B	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	3050B	6010C	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	3050B	6020A	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	3546	8015M	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	3546	8081B	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	3546	8082A	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	3546	8270D SIM	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	METHOD	1613B	III
04-Jun-2013	SL-913-SA7-SB-0.0-0.5	7081062	FD	METHOD	7471B	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	3050B	6010C	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	3050B	6020A	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	3546	8015M	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	3546	8082A	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	3546	8270D SIM	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	METHOD	1613B	III
04-Jun-2013	SL-516-SA7-SB-0.0-0.5	7081063	N	METHOD	7471B	III
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	3050B	6010C	III
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	3050B	6020A	III
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	3546	8015M	III
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	3546	8082A	III
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	3546	8270D SIM	III
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	METHOD	1613B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Jun-2013	SL-524-SA7-SB-0.0-0.5	7081068	N	METHOD	7471B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	3050B	6010C	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	3050B	6020A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	3546	8015M	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	3546	8082A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	3546	8270D SIM	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	5035A	8015M	IV
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	METHOD	1613B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0	7081064	N	METHOD	7471B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	3050B	6010C	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	3050B	6020A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	3546	8015M	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	3546	8082A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	3546	8270D SIM	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	5035A	8015M	IV
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	METHOD	1613B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MS	7081065	MS	METHOD	7471B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	3050B	6010C	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	3050B	6020A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	3546	8015M	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	3546	8082A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	3546	8270D SIM	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	5035A	8015M	IV
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	METHOD	1613B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0MSD	7081066	MSD	METHOD	7471B	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0DUP	7081067	DUP	3050B	6010C	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Jun-2013	SL-524-SA7-SB-1.0-2.0DUP	7081067	DUP	3050B	6020A	III
04-Jun-2013	SL-524-SA7-SB-1.0-2.0DUP	7081067	DUP	METHOD	7471B	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	3050B	6010C	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	3050B	6020A	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	3546	8015M	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	3546	8082A	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	3546	8270D SIM	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	5035A	8015M	IV
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	METHOD	1613B	III
04-Jun-2013	SL-924-SA7-SB-1.0-2.0	7081069	FD	METHOD	7471B	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-513-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 8:30:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.573	J	0.509	MDL	4.07	PQL	mg/Kg	J	Z
BERYLLIUM	0.404	J	0.0682	MDL	1.02	PQL	mg/Kg	J	Z
BORON	6.16	J	0.845	MDL	10.2	PQL	mg/Kg	J	Z
CADMIUM	0.513	J	0.0336	MDL	1.02	PQL	mg/Kg	J	Z
MOLYBDENUM	0.773	J	0.173	MDL	2.04	PQL	mg/Kg	UJ	FD, B, F
POTASSIUM	2980		13.7	MDL	102	PQL	mg/Kg	J	Q
SODIUM	63.8	J	17.0	MDL	102	PQL	mg/Kg	J	Z
TIN	2.71	J	0.224	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.22	J	0.845	MDL	5.09	PQL	mg/Kg	J	Z

Sample ID: **SL-516-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 9:55:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BERYLLIUM	0.538	J	0.0684	MDL	1.02	PQL	mg/Kg	J	Z
BORON	6.24	J	0.847	MDL	10.2	PQL	mg/Kg	J	Z
CADMIUM	0.518	J	0.0337	MDL	1.02	PQL	mg/Kg	J	Z
MOLYBDENUM	0.331	J	0.173	MDL	2.04	PQL	mg/Kg	U	B, F
POTASSIUM	2930		13.8	MDL	102	PQL	mg/Kg	J	Q
TIN	2.93	J	0.224	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	2.72	J	0.847	MDL	5.10	PQL	mg/Kg	J	Z

Sample ID: **SL-524-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 1:10:00 PM** ***Analysis Type:*** **REA3** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	4.01	J	0.348	MDL	4.22	PQL	mg/Kg	J	Z
BERYLLIUM	0.490	J	0.0707	MDL	1.06	PQL	mg/Kg	J	Z
BORON	2.52	J	0.876	MDL	10.6	PQL	mg/Kg	J	Z
MOLYBDENUM	0.912	J	0.179	MDL	2.11	PQL	mg/Kg	U	F
TIN	2.76	J	0.232	MDL	10.6	PQL	mg/Kg	U	B
Zirconium	3.19	J	0.876	MDL	5.28	PQL	mg/Kg	J	Z

Sample ID: **SL-524-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:20:00 PM** ***Analysis Type:*** **REA** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	3.93	J	0.343	MDL	4.16	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-524-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:20:00 PM** ***Analysis Type:*** **REA** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BERYLLIUM	0.480	J	0.0696	MDL	1.04	PQL	mg/Kg	J	Z
BORON	1.87	J	0.863	MDL	10.4	PQL	mg/Kg	J	Z
CADMIUM	0.370	J	0.0343	MDL	1.04	PQL	mg/Kg	J	Z
CALCIUM	5580		4.18	MDL	20.8	PQL	mg/Kg	J	E, FD
IRON	22000		3.95	MDL	41.6	PQL	mg/Kg	J	A
MOLYBDENUM	0.777	J	0.177	MDL	2.08	PQL	mg/Kg	UJ	FD, B, F
NICKEL	7.90		0.114	MDL	2.08	PQL	mg/Kg	J	E
PHOSPHORUS	401		0.530	MDL	10.4	PQL	mg/Kg	J	Q
POTASSIUM	3230		14.0	MDL	104	PQL	mg/Kg	J	Q
TIN	3.08	J	0.229	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	5.20	U	0.863	MDL	5.20	PQL	mg/Kg	UJ	FD

Sample ID: **SL-524-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:20:00 PM** ***Analysis Type:*** **REA2** ***Dilution:*** **5**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
COPPER	10.3	J	0.936	MDL	10.4	PQL	mg/Kg	J	Z

Sample ID: **SL-913-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 8:45:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	0.637	J	0.503	MDL	4.02	PQL	mg/Kg	J	Z
BERYLLIUM	0.453	J	0.0673	MDL	1.01	PQL	mg/Kg	J	Z
BORON	6.30	J	0.834	MDL	10.1	PQL	mg/Kg	J	Z
CADMIUM	0.511	J	0.0332	MDL	1.01	PQL	mg/Kg	J	Z
MOLYBDENUM	0.282	J	0.171	MDL	2.01	PQL	mg/Kg	UJ	FD, B, F
POTASSIUM	3160		13.6	MDL	101	PQL	mg/Kg	J	Q
SODIUM	63.2	J	16.8	MDL	101	PQL	mg/Kg	J	Z
TIN	2.90	J	0.221	MDL	10.1	PQL	mg/Kg	U	B
Zirconium	2.48	J	0.834	MDL	5.03	PQL	mg/Kg	J	Z

Sample ID: **SL-924-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:30:00 PM** ***Analysis Type:*** **REA** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ARSENIC	4.15	J	0.351	MDL	4.25	PQL	mg/Kg	J	Z
BERYLLIUM	0.518	J	0.0712	MDL	1.06	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: METALS

Method: 6010C **Matrix: SO**

Sample ID: SL-924-SA7-SB-1.0-2.0 **Collected: 6/4/2013 1:30:00 PM** **Analysis Type: REA** **Dilution: 1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BORON	2.31	J	0.882	MDL	10.6	PQL	mg/Kg	J	Z
CADMIUM	0.363	J	0.0351	MDL	1.06	PQL	mg/Kg	J	Z
CALCIUM	3310		4.27	MDL	21.2	PQL	mg/Kg	J	E, FD
IRON	21500		4.04	MDL	42.5	PQL	mg/Kg	J	A
MOLYBDENUM	0.422	J	0.181	MDL	2.12	PQL	mg/Kg	UJ	FD, B, F
NICKEL	8.12		0.117	MDL	2.12	PQL	mg/Kg	J	E
PHOSPHORUS	410		0.542	MDL	10.6	PQL	mg/Kg	J	Q
POTASSIUM	2870		14.3	MDL	106	PQL	mg/Kg	J	Q
TIN	3.11	J	0.234	MDL	10.6	PQL	mg/Kg	U	B
Zirconium	1.01	J	0.882	MDL	5.31	PQL	mg/Kg	J	Z, FD

Sample ID: SL-924-SA7-SB-1.0-2.0 **Collected: 6/4/2013 1:30:00 PM** **Analysis Type: REA2** **Dilution: 5**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
COPPER	10.1	J	0.956	MDL	10.6	PQL	mg/Kg	J	Z

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 **Collected: 6/4/2013 8:30:00 AM** **Analysis Type: RES** **Dilution: 2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0323	J	0.0204	MDL	0.204	PQL	mg/Kg	J	Z, FD
THALLIUM	0.202	J	0.0305	MDL	0.204	PQL	mg/Kg	J	Z

Sample ID: SL-516-SA7-SB-0.0-0.5 **Collected: 6/4/2013 9:55:00 AM** **Analysis Type: REA** **Dilution: 2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.108	J	0.102	MDL	0.408	PQL	mg/Kg	J	Z

Sample ID: SL-516-SA7-SB-0.0-0.5 **Collected: 6/4/2013 9:55:00 AM** **Analysis Type: RES** **Dilution: 2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0368	J	0.0204	MDL	0.204	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-524-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 1:10:00 PM *Analysis Type:* REA4 *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0320	J	0.0211	MDL	0.211	PQL	mg/Kg	J	Z

Sample ID: SL-524-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 1:10:00 PM *Analysis Type:* REA5 *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.137	J	0.106	MDL	0.422	PQL	mg/Kg	J	Z

Sample ID: SL-524-SA7-SB-1.0-2.0 *Collected:* 6/4/2013 1:20:00 PM *Analysis Type:* REA2 *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.208	U	0.0208	MDL	0.208	PQL	mg/Kg	UJ	FD
STRONTIUM	17.9		0.0353	MDL	0.416	PQL	mg/Kg	J	E

Sample ID: SL-913-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:45:00 AM *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.201	U	0.0201	MDL	0.201	PQL	mg/Kg	UJ	FD

Sample ID: SL-924-SA7-SB-1.0-2.0 *Collected:* 6/4/2013 1:30:00 PM *Analysis Type:* REA2 *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0230	J	0.0212	MDL	0.212	PQL	mg/Kg	J	Z, FD
STRONTIUM	15.4		0.0361	MDL	0.425	PQL	mg/Kg	J	E

Method Category: METALS

Method: 7471B **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:30:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0151	J	0.0101	MDL	0.0168	PQL	mg/Kg	J	Z, FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: METALS

Method: 7471B **Matrix: SO**

Sample ID: SL-516-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 9:55:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0108	J	0.0102	MDL	0.0170	PQL	mg/Kg	J	Z

Sample ID: SL-913-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:45:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0267		0.0100	MDL	0.0167	PQL	mg/Kg	J	FD

Method Category: SVOA

Method: 1613B **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:30:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	95.8	B	0.0514	MDL	5.09	PQL	ng/Kg	J	FD
1,2,3,4,6,7,8-HPCDF	19.2	B	0.0315	MDL	5.09	PQL	ng/Kg	J	FD
1,2,3,4,7,8,9-HPCDF	1.28	JB	0.0342	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	1.06	JBQ	0.0415	MDL	5.09	PQL	ng/Kg	J	Z, FD
1,2,3,4,7,8-HXCDF	0.876	JB	0.0378	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	3.18	J	0.0445	MDL	5.09	PQL	ng/Kg	J	Z, FD
1,2,3,6,7,8-HXCDF	0.913	J	0.0376	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	1.87	JB	0.0401	MDL	5.09	PQL	ng/Kg	J	Z, FD
1,2,3,7,8,9-HXCDF	0.242	JB	0.0380	MDL	5.09	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.451	JB	0.0588	MDL	5.09	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.702	JB	0.0491	MDL	5.09	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.894	JB	0.0375	MDL	5.09	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.839	JB	0.0439	MDL	5.09	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.110	J	0.0312	MDL	1.02	PQL	ng/Kg	J	Z, FD
2,3,7,8-TCDF	0.763	JB	0.0947	MDL	1.02	PQL	ng/Kg	J	Z, FD
OCDD	906	B	0.0441	MDL	10.2	PQL	ng/Kg	J	FD
OCDF	82.8	B	0.0356	MDL	10.2	PQL	ng/Kg	J	FD

Sample ID: SL-516-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 9:55:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.123	JBQ	0.0238	MDL	4.96	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-516-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 9:55:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	0.0727	JBQ	0.0469	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.165	JBQ	0.0779	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0727	JB	0.0238	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0778	JB	0.0136	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0848	J	0.0251	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0854	JQ	0.0126	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.0883	JBQ	0.0235	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.123	JBQ	0.0159	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.111	JB	0.0180	MDL	4.96	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0743	JB	0.0129	MDL	4.96	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.136	JB	0.0186	MDL	4.96	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0468	J	0.0310	MDL	0.993	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0260	JBQ	0.0223	MDL	0.993	PQL	ng/Kg	U	B
OCDD	0.498	JB	0.0281	MDL	9.93	PQL	ng/Kg	U	B
OCDF	0.210	JB	0.0387	MDL	9.93	PQL	ng/Kg	U	B

Sample ID: **SL-524-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 1:10:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	2.69	JB	0.0243	MDL	5.22	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.644	JB	0.0111	MDL	5.22	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0837	JB	0.0127	MDL	5.22	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0453	JB	0.0201	MDL	5.22	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0973	JBQ	0.0136	MDL	5.22	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.171	JB	0.0212	MDL	5.22	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.129	JBQ	0.0131	MDL	5.22	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.108	JB	0.0198	MDL	5.22	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.122	JB	0.0141	MDL	5.22	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0892	JB	0.0219	MDL	5.22	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.646	JB	0.0143	MDL	5.22	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.177	JB	0.0125	MDL	5.22	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.0763	JBQ	0.0129	MDL	5.22	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0213	JBQ	0.0173	MDL	1.04	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.0282	J	0.0207	MDL	1.04	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-524-SA7-SB-0.0-0.5 **Collected:** 6/4/2013 1:10:00 PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDF	1.19	JB	0.0188	MDL	10.4	PQL	ng/Kg	J	Z

Sample ID: SL-524-SA7-SB-1.0-2.0 **Collected:** 6/4/2013 1:20:00 PM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.859	JB	0.0175	MDL	5.34	PQL	ng/Kg	J	Z, FD
1,2,3,4,6,7,8-HPCDF	0.186	JB	0.0138	MDL	5.34	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8,9-HPCDF	0.0607	JB	0.0150	MDL	5.34	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HxCDD	0.0246	JBQ	0.0181	MDL	5.34	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HXCDF	0.0474	JBQ	0.00876	MDL	5.34	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0966	JBQ	0.0191	MDL	5.34	PQL	ng/Kg	J	Z, FD
1,2,3,6,7,8-HXCDF	0.0572	JBQ	0.00854	MDL	5.34	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8,9-HXCDD	0.0998	JB	0.0186	MDL	5.34	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0748	JBQ	0.00930	MDL	5.34	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0475	JBQ	0.0179	MDL	5.34	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.156	JB	0.00984	MDL	5.34	PQL	ng/Kg	UJ	B, FD
2,3,4,6,7,8-HXCDF	0.0368	JB	0.00843	MDL	5.34	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0555	JBQ	0.00919	MDL	5.34	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0250	JBQ	0.0165	MDL	1.07	PQL	ng/Kg	UJ	B, FD
2,3,7,8-TCDF	0.0189	JQ	0.0139	MDL	1.07	PQL	ng/Kg	J	Z
OCDD	10.5	JB	0.0189	MDL	10.7	PQL	ng/Kg	J	Z, FD
OCDF	0.277	JBQ	0.0178	MDL	10.7	PQL	ng/Kg	UJ	B, FD

Sample ID: SL-913-SA7-SB-0.0-0.5 **Collected:** 6/4/2013 8:45:00 AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	40.7	B	0.0470	MDL	4.96	PQL	ng/Kg	J	FD
1,2,3,4,6,7,8-HPCDF	8.72	B	0.0317	MDL	4.96	PQL	ng/Kg	J	FD
1,2,3,4,7,8,9-HPCDF	0.775	JB	0.0357	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	0.527	JB	0.0443	MDL	4.96	PQL	ng/Kg	J	Z, FD
1,2,3,4,7,8-HXCDF	0.864	JB	0.0332	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	1.49	J	0.0483	MDL	4.96	PQL	ng/Kg	J	Z, FD
1,2,3,6,7,8-HXCDF	0.706	J	0.0330	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	0.998	JB	0.0434	MDL	4.96	PQL	ng/Kg	J	Z, FD
1,2,3,7,8,9-HXCDF	0.332	JB	0.0351	MDL	4.96	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-913-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 8:45:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8-PECDD	0.315	JBQ	0.0482	MDL	4.96	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.646	JB	0.0435	MDL	4.96	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.624	JB	0.0318	MDL	4.96	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.691	JB	0.0384	MDL	4.96	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0389	J	0.0347	MDL	0.992	PQL	ng/Kg	J	Z, FD
2,3,7,8-TCDF	0.457	JB	0.0692	MDL	0.992	PQL	ng/Kg	J	Z, FD
OCDD	396	B	0.0392	MDL	9.92	PQL	ng/Kg	J	FD
OCDF	28.3	B	0.0302	MDL	9.92	PQL	ng/Kg	J	FD

Sample ID: **SL-924-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:30:00 PM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.270	JB	0.0184	MDL	5.37	PQL	ng/Kg	UJ	B, FD
1,2,3,4,6,7,8-HPCDF	0.0678	JB	0.00813	MDL	5.37	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8,9-HPCDF	0.0329	JBQ	0.0105	MDL	5.37	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HxCDD	0.0417	JBQ	0.0166	MDL	5.37	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HXCDF	0.0488	JBQ	0.00856	MDL	5.37	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0499	JB	0.0179	MDL	5.37	PQL	ng/Kg	UJ	B, FD
1,2,3,6,7,8-HXCDF	0.0296	JBQ	0.00823	MDL	5.37	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8,9-HXCDD	0.0755	JBQ	0.0163	MDL	5.37	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0603	JBQ	0.00888	MDL	5.37	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0567	JB	0.0207	MDL	5.37	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0904	JBQ	0.00986	MDL	5.37	PQL	ng/Kg	UJ	B, FD
2,3,4,6,7,8-HXCDF	0.0408	JB	0.00791	MDL	5.37	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0338	JB	0.00910	MDL	5.37	PQL	ng/Kg	U	B
2,3,7,8-TCDD	1.07	U	0.0181	MDL	1.07	PQL	ng/Kg	UJ	FD
2,3,7,8-TCDF	0.0139	J	0.0124	MDL	1.07	PQL	ng/Kg	J	Z
OCDD	2.71	JB	0.0223	MDL	10.7	PQL	ng/Kg	J	Z, FD
OCDF	0.135	JB	0.0215	MDL	10.7	PQL	ng/Kg	UJ	B, FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 8015M **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:30:00 AM *Analysis Type:* RES *Dilution:* 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	160		20	MDL	51	PQL	mg/Kg	J	FD

Sample ID: SL-516-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 9:55:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.4	J	2.1	MDL	5.1	PQL	mg/Kg	J	Z
EFH (C30-C40)	4.8	J	4.1	MDL	10	PQL	mg/Kg	J	Z

Sample ID: SL-524-SA7-SB-1.0-2.0 *Collected:* 6/4/2013 1:20:00 PM *Analysis Type:* REA *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	12		2.2	MDL	5.4	PQL	mg/Kg	J	Q

Sample ID: SL-913-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:45:00 AM *Analysis Type:* RES *Dilution:* 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	350		40	MDL	100	PQL	mg/Kg	J	FD

Method Category: SVOA

Method: 8081B **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:30:00 AM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	0.53	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z, FD
4,4'-DDT	7.0		0.36	MDL	1.7	PQL	ug/Kg	J	Q, Q
MIREX	0.63	J	0.36	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-913-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:45:00 AM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	1.8	U	1.8	MDL	1.8	PQL	ug/Kg	UJ	FD
MIREX	0.89	J	0.36	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 8082A **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:30:00 AM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	13	J	4.5	MDL	17	PQL	ug/Kg	J	Z
Aroclor 5460	33	U	10	MDL	33	PQL	ug/Kg	UJ	FD

Sample ID: SL-913-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:45:00 AM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
AROCLOR 1254	13	J	4.5	MDL	17	PQL	ug/Kg	J	Z
Aroclor 5460	17	J	10	MDL	34	PQL	ug/Kg	J	Z, FD

Method Category: SVOA

Method: 8270D SIM **Matrix: SO**

Sample ID: SL-513-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 8:30:00 AM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 10

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
FLUORANTHENE	7.0	J	6.8	MDL	17	PQL	ug/Kg	J	Z
PYRENE	7.5	J	6.8	MDL	17	PQL	ug/Kg	J	Z

Sample ID: SL-524-SA7-SB-0.0-0.5 *Collected:* 6/4/2013 1:10:00 PM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.7	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
ANTHRACENE	0.63	J	0.36	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	13	J	3.6	MDL	18	PQL	ug/Kg	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	7.8	J	6.5	MDL	19	PQL	ug/Kg	J	Z
DIBENZO(A,H)ANTHRACENE	1.1	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	1.1	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: SL-524-SA7-SB-1.0-2.0 *Collected:* 6/4/2013 1:20:00 PM *Analysis Type:* RES-BASE/NEUTRAL *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	1.5	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z, Q
BENZO(A)PYRENE	1.5	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	6.5	J	3.6	MDL	18	PQL	ug/Kg	J	Z, Q
BENZO(G,H,I)PERYLENE	1.3	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-524-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:20:00 PM** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(K)FLUORANTHENE	1.8	U	0.72	MDL	1.8	PQL	ug/Kg	UJ	FD
CHRYSENE	7.2		0.36	MDL	1.8	PQL	ug/Kg	J	Q, Q
DIBENZO(A,H)ANTHRACENE	0.75	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z, FD
FLUORANTHENE	0.96	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
PHENANTHRENE	4.1		0.72	MDL	1.8	PQL	ug/Kg	J	Q, Q
PYRENE	2.5		0.72	MDL	1.8	PQL	ug/Kg	J	Q, FD

Sample ID: **SL-913-SA7-SB-0.0-0.5** ***Collected:*** **6/4/2013 8:45:00 AM** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	13	J	6.8	MDL	17	PQL	ug/Kg	J	Z
FLUORANTHENE	8.3	J	6.8	MDL	17	PQL	ug/Kg	J	Z
PYRENE	8.4	J	6.8	MDL	17	PQL	ug/Kg	J	Z

Sample ID: **SL-924-SA7-SB-1.0-2.0** ***Collected:*** **6/4/2013 1:30:00 PM** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(A)ANTHRACENE	1.3	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.7	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(E)PYRENE	8.0	J	3.6	MDL	18	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.0	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	1.8	J	0.72	MDL	1.8	PQL	ug/Kg	J	FD
DIBENZO(A,H)ANTHRACENE	1.8	U	0.72	MDL	1.8	PQL	ug/Kg	UJ	FD
FLUORANTHENE	1.1	J	0.72	MDL	1.8	PQL	ug/Kg	J	Z
PYRENE	4.6		0.72	MDL	1.8	PQL	ug/Kg	J	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PrepPH046 **eQAPP Name: CDM_SSFL_130705_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Calibration Blank Contamination
B	Method Blank Contamination
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Field Blank Contamination
FD	Field Duplicate Precision
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH046

Method Blank Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1630B371055	6/15/2013 10:55:00 AM	1,2,3,4,6,7,8-HPCDD	0.0612 ng/Kg	SL-524-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0525 ng/Kg	SL-524-SA7-SB-1.0-2.0
		1,2,3,4,7,8,9-HPCDF	0.0372 ng/Kg	SL-924-SA7-SB-1.0-2.0
		1,2,3,4,7,8-HxCDD	0.0141 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0365 ng/Kg	
		1,2,3,6,7,8-HXCDD	0.0191 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0232 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0376 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0595 ng/Kg	
		1,2,3,7,8-PECDD	0.0468 ng/Kg	
		1,2,3,7,8-PECDF	0.0591 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0280 ng/Kg	
		2,3,4,7,8-PECDF	0.0223 ng/Kg	
		2,3,7,8-TCDD	0.0555 ng/Kg	
		OCDD	0.295 ng/Kg	
		OCDF	0.0998 ng/Kg	
BLK1680B371423	6/19/2013 2:23:00 PM	1,2,3,4,6,7,8-HPCDD	0.100 ng/Kg	SL-513-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0263 ng/Kg	SL-516-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0600 ng/Kg	SL-913-SA7-SB-0.0-0.5
		1,2,3,4,7,8-HxCDD	0.0408 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0548 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0618 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0712 ng/Kg	
		1,2,3,7,8-PECDD	0.0664 ng/Kg	
		1,2,3,7,8-PECDF	0.0798 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0700 ng/Kg	
		2,3,4,7,8-PECDF	0.0765 ng/Kg	
		2,3,7,8-TCDF	0.0365 ng/Kg	
		OCDD	0.342 ng/Kg	
		OCDF	0.155 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-513-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.242 ng/Kg	0.242U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDD	0.123 ng/Kg	0.123U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDF	0.0727 ng/Kg	0.0727U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.165 ng/Kg	0.165U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.0727 ng/Kg	0.0727U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0778 ng/Kg	0.0778U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0883 ng/Kg	0.0883U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.123 ng/Kg	0.123U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.111 ng/Kg	0.111U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0743 ng/Kg	0.0743U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.136 ng/Kg	0.136U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	2,3,7,8-TCDF	0.0260 ng/Kg	0.0260U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	OCDD	0.498 ng/Kg	0.498U ng/Kg
SL-516-SA7-SB-0.0-0.5(RES)	OCDF	0.210 ng/Kg	0.210U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0837 ng/Kg	0.0837U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.0453 ng/Kg	0.0453U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0973 ng/Kg	0.0973U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.108 ng/Kg	0.108U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.122 ng/Kg	0.122U ng/Kg

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Method Blank Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-524-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.0892 ng/Kg	0.0892U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.0763 ng/Kg	0.0763U ng/Kg
SL-524-SA7-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.0213 ng/Kg	0.0213U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,4,6,7,8-HPCDF	0.186 ng/Kg	0.186U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0607 ng/Kg	0.0607U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,4,7,8-HxCDD	0.0246 ng/Kg	0.0246U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,4,7,8-HXCDF	0.0474 ng/Kg	0.0474U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,6,7,8-HXCDF	0.0572 ng/Kg	0.0572U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,7,8,9-HXCDD	0.0998 ng/Kg	0.0998U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,7,8,9-HXCDF	0.0748 ng/Kg	0.0748U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,7,8-PECDD	0.0475 ng/Kg	0.0475U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	1,2,3,7,8-PECDF	0.156 ng/Kg	0.156U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	2,3,4,6,7,8-HXCDF	0.0368 ng/Kg	0.0368U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	2,3,4,7,8-PECDF	0.0555 ng/Kg	0.0555U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	2,3,7,8-TCDD	0.0250 ng/Kg	0.0250U ng/Kg
SL-524-SA7-SB-1.0-2.0(RES)	OCDF	0.277 ng/Kg	0.277U ng/Kg
SL-913-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.332 ng/Kg	0.332U ng/Kg
SL-913-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.315 ng/Kg	0.315U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,4,6,7,8-HPCDD	0.270 ng/Kg	0.270U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,4,6,7,8-HPCDF	0.0678 ng/Kg	0.0678U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0329 ng/Kg	0.0329U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,4,7,8-HxCDD	0.0417 ng/Kg	0.0417U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,4,7,8-HXCDF	0.0488 ng/Kg	0.0488U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,6,7,8-HXCDD	0.0499 ng/Kg	0.0499U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,6,7,8-HXCDF	0.0296 ng/Kg	0.0296U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,7,8,9-HXCDD	0.0755 ng/Kg	0.0755U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,7,8,9-HXCDF	0.0603 ng/Kg	0.0603U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,7,8-PECDD	0.0567 ng/Kg	0.0567U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	1,2,3,7,8-PECDF	0.0904 ng/Kg	0.0904U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	2,3,4,6,7,8-HXCDF	0.0408 ng/Kg	0.0408U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	2,3,4,7,8-PECDF	0.0338 ng/Kg	0.0338U ng/Kg
SL-924-SA7-SB-1.0-2.0(RES)	OCDF	0.135 ng/Kg	0.135U ng/Kg

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P16037AB221648	6/11/2013 4:48:00 PM	CALCIUM PHOSPHORUS TIN	11.1 mg/Kg 1.14 mg/Kg 1.50 mg/Kg	SL-513-SA7-SB-0.0-0.5 SL-516-SA7-SB-0.0-0.5 SL-913-SA7-SB-0.0-0.5

Method Blank Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P16037CB220935	6/13/2013 9:35:00 AM	CALCIUM	6.15 mg/Kg	SL-524-SA7-SB-1.0-2.0 SL-924-SA7-SB-1.0-2.0
P16037CB222021	6/12/2013 8:21:00 PM	IRON PHOSPHORUS TIN	4.39 mg/Kg 1.17 mg/Kg 1.43 mg/Kg	SL-524-SA7-SB-1.0-2.0 SL-924-SA7-SB-1.0-2.0
P16437AB220226	6/17/2013 2:26:00 AM	ALUMINUM CALCIUM PHOSPHORUS TIN ZINC	8.46 mg/Kg 9.77 mg/Kg 1.17 mg/Kg 1.48 mg/Kg 1.92 mg/Kg	SL-524-SA7-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-513-SA7-SB-0.0-0.5(RES)	TIN	2.71 mg/Kg	2.71U mg/Kg
SL-516-SA7-SB-0.0-0.5(RES)	TIN	2.93 mg/Kg	2.93U mg/Kg
SL-524-SA7-SB-0.0-0.5(REA3)	TIN	2.76 mg/Kg	2.76U mg/Kg
SL-524-SA7-SB-1.0-2.0(REA)	TIN	3.08 mg/Kg	3.08U mg/Kg
SL-913-SA7-SB-0.0-0.5(RES)	TIN	2.90 mg/Kg	2.90U mg/Kg
SL-924-SA7-SB-1.0-2.0(REA)	TIN	3.11 mg/Kg	3.11U mg/Kg

Method: **6020A**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P16037AB221759A	6/11/2013 5:59:00 PM	STRONTIUM	0.0780 mg/Kg	SL-513-SA7-SB-0.0-0.5 SL-516-SA7-SB-0.0-0.5 SL-913-SA7-SB-0.0-0.5
P16437AB221115A	6/17/2013 11:15:00 AM	STRONTIUM	0.0566 mg/Kg	SL-524-SA7-SB-0.0-0.5

Field Blank Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041113(REA2)	4/11/2013 3:00:00 PM	COPPER MOLYBDENUM	0.0036 mg/L 0.0036 mg/L	SL-513-SA7-SB-0.0-0.5 SL-516-SA7-SB-0.0-0.5 SL-524-SA7-SB-0.0-0.5 SL-524-SA7-SB-1.0-2.0 SL-545A-SA7-SB-0.0-0.5 SL-545B-SA7-SB-0.0-0.5 SL-545C-SA7-SB-0.0-0.5 SL-913-SA7-SB-0.0-0.5 SL-924-SA7-SB-1.0-2.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-513-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.773 mg/Kg	0.773U mg/Kg
SL-516-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.331 mg/Kg	0.331U mg/Kg
SL-524-SA7-SB-0.0-0.5(REA3)	MOLYBDENUM	0.912 mg/Kg	0.912U mg/Kg
SL-524-SA7-SB-1.0-2.0(REA)	MOLYBDENUM	0.777 mg/Kg	0.777U mg/Kg
SL-913-SA7-SB-0.0-0.5(RES)	MOLYBDENUM	0.282 mg/Kg	0.282U mg/Kg
SL-924-SA7-SB-1.0-2.0(REA)	MOLYBDENUM	0.422 mg/Kg	0.422U mg/Kg

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-513-SA7-SB-0.0-0.5MS SL-513-SA7-SB-0.0-0.5MSD (SL-513-SA7-SB-0.0-0.5)	EFH (C15-C20) EFH (C21-C30) EFH (C30-C40)	394 1639 2997	444 2238 5212	49.00-123.00 49.00-123.00 49.00-123.00	- - 31 (20.00)	EFH (C15-C20) EFH (C21-C30) EFH (C30-C40)	No Qual, Diluted Out
SL-524-SA7-SB-1.0-2.0MS SL-524-SA7-SB-1.0-2.0MSD (SL-524-SA7-SB-1.0-2.0)	EFH (C15-C20) EFH (C21-C30) EFH (C30-C40)	293 1322 2447	270 1646 2930	49.00-123.00 49.00-123.00 49.00-123.00	- - -	EFH (C15-C20) EFH (C21-C30) EFH (C30-C40)	J(all detects) EFH (C30-C40), No Qual, >4x

Method: 8081B
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-513-SA7-SB-0.0-0.5MS SL-513-SA7-SB-0.0-0.5MSD (SL-513-SA7-SB-0.0-0.5)	4,4'-DDT	449	-	10.00-176.00	111 (50.00)	4,4'-DDT	J(all detects)

Method: 1613B
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-513-SA7-SB-0.0-0.5MS SL-513-SA7-SB-0.0-0.5MSD (SL-513-SA7-SB-0.0-0.5)	OCDD	-124	-129	40.00-135.00	-	OCDD	No Qual, >4x

Method: 8270D SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-513-SA7-SB-0.0-0.5MS SL-513-SA7-SB-0.0-0.5MSD (SL-513-SA7-SB-0.0-0.5)	BENZO(B)FLUORANTHENE BENZO(E)PYRENE BENZO(K)FLUORANTHENE Di-n-octylphthalate N-NITROSODIMETHYLAMINE	143 161 136 192 163	- 175 133 181 136	26.00-142.00 70.00-130.00 47.00-129.00 52.00-162.00 48.00-113.00	- - - - -	BENZO(B)FLUORANTHENE BENZO(E)PYRENE BENZO(K)FLUORANTHENE Di-n-octylphthalate N-NITROSODIMETHYLAMINE	No Qual, Diluted Out
SL-513-SA7-SB-0.0-0.5MS SL-513-SA7-SB-0.0-0.5MSD (SL-513-SA7-SB-0.0-0.5)	BIS(2-ETHYLHEXYL)PHTHALAT Butylbenzylphthalate Diethylphthalate Dimethylphthalate Di-n-butylphthalate	0 0 0 0 0	0 0 0 0 0	39.00-167.00 59.00-153.00 76.00-127.00 62.00-136.00 62.00-154.00	- - - - -	BIS(2-ETHYLHEXYL)PHTHALA Butylbenzylphthalate Diethylphthalate Dimethylphthalate Di-n-butylphthalate	No Qual, Diluted Out
SL-524-SA7-SB-1.0-2.0MS SL-524-SA7-SB-1.0-2.0MSD (SL-524-SA7-SB-1.0-2.0)	BENZO(A)ANTHRACENE BENZO(E)PYRENE Butylbenzylphthalate CHRYSENE Di-n-octylphthalate PHENANTHRENE PYRENE	148 134 165 183 197 156 149	- - - - - - -	32.00-135.00 70.00-130.00 59.00-153.00 29.00-148.00 52.00-162.00 29.00-142.00 26.00-143.00	- - 37 (30.00) 40 (30.00) - 35 (30.00) -	BENZO(A)ANTHRACENE BENZO(E)PYRENE Butylbenzylphthalate CHRYSENE Di-n-octylphthalate PHENANTHRENE PYRENE	J(all detects)

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **6010C**
Matrix: **SO**

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-513-SA7-SB-0.0-0.5MS	ALUMINUM	1622	1543	75.00-125.00	-	ALUMINUM	
(TOT)	CALCIUM	127	-	75.00-125.00	-	CALCIUM	J(all detects)
SL-513-SA7-SB-0.0-0.5MSD	IRON	1612	1351	75.00-125.00	-	IRON	
(TOT)	MAGNESIUM	353	374	75.00-125.00	-	MAGNESIUM	
(SL-513-SA7-SB-0.0-0.5	MANGANESE	-	129	75.00-125.00	-	MANGANESE	Al, Ca, Fe, Mg, Mn, Ti,
SL -516-SA7-SB-0.0-0.5	POTASSIUM	150	149	75.00-125.00	-	POTASSIUM	No Qual, >4x
SL -913-SA7-SB-0.0-0.5)	TITANIUM	441	406	75.00-125.00	-	TITANIUM	
SL-524-SA7-SB-1.0-2.0MS	ALUMINUM	1690	1435	75.00-125.00	-	ALUMINUM	
(TOT)	CALCIUM	385	235	75.00-125.00	-	CALCIUM	
SL-524-SA7-SB-1.0-2.0MSD	IRON	2592	918	75.00-125.00	-	IRON	J(all detects)
(TOT)	MAGNESIUM	435	294	75.00-125.00	-	MAGNESIUM	
(SL-524-SA7-SB-1.0-2.0	MANGANESE	164	142	75.00-125.00	-	MANGANESE	
SL -924-SA7-SB-1.0-2.0)	PHOSPHORUS	156	-	75.00-125.00	-	PHOSPHORUS	Al, Ca, Fe, Mg, Mn, Ti,
	POTASSIUM	138	-	75.00-125.00	-	POTASSIUM	No Qual, >4x
	TITANIUM	368	282	75.00-125.00	-	TITANIUM	

Lab Duplicate Outlier Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 160.3M
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-513-SA7-SB-0.0-0.5DUP (SL-516-SA7-SB-0.0-0.5 SL -545A-SA7-SB-0.0-0.5 SL -545B-SA7-SB-0.0-0.5 SL -545C-SA7-SB-0.0-0.5 SL -913-SA7-SB-0.0-0.5)	MOISTURE	40	20.00	No Qual

Method: 6010C
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-513-SA7-SB-0.0-0.5DUP (TOT) (SL-513-SA7-SB-0.0-0.5 SL -516-SA7-SB-0.0-0.5 SL -913-SA7-SB-0.0-0.5)	ANTIMONY	200	20.00	No Qual, OK By Difference
	MOLYBDENUM	65	20.00	
	NICKEL	21	20.00	
	Zirconium	31	20.00	

Method: 6020A
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-513-SA7-SB-0.0-0.5DUP (TOT) (SL-513-SA7-SB-0.0-0.5 SL -516-SA7-SB-0.0-0.5 SL -913-SA7-SB-0.0-0.5)	SILVER	200	20.00	No Qual, OK By Difference

Method: 6010C
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-524-SA7-SB-1.0-2.0DUP (TOT) (SL-524-SA7-SB-1.0-2.0 SL -924-SA7-SB-1.0-2.0)	BORON	27	20.00	J(all detects) UJ(all non-detects)
	CALCIUM	42	20.00	
	MOLYBDENUM	66	20.00	B, Mo, Zr, No Qual, OK by Difference
	NICKEL	27	20.00	
	Zirconium	200	20.00	

Method: 6020A
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-524-SA7-SB-1.0-2.0DUP (TOT) (SL-524-SA7-SB-1.0-2.0 SL -924-SA7-SB-1.0-2.0)	SILVER	200	20.00	J(all detects) UJ(all non-detects)
	STRONTIUM	31	20.00	Ag, No Qual, OK by Difference

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Field Duplicate RPD Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 160.3M
Matrix: SO

Analyte	Concentration (%) SL-513-SA7-SB-0.0-0.5	Concentration (%) SL-913-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
MOISTURE	1.8	1.5	18		No Qualifiers Applied

Analyte	Concentration (%) SL-524-SA7-SB-1.0-2.0	Concentration (%) SL-924-SA7-SB-1.0-2.0	Sample RPD	eQAPP RPD	Flag
MOISTURE	7.5	7.7	3		No Qualifiers Applied

Method: 1613B
Matrix: SO

Analyte	Concentration (ng/Kg) SL-513-SA7-SB-0.0-0.5	Concentration (ng/Kg) SL-913-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
1,2,3,4,7,8,9-HPCDF	1.28	0.775	49	50.00	No Qualifiers Applied
1,2,3,4,7,8-HXCDF	0.876	0.864	1	50.00	
1,2,3,6,7,8-HXCDF	0.913	0.706	26	50.00	
1,2,3,7,8,9-HXCDF	0.242	0.332	31	50.00	
1,2,3,7,8-PECDD	0.451	0.315	36	50.00	
1,2,3,7,8-PECDF	0.702	0.646	8	50.00	
2,3,4,6,7,8-HXCDF	0.894	0.624	36	50.00	
2,3,4,7,8-PECDF	0.839	0.691	19	50.00	
1,2,3,4,6,7,8-HPCDD	95.8	40.7	81	50.00	J(all detects)
1,2,3,4,6,7,8-HPCDF	19.2	8.72	75	50.00	
1,2,3,4,7,8-HxCDD	1.06	0.527	67	50.00	
1,2,3,6,7,8-HXCDD	3.18	1.49	72	50.00	
1,2,3,7,8,9-HXCDD	1.87	0.998	61	50.00	
2,3,7,8-TCDD	0.110	0.0389	96	50.00	
2,3,7,8-TCDF	0.763	0.457	50	50.00	
OCDD	906	396	78	50.00	
OCDF	82.8	28.3	98	50.00	

Analyte	Concentration (ng/Kg) SL-524-SA7-SB-1.0-2.0	Concentration (ng/Kg) SL-924-SA7-SB-1.0-2.0	Sample RPD	eQAPP RPD	Flag
1,2,3,4,7,8-HXCDF	0.0474	0.0488	3	50.00	No Qualifiers Applied
1,2,3,7,8,9-HXCDD	0.0998	0.0755	28	50.00	
1,2,3,7,8,9-HXCDF	0.0748	0.0603	21	50.00	
1,2,3,7,8-PECDD	0.0475	0.0567	18	50.00	
2,3,4,6,7,8-HXCDF	0.0368	0.0408	10	50.00	
2,3,4,7,8-PECDF	0.0555	0.0338	49	50.00	
2,3,7,8-TCDF	0.0189	0.0139	30	50.00	
1,2,3,4,6,7,8-HPCDD	0.859	0.270	104	50.00	J(all detects) UJ(all non-detects)
1,2,3,4,6,7,8-HPCDF	0.186	0.0678	93	50.00	
1,2,3,4,7,8,9-HPCDF	0.0607	0.0329	59	50.00	
1,2,3,4,7,8-HxCDD	0.0246	0.0417	52	50.00	
1,2,3,6,7,8-HXCDD	0.0966	0.0499	64	50.00	
1,2,3,6,7,8-HXCDF	0.0572	0.0296	64	50.00	
1,2,3,7,8-PECDF	0.156	0.0904	53	50.00	
2,3,7,8-TCDD	0.0250	1.07 U	200	50.00	
OCDD	10.5	2.71	118	50.00	
OCDF	0.277	0.135	69	50.00	

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Field Duplicate RPD Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 6010C
Matrix: SO

Analyte	Concentration (mg/Kg) SL-513-SA7-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-913-SA7-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
ALUMINUM	9050	9640	6	50.00	No Qualifiers Applied
ANTIMONY	0.573	0.637	11	50.00	
ARSENIC	4.18	4.31	3	50.00	
BARIUM	61.3	65.4	6	50.00	
BERYLLIUM	0.404	0.453	11	50.00	
BORON	6.16	6.30	2	50.00	
CADMIUM	0.513	0.511	0	50.00	
CALCIUM	2450	2620	7	50.00	
CHROMIUM	11.6	12.4	7	50.00	
COBALT	3.77	4.18	10	50.00	
COPPER	5.37	5.92	10	50.00	
IRON	16400	16700	2	50.00	
LEAD	7.81	9.75	22	50.00	
LITHIUM	22.2	22.4	1	50.00	
MAGNESIUM	3550	3720	5	50.00	
MANGANESE	243	255	5	50.00	
NICKEL	6.82	7.63	11	50.00	
PHOSPHORUS	385	389	1	50.00	
POTASSIUM	2980	3160	6	50.00	
SODIUM	63.8	63.2	1	50.00	
TIN	2.71	2.90	7	50.00	
TITANIUM	945	1030	9	50.00	
VANADIUM	25.0	26.7	7	50.00	
ZINC	67.4	76.4	13	50.00	
Zirconium	2.22	2.48	11	50.00	
MOLYBDENUM	0.773	0.282	93	50.00	J(all detects)

Analyte	Concentration (mg/Kg) SL-524-SA7-SB-1.0-2.0 (TOT)	Concentration (mg/Kg) SL-924-SA7-SB-1.0-2.0 (TOT)	Sample RPD	eQAPP RPD	Flag
ALUMINUM	12300	13300	8	50.00	No Qualifiers Applied
ARSENIC	3.93	4.15	5	50.00	
BARIUM	88.1	78.6	11	50.00	
BERYLLIUM	0.480	0.518	8	50.00	
BORON	1.87	2.31	21	50.00	
CADMIUM	0.370	0.363	2	50.00	
CHROMIUM	18.5	17.8	4	50.00	
COBALT	4.59	4.93	7	50.00	
COPPER	10.3	10.1	2	50.00	
IRON	22000	21500	2	50.00	
LEAD	5.69	5.95	4	50.00	
LITHIUM	27.4	27.0	1	50.00	
MAGNESIUM	4840	4600	5	50.00	
MANGANESE	280	269	4	50.00	
NICKEL	7.90	8.12	3	50.00	
PHOSPHORUS	401	410	2	50.00	
POTASSIUM	3230	2870	12	50.00	
SODIUM	123	132	7	50.00	
TIN	3.08	3.11	1	50.00	
TITANIUM	1280	1250	2	50.00	
VANADIUM	32.9	34.2	4	50.00	
ZINC	59.2	54.3	9	50.00	
CALCIUM	5580	3310	51	50.00	J(all detects) UJ(all non-detects)
MOLYBDENUM	0.777	0.422	59	50.00	
Zirconium	5.20 U	1.01	200	50.00	

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Field Duplicate RPD Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 6020A
Matrix: SO

Analyte	Concentration (mg/Kg) SL-513-SA7-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-913-SA7-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
STRONTIUM	8.69	9.91	13	50.00	No Qualifiers Applied
THALLIUM	0.202	0.209	3	50.00	
SILVER	0.0323	0.201 U	200	50.00	J(all detects) UJ(all non-detects)

Analyte	Concentration (mg/Kg) SL-524-SA7-SB-1.0-2.0 (TOT)	Concentration (mg/Kg) SL-924-SA7-SB-1.0-2.0 (TOT)	Sample RPD	eQAPP RPD	Flag
STRONTIUM	17.9	15.4	15	50.00	No Qualifiers Applied
THALLIUM	0.285	0.228	22	50.00	
SILVER	0.208 U	0.0230	200	50.00	J(all detects) UJ(all non-detects)

Method: 7471B
Matrix: SO

Analyte	Concentration (mg/Kg) SL-513-SA7-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-913-SA7-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
MERCURY	0.0151	0.0267	56	50.00	J(all detects)

Method: 8015M
Matrix: SO

Analyte	Concentration (mg/Kg) SL-513-SA7-SB-0.0-0.5	Concentration (mg/Kg) SL-913-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
EFH (C21-C30)	100	160	46	50.00	No Qualifiers Applied
EFH (C30-C40)	160	350	75	50.00	J(all detects)

Analyte	Concentration (mg/Kg) SL-524-SA7-SB-1.0-2.0	Concentration (mg/Kg) SL-924-SA7-SB-1.0-2.0	Sample RPD	eQAPP RPD	Flag
EFH (C21-C30)	12	14	15	50.00	No Qualifiers Applied
EFH (C30-C40)	23	36	44	50.00	

Method: 8081B
Matrix: SO

Analyte	Concentration (ug/Kg) SL-513-SA7-SB-0.0-0.5	Concentration (ug/Kg) SL-913-SA7-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
4,4'-DDT	7.0	6.3	11	50.00	No Qualifiers Applied
MIREX	0.63	0.89	34	50.00	
4,4'-DDE	0.53	1.8 U	200	50.00	J(all detects) UJ(all non-detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 8082A
Matrix: SO

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-513-SA7-SB-0.0-0.5	SL-913-SA7-SB-0.0-0.5			
AROCLOR 1254	13	13	0	50.00	No Qualifiers Applied
Aroclor 5460	33 U	17	200	50.00	J(all detects) UJ(all non-detects)

Method: 8270D SIM
Matrix: SO

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-513-SA7-SB-0.0-0.5	SL-913-SA7-SB-0.0-0.5			
BENZO(B)FLUORANTHENE	18	13	32	50.00	No Qualifiers Applied
CHRYSENE	23	20	14	50.00	
FLUORANTHENE	7.0	8.3	17	50.00	
PYRENE	7.5	8.4	11	50.00	

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-524-SA7-SB-1.0-2.0	SL-924-SA7-SB-1.0-2.0			
BENZO(A)ANTHRACENE	1.5	1.3	14	50.00	No Qualifiers Applied
BENZO(A)PYRENE	1.5	1.7	12	50.00	
BENZO(B)FLUORANTHENE	2.5	3.7	39	50.00	
BENZO(E)PYRENE	6.5	8.0	21	50.00	
BENZO(G,H,I)PERYLENE	1.3	1.0	26	50.00	
CHRYSENE	7.2	8.6	18	50.00	
FLUORANTHENE	0.96	1.1	14	50.00	
PHENANTHRENE	4.1	3.7	10	50.00	
BENZO(K)FLUORANTHENE	1.8 U	1.8	200	50.00	J(all detects) UJ(all non-detects)
DIBENZO(A,H)ANTHRACENE	0.75	1.8 U	200	50.00	
PYRENE	2.5	4.6	59	50.00	

Method: 9045M
Matrix: SO

Analyte	Concentration (pH unit)		Sample RPD	eQAPP RPD	Flag
	SL-513-SA7-SB-0.0-0.5	SL-913-SA7-SB-0.0-0.5			
PH	6.68	6.72	1	50.00	No Qualifiers Applied

Analyte	Concentration (pH unit)		Sample RPD	eQAPP RPD	Flag
	SL-524-SA7-SB-1.0-2.0	SL-924-SA7-SB-1.0-2.0			
PH	8.18	8.30	1	50.00	No Qualifiers Applied

Reporting Limit Outliers

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-513-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	1.28	5.09	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JBQ	1.06	5.09	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.876	5.09	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	3.18	5.09	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	J	0.913	5.09	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	1.87	5.09	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.242	5.09	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.451	5.09	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.702	5.09	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.894	5.09	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.839	5.09	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.110	1.02	PQL	ng/Kg	
	2,3,7,8-TCDF	JB	0.763	1.02	PQL	ng/Kg	
SL-516-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JBQ	0.123	4.96	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0727	4.96	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.165	4.96	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.0727	4.96	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0778	4.96	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.0848	4.96	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JQ	0.0854	4.96	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0883	4.96	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.123	4.96	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.111	4.96	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0743	4.96	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.136	4.96	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.0468	0.993	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.0260	0.993	PQL	ng/Kg	
	OCDD	JB	0.498	9.93	PQL	ng/Kg	
	OCDF	JB	0.210	9.93	PQL	ng/Kg	
SL-524-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	2.69	5.22	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.644	5.22	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.0837	5.22	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.0453	5.22	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0973	5.22	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.171	5.22	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.129	5.22	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.108	5.22	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.122	5.22	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.0892	5.22	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.646	5.22	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.177	5.22	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0763	5.22	PQL	ng/Kg	
	2,3,7,8-TCDD	JBQ	0.0213	1.04	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.0282	1.04	PQL	ng/Kg	
	OCDF	JB	1.19	10.4	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-524-SA7-SB-1.0-2.0	1,2,3,4,6,7,8-HPCDD	JB	0.859	5.34	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.186	5.34	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.0607	5.34	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0246	5.34	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0474	5.34	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0966	5.34	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0572	5.34	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.0998	5.34	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0748	5.34	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0475	5.34	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.156	5.34	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0368	5.34	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0555	5.34	PQL	ng/Kg	
	2,3,7,8-TCDD	JBQ	0.0250	1.07	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0189	1.07	PQL	ng/Kg	
	OCDD	JB	10.5	10.7	PQL	ng/Kg	
	OCDF	JBQ	0.277	10.7	PQL	ng/Kg	
SL-913-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	0.775	4.96	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	JB	0.527	4.96	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.864	4.96	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	1.49	4.96	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	J	0.706	4.96	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.998	4.96	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.332	4.96	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.315	4.96	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.646	4.96	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.624	4.96	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.691	4.96	PQL	ng/Kg	
	2,3,7,8-TCDD	J	0.0389	0.992	PQL	ng/Kg	
	2,3,7,8-TCDF	JB	0.457	0.992	PQL	ng/Kg	
SL-924-SA7-SB-1.0-2.0	1,2,3,4,6,7,8-HPCDD	JB	0.270	5.37	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.0678	5.37	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0329	5.37	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0417	5.37	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0488	5.37	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.0499	5.37	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0296	5.37	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0755	5.37	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0603	5.37	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.0567	5.37	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0904	5.37	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0408	5.37	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.0338	5.37	PQL	ng/Kg	
	2,3,7,8-TCDF	J	0.0139	1.07	PQL	ng/Kg	
	OCDD	JB	2.71	10.7	PQL	ng/Kg	
	OCDF	JB	0.135	10.7	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-513-SA7-SB-0.0-0.5	ANTIMONY	J	0.573	4.07	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.404	1.02	PQL	mg/Kg	
	BORON	J	6.16	10.2	PQL	mg/Kg	
	CADMIUM	J	0.513	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.773	2.04	PQL	mg/Kg	
	SODIUM	J	63.8	102	PQL	mg/Kg	
	TIN	J	2.71	10.2	PQL	mg/Kg	
	Zirconium	J	2.22	5.09	PQL	mg/Kg	
SL-516-SA7-SB-0.0-0.5	BERYLLIUM	J	0.538	1.02	PQL	mg/Kg	J (all detects)
	BORON	J	6.24	10.2	PQL	mg/Kg	
	CADMIUM	J	0.518	1.02	PQL	mg/Kg	
	MOLYBDENUM	J	0.331	2.04	PQL	mg/Kg	
	TIN	J	2.93	10.2	PQL	mg/Kg	
	Zirconium	J	2.72	5.10	PQL	mg/Kg	
SL-524-SA7-SB-0.0-0.5	ARSENIC	J	4.01	4.22	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.490	1.06	PQL	mg/Kg	
	BORON	J	2.52	10.6	PQL	mg/Kg	
	MOLYBDENUM	J	0.912	2.11	PQL	mg/Kg	
	TIN	J	2.76	10.6	PQL	mg/Kg	
	Zirconium	J	3.19	5.28	PQL	mg/Kg	
SL-524-SA7-SB-1.0-2.0	ARSENIC	J	3.93	4.16	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.480	1.04	PQL	mg/Kg	
	BORON	J	1.87	10.4	PQL	mg/Kg	
	CADMIUM	J	0.370	1.04	PQL	mg/Kg	
	COPPER	J	10.3	10.4	PQL	mg/Kg	
	MOLYBDENUM	J	0.777	2.08	PQL	mg/Kg	
	TIN	J	3.08	10.4	PQL	mg/Kg	
SL-913-SA7-SB-0.0-0.5	ANTIMONY	J	0.637	4.02	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.453	1.01	PQL	mg/Kg	
	BORON	J	6.30	10.1	PQL	mg/Kg	
	CADMIUM	J	0.511	1.01	PQL	mg/Kg	
	MOLYBDENUM	J	0.282	2.01	PQL	mg/Kg	
	SODIUM	J	63.2	101	PQL	mg/Kg	
	TIN	J	2.90	10.1	PQL	mg/Kg	
	Zirconium	J	2.48	5.03	PQL	mg/Kg	
SL-924-SA7-SB-1.0-2.0	ARSENIC	J	4.15	4.25	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.518	1.06	PQL	mg/Kg	
	BORON	J	2.31	10.6	PQL	mg/Kg	
	CADMIUM	J	0.363	1.06	PQL	mg/Kg	
	COPPER	J	10.1	10.6	PQL	mg/Kg	
	MOLYBDENUM	J	0.422	2.12	PQL	mg/Kg	
	TIN	J	3.11	10.6	PQL	mg/Kg	
	Zirconium	J	1.01	5.31	PQL	mg/Kg	

Method: 6020A

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-513-SA7-SB-0.0-0.5	SILVER	J	0.0323	0.204	PQL	mg/Kg	J (all detects)
	THALLIUM	J	0.202	0.204	PQL	mg/Kg	

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Reporting Limit Outliers

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 6020A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.108 0.0368	0.408 0.204	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-524-SA7-SB-0.0-0.5	SELENIUM SILVER	J J	0.137 0.0320	0.422 0.211	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-924-SA7-SB-1.0-2.0	SILVER	J	0.0230	0.212	PQL	mg/Kg	J (all detects)

Method: 7471B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-513-SA7-SB-0.0-0.5	MERCURY	J	0.0151	0.0168	PQL	mg/Kg	J (all detects)
SL-516-SA7-SB-0.0-0.5	MERCURY	J	0.0108	0.0170	PQL	mg/Kg	J (all detects)

Method: 8015M
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-SA7-SB-0.0-0.5	EFH (C21-C30) EFH (C30-C40)	J J	3.4 4.8	5.1 10	PQL PQL	mg/Kg mg/Kg	J (all detects)

Method: 8081B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-513-SA7-SB-0.0-0.5	4,4'-DDE MIREX	J J	0.53 0.63	1.7 1.7	PQL PQL	ug/Kg ug/Kg	J (all detects)
SL-913-SA7-SB-0.0-0.5	MIREX	J	0.89	1.7	PQL	ug/Kg	J (all detects)

Method: 8082A
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-513-SA7-SB-0.0-0.5	AROCLOR 1254	J	13	17	PQL	ug/Kg	J (all detects)
SL-913-SA7-SB-0.0-0.5	AROCLOR 1254 Aroclor 5460	J J	13 17	17 34	PQL PQL	ug/Kg ug/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH046 **Laboratory: LL**

EDD Filename: PH046_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
SL-513-SA7-SB-0.0-0.5	FLUORANTHENE	J	7.0	17	PQL	ug/Kg	J (all detects)
	PYRENE	J	7.5	17	PQL	ug/Kg	
SL-524-SA7-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.7	1.8	PQL	ug/Kg	J (all detects)
	ANTHRACENE	J	0.63	1.8	PQL	ug/Kg	
	BENZO(E)PYRENE	J	13	18	PQL	ug/Kg	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	7.8	19	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	1.1	1.8	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	1.1	1.8	PQL	ug/Kg	
SL-524-SA7-SB-1.0-2.0	BENZO(A)ANTHRACENE	J	1.5	1.8	PQL	ug/Kg	J (all detects)
	BENZO(A)PYRENE	J	1.5	1.8	PQL	ug/Kg	
	BENZO(E)PYRENE	J	6.5	18	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.3	1.8	PQL	ug/Kg	
	DIBENZO(A,H)ANTHRACENE	J	0.75	1.8	PQL	ug/Kg	
	FLUORANTHENE	J	0.96	1.8	PQL	ug/Kg	
SL-913-SA7-SB-0.0-0.5	BENZO(B)FLUORANTHENE	J	13	17	PQL	ug/Kg	J (all detects)
	FLUORANTHENE	J	8.3	17	PQL	ug/Kg	
	PYRENE	J	8.4	17	PQL	ug/Kg	
SL-924-SA7-SB-1.0-2.0	BENZO(A)ANTHRACENE	J	1.3	1.8	PQL	ug/Kg	J (all detects)
	BENZO(A)PYRENE	J	1.7	1.8	PQL	ug/Kg	
	BENZO(E)PYRENE	J	8.0	18	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.0	1.8	PQL	ug/Kg	
	FLUORANTHENE	J	1.1	1.8	PQL	ug/Kg	

LDC #: 30022B4 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/22/13

SDG #: PH046 ADR Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: a

2nd Reviewer: r

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	—	Sampling dates:
II.	ICP/MS Tune	—	
III.	Calibration	—	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	—	
VI.	Matrix Spike Analysis	SW	MS/D
VII.	Duplicate Sample Analysis	SW	Dup
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	—	
XV	Field Blanks	SW	*EB= EB1-060313, EB2-060313 (PH045)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; *ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

FB= FB-041113 (PH029)

Validated Samples: soil

1	SL-513-SA7-SB-0.0-0.5	11	SL-524-SA7-SB-1.0-2.0MSD	21		31	
2	SL-913-SA7-SB-0.0-0.5	12	SL-524-SA7-SB-1.0-2.0DUP	22		32	
3	SL-516-SA7-SB-0.0-0.5	13		23		33	
4	SL-524-SA7-SB-1.0-2.0	14		24		34	
5	SL-524-SA7-SB-0.0-0.5	15		25		35	
6	SL-924-SA7-SB-1.0-2.0	16		26		36	
7	SL-513-SA7-SB-0.0-0.5MS	17		27		37	
8	SL-513-SA7-SB-0.0-0.5MSD	18		28		38	
9	SL-513-SA7-SB-0.0-0.5DUP	19		29		39	
10	SL-524-SA7-SB-1.0-2.0MS	20		30		40	

Notes:

LDC #: 30025B4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x Reason Code: B

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 1-3

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	1	2	3						
Mo			3.6	1.8	0.77	0.28	0.33						

Sample Concentration units, unless otherwise noted: ug/L Associated Samples: 4, 6

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	4	6							
Mo			3.7	1.85	0.78	0.42							

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 30022B4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: 4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Sample Identification										
	FB-041113 (SDG: PH029)	Action Limit	1	2	3	4	5	6				
Cu	0.0036	1.8										
Mo	0.0036	1.8	0.77	0.28	0.33	0.78	0.91	0.42				

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

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associate with sample 1→3

>4x

QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PH046
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7081058BKG Matrix Spike Lab Sample ID: 7081059MS Matrix Spike Duplicate Lab Sample ID: 7081060MSD
Batch Id(s): P16037A, P16038B

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	RPD	M
Aluminum		8891.2580		12135.0200		11977.2100		200.0000	200.0000	MG/KG	1622		1543		1			20	P
Antimony		0.5630	B	41.0390		41.2710		50.0000	50.0000	MG/KG	81		81		1		75 - 125	20	P
Arsenic		4.1040		20.0340		20.0180		15.0000	15.0000	MG/KG	106		106		0		75 - 125	20	P
Barium		60.2450		265.8500		275.3810		200.0000	200.0000	MG/KG	103		108		4		75 - 125	20	P
Beryllium		0.3970	B	5.4840		5.5600		5.0000	5.0000	MG/KG	102		103		1		75 - 125	20	P
Boron		6.0500	B	198.1100		201.8330		200.0000	200.0000	MG/KG	96		98		2		75 - 125	20	P
Cadmium		0.5040	B	5.4030		5.4390		5.0000	5.0000	MG/KG	98		99		1		75 - 125	20	P
Calcium		2409.4590		2916.1790		2852.7140		400.0000	400.0000	MG/KG	127		111		2			20	P
Chromium		11.3860		33.1480		32.2420		20.0000	20.0000	MG/KG	109		104		3		75 - 125	20	P
Cobalt		3.7010		52.4120		52.6470		50.0000	50.0000	MG/KG	97		98		0		75 - 125	20	P
Copper		5.2730		30.0230		31.2060		25.0000	25.0000	MG/KG	99		104		4		75 - 125	20	P
Iron		16068.9670		17681.3510		17419.9070		100.0000	100.0000	MG/KG	1612		1351		1			20	P
Lead		7.6700		22.8300		22.7040		15.0000	15.0000	MG/KG	101		100		1		75 - 125	20	P
Lithium		21.8040		126.5500		127.2380		100.0000	100.0000	MG/KG	105		105		1		75 - 125	20	P
Magnesium		3488.8380		4195.6450		4237.5910		200.0000	200.0000	MG/KG	353		374		1			20	P
Manganese		239.0870		301.4110		303.3800		50.0000	50.0000	MG/KG	125		129		1			20	P
Mercury		0.0148	B	0.1793		0.1743		0.1606	0.1603	MG/KG	102		100		3		65 - 135	20	CV
Molybdenum		0.7590	B	196.3880		198.4310		200.0000	200.0000	MG/KG	98		99		1		75 - 125	20	P
Nickel		6.6990		56.8560		56.3950		50.0000	50.0000	MG/KG	100		99		1		75 - 125	20	P
Phosphorus		378.4570		481.2100		492.2680		100.0000	100.0000	MG/KG	103		114		2		75 - 125	20	P
Potassium		2929.6960		4434.0770		4423.3090		1000.0000	1000.0000	MG/KG	150	N	149	N	0		75 - 125	20	P
Selenium	78	0.1000	U	2.1300		2.1680		2.0000	2.0000	MG/KG	107		108		2		75 - 125	20	MS
Silver	107	0.0317	B	9.7260		9.8560		10.0000	10.0000	MG/KG	97		98		1		75 - 125	20	MS
Sodium		62.6850	B	1062.2240		1070.8190		1000.0000	1000.0000	MG/KG	100		101		1		75 - 125	20	P
Strontium	88	8.5360		16.0780		16.0520		8.0000	8.0000	MG/KG	94		94		0		75 - 125	20	MS
Thallium	203	0.1980	B	0.6462		0.6244		0.4000	0.4000	MG/KG	112		107		3		75 - 125	20	MS
Tin		2.6620	B	373.2980		372.4550		400.0000	400.0000	MG/KG	93		92		0		75 - 125	20	P
Titanium		928.0980		1368.6410		1333.8010		100.0000	100.0000	MG/KG	441		406		3			20	P
Vanadium		24.5540		76.3400		76.8470		50.0000	50.0000	MG/KG	104		105		1		75 - 125	20	P
Zinc		66.1420		120.9410		121.5600		50.0000	50.0000	MG/KG	110		111		1		75 - 125	20	P
Zirconium		2.1780	B	102.4020		103.1070		100.0000	100.0000	MG/KG	100		101		1		75 - 125	20	P

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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associate with samples 4 & 6

>4X

QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PH046
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7081064BKG Matrix Spike Lab Sample ID: 7081065MS Matrix Spike Duplicate Lab Sample ID: 7081066MSD
Batch Id(s): P16037C, P16438A

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	Control Limit RPD	M
Aluminum		11391.6279		14641.9442		14151.2760		192.3077	192.3077	MG/KG	1690		1435		3			20	P
Antimony		0.4808	U	37.2298		37.7279		48.0769	48.0769	MG/KG	77		78		1		75 - 125	20	P
Arsenic		3.6375	B	18.9865		18.6087		14.4231	14.4231	MG/KG	106		104		2		75 - 125	20	P
Barium		81.5240		289.6654		280.1125		192.3077	192.3077	MG/KG	108		103		3		75 - 125	20	P
Beryllium		0.4442	B	5.4779		5.4337		4.8077	4.8077	MG/KG	105		104		1		75 - 125	20	P
Boron		1.7260	B	198.1298		197.6385		192.3077	192.3077	MG/KG	102		102		0		75 - 125	20	P
Cadmium		0.3423	B	5.0913		5.0471		4.8077	4.8077	MG/KG	99		98		1		75 - 125	20	P
Calcium		5160.0731		6642.6212		6062.3250		384.6154	384.6154	MG/KG	385		235		9			20	P
Chromium		17.0865		38.8692		37.5019		19.2308	19.2308	MG/KG	113		106		4		75 - 125	20	P
Cobalt		4.2433		51.8048		51.2058		48.0769	48.0769	MG/KG	99		98		1		75 - 125	20	P
Copper		9.5337	B	35.5048		35.2260		24.0385	24.0385	MG/KG	108		107		1		75 - 125	20	P
Iron		20390.9221		22882.8538		21273.7385		96.1538	96.1538	MG/KG	2592		918		7			20	P
Lead		5.2644		19.9096		19.1644		14.4231	14.4231	MG/KG	102		96		4		75 - 125	20	P
Lithium		25.3654		125.9087		123.8788		96.1538	96.1538	MG/KG	105		102		2		75 - 125	20	P
Magnesium		4472.8356		5309.3077		5038.4442		192.3077	192.3077	MG/KG	435		294		5			20	P
Manganese		259.2260		337.9500		327.4981		48.0769	48.0769	MG/KG	164		142		3			20	P
Mercury		0.0099	U	0.1642		0.1568		0.1639	0.1607	MG/KG	100		98		5		65 - 135	20	CV
Molybdenum		0.7183	B	190.0981		189.3442		192.3077	192.3077	MG/KG	98		98		0		75 - 125	20	P
Nickel		7.3029		56.8538		56.1779		48.0769	48.0769	MG/KG	103		102		1		75 - 125	20	P
Phosphorus		370.7923		521.0038		474.3904		96.1538	96.1538	MG/KG	156	N	108		9		75 - 125	20	P
Potassium		2988.6212		4313.2481		3954.5837		961.5385	961.5385	MG/KG	138	N	100		9		75 - 125	20	P
Selenium	78	0.0962	U	2.1865		2.0288		1.9231	1.9231	MG/KG	114		105		7		75 - 125	20	MS
Silver	107	0.0192	U	10.1500		9.9269		9.6154	9.6154	MG/KG	106		103		2		75 - 125	20	MS
Sodium		114.2154		1092.4087		1075.4317		961.5385	961.5385	MG/KG	102		100		2		75 - 125	20	P
Strontium	88	16.5654		26.1154		25.4423		7.6923	7.6923	MG/KG	124		115		3		75 - 125	20	MS
Thallium	203	0.2635		0.6206		0.6150		0.3846	0.3846	MG/KG	93		91		1		75 - 125	20	MS
Tin		2.8519	B	357.6577		356.7990		384.6154	384.6154	MG/KG	92		92		0		75 - 125	20	P
Titanium		1186.5106		1540.1423		1457.7731		96.1538	96.1538	MG/KG	368		282		5			20	P
Vanadium		30.4010		85.0702		82.6490		48.0769	48.0769	MG/KG	114		109		3		75 - 125	20	P
Zinc		54.7942		106.4000		102.3029		48.0769	48.0769	MG/KG	107		99		4		75 - 125	20	P
Zirconium		0.7981	U	98.0327		97.4481		96.1538	96.1538	MG/KG	102		101		1		75 - 125	20	P

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: PH046
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7081058BKG
Duplicate Lab Sample ID: 7081061DUP
Batch ID(s): P16037A, P16038B
Concentration Units: MG/KG

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum			8891.2580		9904.9130		11		P
Antimony			0.5630	B	0.5000	U	200		P
Arsenic		4.0	4.1040		4.6160		12		P
Barium			60.2450		64.4470		7		P
Beryllium			0.3970	B	0.4430	B	11		P
Boron			6.0500	B	6.1510	B	2		P
Cadmium			0.5040	B	0.5250	B	4		P
Calcium			2409.4590		2285.0050		5		P
Chromium		3.0	11.3860		13.0350		14		P
Cobalt		1.0	3.7010		3.8890		5		P
Copper		2.0	5.2730		5.5080		4		P
Iron			16068.9670		17513.1990		9		P
Lead		3.0	7.6700		8.6030		11		P
Lithium			21.8040		24.3770		11		P
Magnesium			3488.8380		3879.8810		11		P
Manganese			239.0870		255.8600		7		P
Mercury			0.0148	B	0.0141	B	5		CV
Molybdenum			0.7590	B	0.3850	B	65		P
Nickel		2.0	6.6990		8.2530		21		P
Phosphorus			378.4570		382.6370		1		P
Potassium			2929.6960		3177.4650		8		P
Selenium	78		0.1000	U	0.1000	U			MS
Silver	107		0.0317	B	0.0200	U	200		MS
Sodium			62.6850	B	67.9960	B	8		P
Strontium	88		8.5360		8.2640		3		MS
Thallium	203	0.2	0.1980	B	0.2294		15		MS
Tin			2.6620	B	2.6760	B	1		P
Titanium			928.0980		1038.5040		11		P
Vanadium			24.5540		28.0360		13		P
Zinc			66.1420		71.2380		7		P
Zirconium			2.1780	B	2.9660	B	31		P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

ok by difference

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: PH046
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7081064BKG
Duplicate Lab Sample ID: 7081067DUP
Batch ID(s): P16037C, P16438A
Concentration Units: MG/KG

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum			11391.6279		12946.9067		13		P
Antimony			-1.0625	B	-1.5413	B	-37		P
Arsenic		3.8	3.6375	B	4.4625		20		P
Barium			81.5240		97.6106		18		P
Beryllium			0.4442	B	0.5269	B	17		P
Boron			1.7260	B	1.3096	B	27		P
Cadmium			0.3423	B	0.3375	B	1		P
Calcium			5160.0731		7875.7567		42	*	P
Chromium			17.0865		19.8288		15		P
Cobalt		1.0	4.2433		4.9308		15		P
Copper		9.6	9.5337	B	11.4808		19		P
Iron			20390.9221		23069.3808		12		P
Lead		2.9	5.2644		6.0538		14		P
Lithium			25.3654		27.1010		7		P
Magnesium			4472.8356		4969.3808		11		P
Manganese			259.2260		275.4308		6		P
Mercury			0.0099	U	0.0095	U			CV
Molybdenum			0.7183	B	0.3615	B	66		P
Nickel		1.9	7.3029		9.5365		27	*	P
Phosphorus			370.7923		449.1423		19		P
Potassium			2988.6212		3296.0173		10		P
Selenium	78		0.0962	U	0.0962	U			MS
Silver	107		0.0192	U	0.0203	B	200		MS
Sodium		96.2	114.2154		126.5356		10		P
Strontium	88		16.5654		22.6154		31	*	MS
Thallium	203	0.2	0.2635		0.2658		1		MS
Tin			2.8519	B	2.8471	B	0		P
Titanium			1186.5106		1322.2452		11		P
Vanadium			30.4010		33.5615		10		P
Zinc			54.7942		61.0846		11		P
Zirconium			0.7981	U	1.0490	B	200		P

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

ok by difference

Coordinate with 4 & 6

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: PH046
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7081064BKG Serial Dilution Lab Sample ID: 7081064L
Batch ID(s): P16037C
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Aluminum		118472.9300		116848.8500		1		P
Antimony		5.0000	U	25.0000	U			P
Arsenic		37.8300	B	19.2000	B	49		P
Barium		847.8500		846.8500		0		P
Beryllium		4.6200	B	3.8000	B	18		P
Boron		17.9500	B	45.1000	B	151		P
Cadmium		3.5600	B	6.2000	B	74		P
Calcium		53664.7600		53144.2500		1		P
Chromium		177.7000		174.9500		2		P
Cobalt		44.1300		44.3500	B	0		P
Copper		19.8300	B	26.2000	B	32		P
Iron		212065.5900		187779.9000		11	E	P
Lead		54.7500		49.8000	B	9		P
Lithium		263.8000		241.6000		8		P
Magnesium		46517.4900		45834.9500		1		P
Manganese		2695.9500		2700.9500		0		P
Molybdenum		7.4700	B	34.7000	B	365		P
Nickel		75.9500		74.3500	B	2		P
Phosphorus		3856.2400		3768.8000		2		P
Potassium		31081.6600		29993.4000		4		P
Selenium	78	0.5000	U	2.5000	U			MS
Silver	107	0.1000	U	0.5000	U			MS
Sodium		1187.8400		1421.4000	B	20		P
Strontium	88	86.1400		85.3500		1		MS
Thallium	203	1.3700		1.5925	B	16		MS
Tin		29.6600	B	25.1500	B	15		P
Titanium		12339.7100		12221.2000		1		P
Vanadium		316.1700		307.0500		3		P
Zinc		569.8600		565.3000		1		P
Zirconium		8.3000	U	41.5000	U			P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

J/UJ/A associate w/ 4 & 6

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

Enclosure II

Level IV Validation Reports

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 4, 2013
LDC Report Date:	July 29, 2013
Matrix:	Soil/Water
Parameters:	Total Petroleum Hydrocarbons as Gasoline
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH046

Sample Identification

SL-524-SA7-SB-1.0-2.0
SL-924-SA7-SB-1.0-2.0
TB-060413
SL-524-SA7-SB-1.0-2.0MS
SL-524-SA7-SB-1.0-2.0MSD

Introduction

This data review covers 4 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB-060413 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Samples EB1-060313 and EB2-060313 (both from SDG PH045) were identified as equipment blanks. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample FB-041113 (from SDG PH029) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Target Compound Identification

All target compound identifications were within validation criteria.

IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH046	All compounds reported below the RL.	J (all detects)	A

X. System Performance

The system performance was acceptable.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

Samples SL-524-SA7-SB-1.0-2.0 and SL-924-SA7-SB-1.0-2.0 were identified as field duplicates. No total petroleum hydrocarbons as gasoline were detected in any of the samples.

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG PH046

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH046	SL-524-SA7-SB-1.0-2.0 SL-924-SA7-SB-1.0-2.0 TB-060413	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG PH046

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG PH046

No Sample Data Qualified in this SDG

LDC #: 30022B7 **VALIDATION COMPLETENESS WORKSHEET** Date: 7/22/13

SDG #: PH046 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC TPH as Gasoline (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/4/13
II	Initial calibration	A	% RSD ≤ 20
III.	Calibration verification/ICV	A	ICV/CCV ≤ 20
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	LCS/D
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	ND	D = 1, 2
XIII.	Field blanks	ND	TB = 3 EB = EB1-060313 / SDG # = EB2-060313 / PH045

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: soil + water FB= FB-041113 (SDG # PH029)

1	SL-524-SA7-SB-1.0-2.0 S	11	BLKCV	21		31	
2	SL-924-SA7-SB-1.0-2.0 ↓	12	BLKPJ	22		32	
3	TB-060413 W	13		23		33	
4	SL-524-SA7-SB-1.0-2.0MS	14		24		34	
5	SL-524-SA7-SB-1.0-2.0MSD	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 30022B7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: ✓ GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 30022 B7

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.		✓		
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 30022B7

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC ____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (550 std)	Recalculated CF (550 std)	Reported Ave CF (initial)	Recalculated Ave CF (intial)	Reported %RSD	Recalculated %RSD
1	ICAL	1/12/12	GRO	6717.167	6717.167	6268.898	6268.898	9.219	9.219
				(220)	(220)				
2	ICAL	5/23/12	GRO	60596.95	60596.95	61516.39	61516.39	2.548	2.548
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022B7

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 20:56	6/11/13	GRU	1100.0	1047.56	1047.56	5	5
2	CCV 14:07	6/9/13	↓	220.0	231.0	231.0	5	5
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 36022B7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
TFT	DB-VRX	30	24.069	81	80.23	0.95

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 30022B7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
TFT	DB-VRX	680	550.952	81	81	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 36022B7

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: A

METHOD: ✓ **GC** __ **HPLC**

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
TFT	DB-VRX	0.300	0.24056	81	~~0~~ 80.2 FT	0.98

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 30022B7

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA Where SSC = Spiked sample concentration SC = Sample concentration
SA = Spike added
RPD =(({SSCMS - SSCMSD} * 2) / (SSCMS + SSCMSD))*100 MS = Matrix spike MSD = Matrix spike duplicate

MS/MSD samples: 4 & 5

Compound	Spike Added (mg/kg)		Sample Conc. (mg/kg)	Spike Sample Concentration (mg/kg)		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	10.2	10.2	ND	10.52	9.77	103	103	101	101	7	7
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022B7

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FD

2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =((({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS/P

Compound	Spike Added (ug/L)		Sample Conc. (ug/L)	Spike Sample Concentration (ug/L)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	1100	1100	ND	1152.45	1108.8	105	105	101	101	4	4
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022B7

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. VCS x K Compound Name GRO

Concentration = 7224701.40 / 6268.898

= 1152.46

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments:

SAMPCALew.wpd

Attachment I

Sample ID Cross Reference and Data Review Level

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	3050B	6010C	IV
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	3050B	6020A	IV
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	3546	8015M	IV
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	3546	8082A	IV
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	3546	8270D SIM	IV
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	METHOD	1613B	IV
06-Jun-2013	SL-514-SA7-SB-0.0-0.5	7085553	N	METHOD	7471B	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	3050B	6010C	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	3050B	6020A	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	3546	8015M	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	3546	8081B	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	3546	8082A	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	3546	8270D SIM	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	METHOD	1613B	IV
06-Jun-2013	SL-515-SA7-SB-0.0-0.5	7085554	N	METHOD	7471B	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment II

Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-514-SA7-SB-0.0-0.5** ***Collected:*** **6/6/2013 8:55:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BERYLLIUM	0.476	J	0.0677	MDL	1.01	PQL	mg/Kg	J	Z
BORON	2.55	J	0.839	MDL	10.1	PQL	mg/Kg	J	Z
CADMIUM	0.397	J	0.0334	MDL	1.01	PQL	mg/Kg	J	Z
CALCIUM	3260		4.06	MDL	20.2	PQL	mg/Kg	J	E
IRON	23600		3.84	MDL	40.4	PQL	mg/Kg	J	A
NICKEL	8.44		0.111	MDL	2.02	PQL	mg/Kg	J	E
PHOSPHORUS	417		0.516	MDL	10.1	PQL	mg/Kg	J	Q
POTASSIUM	2600		13.7	MDL	101	PQL	mg/Kg	J	Q
TIN	2.78	J	0.222	MDL	10.1	PQL	mg/Kg	U	B

Sample ID: **SL-515-SA7-SB-0.0-0.5** ***Collected:*** **6/6/2013 9:15:00 AM** ***Analysis Type:*** **REA** ***Dilution:*** **5**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
COPPER	8.75	J	0.886	MDL	9.85	PQL	mg/Kg	J	Z

Sample ID: **SL-515-SA7-SB-0.0-0.5** ***Collected:*** **6/6/2013 9:15:00 AM** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BERYLLIUM	0.439	J	0.0660	MDL	0.985	PQL	mg/Kg	J	Z
BORON	1.67	J	0.817	MDL	9.85	PQL	mg/Kg	J	Z
CADMIUM	0.404	J	0.0325	MDL	0.985	PQL	mg/Kg	J	Z
CALCIUM	12000		3.96	MDL	19.7	PQL	mg/Kg	J	E
IRON	23100		3.74	MDL	39.4	PQL	mg/Kg	J	A
NICKEL	7.22		0.108	MDL	1.97	PQL	mg/Kg	J	E
PHOSPHORUS	438		0.502	MDL	9.85	PQL	mg/Kg	J	Q
POTASSIUM	2750		13.3	MDL	98.5	PQL	mg/Kg	J	Q
SODIUM	81.3	J	16.4	MDL	98.5	PQL	mg/Kg	J	Z
TIN	2.96	J	0.217	MDL	9.85	PQL	mg/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: METALS

Method: 6020A **Matrix: SO**

Sample ID: SL-514-SA7-SB-0.0-0.5 *Collected:* 6/6/2013 8:55:00 AM *Analysis Type:* REA *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.120	J	0.101	MDL	0.404	PQL	mg/Kg	J	Z

Sample ID: SL-514-SA7-SB-0.0-0.5 *Collected:* 6/6/2013 8:55:00 AM *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0339	J	0.0202	MDL	0.202	PQL	mg/Kg	J	Z
STRONTIUM	15.7		0.0344	MDL	0.404	PQL	mg/Kg	J	E

Sample ID: SL-515-SA7-SB-0.0-0.5 *Collected:* 6/6/2013 9:15:00 AM *Analysis Type:* REA *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.105	J	0.0985	MDL	0.394	PQL	mg/Kg	J	Z

Sample ID: SL-515-SA7-SB-0.0-0.5 *Collected:* 6/6/2013 9:15:00 AM *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
STRONTIUM	17.2		0.0335	MDL	0.394	PQL	mg/Kg	J	E

Method Category: METALS

Method: 7471B **Matrix: SO**

Sample ID: SL-515-SA7-SB-0.0-0.5 *Collected:* 6/6/2013 9:15:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0112	J	0.0101	MDL	0.0168	PQL	mg/Kg	J	Z

Method Category: SVOA

Method: 1613B **Matrix: SO**

Sample ID: SL-514-SA7-SB-0.0-0.5 *Collected:* 6/6/2013 8:55:00 AM *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	4.01	JB	0.0338	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HxCDD	1.29	J	0.0405	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	3.93	JB	0.0434	MDL	4.96	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: SVOA

Method: 1613B **Matrix:** SO

Sample ID: SL-514-SA7-SB-0.0-0.5 **Collected:** 6/6/2013 8:55:00 AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,6,7,8-HXCDF	2.73	JB	0.0315	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDD	2.02	JB	0.0385	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.458	JB	0.0834	MDL	4.96	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	3.12	JB	0.0338	MDL	4.96	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	3.13	JB	0.0310	MDL	4.96	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	3.48	JB	0.0328	MDL	4.96	PQL	ng/Kg	J	Z
2,3,7,8-TCDD	0.0421	JQ	0.0257	MDL	0.992	PQL	ng/Kg	J	Z

Sample ID: SL-515-SA7-SB-0.0-0.5 **Collected:** 6/6/2013 9:15:00 AM **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	1.47	JB	0.0282	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.366	JB	0.0141	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0673	JB	0.0213	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0344	JQ	0.0313	MDL	5.04	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.0372	JBQ	0.0150	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.170	JB	0.0317	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0968	JB	0.0306	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0614	JBQ	0.0166	MDL	5.04	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0929	JBQ	0.0163	MDL	5.04	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0618	JBQ	0.0146	MDL	5.04	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0419	JQ	0.0383	MDL	1.01	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.0312	JQ	0.0243	MDL	1.01	PQL	ng/Kg	J	Z
OCDF	0.979	JB	0.0233	MDL	10.1	PQL	ng/Kg	J	Z

Method Category: SVOA

Method: 8081B **Matrix:** SO

Sample ID: SL-515-SA7-SB-0.0-0.5 **Collected:** 6/6/2013 9:15:00 AM **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BETA-BHC	1.9	U	0.97	MDL	1.9	PQL	ug/Kg	UJ	L

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-514-SA7-SB-0.0-0.5** ***Collected:*** **6/6/2013 8:55:00 AM** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHRYSENE	5.1	J	3.3	MDL	17	PQL	ug/Kg	J	Z
FLUORANTHENE	6.8	J	6.7	MDL	17	PQL	ug/Kg	J	Z

Sample ID: **SL-515-SA7-SB-0.0-0.5** ***Collected:*** **6/6/2013 9:15:00 AM** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHRYSENE	0.34	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Data Qualifier Summary

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Method Blank Contamination
E	Laboratory Duplicate Precision
L	Laboratory Control Spike Lower Estimation
L	Laboratory Control Spike Upper Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Enclosure I

Level III ADR Outliers
(including Manual Review Outliers)

Quality Control Outlier Reports

PH049

Method Blank Outlier Report

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK1650B371148	6/18/2013 11:48:00 AM	1,2,3,4,6,7,8-HPCDD	0.0445 ng/Kg	SL-514-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0586 ng/Kg	SL-515-SA7-SB-0.0-0.5
		1,2,3,4,7,8,9-HPCDF	0.0448 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0411 ng/Kg	
		1,2,3,6,7,8-HXCDD	0.0389 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0374 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0490 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0753 ng/Kg	
		1,2,3,7,8-PECDD	0.0542 ng/Kg	
		1,2,3,7,8-PECDF	0.0711 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0261 ng/Kg	
		2,3,4,7,8-PECDF	0.0370 ng/Kg	
		OCDD	0.385 ng/Kg	
		OCDF	0.124 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-515-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0673 ng/Kg	0.0673U ng/Kg
SL-515-SA7-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0372 ng/Kg	0.0372U ng/Kg
SL-515-SA7-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDD	0.170 ng/Kg	0.170U ng/Kg
SL-515-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0968 ng/Kg	0.0968U ng/Kg
SL-515-SA7-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0614 ng/Kg	0.0614U ng/Kg
SL-515-SA7-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.0929 ng/Kg	0.0929U ng/Kg
SL-515-SA7-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.0618 ng/Kg	0.0618U ng/Kg

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P16037CB220935	6/13/2013 9:35:00 AM	CALCIUM	6.15 mg/Kg	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5
P16037CB222021	6/12/2013 8:21:00 PM	IRON	4.39 mg/Kg	SL-514-SA7-SB-0.0-0.5
		PHOSPHORUS	1.17 mg/Kg	SL-515-SA7-SB-0.0-0.5
		TIN	1.43 mg/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-514-SA7-SB-0.0-0.5(RES)	TIN	2.78 mg/Kg	2.78U mg/Kg
SL-515-SA7-SB-0.0-0.5(RES)	TIN	2.96 mg/Kg	2.96U mg/Kg

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **8081B**

Matrix: **SO**

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P31627AQ242304A (SL-515-SA7-SB-0.0-0.5)	4,4'-DDD	142	-	76.00-138.00	-	4,4'-DDD	J (all detects)
	4,4'-DDT	134	-	72.00-131.00	-	4,4'-DDT	
	ENDOSULFAN II	137	-	68.00-128.00	-	ENDOSULFAN II	
	ENDRIN KETONE	138	-	74.00-127.00	-	ENDRIN KETONE	
	gamma-BHC (Lindane)	136	-	72.00-128.00	-	gamma-BHC (Lindane)	
	HEPTACHLOR	128	-	69.00-125.00	-	HEPTACHLOR	
P31627AQ242304A (SL-515-SA7-SB-0.0-0.5)	BETA-BHC	71	-	76.00-123.00	-	BETA-BHC	J(all detects) UJ(all non-detects)

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Reporting Limit Outliers

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-514-SA7-SB-0.0-0.5	1,2,3,4,7,8,9-HPCDF	JB	4.01	4.96	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8-HxCDD	J	1.29	4.96	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	3.93	4.96	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	2.73	4.96	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	2.02	4.96	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JB	0.458	4.96	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	3.12	4.96	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	3.13	4.96	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	3.48	4.96	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0421	0.992	PQL	ng/Kg	
SL-515-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	1.47	5.04	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.366	5.04	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.0673	5.04	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JQ	0.0344	5.04	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0372	5.04	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.170	5.04	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.0968	5.04	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0614	5.04	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0929	5.04	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0618	5.04	PQL	ng/Kg	
	2,3,7,8-TCDD	JQ	0.0419	1.01	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0312	1.01	PQL	ng/Kg	
	OCDF	JB	0.979	10.1	PQL	ng/Kg	

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-514-SA7-SB-0.0-0.5	BERYLLIUM	J	0.476	1.01	PQL	mg/Kg	J (all detects)
	BORON	J	2.55	10.1	PQL	mg/Kg	
	CADMIUM	J	0.397	1.01	PQL	mg/Kg	
	TIN	J	2.78	10.1	PQL	mg/Kg	
SL-515-SA7-SB-0.0-0.5	BERYLLIUM	J	0.439	0.985	PQL	mg/Kg	J (all detects)
	BORON	J	1.67	9.85	PQL	mg/Kg	
	CADMIUM	J	0.404	0.985	PQL	mg/Kg	
	COPPER	J	8.75	9.85	PQL	mg/Kg	
	SODIUM	J	81.3	98.5	PQL	mg/Kg	
	TIN	J	2.96	9.85	PQL	mg/Kg	

Method: 6020A

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-514-SA7-SB-0.0-0.5	SELENIUM	J	0.120	0.404	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0339	0.202	PQL	mg/Kg	
SL-515-SA7-SB-0.0-0.5	SELENIUM	J	0.105	0.394	PQL	mg/Kg	J (all detects)

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3 Subarea 7

Reporting Limit Outliers

Lab Reporting Batch ID: PH049 **Laboratory: LL**

EDD Filename: PH049_v1 **eQAPP Name: CDM_SSFL_130705_Lan**

Method: **7471B**
Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-515-SA7-SB-0.0-0.5	MERCURY	J	0.0112	0.0168	PQL	mg/Kg	J (all detects)

Method: **8270D SIM**
Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-514-SA7-SB-0.0-0.5	CHRYSENE FLUORANTHENE	J J	5.1 6.8	17 17	PQL PQL	ug/Kg ug/Kg	J (all detects)
SL-515-SA7-SB-0.0-0.5	CHRYSENE	J	0.34	1.7	PQL	ug/Kg	J (all detects)

Enclosure II

Level IV Validation Reports

LDC Report# 30022C2b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 6, 2013
LDC Report Date:	July 29, 2013
Matrix:	Soil
Parameters:	Semivolatiles
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH049

Sample Identification

SL-514-SA7-SB-0.0-0.5
SL-515-SA7-SB-0.0-0.5

Introduction

This data review covers 2 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270C-SIM for Semivolatiles.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals.

All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard concentrations.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs) and 25.0% for all other compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method blanks.

Samples EB1-060313 and EB2-060313 (both from SDG PH045) were identified as equipment blanks. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB1-060313	6/3/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate	0.16 ug/L 0.11 ug/L 0.16 ug/L	All samples in SDG PH049
EB2-060313	6/3/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate	0.12 ug/L 0.12 ug/L 0.12 ug/L	All samples in SDG PH049

Sample FB-041113 (from SDG PH029) was identified as a field blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041113	4/11/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate 1-Methylnaphthalene 2-Methylnaphthalene Naphthalene	0.17 ug/L 0.18 ug/L 0.082 ug/L 0.019 ug/L 0.024 ug/L 0.17 ug/L	All samples in SDG PH049

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH049	All compounds reported below the RL.	J (all detects)	A

XIII. Tentatively Identified Compounds (TICs)

Raw data were not reviewed for this SDG.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Semivolatiles - Data Qualification Summary - SDG PH049

SDG	Sample	Compound	Flag	A or P	Reason
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Semivolatiles - Field Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

LDC #: 30022C2b **VALIDATION COMPLETENESS WORKSHEET** Date: 7/22/13

SDG #: PH049 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: [illegible]

SVOA 2nd Reviewer: [illegible]

METHOD: GC/MS ~~Polynuclear Aromatic Hydrocarbons~~ (EPA SW 846 Method 8270C-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/6/13
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	% RSD ≤ 30
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 25
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	A	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	N	
XVII.	Field blanks SW	~~A~~ FB	EB = EB1-060313, EB2-060313 SDG # PH045

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: SOIL FB = FB-041113

1	SL-514-SA7-SB-0.0-0.5	11	SBLKLP159	21		31	
2	SL-515-SA7-SB-0.0-0.5	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 30022 C2b

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: C

Method: Semivolatiles (EPA SW 846 Method 8270C)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30%/15% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ ~~20%~~ 25% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 30022C2b

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: C

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?			✓	
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 30022c2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

Y N N/A Were field blanks identified in this SDG?

Y N N/A Were target compounds detected in the field blanks?

EB_1 = EB1-060313

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 6/3/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All ND + >10X

Compound	Blank ID	Sample Identification								
	EB_1									
XX	0.16									
LL	0.11									
EEE	0.16									

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 6/3/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All ND + >10X

EB_2 = EB2-060313

Compound	Blank ID	Sample Identification								
	EB_2									
XX	0.12									
LL	0.12									
EEE	0.12									

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 30022csb

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?
Blank units: ug/L **Associated sample units:** ~~FB~~ ug/kg
Sampling date: 4/11/13
Field blank type: (circle one) Field Blank / Rinsate / Other: FB Associated Samples: All (ND + >10X

FB = FB-041113
SDG # PH029

Compound	Blank ID	Sample Identification								
	FB									
XX	0.17									
LL	0.18									
EEE	0.082									
TTT	0.019									
W	0.024									
S	0.17									

Blank units:_____ **Associated sample units:**_____
Sampling date:_____
Field blank type: (circle one) Field Blank / Rinsate / Other:_____ Associated Samples:_____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 30022c26

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported RRF (/ std)	Recalculated RRF (/ std)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported %RSD	Recalculated %RSD
1	ICAL	6/12/13	N-Nitrosodimethylamine (1st internal standard)	0.892	0.892	0.867	0.867	12	12
			Naphthalene (2nd internal standard)	1.106	1.106	1.149	1.149	7	7
			Acenaphthene (3rd internal standard)	1.059	1.059	1.061	1.061	4	4
			Fluoranthene (4th internal standard)	1.099	1.099	1.083	1.083	4	4
			Chrysene (5th internal standard)	1.314	1.314	1.338	1.338	3	3
			Benzo(a)pyrene (6th internal standard)	1.405	1.405	1.376	1.376	7	7
2									
3									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022 c26

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Reviewer: FT
2nd Reviewer: A

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Average RRF (initial)	Reported RRF (CC)	Recalculated RRF (CC)	Reported ~~%D~~ % Drift FT	Recalculated %D
1	FF0581	6/18/13	N-nitrosodimethylamine (1st internal standard)	0.867	0.906	0.906	5	4.49
			Naphthalene (2nd internal standard)	1.149	1.104	1.104	4	3.9
			Acenaphthene (3rd internal standard)	1.061	1.056	1.056	0	0.47
			Fluoranthene (4th internal standard)	1.083	1.111	1.111	3	2.58
			Chrysene (5th internal standard)	1.338	1.312	1.312	2	1.9
			Benzo(a)pyrene (6th internal standard)	1.376	1.408	1.408	2	2.3
2			(1st internal standard)					
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
			(5th internal standard)					
			(6th internal standard)					
3								
			(2nd internal standard)					
			(3rd internal standard)					
			(4th internal standard)					
			(5th internal standard)					
			(6th internal standard)					

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: [illegible]

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT

2nd reviewer: [illegible]

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270C)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
~~Nitrobenzene-d5~~ Fluoranthene-d10	0.1 ~~33333~~	0.080	80	80	0
2-Fluorobiphenyl Benzo(a)pyrene-d12	↓	0.083	83	83	↓
Terphenyl-d14 1-Methylnaphthalene-d10	↓	0.092	92	92	↓
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
~~1,2-Dichlorobenzene-d4~~					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 30022 c26

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FT

2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC) LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 159 LDLCS

Compound	Spike Added (ug/kg)		Spike Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene	33.33	NA	30.79	NA	92	92				
Pentachlorophenol										
Pyrene	33.33	NA	32.17	NA	97	97	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022c2b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270C)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. #1, Fluoranthene

Conc. = (5194)(1)(1)(10)(10.00) / (235644)(1.083)(30.2)(0.99)

= 6.8 ng/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LDC Report# 30022C3a

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 6, 2013
LDC Report Date:	July 29, 2013
Matrix:	Soil
Parameters:	Chlorinated Pesticides
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH049

Sample Identification

SL-515-SA7-SB-0.0-0.5

Introduction

This data review covers one soil sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081A for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Samples EB1-060313 and EB2-060313 (both from SDG PH045) were identified as equipment blanks. No chlorinated pesticide contaminants were found.

Sample FB-041113 (from SDG PH029) were identified a field blank. No chlorinated pesticide contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
PBLK07162	Not specified	Decachlorobiphenyl	130 (20-120)	All TCL compounds	J (all detects)	P
SL-515-SA7-SB-0.0-0.5	Not specified	Decachlorobiphenyl	128 (20-120)	All TCL compounds	J (all detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
LCS07162	gamma-BHC Heptachlor 4,4'-DDD Endosulfan II 4,4'-DDT Endrin ketone	136 (72-128) 128 (69-125) 142 (76-138) 137 (68-128) 134 (72-131) 138 (74-127)	All samples in SDG PH049	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	P
LCS07162	beta-BHC	71 (76-123)	All samples in SDG PH049	J (all detects) UJ (all non-detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XII. Target Compound Identification

All target compound identifications were within validation criteria.

XIII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
SL-515-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A

XIV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XV. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Chlorinated Pesticides - Data Qualification Summary - SDG PH049

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH049	SL-515-SA7-SB-0.0-0.5	All TCL compounds	J (all detects)	P	Surrogate Spike (%R) (S)
PH049	SL-515-SA7-SB-0.0-0.5	gamma-BHC Heptachlor 4,4'-DDD Endosulfan II 4,4'-DDT Endrin ketone	J (all detects) J (all detects) J (all detects) J (all detects) J (all detects) J (all detects)	P	Laboratory control sample (%R) (L)
PH049	SL-515-SA7-SB-0.0-0.5	beta-BHC	J (all detects) UJ (all non-detects)	P	Laboratory control sample (%R) (L)
PH049	SL-515-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

LDC #: 30022C3a

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 7/22/13

SDG #: PH049

Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC Chlorinated Pesticides (EPA SW846 Method 8081A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/6/13
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	% RSD ≤ 20
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	SW	LCS
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB= EB1-060313, EB2-060313 > SDG# PH045

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

FB= FB-041113 SDG# PH029

	SOIL						
1	SL-515-SA7-SB-0.0-0.5	11	PBLK07162	21		31	
2		12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 30022C3a

VALIDATION FINDINGS CHECKLIST

Reviewer: PT
2nd Reviewer: [illegible]

Method: Pesticides/PCBs (EPA SW 846 Method 8081A/8082)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/ECD Instrument performance check				
Was the instrument performance found to be acceptable?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
Were the required standard concentrations analyzed in the initial calibration?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? ____%D or ____%R	✓			
Were Evaluation mix standards analyzed prior to the initial calibration and sample analysis?	✓			
Were endrin and 4,4'-DDT breakdowns ≤ 15% for individual breakdown in the Evaluation mix standards?	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Were extract cleanup blanks analyzed with every batch requiring clean-up?			✓	
Was there contamination in the method blanks or clean-up blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?		✓		
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?		✓		
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	

LDC #: 30022C3a

VALIDATION FINDINGS CHECKLIST

Page: 2 of 2
Reviewer: PT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?		✓		
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticide/PCBs (EPASW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG.
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH.
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II.
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ.
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. DB 608	KK.
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. DB 1701	LL.
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE.	MM.
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF.	NN.

Notes:_____

LDC #: 30022C3a

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

Are surrogates required by the method? Yes____ or No____.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were surrogates spiked into all samples and blanks?

Y N N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	PBLK07162		0	130 (20-120)	J+/P det (S)
				( )	
				( )	
	1		0	128 (↓)	↓ (S)
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	
				( )	

	Surrogate Compound		Surrogate Compound		Surrogate Compound		Surrogate Compound		
A	Chlorobenzene (CBZ)	G	Octacosane	M	Benzo(e)Pyrene	S	1-Chloro-3-Nitrobenzene	Y	Tetrachloro-m- xylene
B	4-Bromofluorobenzene (BFB)	H	Ortho-Terphenyl	N	Terphenyl-D14	T	3,4-Dinitrotoluene		
C	a,a,a-Trifluorotoluene	I	Fluorobenzene (FBZ)	O	Decachlorobiphenyl (DCB)	U	Tripentyltin		
D	Bromochlorobenene	J	n-Triacontane	P	1-methylnaphthalene	V	Tri-n-propyltin		
E	1,4-Dichlorobutane	K	Hexacosane	Q	Dichlorophenyl Acetic Acid (DCAA)	W	Tributyl Phosphate		
F	1,4-Difluorobenzene (DFB)	L	Bromobenzene	R	4-Nitrophenol	X	Triphenyl Phosphate		

LDC #: 30022C3a

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a laboratory control samples (LCS) and laboratory control sample duplicate (LCSD) analyzed for each matrix in this SDG?

Y N N/A Were the LCS percent recoveries (%R) and relative percent differences (RPD) within the QC limits?

Level IV/D Only

Y N N/A Was an LCS analyzed every 20 samples for each matrix or whenever a sample extraction was performed?

#	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications
	LCS07162	D	136 (72-128)	( )	( )	All	J/Pdet (L)
		B	71 (76-123)	( )	( )		7/W/P
		E	128 (69-125)	( )	( )		J/Pdet
		M	142 (76-138)	( )	( )		
		L	137 (68-128)	( )	( )		
		O	134 (72-131)	( )	( )		
		Q	138 (74-127)	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 30022C3a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC_____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (10/100 std)	Recalculated CF (10/100 std)	Reported CF (initial)	Recalculated CF (intial)	Reported %RSD	Recalculated %RSD
1	ICAL	6/14/13	endosulfan I	95844.48	95844.48	100511.7	100511.7	8.555	8.555
	RTX CLP1		methoxychlor	15073.14	15073.14	14361.83	14361.83	5.056	5.056
	RTX CLP2		↓	231644.1	231644.1	248988.7	248988.7	11.405	11.405
				31967.91	31967.91	31320.61	31320.61	1.243	1.243
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022C3a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1			Analyzed after 10R					
2								
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022c3a

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: FT
2nd reviewer: [illegible]

METHOD: GC Pesticides (EPA SW 846 Method 8081)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: H1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
DCB	RTX CLP1	10.20	13.02915	128	128	0
TCMX	↓	10.1	10.23856	102	102	0

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID:

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 30022C39

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: GC Pesticides (EPA SW 846 method 8081)

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: _____

Compound	Spike Added (ug/kg)		Sample Conc. (ug/kg)	Spike Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gamma-BHC	3.41	NA	ND	4.64	NA	136	136				
4,4'-DDT	7.14	↓	↓	9.54	↓	134	134	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022C3R

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: **GC** Pesticides (EPA SW 846 Method 8081)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 165 Compound Name endosulfan I

Concentration = 1200405 (10) / 10051.7 (30)

= 3.98 ug/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments:

LDC Report# 30022C3b

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 6, 2013
LDC Report Date:	July 29, 2013
Matrix:	Soil
Parameters:	Polychlorinated Biphenyls
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH049

Sample Identification

SL-514-SA7-SB-0.0-0.5
SL-515-SA7-SB-0.0-0.5

Introduction

This data review covers 2 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082A for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory, Area IV, Site SA7 (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of multicomponent compounds was performed for the primary (quantitation) column as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Samples EB1-060313 and EB2-060313 (both from SDG PH045) were identified as equipment blanks. No polychlorinated biphenyl contaminants were found.

Sample FB-041113 (from SDG PH029) was identified a field blank. No polychlorinated biphenyl contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits with the following exceptions:

Sample	Column	Surrogate	%R (Limits)	Compound	Flag	A or P
PBLK08162	ZBmultiR1	Decachlorobiphenyl	122 (45-120)	All TCL compounds	J (all detects)	P

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XII. Target Compound Identification

All target compound identifications were within validation criteria.

XIII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH049	All compounds reported below the RL.	J (all detects)	A

XIV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XV. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Data Qualification Summary - SDG PH049

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

LDC #: 30022C3b **VALIDATION COMPLETENESS WORKSHEET** Date: 7/22/13
SDG #: PH049 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: FT
2nd Reviewer: A

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/6/13
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	% RSD ≤ 20
IV.	Continuing calibration/ICV	A	ICV/CCV ≤ 20
V.	Blanks	A	
VI.	Surrogate spikes	SW	
VII.	Matrix spike/Matrix spike duplicates	N	client specified
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB = EB1-060313 > SDG # PH045 = EB2-060313

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: SOIL FB = FB-041113 > SDG # PH029

1†	SL-514-SA7-SB-0.0-0.5	11	PBLK08162	21		31	
2	SL-515-SA7-SB-0.0-0.5	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 30022C05

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: ✓ GC ____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 36022c3b

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓	✓	F7	
Target compounds were detected in the field blanks.		✓	✓	

LDC #: 30022C36

VALIDATION FINDINDS WORKSHEET
Surrogate Recovery

Page: 1 of 1
Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Are surrogates required by the method? Yes____ or No____.

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were surrogates spiked into all samples and blanks?

Y (N) N/A Did all surrogate recoveries (%R) meet the QC limits?

#	Sample ID	Detector/ Column	Surrogate Compound	%R (Limits)	Qualifications
	PBLK08162	ZB multi R1	DCB	122 (45-120)	J /Pdt (S)
				( )	
				( )	
				( )

LDC #: 30022c36

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (200 std)	Recalculated CF (200 std)	Reported Ave CF (initial)	Recalculated Ave CF (intial)	Reported %RSD	Recalculated %RSD
1	KA2	6/9/13	Aroclor 1260-1	14355	14355	14384	14384	13	13
	ZB mult R1								
	ZB mult R2		↓	30151	30151	30763	30763	12	12
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022C36

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	CCV 69:25	6/12/13	Aroclor 1260	200.0	188.30	188.30	6	6
	ZBmulti R2							
	R1			200.0	199.72	199.72	0	0
2	CCV 11:57	6/12/13	↓	200.0	200.26	200.26	0	0
	ZBmulti R1							
	R2			200.0	201.33	201.33	1	1
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022C3D

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: #1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
TCMX	ZB-1	10.1	10.63	106	106	0
PCB	↓	10.2	10.5262	104	104	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 30022c3b

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: FD

2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentration; LCS = Laboratory Control Sample; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: 1051D 08162

Compound	Spike Added (ug/kg)		Sample Conc. (ug/kg)	Spike Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
PCB 1260	167	NA	ND	171.73	NA	103	103	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022c36

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: PT
2nd Reviewer: [illegible]

METHOD: ✓ GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #1 Compound Name Aroclor 1254

final Concentration = 51.693 / 0.989 = 52

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications
	1254-1 =	50.253	1524965.875 (10)	=	50.253776
	-2 =	45.878	10115 (30)		
	-3 =	50.321			
	-4 =	36.1923			
	-5 =	53.9503			
	-6 =	73.5631			
	Ave =	51.693			

Comments:

SAMPCALew.wpd

LDC Report# 30022C4

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 6, 2013
LDC Report Date:	July 24, 2013
Matrix:	Soil
Parameters:	Metals
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH049

Sample Identification

SL-514-SA7-SB-0.0-0.5
SL-515-SA7-SB-0.0-0.5

Introduction

This data review covers 2 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6020A, 6010C, and 7471B for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Manganese, Mercury, Molybdenum, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, and Zirconium.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Calibration

The initial and continuing calibrations were performed at the required frequency.

The calibration standards criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Iron Phosphorus Tin	6.150 mg/Kg 4.388 mg/Kg 1.166 mg/Kg 1.434 mg/Kg	All samples in SDG PH049
ICB/CCB	Aluminum Arsenic Barium Iron Molybdenum Manganese Phosphorus Titanium Thallium	41.3 ug/L 3.4 ug/L 0.50 ug/L 132 ug/L 3.7 ug/L 2.1 ug/L 4.3 ug/L 8.6 ug/L 0.19 ug/L	All samples in SDG PH049

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-514-SA7-SB-0.0-0.5	Tin	2.8 mg/Kg	2.8U mg/Kg
SL-515-SA7-SB-0.0-0.5	Tin	3.0 mg/Kg	3.0U mg/Kg

Sample EB2-060313 (from SDG PH045) was identified as an equipment blank. No metal contaminants were found.

Sample FB-041113 (from SDG PH029) was identified as a field blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB-041113	4/11/13	Copper Molybdenum	0.0036 mg/L 0.0036 mg/L	All samples in SDG PH049

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-524-SA7-SB-1.0-2.0MS/MSD (All samples in SDG PH049)	Phosphorus Potassium	156 (75-125) 138 (75-125)	- -	- -	J (all detects) J (all detects)	A

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits with the following exceptions:

DUP ID (Associated Samples)	Analyte	RPD (Limits)	Difference (Limits)	Flag	A or P
SL-524-SA7-SB-1.0-2.0DUP (All samples in SDG PH049)	Calcium Nickel Strontium	42 (≤20) 27 (≤20) 31 (≤20)	- - -	J (all detects) UJ (all non-detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Internal Standards

All internal standard percent recoveries (%R) were within QC limits.

X. Furnace Atomic Absorption QC

Graphite furnace atomic absorption was not utilized in this SDG.

XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
SL-524-SA7-SB-1.0-2.0	Iron	11 (≤10)	All samples in SDG PH049	J (all detects) UJ (all non-detects)	A

XII. Sample Result Verification

All sample result verifications were acceptable.

All metals reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG PH049	All analytes reported below the RL and above the MDL.	J (all detects)	A

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Metals - Data Qualification Summary - SDG PH049

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	Phosphorus Potassium	J (all detects) J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	Calcium Nickel Strontium	J (all detects) UJ (all non-detects)	A	Duplicate sample analysis (RPD) (E)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	Iron	J (all detects) UJ (all non-detects)	A	ICP serial dilution (%D) (A)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (Z)

Santa Susana Field Laboratory
Metals - Laboratory Blank Data Qualification Summary - SDG PH049

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH049	SL-514-SA7-SB-0.0-0.5	Tin	2.8U mg/Kg	A	B
PH049	SL-515-SA7-SB-0.0-0.5	Tin	3.0U mg/Kg	A	B

Santa Susana Field Laboratory
Metals - Field Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

LDC #: 30022C4

SDG #: PH049

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 7/22/13

Page: 1 of 1

Reviewer: a

2nd Reviewer: ✓

METHOD: Metals (EPA SW 846 Method 6010C/6020A/~~7000~~ 7471B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/6/13
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS/D (PH046)
VII.	Duplicate Sample Analysis	SW	Dup ✓
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	
XII.	Sample Result Verification	A	
XIII.	Overall Assessment of Data	A	
XIV.	Field Duplicates	N	
XV	Field Blanks	SW	EB= EB2-060313(PH045) FB= FB-041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: soil

1	SL-514-SA7-SB-0.0-0.5	11		21		31	
2	SL-515-SA7-SB-0.0-0.5	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 30022C4

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: V

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?				
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were ≤ 5X the RL.		✓		
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 30022C4

VALIDATION FINDINGS CHECKLIST

Reviewer: QR
2nd Reviewer: V

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?		✓		
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.		✓		
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target analytes were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 30022C 4

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: CR
2nd reviewer: V

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
Analysis Method		
ICP		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
ICP-MS		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr

Comments: Mercury by CVAA if performed

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x
Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All Reason: B

Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	1	2							
Al			41.3	20.65									
As			3.4	1.7									
Ba			0.50	0.25									
Ca	6.150			30.75									
Fe	4.388		132	66									
Mo			3.7	1.85									
Mn			2.1	1.05									
P	1.166		4.3	5.83									
Sn	1.434			7.17	2.8	3.0							
Ti			8.6	4.3									
Tl			0.19	0.095									

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: 02
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: 4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Sample Identification										
	FB-041113 (SDG: PH029)	Action Limit	No Qualifiers									
Cu	0.0036	1.8										
Mo	0.0036	1.8										

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: ~~Inorganics~~ metals, EPA Method_____

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	SL-524-SA7-SB3-1.0-2.0MS/D		P	136			All	Jdet/A (Q)
	(P1-1046)		K	138			↓	↓

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
Duplicate Analysis

Page: 1 of 1
Reviewer: CR
2nd Reviewer: [illegible]

METHOD: Inorganics, Method_____

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a duplicate sample analyzed for each matrix in this SDG?

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water and ≤ 35% for soil samples (≤ 10% for Method 300.0)? If no, see qualification below. A control limit of ±CRDL (±2X CRDL for soil) was used for samples that were ≤5X the CRDL, including when only one of the duplicate sample values were ≤5X the CRDL. If field blanks were used for laboratory duplicates, see overall assessment.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Duplicate ID	Matrix	Analyte	RPD (Limits)	Associated Samples	Qualifications
		SL-524-SA7SB-1.0	20DUP	Ca	42 (≤20)	All	J/UJ/A (E)
				Ni	27		
				Sr	31		

Comments:_____

DUP.6

LDC #: 38022C4

VALIDATION FINDINGS WORKSHEET
ICP Serial Dilution

Page: 1 of 1
Reviewer: QR
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A If analyte concentrations were > 50X the MDL (ICP) ,or >100X the MDL (ICP/MS), was a serial dilution analyzed?
Y N N/A Were ICP serial dilution percent differences (%D) ≤10%?
Y N N/A Is there evidence of negative interference? If yes, professional judgement will be used to qualify the data.

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	Date	Diluted Sample ID	Matrix	Analyte	%D (Limits)	Associated Samples	Qualifications
		~~26/27~~	~~W~~	~~Al a~~			
		SL-524-SA7-SB-1.0-2.0		Fe	11	All	J/UJ/A (A)

Comments:

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: QR
2nd Reviewer: L

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Pb	594.41	600	99.1	99.1	Y
	ICP/MS (Initial calibration)	Ag	52.25	50	104.5	104.5	
	CVAA (Initial calibration)	Hg	2.37	2.5	94.8	94.8	
CCV (22:30)	ICP (Continuing calibration)	P	515.08	500	103	103	
(21:40)	ICP/MS (Continuing calibration)	Se	25.73	25	102.9	102.9	
(20:11)	CVAA (Continuing calibration)	Hg	0.99	1	99	99	
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: 92
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$ Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Co	475.5	500	95.1	95.1	Y
LCS	Laboratory control sample	Tl	195.9	200	98	98	
SL-524-SA / SB-1.0-2.0	Matrix spike	Sb	(SSR-SR) 37.2298	48.0769	77	77	
	Duplicate	Mn	259.2260	273.4308	6	6	
	ICP serial dilution	V	316.17	307.05	3	3	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLC.4SW

LDC #: 30022C4

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: CR
2nd reviewer: ✓

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for Co were recalculated and verified using the following equation:

Concentration = $\frac{(RD)(FV)(Dil)}{(In.\ Vol.)}$

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$\frac{100mL(0.06135 mg/L)}{0.989(Cg)} = 6.20 mg/kg$

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
	1	Al	13700	13700	Y
		As	4.7	4.7	
		Ba	70.9	70.9	
		Be	0.48	0.48	
		B	2.5	2.5	
		Cd	0.40	0.40	
		Ca	3260	3260	
		Cr	17.4	17.4	
		Co	6.2	6.2	
		Cu	11.7	11.7	
		Fe	23600	23600	
		Pb	10.5	10.5	
		Li	22.9	22.9	
		Mg	4930	4930	
		Mn	253	253	
		Hg	0.026	0.026	
		Ni	8.4	8.4	
		P	417	417	
		K	2600	2600	
		Se	0.12	0.12	
		Ag	0.034	0.034	
		Na	111	111	
		Sr	15.7	15.7	
		Tl	0.22	0.22	
		Sn	2.8	2.8	
		Ti	1190	1190	
		V	38.3	38.3	
		Zn	61.7	61.7	

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 6, 2013
LDC Report Date:	July 23, 2013
Matrix:	Soil
Parameters:	Total Petroleum Hydrocarbons as Extractables
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH049

Sample Identification

SL-514-SA7-SB-0.0-0.5
SL-515-SA7-SB-0.0-0.5

Introduction

This data review covers 2 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractables contaminants were found in the method blanks.

Samples EB1-060313 and EB2-060313 (both from SDG PH045) were identified as equipment blanks. No total petroleum hydrocarbons as extractables contaminants were found.

Sample FB-041113 (from SDG PH029) was identified as a field blank. No total petroleum hydrocarbons as extractables contaminants were found.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Target Compound Identification

All target compound identifications were within validation criteria.

IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH049	All compounds reported below the RL.	J (all detects)	A

X. System Performance

The system performance was acceptable.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG PH049

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

LDC #: 30022C8

SDG #: PH049

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 7/22/13

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/06/13
II	Initial calibration	A	
III.	Calibration verification/ICV	A	
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	client specified
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	NP	EB = EB1 - 060313 } SDG # PH045 = EB2 - 060313

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

SOIL

FB = FB - 041113 (SDG# PH029)

1	SL-514-SA7-SB-0.0-0.5	11	PBLK03161	21		31	
2	SL-515-SA7-SB-0.0-0.5	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 30022c8

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Method: ✓ GC ____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) for one or more surrogates was out of QC limits, was a reanalysis performed to confirm samples with %R outside of criteria?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.			✓	
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 30022C8

VALIDATION FINDINGS CHECKLIST

Reviewer: FT
2nd Reviewer: A

Validation Area	Yes	No	NA	Findings/Comments
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 30022C8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: F7
2nd Reviewer: [illegible]

METHOD: GC ✓ HPLC ____

The calibration factors (CF) and relative standard deviation (%RSD) were recalculated using the following calculations:

CF = A/C
Average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where: A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (288 std)	Recalculated CF (288 std)	Reported Ave CF (initial)	Recalculated Ave CF (intial)	Reported %RSD	Recalculated %RSD
1	ICAL	5/6 20	TPH Ave RF	21868.1	21868.1	22209.38	22209.38	1.865	1.865
2									
3									
4									

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30028C8

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Results Verification

Page: 1 of 1
Reviewer: FD
2nd Reviewer: CA

METHOD: GC ✓ HPLC _____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration CF were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. CF -CF)/ave.CF

Where: ave. CF = initial calibration average CF
CF = continuing calibration CF
A = Area of compound
C = Concentration of compound

#	Standard ID	Calibration Date	Compound	Average CF(Ical)/ CCV Conc.	Reported CF/ Conc. CCV	Recalculated CF/ Conc. CCV	Reported %D	Recalculated %D
1	J162-0054	6/12/13	C_8 - C_{40}	288.01	291.89	291.89	1	1
2	J162-0072	6/12/13	↓	239.97	259.46	259.46	8	8
3								
4								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 300 22C8

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: FT
2nd reviewer: [illegible]

METHOD: ✓ GC __ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: # 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Chlorobenzene	F7 ~~HP-5~~ ZB-5	2.0	1.6679	83	83	0
o-terphenyl	↓	↓	1.7084	85	85	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 30022c8

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Page: 1 of 1
Reviewer: F7
2nd Reviewer: [illegible]

METHOD: ✓ GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; LCS = Laboratory Control Sample; SC = Sample concentration; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS03161

Compound	Spike Added (mg/kg)		Sample Conc. (mg/kg)	Spike Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	---	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
EFH C30-C40	5.01	NA	NA	5.19	NA	104	104	NA			

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022cy

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: FT
2nd Reviewer: [illegible]

METHOD: ✓ GC ___ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. #1 Compound Name C21-C30

Concentration = 15016481 (1ml) (2) / 22209 (30g) (0.981)

= 46 mg/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments:

LDC Report# 30022C21

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	June 6, 2013
LDC Report Date:	July 29, 2013
Matrix:	Soil
Parameters:	Dioxins/Dibenzofurans
Validation Level:	Level IV
Laboratory:	Eurofins
Sample Delivery Group (SDG):	PH049

Sample Identification

SL-514-SA7-SB-0.0-0.5
SL-515-SA7-SB-0.0-0.5

Introduction

This data review covers 2 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1613B for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

PFK and static resolving power were within validation criteria.

III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within QC limits.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
13165001	6/14/13	1,2,3,7,8-PeCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.0542 ng/Kg 0.0389 ng/Kg 0.0490 ng/Kg 0.0445 ng/Kg 0.385 ng/Kg 0.0711 ng/Kg 0.0370 ng/Kg 0.0411 ng/Kg 0.0374 ng/Kg 0.0753 ng/Kg 0.0261 ng/Kg 0.0586 ng/Kg 0.0448 ng/Kg 0.124 ng/Kg	All samples in SDG PH049

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
SL-515-SA7-SB-0.0-0.5	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8,9-HpCDF	0.170 ng/Kg 0.0968 ng/Kg 0.0929 ng/Kg 0.0618 ng/Kg 0.0372 ng/Kg 0.0614 ng/Kg 0.0673 ng/Kg	0.170U ng/Kg 0.0968U ng/Kg 0.0929U ng/Kg 0.0618U ng/Kg 0.0372U ng/Kg 0.0614U ng/Kg 0.0673U ng/Kg

Sample EB2-060313 (from SDG PH045) was identified as an equipment blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB2-060313	6/3/13	1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.162 pg/L 0.372 pg/L 0.871 pg/L 0.405 pg/L 0.250 pg/L 0.300 pg/L 0.137 pg/L 0.195 pg/L 0.129 pg/L 0.275 pg/L 0.202 pg/L 0.688 pg/L	All samples in SDG PH049

Sample FB-041113 (from SDG PH029) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041113	4/11/13	1,2,3,4,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF	0.125 pg/L 0.134 pg/L 0.402 pg/L 0.398 pg/L 0.316 pg/L 0.324 pg/L 0.221 pg/L 0.211 pg/L 0.149 pg/L 0.254 pg/L 0.840 pg/L	All samples in SDG PH049

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. The percent recoveries (%R) were within the QC limits.

VIII. Regional Quality Assurance and Quality Control

Not applicable.

IX. Internal Standards

All internal standard recoveries were within QC limits.

X. Target Compound Identifications

All target compound identifications were within validation criteria.

XI. Compound Quantitation

All compound quantitations were within validation criteria.

The 2,3,7,8-TCDF confirmation was performed with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
SL-515-SA7-SB-0.0-0.5	2,3,7,8-TCDF	2nd column confirmation was not performed for this compound.	2,3,7,8-TCDF must be confirmed on the 2nd column per the method.	None	P

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH049	All compounds reported below the RL.	J (all detects)	A

XII. System Performance

The system performance was acceptable.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Data Qualification Summary - SDG PH049

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH049	SL-515-SA7-SB-0.0-0.5	2,3,7,8-TCDF	None	P	Compound quantitation (no 2nd column) (Z)
PH049	SL-514-SA7-SB-0.0-0.5 SL-515-SA7-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG PH049

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH049	SL-515-SA7-SB-0.0-0.5	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,7,8,9-HpCDF	0.170U ng/Kg 0.0968U ng/Kg 0.0929U ng/Kg 0.0618U ng/Kg 0.0372U ng/Kg 0.0614U ng/Kg 0.0673U ng/Kg	A	B

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG PH049

No Sample Data Qualified in this SDG

LDC #: 30022C21 **VALIDATION COMPLETENESS WORKSHEET** Date: 7-16-13

SDG #: PH049 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 6/6/13
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	≤ 20/35
IV.	Continuing Calibration	A	QC limits
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	N	Client
VII.	Laboratory control samples	A	OPR
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation/RL/LOQ/LODs	SW	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	N	
XV.	Field blanks	SW	EB= EB2-060313 (PH045) FB=FB-041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1	SL-514-SA7-SB-0.0-0.5	11		21		31	
2	SL-515-SA7-SB-0.0-0.5	12		22		32	
3		13		23		33	
4		14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20	13116S001	30		40	

Notes:

LDC #: 30022C21

VALIDATION FINDINGS CHECKLIST

Reviewer: TM
2nd Reviewer: A

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?	✓			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for labeled compounds ?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Continuing calibration				
Was a routine calibration performed at the beginning and end of each 12 hour period?	✓			
Were all the concentrations for the unlabeled compounds and labeled compounds within the QC limits (Method 1613B, Table 6)?	✓			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 39022C21

VALIDATION FINDINGS CHECKLIST

Reviewer: CM
2nd Reviewer: [illegible]

Validation Area	Yes	No	NA	Findings/Comments
VIII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
IX. Internal standards				
Were internal standard recoveries within the 25-150% criteria?	✓			
Was the minimum S/N ratio of all internal standard peaks ≥ 10?	✓			
X. Target compound identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?	✓			
Did compound spectra contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?		✓		
Was the signal to noise ratio for each target compound and labeled standard ≥ 2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?		✓		
Was an acceptable lock mass recorded and monitored?	✓			
XI. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:

LDC #: 30022C21

VALIDATION FINDINGS WORKSHEET
Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was the method blank contaminated?

Blank extraction date: 06/14/13 **Blank analysis date:** 06/18/13 **Associated samples:** All Qual U (B)
Conc. units: ng/kg

Compound	Blank ID	Sample Identification								
	13165001	5X	2							
B	0.0542*	0.271								
D	0.0389*	0.195	0.170							
E	0.0490*	0.245	0.0968							
F	0.0445*	0.223								
G	0.385	1.93								
I	0.0711*	0.356	0.0929*							
J	0.0370	0.185	0.0618*							
K	0.0411*	0.206	0.0372*							
L	0.0374*	0.187								
M	0.0753*	0.377								
N	0.0261*	0.131	0.0614*							
O	0.0586*	0.293								
P	0.0448*	0.224	0.0673							
Q	0.124	0.62								

*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 30022C21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: Th
2nd Reviewer: R

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 06/03/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: All >5x

Compound	Blank ID	Sample Identification								
	EB2-060313	5X								
E	0.162*	0.810								
F	0.372*	1.86								
G	0.871	4.36								
I	0.405*	2.03								
J	0.250*	1.25								
K	0.300*	1.50								
L	0.137	0.685								
M	0.195*	0.975								
N	0.129*	0.645								
O	0.275*	1.38								
P	0.202	1.01								
Q	0.688	3.44								

* EMPC

EB2-060313 (PH045)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\30022C21_EB.wpd

LDC #: 30022C21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: 9th
2nd Reviewer: 9

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 04/11/13
Field blank type: (circle one) Field Blank / Rinsate / Other: FB Associated Samples: All >5x

Compound	Blank ID	Sample Identification								
	FB-041113	5X								
C	0.125	0.625								
E	0.134*	0.67								
F	0.402*	2.01								
I	0.398*	1.99								
J	0.316*	1.58								
K	0.324	1.62								
L	0.221	1.105								
N	0.211*	1.055								
M	0.149	0.745								
O	0.254*	1.27								
Q	0.840*	4.2								

* EMPC

FB-041113 (PH029)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\30022C21_FB.wpd

LDC #: 30022021

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported CRQLs

Reviewer: GM
2nd Reviewer: ←

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound?
Y N N/A Compound quantitation and CRQLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

#	Date	Compound	Finding	Associated Samples	Qualifications
		H	no 2,3,7,8-TCDF confirmation	2	None / P

Comments: See sample calculation verification worksheet for recalculations

LDC #: 30622C21

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: gm
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported RRF (CS3 std)	Recalculated RRF (CS3 std)	Reported %RSD	Recalculated %RSD
1	ICAL DB5MS	3-22-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	1.043	1.043	1.025	1.024	5.23	5.24
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.207	1.207	1.182	1.182	9.04	9.04
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	0.957	0.9575	0.947	0.947	2.62	2.62
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.048	1.048	1.028	1.028	3.46	3.47
			OCDF (^{13}C-OCDF)	0.933	0.933	0.920	0.920	5.76	5.76
2	ICAL SP2331	3-22-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	0.968	0.968	0.993	0.993	3.96	3.94
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDF)						
3			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDF)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30022C21

VALIDATION FINDINGS WORKSHEET
Routine Calibration Results Verification

Page: 1 of ___
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Spiked Conc (ng/mL)	Reported Conc (ng/mL)	Recalculated Conc (ng/mL)	Reported %R	Recalculated %R
1	CS3CC02	6-18-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	10.22	10.21	102	102
	DB5MS		2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10	9.93	9.93	99	99
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50	54.860	54.88	110	110
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50	53.460	53.45	107	107
			OCDF (^{13}C-OCDF)	100	109.52	109.52	110	110
2	CS3CC02	6-20-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	10.90	10.89	109	109
	SP2331		2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10				
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50				
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50				
			OCDF (^{13}C-OCDF)	100				
3			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10				
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10				
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50				
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50				
			OCDF (^{13}C-OCDF)	100				

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30072521

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: CM
2nd Reviewer: C

METHOD: GC/MS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: OPR165001

Compound	Spike Added (ng/kg)		Spiked Sample Concentration (ng/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc	Reported	Recalc	Reported	Recalculated
2,3,7,8-TCDD	20.0	NA	19.7	NA	99	98.5				
1,2,3,7,8-PeCDD	100		101		101	101				
1,2,3,4,7,8-HxCDD	100		107		107	107				
1,2,3,4,7,8,9-HpCDF	100		105		105	105				
OCDF	200		213		106	106				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 30072021

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: [illegible]
2nd reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
RRF	=	Relative Response Factor (average) from the initial calibration
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 1, A:

Conc. = $\frac{(326+349)(2000)(1)}{(1450410+1190397)(1.207)(10.19)(\ )}$

0.0416 ng/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

LABORATORY DATA CONSULTANTS, INC.
2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

CDM
555 17th Street, Suite 1100
Denver, CO 80202
ATTN: Mrs. Cherie Zakowski

December 16, 2013

SUBJECT: Santa Susana Field Laboratory, Area IV, SA7 Data Validation

Dear Mrs. Zakowski,

Enclosed is the final validation report for the fractions listed below. This SDG was received on November 13, 2013. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 30840:

SDG #	Fraction
PH121	Semivolatiles, Polychlorinated Biphenyls, Metals, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Dioxins/Dibenzofurans

The data validation was performed under Level III guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan for Santa Susana Field Laboratory, RCRA Facility Investigation, Surficial Media Operable Unit, March 2009, Revision 4
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Shauna McKellar
Project Manager/Chemist

47 pages-CD

Attachment 1

90/10 ADR/IV

LDC #30840 (CDM Federal Programs-Chantilly VA / Santa Susana Field Laboratory, Area IV, Site SA7)

LDC	SDG#	DATE REC'D	(4) DATE DUE	SVOA (8270D -SIM)		PCBs (8082A)		Metals & Hg (SW846)		TPH-G (8015M)		TPH-E (8015M)		Dioxins (1613B)																							
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	PH121	11/13/13	12/13/13	1	2	1	2	1	2	2	1	1	2	1	2																						
Total	T/SM			1	2	1	2	1	2	2	1	1	2	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

Shaded cells indicate Level IV validation (all other cells are ADR review). These sample counts do not include MS/MSD, and DUPs

30840ST-SA7.wpd

Data Validation Report
Santa Susana Field Laboratory

Subarea 7

SDG: PH121

Prepared for

CDM Smith
555 17th Street, Suite 1100
Denver, CO 80202

Prepared by

Laboratory Data Consultants, Inc
2701 Loker Ave West, Suite 220
Carlsbad, California 92010

December 16, 2013

INTRODUCTION

This Data Validation Report (DVR) presents Level III data validation results for samples collected on October 2, 2013. Data validation was performed in accordance with the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008), Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005) and for Inorganic Data Review (January 2010). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Semivolatiles (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)
Polychlorinated Biphenyls (PCBs) by EPA SW 846 Method 8082A
Metals by EPA SW 846 Method 6010C, 6020A, 7470A and 7471B
Total Petroleum Hydrocarbons (TPH) as Gasoline by EPA SW 846 Method 8015M
TPH as Extractables by EPA SW 846 Method 8015M
Dioxins and Dibenzofurans by EPA Method 1613B

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment II. Level III Automated Data Review outliers are presented in Enclosure I.

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibration blanks (ICB/CCBs), surrogates, internal standards (dioxins only), matrix spike/matrix spike duplicates (MS/MSD), laboratory duplicates (DUP), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), ICP serial dilutions, method blanks, trip blanks, equipment blanks and field blanks. No samples in this SDG were subjected to Level IV evaluation.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with exception of the ICB/CCBs and ICP serial dilutions, which were validated manually. Quality assurance (QA)/QC criteria specified in the QAPP and CLPNFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met QC criteria.

II. Initial Calibration

Initial Calibration data were not reviewed for level III.

III. Continuing Calibration

Continuing calibration data were not reviewed for level III.

IV. Blanks

Method blanks were performed at the required frequencies. No contaminant concentrations were detected in the method or preparation blanks with the exception of several blanks for metals and dioxins. The associated sample results were qualified as non-detected (U) due to method blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosure I.

No contaminant concentrations were detected in the initial or continuing calibration blanks with the following exceptions:

SDG/ Method	Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PH121/ 6010C	ICB/CCB	Molybdenum	3.3 ug/L	EB2-100213

Sample concentrations were compared to concentrations detected in the initial and continuing blanks. The sample concentrations were not detected or were significantly greater than the concentrations found in the associated blanks with the following exceptions:

SDG/Method	Sample	Compound	Reported Concentration	Modified Final Concentration
PH121/ 6010C	EB2-100213	Molybdenum	2.7 ug/L	2.7U ug/L

V. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. ICP Interference Check Sample (ICS) Analysis

ICP interference check data were not reviewed for level III.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were performed at the required frequency. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for metals. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosure I.

VIII. Laboratory Duplicates Sample

Laboratory duplicates (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

IX. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of several LCS/LCSD pairs for SVOCs, PCBs, and TPH as extractables. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosure I.

X. Internal Standards

Internal standards were reviewed for dioxins. Percent recoveries (%R) were within QC limits.

XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met with the following exceptions:

Diluted Sample	Analyte	%D (Limits)	Associated Samples	Flag	A or P
SL-541-SA7-SB-2.0-3.0	Strontium	14 (≤10)	All soil samples in SDG PH121	J (all detects) UJ (all non-detects)	A

The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable.

XII. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the RL as detected were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH121	All compounds reported as detected below the RL.	J (all detects)	A

XIII. Field Duplicate Samples

No field duplicates were identified in this SDG.

XIV. Field Blank Samples

One trip blank was collected and analyzed for TPH as gasoline. No volatile contaminants were found in the trip blank.

One equipment blank was collected and analyzed for SVOCs, PCBs, metals, TPH as gasoline, TPH as extractables and dioxins. The equipment blank had detections for SVOCs, metals and dioxins. The associated sample results were qualified as non-detected (U) due to equipment blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the equipment blanks were not qualified. The equipment blank outlier reports are presented in Enclosure I.

One field blank (from SDG PH029) was collected and analyzed for SVOCs, PCBs, metals, TPH as gasoline, TPH as extractables and dioxins. The field blank had detections for SVOCs, metals and dioxins. The associated sample results were qualified as non-detected (U) due to field blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the field blank were not qualified. The field blank outlier reports are presented in Enclosure I. .

XV. Overall Assessment of Data

No data associated with this sampling event were rejected. The overall assessment of QA/QC data review by automated and manual validation of this sampling event met project requirements and analytical completeness levels with the exceptions noted in the above sections. All data are deemed useable for the intended use.

Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
02-Oct-2013	TB2-100213	7222780	TB	5030B	8015M	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	3050B	6010C	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	3546	8015M	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	3546	8082A	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	3546	8270D SIM	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	Gen Prep	160.3M	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	Gen Prep	9045M	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	METHOD	1613B	3
02-Oct-2013	SL-541-SA7-SB-0.0-0.5	7222778	N	METHOD	7471B	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	3050B	6010C	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	3546	8015M	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	3546	8082A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	3546	8270D SIM	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	5035A	8015M	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	Gen Prep	160.3M	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	Gen Prep	9045M	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	METHOD	1613B	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0	7222779	N	METHOD	7471B	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0DUP	P222779D220659	DUP	METHOD	7471B	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0DUP	P222779D220738A	DUP	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0DUP	P222779D220738B	DUP	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0DUP	P222779D221257	DUP	3050B	6010C	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0DUP	P222779D292325B	DUP	Gen Prep	9045M	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MSD	P222779M220703	MSD	METHOD	7471B	3

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MSD	P222779M220743A	MSD	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MSD	P222779M220743B	MSD	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MSD	P222779M221305	MSD	3050B	6010C	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MS	P222779R220701	MS	METHOD	7471B	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MS	P222779R220741A	MS	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MS	P222779R220741B	MS	3050B	6020A	3
02-Oct-2013	SL-541-SA7-SB-2.0-3.0MS	P222779R221301	MS	3050B	6010C	3
02-Oct-2013	EB2-100213	7222777	EB	3005A	6010C	3
02-Oct-2013	EB2-100213	7222777	EB	3510C	8015M	3
02-Oct-2013	EB2-100213	7222777	EB	3510C	8082A	3
02-Oct-2013	EB2-100213	7222777	EB	3510C	8270D SIM	3
02-Oct-2013	EB2-100213	7222777	EB	5030B	8015M	3
02-Oct-2013	EB2-100213	7222777	EB	Gen Prep	9040C	3
02-Oct-2013	EB2-100213	7222777	EB	M3010A	6020A	3
02-Oct-2013	EB2-100213	7222777	EB	METHOD	1613B	3
02-Oct-2013	EB2-100213	7222777	EB	METHOD	7470A	3

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment 2
Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method Category: METALS

Method: 6010C ***Matrix:*** AQ

Sample ID: EB2-100213 ***Collected:*** 10/2/2013 2:30:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MOLYBDENUM	0.0027	J	0.0017	MDL	0.0200	PQL	mg/L	U	B

Method Category: METALS

Method: 6010C ***Matrix:*** SO

Sample ID: SL-541-SA7-SB-0.0-0.5 ***Collected:*** 10/2/2013 8:45:00 ***Analysis Type:*** REA ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.23	U	0.783	MDL	4.23	PQL	mg/Kg	UJ	Q
ARSENIC	2.05	J	0.741	MDL	4.23	PQL	mg/Kg	J	Z
BERYLLIUM	0.402	J	0.0709	MDL	1.06	PQL	mg/Kg	J	Z
BORON	5.20	J	0.889	MDL	10.6	PQL	mg/Kg	J	Z
CADMIUM	0.210	J	0.0804	MDL	1.06	PQL	mg/Kg	J	Z
MOLYBDENUM	1.41	J	0.180	MDL	2.12	PQL	mg/Kg	U	F, F
PHOSPHORUS	516		3.06	MDL	10.6	PQL	mg/Kg	J	Q, Q, E
POTASSIUM	2340		8.83	MDL	106	PQL	mg/Kg	J	Q
TIN	2.29	J	0.233	MDL	10.6	PQL	mg/Kg	U	B
Zirconium	1.91	J	0.889	MDL	5.29	PQL	mg/Kg	J	Z

Sample ID: SL-541-SA7-SB-2.0-3.0 ***Collected:*** 10/2/2013 8:50:00 ***Analysis Type:*** REA ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.12	U	0.763	MDL	4.12	PQL	mg/Kg	UJ	Q
ARSENIC	4.06	J	0.722	MDL	4.12	PQL	mg/Kg	J	Z
BERYLLIUM	0.415	J	0.0691	MDL	1.03	PQL	mg/Kg	J	Z
BORON	6.34	J	0.866	MDL	10.3	PQL	mg/Kg	J	Z
CADMIUM	0.219	J	0.0784	MDL	1.03	PQL	mg/Kg	J	Z
MOLYBDENUM	0.275	J	0.175	MDL	2.06	PQL	mg/Kg	U	F, F
PHOSPHORUS	383		2.98	MDL	10.3	PQL	mg/Kg	J	Q, Q, E
POTASSIUM	2580		8.60	MDL	103	PQL	mg/Kg	J	Q
TIN	2.64	J	0.227	MDL	10.3	PQL	mg/Kg	U	B
Zirconium	2.37	J	0.866	MDL	5.15	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method Category: METALS
Method: 6020A **Matrix:** SO

Sample ID: SL-541-SA7-SB-0.0-0.5 **Collected:** 10/2/2013 8:45:00 **Analysis Type:** REA **Dilution:** 5

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
STRONTIUM	19.4		0.180	MDL	1.06	PQL	mg/Kg	J	Q, Q, E, A

Sample ID: SL-541-SA7-SB-2.0-3.0 **Collected:** 10/2/2013 8:50:00 **Analysis Type:** RES **Dilution:** 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
STRONTIUM	18.6		0.0701	MDL	0.412	PQL	mg/Kg	J	Q, Q, E, A

Method Category: SVOA
Method: 1613B **Matrix:** AQ

Sample ID: EB2-100213 **Collected:** 10/2/2013 2:30:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.531	JB	0.182	MDL	9.67	PQL	pg/L	U	B
1,2,3,4,6,7,8-HPCDF	0.342	JBQ	0.0854	MDL	9.67	PQL	pg/L	U	B
1,2,3,4,7,8,9-HPCDF	0.249	JBQ	0.0916	MDL	9.67	PQL	pg/L	U	B
1,2,3,4,7,8-HXCDF	0.297	JB	0.114	MDL	9.67	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDD	0.258	JB	0.203	MDL	9.67	PQL	pg/L	U	B
1,2,3,6,7,8-HXCDF	0.210	JBQ	0.113	MDL	9.67	PQL	pg/L	U	B
1,2,3,7,8,9-HXCDD	0.321	JBQ	0.190	MDL	9.67	PQL	pg/L	U	B
1,2,3,7,8-PECDD	0.317	JBQ	0.255	MDL	9.67	PQL	pg/L	U	B
1,2,3,7,8-PECDF	0.550	JBQ	0.145	MDL	9.67	PQL	pg/L	U	B
2,3,4,6,7,8-HXCDF	0.363	JBQ	0.102	MDL	9.67	PQL	pg/L	U	B
2,3,4,7,8-PECDF	0.285	JBQ	0.133	MDL	9.67	PQL	pg/L	U	B
OCDD	1.33	JBQ	0.342	MDL	19.3	PQL	pg/L	U	B
OCDF	1.23	JBQ	0.248	MDL	19.3	PQL	pg/L	U	B

Method Category: SVOA
Method: 1613B **Matrix:** SO

Sample ID: SL-541-SA7-SB-0.0-0.5 **Collected:** 10/2/2013 8:45:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	0.747	JB	0.0417	MDL	5.29	PQL	ng/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-541-SA7-SB-0.0-0.5** ***Collected:*** **10/2/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,7,8,9-HPCDF	0.115	JQ	0.0517	MDL	5.29	PQL	ng/Kg	J	Z
1,2,3,4,7,8-HXCDF	0.117	JQ	0.0628	MDL	5.29	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.150	J	0.0836	MDL	5.29	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.0774	JBQ	0.0604	MDL	5.29	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.121	JQ	0.0790	MDL	5.29	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.103	JQ	0.0578	MDL	5.29	PQL	ng/Kg	J	Z
OCDF	1.30	JBQ	0.0871	MDL	10.6	PQL	ng/Kg	J	Z

Sample ID: **SL-541-SA7-SB-2.0-3.0** ***Collected:*** **10/2/2013 8:50:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.397	JB	0.0685	MDL	5.12	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.0790	JBQ	0.0267	MDL	5.12	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0426	JQ	0.0326	MDL	5.12	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDD	0.115	JQ	0.107	MDL	5.12	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.0742	JBQ	0.0661	MDL	5.12	PQL	ng/Kg	U	B
OCDD	4.27	JB	0.0765	MDL	10.2	PQL	ng/Kg	J	Z
OCDF	0.262	JBQ	0.0782	MDL	10.2	PQL	ng/Kg	U	B

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **AQ**

Sample ID: **EB2-100213** ***Collected:*** **10/2/2013 2:30:00** ***Analysis Type:*** **REA** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C8-C11)	0.096	U	0.048	MDL	0.096	PQL	mg/L	UJ	L

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: **SL-541-SA7-SB-0.0-0.5** ***Collected:*** **10/2/2013 8:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	4.5	J	2.1	MDL	5.3	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: **SL-541-SA7-SB-2.0-3.0** ***Collected:*** **10/2/2013 8:50:00** ***Analysis Type:*** **REA** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.0	J	2.1	MDL	5.1	PQL	mg/Kg	J	Z

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **AQ**

Sample ID: **EB2-100213** ***Collected:*** **10/2/2013 2:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E

Sample ID: **EB2-100213** ***Collected:*** **10/2/2013 2:30:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
ACENAPHTHENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
ACENAPHTHYLENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
ANTHRACENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
BENZO(A)ANTHRACENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
BENZO(A)PYRENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
BENZO(B)FLUORANTHENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
BENZO(E)PYRENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
BENZO(G,H,I)PERYLENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	E
BENZO(K)FLUORANTHENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
BIS(2-ETHYLHEXYL)PHTHALATE	0.41	J	0.053	MDL	1.1	PQL	ug/L	J	Z, E
Butylbenzylphthalate	1.1	U	0.053	MDL	1.1	PQL	ug/L	UJ	E
CHRYSENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
Diethylphthalate	0.29	J	0.053	MDL	1.1	PQL	ug/L	J	Z, L, E
Dimethylphthalate	1.1	U	0.053	MDL	1.1	PQL	ug/L	UJ	E
Di-n-butylphthalate	0.25	J	0.053	MDL	1.1	PQL	ug/L	J	Z, L, E
FLUORANTHENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
FLUORENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E
NAPHTHALENE	0.053	U	0.032	MDL	0.053	PQL	ug/L	UJ	L, E
PHENANTHRENE	0.053	U	0.032	MDL	0.053	PQL	ug/L	UJ	L, E
PYRENE	0.053	U	0.011	MDL	0.053	PQL	ug/L	UJ	L, E

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-541-SA7-SB-2.0-3.0** ***Collected:*** **10/2/2013 8:50:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
CHRYSENE	0.42	J	0.34	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Reason Code Legend

Reason Code	*Description*
*#	Professional Judgment
A	ICP Serial Dilution
B	Calibration Blank Contamination
B	Method Blank Contamination
E	Laboratory Control Precision
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Equipment Blank Contamination
F	Field Blank Contamination
L	Laboratory Control Precision
L	Laboratory Control Spike Lower Estimation
L	Laboratory Control Spike Upper Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Enclosure I

EPA Level III ADR Outliers

(Including Manual Review Outliers)

Quality Control Outlier Reports

PH121

Method Blank Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: **1613B**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK2810B371346	10/10/2013 1:46:00 PM	1,2,3,4,6,7,8-HPCDD	0.614 pg/L	EB2-100213
		1,2,3,4,6,7,8-HPCDF	0.745 pg/L	
		1,2,3,4,7,8,9-HPCDF	0.694 pg/L	
		1,2,3,4,7,8-HXCDF	0.571 pg/L	
		1,2,3,6,7,8-HXCDD	0.572 pg/L	
		1,2,3,6,7,8-HXCDF	0.559 pg/L	
		1,2,3,7,8,9-HXCDD	0.348 pg/L	
		1,2,3,7,8,9-HXCDF	0.600 pg/L	
		1,2,3,7,8-PECDD	0.427 pg/L	
		1,2,3,7,8-PECDF	0.502 pg/L	
		2,3,4,6,7,8-HXCDF	0.387 pg/L	
		2,3,4,7,8-PECDF	0.364 pg/L	
		OCDD	1.53 pg/L	
		OCDF	2.35 pg/L	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB2-100213(RES)	1,2,3,4,6,7,8-HPCDD	0.531 pg/L	0.531U pg/L
EB2-100213(RES)	1,2,3,4,6,7,8-HPCDF	0.342 pg/L	0.342U pg/L
EB2-100213(RES)	1,2,3,4,7,8,9-HPCDF	0.249 pg/L	0.249U pg/L
EB2-100213(RES)	1,2,3,4,7,8-HXCDF	0.297 pg/L	0.297U pg/L
EB2-100213(RES)	1,2,3,6,7,8-HXCDD	0.258 pg/L	0.258U pg/L
EB2-100213(RES)	1,2,3,6,7,8-HXCDF	0.210 pg/L	0.210U pg/L
EB2-100213(RES)	1,2,3,7,8,9-HXCDD	0.321 pg/L	0.321U pg/L
EB2-100213(RES)	1,2,3,7,8-PECDD	0.317 pg/L	0.317U pg/L
EB2-100213(RES)	1,2,3,7,8-PECDF	0.550 pg/L	0.550U pg/L
EB2-100213(RES)	2,3,4,6,7,8-HXCDF	0.363 pg/L	0.363U pg/L
EB2-100213(RES)	2,3,4,7,8-PECDF	0.285 pg/L	0.285U pg/L
EB2-100213(RES)	OCDD	1.33 pg/L	1.33U pg/L
EB2-100213(RES)	OCDF	1.23 pg/L	1.23U pg/L

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK2830B371446	10/14/2013 2:46:00 PM	1,2,3,4,6,7,8-HPCDD	0.0753 ng/Kg	SL-541-SA7-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0423 ng/Kg	SL-541-SA7-SB-2.0-3.0
		1,2,3,6,7,8-HXCDF	0.0948 ng/Kg	
		1,2,3,7,8-PECDF	0.0800 ng/Kg	
		OCDD	0.215 ng/Kg	
		OCDF	0.137 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-541-SA7-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.0774 ng/Kg	0.0774U ng/Kg
SL-541-SA7-SB-2.0-3.0(RES)	1,2,3,4,6,7,8-HPCDF	0.0790 ng/Kg	0.0790U ng/Kg
SL-541-SA7-SB-2.0-3.0(RES)	1,2,3,7,8-PECDF	0.0742 ng/Kg	0.0742U ng/Kg
SL-541-SA7-SB-2.0-3.0(RES)	OCDF	0.262 ng/Kg	0.262U ng/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: **6010C**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P28135AB221117	10/12/2013 11:17:00 AM	PHOSPHORUS POTASSIUM ZINC	0.0547 mg/L 0.203 mg/L 0.0059 mg/L	EB2-100213

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P28137AB221240	10/14/2013 12:40:00 PM	ALUMINUM CALCIUM IRON MAGNESIUM TIN ZINC	9.86 mg/Kg 12.9 mg/Kg 3.84 mg/Kg 2.49 mg/Kg 1.41 mg/Kg 0.656 mg/Kg	SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-541-SA7-SB-0.0-0.5(REA)	TIN	2.29 mg/Kg	2.29U mg/Kg
SL-541-SA7-SB-2.0-3.0(REA)	TIN	2.64 mg/Kg	2.64U mg/Kg

Equipment Rinsate Blank Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PrepPH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: **6010C**
Matrix: **SO**

Equipment Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
EB2-100213(RES)	10/2/2013 2:30:00 PM	MOLYBDENUM	0.0027 mg/L	SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-541-SA7-SB-0.0-0.5(REA)	MOLYBDENUM	1.41 mg/Kg	1.41U mg/Kg
SL-541-SA7-SB-2.0-3.0(REA)	MOLYBDENUM	0.275 mg/Kg	0.275U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PrepPH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041613(REA2/TOT)	4/16/2013 3:15:00 PM	MOLYBDENUM TIN	0.0132 mg/L 0.0029 mg/L	SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-541-SA7-SB-0.0-0.5(REA)	MOLYBDENUM	1.41 mg/Kg	1.41U mg/Kg
SL-541-SA7-SB-2.0-3.0(REA)	MOLYBDENUM	0.275 mg/Kg	0.275U mg/Kg

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: 6010C
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-541-SA7-SB-2.0-3.0MS (TOT) SL-541-SA7-SB-2.0-3.0MSD (TOT) (SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0)	ALUMINUM	2134	1672	75.00-125.00	-	ALUMINUM	J (all detects)
	IRON	2130	574	75.00-125.00	-	IRON	
	MAGNESIUM	560	327	75.00-125.00	-	MAGNESIUM	
	MANGANESE	158	-	75.00-125.00	-	MANGANESE	Al, Fe, Mg, Mn, Ti, No Qual, >4x
	POTASSIUM	136	-	75.00-125.00	-	POTASSIUM	
	TITANIUM	525	340	75.00-125.00	-	TITANIUM	
SL-541-SA7-SB-2.0-3.0MS (TOT) SL-541-SA7-SB-2.0-3.0MSD (TOT) (SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0)	CALCIUM	-7	-181	75.00-125.00	-	CALCIUM	No Qual, >4x
SL-541-SA7-SB-2.0-3.0MS (TOT) SL-541-SA7-SB-2.0-3.0MSD (TOT) (SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0)	ANTIMONY	58	50	75.00-125.00	-	ANTIMONY	J(all detects) UJ(all non-detects)
	PHOSPHORUS	298	38	75.00-125.00	48 (20.00)	PHOSPHORUS	

Method: 6020A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-541-SA7-SB-2.0-3.0MS (TOT) SL-541-SA7-SB-2.0-3.0MSD (TOT) (SL-541-SA7-SB-0.0-0.5 SL-541-SA7-SB-2.0-3.0)	STRONTIUM	42	263	75.00-125.00	57 (20.00)	STRONTIUM	J(all detects) UJ(all non-detects)

Lab Duplicate Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: 6010C
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-541-SA7-SB-2.0-3.0DUP (TOT) (SL-541-SA7-SB-0.0-0.5 SL -541-SA7-SB-2.0-3.0)	Zirconium	37	20.00	No Qual, OK by Difference

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: 8015M
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P32808AQ321759A P32808AY321820A (EB2-100213)	EFH (C8-C11)	64	65	70.00-130.00	-	EFH (C8-C11)	J(all detects) UJ(all non-detects)

Method: 8270D SIM
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P2WILCSQ262241 P2WILCSY262310 (EB2-100213)	1-METHYLNAPHTHALENE	60	-	80.00-126.00	55 (30.00)	1-METHYLNAPHTHALENE	J(all detects) UJ(all non-detects)
	2-METHYLNAPHTHALENE	58	-	81.00-124.00	56 (30.00)	2-METHYLNAPHTHALENE	
	ACENAPHTHENE	57	-	80.00-123.00	53 (30.00)	ACENAPHTHENE	
	ACENAPHTHYLENE	57	-	78.00-120.00	59 (30.00)	ACENAPHTHYLENE	
	ANTHRACENE	60	-	78.00-123.00	53 (30.00)	ANTHRACENE	
	BENZO(A)ANTHRACENE	62	-	73.00-127.00	50 (30.00)	BENZO(A)ANTHRACENE	
	BENZO(A)PYRENE	65	-	72.00-120.00	47 (30.00)	BENZO(A)PYRENE	
	BENZO(B)FLUORANTHENE	66	-	79.00-136.00	47 (30.00)	BENZO(B)FLUORANTHENE	
	BENZO(E)PYRENE	60	-	70.00-130.00	49 (30.00)	BENZO(E)PYRENE	
	BENZO(G,H,I)PERYLENE	-	-	64.00-130.00	33 (30.00)	BENZO(G,H,I)PERYLENE	
	BENZO(K)FLUORANTHENE	71	-	73.00-131.00	45 (30.00)	BENZO(K)FLUORANTHENE	
	BIS(2-ETHYLHEXYL)PHTHALAT	-	-	70.00-143.00	58 (30.00)	BIS(2-ETHYLHEXYL)PHTHALA	
	Butylbenzylphthalate	-	-	40.00-138.00	50 (30.00)	Butylbenzylphthalate	
	CHRYSENE	63	-	76.00-125.00	45 (30.00)	CHRYSENE	
	Diethylphthalate	63	-	64.00-128.00	49 (30.00)	Diethylphthalate	
	Dimethylphthalate	-	-	23.00-139.00	50 (30.00)	Dimethylphthalate	
	Di-n-butylphthalate	61	-	64.00-141.00	50 (30.00)	Di-n-butylphthalate	
	FLUORANTHENE	61	-	79.00-124.00	51 (30.00)	FLUORANTHENE	
	FLUORENE	55	-	74.00-115.00	55 (30.00)	FLUORENE	
	NAPHTHALENE	57	-	75.00-120.00	56 (30.00)	NAPHTHALENE	
	PHENANTHRENE	58	-	75.00-120.00	52 (30.00)	PHENANTHRENE	
	PYRENE	61	-	71.00-130.00	48 (30.00)	PYRENE	

Method: 8082A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P32788AY242339A (SL-541-SA7-SB-0.0-0.5 SL -541-SA7-SB-2.0-3.0)	Aroclor 5442	-	90	62.00-87.00	-	Aroclor 5432 Aroclor 5442 Aroclor 5460	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: 1613B
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB2-100213	1,2,3,4,6,7,8-HPCDD	JB	0.531	9.67	PQL	pg/L	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.342	9.67	PQL	pg/L	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.249	9.67	PQL	pg/L	
	1,2,3,4,7,8-HXCDF	JB	0.297	9.67	PQL	pg/L	
	1,2,3,6,7,8-HXCDD	JB	0.258	9.67	PQL	pg/L	
	1,2,3,6,7,8-HXCDF	JBQ	0.210	9.67	PQL	pg/L	
	1,2,3,7,8,9-HXCDD	JBQ	0.321	9.67	PQL	pg/L	
	1,2,3,7,8-PECDD	JBQ	0.317	9.67	PQL	pg/L	
	1,2,3,7,8-PECDF	JBQ	0.550	9.67	PQL	pg/L	
	2,3,4,6,7,8-HXCDF	JBQ	0.363	9.67	PQL	pg/L	
	2,3,4,7,8-PECDF	JBQ	0.285	9.67	PQL	pg/L	
	OCDD	JBQ	1.33	19.3	PQL	pg/L	
	OCDF	JBQ	1.23	19.3	PQL	pg/L	

Method: 6010C
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB2-100213	MOLYBDENUM	J	0.0027	0.0200	PQL	mg/L	J (all detects)

Method: 8270D SIM
Matrix: AQ

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB2-100213	BIS(2-ETHYLHEXYL)PHTHALATE	J	0.41	1.1	PQL	ug/L	J (all detects)
	Diethylphthalate	J	0.29	1.1	PQL	ug/L	
	Di-n-butylphthalate	J	0.25	1.1	PQL	ug/L	

Method: 1613B
Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-541-SA7-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	0.747	5.29	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JQ	0.115	5.29	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JQ	0.117	5.29	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.150	5.29	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.0774	5.29	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JQ	0.121	5.29	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JQ	0.103	5.29	PQL	ng/Kg	
	OCDF	JBQ	1.30	10.6	PQL	ng/Kg	
SL-541-SA7-SB-2.0-3.0	1,2,3,4,6,7,8-HPCDD	JB	0.397	5.12	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0790	5.12	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JQ	0.0426	5.12	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.115	5.12	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0742	5.12	PQL	ng/Kg	
	OCDD	JB	4.27	10.2	PQL	ng/Kg	
	OCDF	JBQ	0.262	10.2	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH121 **Laboratory: LL**

EDD Filename: PH121 **eQAPP Name: CDM_SSFL_131101_Lan**

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-541-SA7-SB-0.0-0.5	ARSENIC	J	2.05	4.23	PQL	mg/Kg	
	BERYLLIUM	J	0.402	1.06	PQL	mg/Kg	
	BORON	J	5.20	10.6	PQL	mg/Kg	
	CADMIUM	J	0.210	1.06	PQL	mg/Kg	J (all detects)
	MOLYBDENUM	J	1.41	2.12	PQL	mg/Kg	
	TIN	J	2.29	10.6	PQL	mg/Kg	
	Zirconium	J	1.91	5.29	PQL	mg/Kg	
SL-541-SA7-SB-2.0-3.0	ARSENIC	J	4.06	4.12	PQL	mg/Kg	
	BERYLLIUM	J	0.415	1.03	PQL	mg/Kg	
	BORON	J	6.34	10.3	PQL	mg/Kg	
	CADMIUM	J	0.219	1.03	PQL	mg/Kg	J (all detects)
	MOLYBDENUM	J	0.275	2.06	PQL	mg/Kg	
	TIN	J	2.64	10.3	PQL	mg/Kg	
	Zirconium	J	2.37	5.15	PQL	mg/Kg	

Method: 8015M

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-541-SA7-SB-0.0-0.5	EFH (C21-C30)	J	4.5	5.3	PQL	mg/Kg	J (all detects)
SL-541-SA7-SB-2.0-3.0	EFH (C21-C30)	J	3.0	5.1	PQL	mg/Kg	J (all detects)

Method: 8270D SIM

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-541-SA7-SB-2.0-3.0	CHRYSENE	J	0.42	1.7	PQL	ug/Kg	J (all detects)

LDC #: 30840A4

SDG #: PH121

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

ADR

Date: 11/19/13

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/7000)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	—	Sampling dates: 10/2/13
II.	ICP/MS Tune	—	
III.	Calibration	—	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	—	
VI.	Matrix Spike Analysis	SW	MS/D
VII.	Duplicate Sample Analysis	SW	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	N	
X.	Furnace Atomic Absorption QC	N	
XI.	ICP Serial Dilution	SW	
XII.	Sample Result Verification	N	
XIII.	Overall Assessment of Data	N	
XIV.	Field Duplicates	N	
XV	Field Blanks	SW	EB=1 FB=041113 (PH029)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples:

1	EB2-100213	11		21		31	
2	SL-541-SA7-SB-0.0-0.5	12		22		32	
3	SL-541-SA7-SB-2.0-3.0	13		23		33	
4	MS	14		24		34	
5	MSD	15		25		35	
6	DUP	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 30840A4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied:_____ Reason: B
Sample Concentration units, unless otherwise noted: ug/L Associated Samples: All Water

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	1										
Mo			3.3	16.5	2.7										

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".
Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 30840A4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: EB=4/24/13 FB=4/11/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Blank ID	Sample Identification										
	EB2-100213	FB-041113	Action Limit	2	3								
Cu		0.0036	1.8										
Mo	0.0027	0.0036	1.8	1.4	0.28								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PH121
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7222779BKG Matrix Spike Lab Sample ID: 7222779MS Matrix Spike Duplicate Lab Sample ID: 7222779MSD
Batch Id(s): P28137A, P28138A

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	Control Limit RPD	M
Aluminum		8799.6360		13068.1010		12078.2971		200.0000	196.0784	MG/KG	2134		1672		8			20	P
Antimony		0.7400	U	29.0050		24.4275		50.0000	49.0196	MG/KG	58	N	50	N	17		75 - 125	20	P
Arsenic		3.9390	B	19.3520		17.9578		15.0000	14.7059	MG/KG	103		95		7		75 - 125	20	P
Barium		60.6460		269.9170		251.4127		200.0000	196.0784	MG/KG	105		97		7		75 - 125	20	P
Beryllium		0.4030	B	5.4450		5.1137		5.0000	4.9020	MG/KG	101		96		6		75 - 125	20	P
Boron		6.1470	B	188.6330		177.9010		200.0000	196.0784	MG/KG	91		88		6		75 - 125	20	P
Cadmium		0.2120	B	5.0230		4.7667		5.0000	4.9020	MG/KG	96		93		5		75 - 125	20	P
Calcium		7358.5680		7332.3100		6649.1500		400.0000	392.1569	MG/KG	-7		-181		10			20	P
Chromium		14.2260		37.9290		34.6029		20.0000	19.6078	MG/KG	119		104		9		75 - 125	20	P
Cobalt		3.8340		52.4070		49.4451		50.0000	49.0196	MG/KG	97		93		6		75 - 125	20	P
Copper		9.1640		36.8020		34.6912		25.0000	24.5098	MG/KG	111		104		6		75 - 125	20	P
Iron		15470.9920		17600.7990		16033.4804		100.0000	98.0392	MG/KG	2130		574		9			20	P
Lead		3.2920		18.0690		17.2608		15.0000	14.7059	MG/KG	99		95		5		75 - 125	20	P
Lithium		26.9150		132.9510		124.7186		100.0000	98.0392	MG/KG	106		100		6		75 - 125	20	P
Magnesium		4335.1380		5456.0200		4975.5382		200.0000	196.0784	MG/KG	560		327		9			20	P
Manganese		220.7210		299.8190		272.3167		50.0000	49.0196	MG/KG	158		105		10			20	P
Mercury		0.0095	U	0.1763		0.1702		0.1591	0.1603	MG/KG	111		106		4		65 - 135	20	CV
Molybdenum		0.2670	B	197.7080		187.9088		200.0000	196.0784	MG/KG	99		96		5		75 - 125	20	P
Nickel		7.1070		56.4800		53.2784		50.0000	49.0196	MG/KG	99		94		6		75 - 125	20	P
Phosphorus		371.4670		669.6260		408.2490		100.0000	98.0392	MG/KG	298	N	38	N	48	*	75 - 125	20	P
Potassium		2503.3450		3866.6460		3531.4941		1000.0000	980.3922	MG/KG	136	N	105		9		75 - 125	20	P
Selenium	78	0.1000	U	2.1886		2.1788		2.0000	1.9608	MG/KG	109		111		0		75 - 125	20	MS
Silver	107	0.0260	U	11.1040		10.7953		10.0000	9.8039	MG/KG	111		110		3		75 - 125	20	MS
Sodium		108.0330		1130.2260		1071.5559		1000.0000	980.3922	MG/KG	102		98		5		75 - 125	20	P
Strontium	88	17.9954		21.3894		38.6059		8.0000	7.8431	MG/KG	42	N	263	N	57	*	75 - 125	20	MS
Thallium	203	0.2410		0.6674		0.6410		0.4000	0.3922	MG/KG	107		102		4		75 - 125	20	MS

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 5A(MS/MSD)
MATRIX SPIKE/MATRIX SPIKE DUPLICATE
SDG No.: PH121
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7222779BKG Matrix Spike Lab Sample ID: 7222779MS Matrix Spike Duplicate Lab Sample ID: 7222779MSD
Batch Id(s): P28137A, P28138A

Analyte	Mass	BKG Sample Result	C	MS Sample Result	C	MSD Sample Result	C	MS Spike Added	MSD Spike Added	Units	MS %R	Q	MSD %R	Q	RPD	Q	Control Limit %R	Control Limit RPD	M
Tin		2.5610	B	367.1930		349.8529		400.0000	392.1569	MG/KG	91		89		5		75 - 125	20	P
Titanium		807.9810		1332.4900		1141.6324		100.0000	98.0392	MG/KG	525		340		15			20	P
Vanadium		26.8100		84.7210		77.9069		50.0000	49.0196	MG/KG	116		104		8		75 - 125	20	P
Zinc		47.3640		99.6600		92.8225		50.0000	49.0196	MG/KG	105		93		7		75 - 125	20	P
Zirconium		2.3020	B	104.5550		99.5627		100.0000	98.0392	MG/KG	102		99		5		75 - 125	20	P

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer CV = Cold Vapor
MS = ICP Mass Spectrometry AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL, B= Below LOQ
FLAGS:
N = Matrix Spike OOS, * = Duplicate OOS

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QUALITY ASSURANCE SUMMARY
FORM 6
DUPLICATES
SDG No.: PH121
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7222779BKG
Duplicate Lab Sample ID: 7222779DUP
Batch ID(s): P28137A, P28138A
Concentration Units: MG/KG

Analyte	Mass	Control Limit	Samples (S)	C	Duplicate (D)	C	RPD	Q	M
Aluminum			8799.6360		9903.5330		12		P
Antimony			0.7400	U	0.7184	U			P
Arsenic		4.0	3.9390	B	4.2398		7		P
Barium			60.6460		66.5583		9		P
Beryllium			0.4030	B	0.4126	B	2		P
Boron			6.1470	B	6.1097	B	1		P
Cadmium			0.2120	B	0.2544	B	18		P
Calcium			7358.5680		7550.0359		3		P
* Chromium		3.0	14.2260		17.2592		19	*	P
Cobalt		1.0	3.8340		4.4146		14		P
Copper		2.0	9.1640		10.0825		10		P
Iron			15470.9920		17181.1981		10		P
Lead		3.0	3.2920		3.9136		17		P
Lithium			26.9150		30.1515		11		P
Magnesium			4335.1380		4902.4117		12		P
Manganese			220.7210		249.9136		12		P
Mercury			0.0095	U	0.0096	U			CV
Molybdenum			0.2670	B	0.2903	B	8		P
Nickel		2.0	7.1070		8.3971		17		P
Phosphorus			371.4670		361.6796		3		P
Potassium			2503.3450		2762.5117		10		P
Selenium	78		0.1000	U	0.0971	U			MS
Silver	107		0.0260	U	0.0252	U			MS
Sodium		100.0	108.0330		126.4796		16		P
Strontium	88		17.9954		18.1522		1		MS
Thallium	203	0.2	0.2410		0.2573		7		MS
Tin			2.5610	B	2.5806	B	1		P
Titanium			807.9810		895.8252		10		P
Vanadium			26.8100		29.7757		10		P
Zinc			47.3640		51.1583		8		P
* Zirconium			2.3020	B	3.3583	B	37	*	P

RPD ≤20 OK

NOTE: An asterisk (*) in column "Q" indicates poor duplicate precision (RPD > 20% OR |(S) - (D)| > LOQ for values < 5x LOQ).
The data are considered to be valid because the laboratory control sample is within the control limits. See the Laboratory Control Sample.

ok by difference

Note: Results shown are reported on an as-received basis.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry
CV = Cold Vapor
AF = Cold Vapor Atomic Fluorescence

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ

FLAGS:
* = Duplicate Out of Spec

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QUALITY ASSURANCE SUMMARY
FORM 9
SERIAL DILUTIONS
SDG No.: PH121
Matrix: SOIL Level (low/med): LOW

Background Lab Sample ID: 7222779BKG Serial Dilution Lab Sample ID: 7222779L
Batch ID(s): P28137A
Concentration Units: UG/L

Analyte	Mass	Initial Sample Result (I)	C	Serial Dilution Result (S)	C	% Diff.	Q	M
Aluminum		87996.3600		89863.1000		2		P
Antimony		7.4000	U	37.0000	U			P
Arsenic		39.3900	B	35.0000	U	100		P
Barium		606.4600		608.0000		0		P
Beryllium		4.0300	B	4.2500	B	5		P
Boron		61.4700	B	85.1500	B	39		P
Cadmium		2.1200	B	3.8000	U	100		P
Calcium		73585.6800		76376.6500		4		P
Chromium		142.2600		145.9000	B	3		P
Cobalt		38.3400		42.7000	B	11		P
Copper		91.6400		103.2000		13		P
Iron		154709.9200		157701.1000		2		P
Lead		32.9200		28.6500	B	13		P
Lithium		269.1500		272.7500		1		P
Magnesium		43351.3800		44447.1500		3		P
Manganese		2207.2100		2258.0500		2		P
Molybdenum		2.6700	B	8.5000	U	100		P
Nickel		71.0700		74.4500	B	5		P
Phosphorus		3714.6700		3668.8500		1		P
Potassium		25033.4500		25161.0000		1		P
Selenium	78	0.5000	U	2.5000	U			MS
Silver	107	0.1300	U	0.6500	U			MS
Sodium		1080.3300		1088.2500	B	1		P
Strontium	88	89.9770		77.4100		14	E	MS
Thallium	203	1.2050		1.2650	B	5		MS
Tin		25.6100	B	30.6000	B	19		P
Titanium		8079.8100		8058.1000		0		P
Vanadium		268.1000		272.2500		2		P
Zinc		473.6400		470.6000		1		P
Zirconium		23.0200	B	42.0000	U	100		P

NOTE: An E in column Q indicates the presence of a chemical or physical interference in the matrix when the % difference is greater than 10%. This applies only when (I) is greater than or equal to 50x MDL for ICP, 100x MDL for ICP-MS (6020), 50x MDL for ICP-MS (200.8), or 25x MDL for GFAA.

METHODS:
P = ICP Atomic Emission Spectrometer
MS = ICP Mass Spectrometry

CONCENTRATION QUALIFIERS:
U= Below MDL
B= Below LOQ
FLAGS:
E = Matrix Effects exist as proven by Serial Dilution or Spiked Dilution

LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

CDM
555 17th Street, Suite 1100
Denver, CO 80202
ATTN: Mrs. Cherie Zakowski

February 25, 2014

SUBJECT: Santa Susana Field Laboratory, Subarea NBZ Data Validation

Dear Mrs. Zakowski,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on January 24, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 31224:

SDG #	Fraction
PH138 PH139 PH157	Semivolatiles, Chlorinated Pesticides, Polychlorinated Biphenyls, Metals, Total Petroleum Hydrocarbons as Gasoline, Cyanide, Total Petroleum Hydrocarbons as Extractables, Dioxins/Dibenzofurans, Herbicides

The data validation was performed under Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan for Santa Susana Field Laboratory, RCRA Facility Investigation, Surficial Media Operable Unit, March 2009, Revision 4
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Shauna McKellar
Project Manager/Chemist

2,600 pages-CD

Attachment 1

90/10 ADR/IV

LDC #31224 (CDM Federal Programs-Chantilly VA / Santa Susana Field Laboratory, Subarea NBZ)

LDC	SDG#	DATE REC'D	(4) DATE DUE	SVOA (8270D -SIM)		Pest. (8081B)		PCBs (8082A)		Metals & Hg (SW846)		Herbs. (8151A)		TPH-G (8015M)		TPH-E (8015M)		Dioxins (1613B)		CN- (9012B)																			
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	PH138	01/24/14	02/21/14	1	5	0	14	0	5	-	-	0	1	1	5	0	15	0	5	-	-																		
B	PH139	01/24/14	02/21/14	0	6	0	5	0	5	0	4	-	-	1	3	0	13	0	7	0	2																		
C	PH157	01/24/14	02/21/14	0	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-																		
Total	T/SM			1	12	0	19	0	10	0	4	0	1	2	8	0	28	0	12	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	99

Shaded cells indicate Level IV validation (all other cells are ADR review). These sample counts do not include MS/MSD, and DUPs

31224ST-NBZ.wpd

Data Validation Report
Santa Susana Field Laboratory

Subarea NBZ

SDG: PH138

Prepared for

CDM Smith
555 17th Street, Suite 1100
Denver, CO 80202

Prepared by

Laboratory Data Consultants, Inc.
2701 Loker Ave West, Suite 220
Carlsbad, California 92010

February 21, 2014

INTRODUCTION

This Data Validation Report (DVR) presents Level III data validation results for samples collected on December 3, 2013. Data validation was performed in accordance with the Quality Assurance Project Plan (QAPP) for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFGs) for Superfund Organic Methods Data Review (June 2008), Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Semivolatiles (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)
Pesticides by EPA SW 846 Method 8081B
Polychlorinated Biphenyls (PCBs) by EPA SW 846 Method 8082A
Herbicides by EPA SW 846 Method 8151A
Total Petroleum Hydrocarbons (TPH) as Gasoline by EPA SW 846 Method 8015M
TPH as Extractables by EPA SW 846 Method 8015M
Dioxins and Dibenzofurans by EPA Method 1613B

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Level III Automated Data Review outliers are presented in Enclosure I.

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, surrogates, internal standards (dioxins only), matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), method blanks, trip blanks, equipment blanks, field blanks and field duplicate samples. No samples in this SDG were subjected to Level IV evaluation.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013). Quality assurance (QA)/QC criteria specified in the QAPP and CLPNFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met QC criteria.

II. Initial Calibration

Initial Calibration data were not reviewed for level III.

III. Continuing Calibration

Continuing calibration data were not reviewed for level III.

IV. Blanks

Method blanks were performed at the required frequencies. No contaminant concentrations were detected in the method or preparation blanks with the exception of two blanks for SVOCs and dioxins. The associated sample results were qualified as non-detected (U) due to method blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosure I.

V. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were performed at the required frequency. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for TPH as extractables. No data were qualified for due to high %Rs since the associated results were non-detected.

VII. Laboratory Duplicates Sample

The laboratory has indicated that there were no laboratory duplicate (DUP) analyses specified for the samples in this SDG, and therefore laboratory duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of several LCS/LCSD pairs for SVOCs and herbicides. The associated sample results were qualified as non-detected estimated (UJ). The details regarding the qualification of data are provided in Enclosure I.

IX. Internal Standards

Internal standards were reviewed for dioxins. Percent recoveries (%R) were within QC limits.

X. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the RL as detected were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH138	All compounds reported as detected below the RL.	J (all detects)	A

XI. Field Duplicate Samples

Two field duplicate pairs were collected and analyzed for SVOCs, pesticides, PCBs, TPH as gasoline, TPH as extractables and dioxins. All RPDs were within QC limits with the exception of several dioxins. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The field duplicate result comparisons are provided in Enclosure I.

XII. Field Blank Samples

One trip blank was collected and analyzed for TPH as gasoline. No contaminants were found in the trip blank.

Two equipment blanks (from SDG PH140) were collected and analyzed for SVOCs, pesticides, PCBs, herbicides, TPH as extractables and dioxins. The equipment blank had detections for SVOCs and dioxins. The sample results were not detected or were significantly greater than the concentrations found in the equipment blank, therefore no data were qualified. EB-120313 was collected and analyzed for SVOCs in this SDG but was not associated to any samples.

One field blank (from SDG PH032) was collected and analyzed for SVOCs, pesticides, PCBs, herbicides, TPH as gasoline, TPH as extractables and dioxins. The field blank had detections for SVOCs and dioxins. The sample results were not detected or were significantly greater than the concentrations found in the field blank, therefore no data were qualified.

XIII. Overall Assessment of Data

The overall assessment of QA/QC data review by automated and manual validation of this sampling event met project requirements and analytical completeness levels with the exceptions noted in the above sections. The remainder of the data are deemed useable for the intended use.

Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Dec-2013	TB-120313	7300106	TB	5030B	8015M	III
03-Dec-2013	SL-502-NBZ-SB-0.0-0.5	7300094	N	3546	8015M	III
03-Dec-2013	SL-502-NBZ-SB-0.0-0.5	7300094	N	3546	8081B	III
03-Dec-2013	SL-502-NBZ-SB-4.0-5.0	7300095	N	3546	8015M	III
03-Dec-2013	SL-502-NBZ-SB-4.0-5.0	7300095	N	3546	8081B	III
03-Dec-2013	SL-502-NBZ-SB-4.0-5.0	7300095	N	5035A	8015M	III
03-Dec-2013	SL-530-NBZ-SB-0.0-0.5	7300102	N	3546	8015M	III
03-Dec-2013	SL-530-NBZ-SB-0.0-0.5	7300102	N	3546	8081B	III
03-Dec-2013	SL-503-NBZ-SB-0.0-0.5	7300096	N	3546	8015M	III
03-Dec-2013	SL-503-NBZ-SB-0.0-0.5	7300096	N	3546	8081B	III
03-Dec-2013	SL-503-NBZ-SB-2.0-3.0	7300097	N	3546	8015M	III
03-Dec-2013	SL-503-NBZ-SB-2.0-3.0	7300097	N	3546	8081B	III
03-Dec-2013	SL-503-NBZ-SB-2.0-3.0	7300097	N	5035A	8015M	III
03-Dec-2013	SL-532-NBZ-SB-0.0-0.5	7300104	N	3546	8015M	III
03-Dec-2013	SL-532-NBZ-SB-0.0-0.5	7300104	N	3546	8081B	III
03-Dec-2013	SL-504-NBZ-SB-0.0-0.5	7300098	N	3546	8015M	III
03-Dec-2013	SL-504-NBZ-SB-0.0-0.5	7300098	N	3546	8081B	III
03-Dec-2013	SL-504-NBZ-SB-0.0-0.5MS	7300099	MS	3546	8015M	III
03-Dec-2013	SL-504-NBZ-SB-0.0-0.5MS	7300099	MS	3546	8081B	III
03-Dec-2013	SL-504-NBZ-SB-0.0-0.5MSD	7300100	MSD	3546	8015M	III
03-Dec-2013	SL-504-NBZ-SB-0.0-0.5MSD	7300100	MSD	3546	8081B	III
03-Dec-2013	SL-804-NBZ-SB-0.0-0.5	7300101	FD	3546	8015M	III
03-Dec-2013	SL-804-NBZ-SB-0.0-0.5	7300101	FD	3546	8081B	III
03-Dec-2013	SL-533-NBZ-SB-0.0-0.5	7300105	N	3546	8015M	III
03-Dec-2013	SL-533-NBZ-SB-0.0-0.5	7300105	N	3550B	8151A	III
03-Dec-2013	SL-509-NBZ-SB-0.0-0.5	7300107	N	3546	8015M	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Dec-2013	SL-509-NBZ-SB-0.0-0.5	7300107	N	3546	8081B	III
03-Dec-2013	SL-509-NBZ-SB-0.0-0.5	7300107	N	3546	8082A	III
03-Dec-2013	SL-509-NBZ-SB-0.0-0.5	7300107	N	3546	8270D SIM	III
03-Dec-2013	SL-509-NBZ-SB-0.0-0.5	7300107	N	METHOD	1613B	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5	7300108	N	3546	8015M	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5	7300108	N	3546	8081B	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5	7300108	N	3546	8082A	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5	7300108	N	3546	8270D SIM	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5	7300108	N	5035A	8015M	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5	7300108	N	METHOD	1613B	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MS	7300109	MS	3546	8015M	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MS	7300109	MS	3546	8081B	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MS	7300109	MS	3546	8082A	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MS	7300109	MS	3546	8270D SIM	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MS	7300109	MS	5035A	8015M	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MS	7300109	MS	METHOD	1613B	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MSD	7300110	MSD	3546	8015M	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MSD	7300110	MSD	3546	8081B	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MSD	7300110	MSD	3546	8082A	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MSD	7300110	MSD	3546	8270D SIM	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MSD	7300110	MSD	5035A	8015M	III
03-Dec-2013	SL-509-NBZ-SB-2.5-3.5MSD	7300110	MSD	METHOD	1613B	III
03-Dec-2013	SL-809-NBZ-SB-2.5-3.5	7300112	FD	3546	8015M	III
03-Dec-2013	SL-809-NBZ-SB-2.5-3.5	7300112	FD	3546	8081B	III
03-Dec-2013	SL-809-NBZ-SB-2.5-3.5	7300112	FD	3546	8082A	III
03-Dec-2013	SL-809-NBZ-SB-2.5-3.5	7300112	FD	3546	8270D SIM	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
03-Dec-2013	SL-809-NBZ-SB-2.5-3.5	7300112	FD	5035A	8015M	III
03-Dec-2013	SL-809-NBZ-SB-2.5-3.5	7300112	FD	METHOD	1613B	III
03-Dec-2013	SL-531-NBZ-SB-0.0-0.5	7300103	N	3546	8015M	III
03-Dec-2013	SL-531-NBZ-SB-0.0-0.5	7300103	N	3546	8081B	III
03-Dec-2013	SL-510-NBZ-SB-0.0-0.5	7300113	N	3546	8015M	III
03-Dec-2013	SL-510-NBZ-SB-0.0-0.5	7300113	N	3546	8081B	III
03-Dec-2013	SL-510-NBZ-SB-0.0-0.5	7300113	N	3546	8082A	III
03-Dec-2013	SL-510-NBZ-SB-0.0-0.5	7300113	N	3546	8270D SIM	III
03-Dec-2013	SL-510-NBZ-SB-0.0-0.5	7300113	N	METHOD	1613B	III
03-Dec-2013	SL-510-NBZ-SB-4.0-5.0	7300114	N	3546	8015M	III
03-Dec-2013	SL-510-NBZ-SB-4.0-5.0	7300114	N	3546	8081B	III
03-Dec-2013	SL-510-NBZ-SB-4.0-5.0	7300114	N	3546	8082A	III
03-Dec-2013	SL-510-NBZ-SB-4.0-5.0	7300114	N	3546	8270D SIM	III
03-Dec-2013	SL-510-NBZ-SB-4.0-5.0	7300114	N	5035A	8015M	III
03-Dec-2013	SL-510-NBZ-SB-4.0-5.0	7300114	N	METHOD	1613B	III
03-Dec-2013	EB-120313	7300115	EB	3510C	8270D SIM	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment 2
Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PrepPH138 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-509-NBZ-SB-0.0-0.5** ***Collected:*** **12/3/2013 1:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.626	JBQ	0.0662	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.196	JBQ	0.0511	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.155	JBQ	0.0795	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.831	JB	0.0586	MDL	4.98	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.0801	JBQ	0.0410	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.139	JBQ	0.0527	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0603	JBQ	0.0377	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0851	JB	0.0589	MDL	4.98	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0635	JBQ	0.0322	MDL	4.98	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0564	JBQ	0.0505	MDL	4.98	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0771	JBQ	0.0712	MDL	0.996	PQL	ng/Kg	U	B
OCDD	2.95	JB	0.0537	MDL	9.96	PQL	ng/Kg	U	B
OCDF	0.390	JBQ	0.0790	MDL	9.96	PQL	ng/Kg	U	B

Sample ID: **SL-509-NBZ-SB-2.5-3.5** ***Collected:*** **12/3/2013 1:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.526	JB	0.0719	MDL	5.18	PQL	ng/Kg	UJ	B, FD
1,2,3,4,6,7,8-HPCDF	0.192	JB	0.0466	MDL	5.18	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8,9-HPCDF	0.444	JBQ	0.0702	MDL	5.18	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HxCDD	0.0880	JBQ	0.0468	MDL	5.18	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HXCDF	0.0618	JBQ	0.0383	MDL	5.18	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.114	JBQ	0.0503	MDL	5.18	PQL	ng/Kg	UJ	B, FD
1,2,3,6,7,8-HXCDF	5.18	U	0.0347	MDL	5.18	PQL	ng/Kg	UJ	FD
1,2,3,7,8,9-HXCDD	0.0645	JBQ	0.0452	MDL	5.18	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	5.18	U	0.0400	MDL	5.18	PQL	ng/Kg	UJ	FD
1,2,3,7,8-PECDD	5.18	U	0.0416	MDL	5.18	PQL	ng/Kg	UJ	FD
1,2,3,7,8-PECDF	0.0572	JBQ	0.0215	MDL	5.18	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	5.18	U	0.0342	MDL	5.18	PQL	ng/Kg	UJ	FD
2,3,4,7,8-PECDF	0.0346	JBQ	0.0217	MDL	5.18	PQL	ng/Kg	U	B
OCDD	2.21	JB	0.0442	MDL	10.4	PQL	ng/Kg	UJ	B, FD
OCDF	0.292	JBQ	0.0749	MDL	10.4	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PrepPH138 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-510-NBZ-SB-0.0-0.5** ***Collected:*** **12/3/2013 2:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.539	JBQ	0.0355	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.110	JBQ	0.0128	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0570	JBQ	0.0191	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0756	JB	0.0198	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0681	JBQ	0.0305	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0595	JBQ	0.0282	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0883	JBQ	0.0230	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0784	JQ	0.0373	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,7,8-PECDF	0.0446	JB	0.0199	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0301	JBQ	0.0192	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0316	JBQ	0.0192	MDL	5.17	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0636	JB	0.0589	MDL	1.03	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.0810	JQ	0.0393	MDL	1.03	PQL	ng/Kg	J	Z
OCDD	3.04	JB	0.0301	MDL	10.3	PQL	ng/Kg	U	B
OCDF	0.280	JBQ	0.0360	MDL	10.3	PQL	ng/Kg	U	B

Sample ID: **SL-510-NBZ-SB-4.0-5.0** ***Collected:*** **12/3/2013 2:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.283	JB	0.0327	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.0670	JBQ	0.0123	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0591	JB	0.0176	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0542	JBQ	0.0317	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0598	JBQ	0.0249	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0635	JBQ	0.0356	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0810	JBQ	0.0280	MDL	5.31	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0805	JBQ	0.0229	MDL	5.31	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0507	JB	0.0237	MDL	5.31	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0357	JBQ	0.0214	MDL	5.31	PQL	ng/Kg	U	B
OCDD	1.28	JB	0.0333	MDL	10.6	PQL	ng/Kg	U	B
OCDF	0.242	JBQ	0.0413	MDL	10.6	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PrepPH138 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: SL-809-NBZ-SB-2.5-3.5 ***Collected:*** 12/3/2013 1:40:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.235	JBQ	0.0319	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,4,6,7,8-HPCDF	0.0628	JBQ	0.0140	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8,9-HPCDF	0.0419	JBQ	0.0195	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HxCDD	0.0335	JBQ	0.0248	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,4,7,8-HXCDF	0.0616	JB	0.0223	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0613	JBQ	0.0260	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,6,7,8-HXCDF	0.0491	JB	0.0205	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8,9-HXCDD	0.0623	JBQ	0.0242	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0762	JBQ	0.0240	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8-PECDD	0.107	JQ	0.0340	MDL	5.17	PQL	ng/Kg	J	Z, FD
1,2,3,7,8-PECDF	0.0539	JBQ	0.0190	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0373	JB	0.0205	MDL	5.17	PQL	ng/Kg	UJ	B, FD
2,3,4,7,8-PECDF	0.0469	JBQ	0.0186	MDL	5.17	PQL	ng/Kg	U	B
OCDD	0.870	JBQ	0.0316	MDL	10.3	PQL	ng/Kg	UJ	B, FD
OCDF	0.278	JBQ	0.0334	MDL	10.3	PQL	ng/Kg	U	B

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: SL-530-NBZ-SB-0.0-0.5 ***Collected:*** 12/3/2013 9:40:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	4.2	J	4.1	MDL	10	PQL	mg/Kg	J	Z

Sample ID: SL-531-NBZ-SB-0.0-0.5 ***Collected:*** 12/3/2013 1:50:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	7.9	J	4.1	MDL	10	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PrepPH138 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: SL-533-NBZ-SB-0.0-0.5 ***Collected:*** 12/3/2013 1:05:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	2.8	J	2.0	MDL	5.1	PQL	mg/Kg	J	Z
EFH (C30-C40)	6.4	J	4.1	MDL	10	PQL	mg/Kg	J	Z

Method Category: **SVOA**

Method: **8081B** ***Matrix:*** **SO**

Sample ID: SL-503-NBZ-SB-0.0-0.5 ***Collected:*** 12/3/2013 10:00:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDT	0.37	J	0.36	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: SL-532-NBZ-SB-0.0-0.5 ***Collected:*** 12/3/2013 10:20:00 ***Analysis Type:*** RES ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDT	1.0	J	0.36	MDL	1.7	PQL	ug/Kg	J	Z

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **AQ**

Sample ID: EB-120313 ***Collected:*** 12/3/2013 3:00:00 ***Analysis Type:*** RES-BASE/NEUTRAL ***Dilution:*** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	0.012	J	0.010	MDL	0.050	PQL	ug/L	J	Z
BENZO(K)FLUORANTHENE	0.011	J	0.010	MDL	0.050	PQL	ug/L	J	Z
BIS(2-ETHYLHEXYL)PHTHALATE	0.13	J	0.050	MDL	1.0	PQL	ug/L	UJ	L, E, B
Diethylphthalate	0.49	J	0.050	MDL	1.0	PQL	ug/L	J	Z
Di-n-butylphthalate	0.18	J	0.050	MDL	1.0	PQL	ug/L	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PrepPH138 **eQAPP Name: CDM_SSFL_140113_Lan**

Reason Code Legend

Reason Code	*Description*
B	Method Blank Contamination
E	Laboratory Control Precision
E	Matrix Spike Precision
FD	Field Duplicate Precision
L	Laboratory Control Precision
L	Laboratory Control Spike Upper Estimation
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Enclosure I

EPA Level III ADR Outliers

(Including Manual Review Outliers)

Quality Control Outlier Reports

PH138

Method Blank Outlier Report

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK3460B370005	12/14/2013 12:05:00 AM	1,2,3,4,6,7,8-HPCDD	0.296 ng/Kg	SL-509-NBZ-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.121 ng/Kg	SL-509-NBZ-SB-2.5-3.5
		1,2,3,4,7,8,9-HPCDF	0.413 ng/Kg	SL-510-NBZ-SB-0.0-0.5
		1,2,3,4,7,8-HxCDD	0.0405 ng/Kg	SL-510-NBZ-SB-4.0-5.0
		1,2,3,4,7,8-HXCDF	0.0878 ng/Kg	SL-809-NBZ-SB-2.5-3.5
		1,2,3,6,7,8-HXCDD	0.0758 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0448 ng/Kg	
		1,2,3,7,8,9-HXCDD	0.0456 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0998 ng/Kg	
		1,2,3,7,8-PECDF	0.0841 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.0919 ng/Kg	
		2,3,4,7,8-PECDF	0.0874 ng/Kg	
		2,3,7,8-TCDD	0.116 ng/Kg	
		OCDD	0.976 ng/Kg	
		OCDF	0.225 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDD	0.626 ng/Kg	0.626U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDF	0.196 ng/Kg	0.196U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.155 ng/Kg	0.155U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDD	0.0801 ng/Kg	0.0801U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.139 ng/Kg	0.139U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0603 ng/Kg	0.0603U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0851 ng/Kg	0.0851U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.0635 ng/Kg	0.0635U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0564 ng/Kg	0.0564U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.0771 ng/Kg	0.0771U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	OCDD	2.95 ng/Kg	2.95U ng/Kg
SL-509-NBZ-SB-0.0-0.5(RES)	OCDF	0.390 ng/Kg	0.390U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDD	0.526 ng/Kg	0.526U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDF	0.192 ng/Kg	0.192U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8,9-HPCDF	0.444 ng/Kg	0.444U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8-HxCDD	0.0880 ng/Kg	0.0880U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8-HXCDF	0.0618 ng/Kg	0.0618U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDD	0.114 ng/Kg	0.114U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDD	0.0645 ng/Kg	0.0645U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8-PECDF	0.0572 ng/Kg	0.0572U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	2,3,4,7,8-PECDF	0.0346 ng/Kg	0.0346U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	OCDD	2.21 ng/Kg	2.21U ng/Kg
SL-509-NBZ-SB-2.5-3.5(RES)	OCDF	0.292 ng/Kg	0.292U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDD	0.539 ng/Kg	0.539U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDF	0.110 ng/Kg	0.110U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0570 ng/Kg	0.0570U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0756 ng/Kg	0.0756U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDD	0.0681 ng/Kg	0.0681U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0595 ng/Kg	0.0595U ng/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0883 ng/Kg	0.0883U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.0446 ng/Kg	0.0446U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0301 ng/Kg	0.0301U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.0316 ng/Kg	0.0316U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.0636 ng/Kg	0.0636U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	OCDD	3.04 ng/Kg	3.04U ng/Kg
SL-510-NBZ-SB-0.0-0.5(RES)	OCDF	0.280 ng/Kg	0.280U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,4,6,7,8-HPCDD	0.283 ng/Kg	0.283U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,4,6,7,8-HPCDF	0.0670 ng/Kg	0.0670U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0591 ng/Kg	0.0591U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8-HxCDD	0.0542 ng/Kg	0.0542U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8-HXCDF	0.0598 ng/Kg	0.0598U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,6,7,8-HXCDD	0.0635 ng/Kg	0.0635U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8,9-HXCDF	0.0810 ng/Kg	0.0810U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8-PECDF	0.0805 ng/Kg	0.0805U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	2,3,4,6,7,8-HXCDF	0.0507 ng/Kg	0.0507U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	2,3,4,7,8-PECDF	0.0357 ng/Kg	0.0357U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	OCDD	1.28 ng/Kg	1.28U ng/Kg
SL-510-NBZ-SB-4.0-5.0(RES)	OCDF	0.242 ng/Kg	0.242U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDD	0.235 ng/Kg	0.235U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDF	0.0628 ng/Kg	0.0628U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0419 ng/Kg	0.0419U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8-HxCDD	0.0335 ng/Kg	0.0335U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8-HXCDF	0.0616 ng/Kg	0.0616U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDD	0.0613 ng/Kg	0.0613U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDF	0.0491 ng/Kg	0.0491U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDD	0.0623 ng/Kg	0.0623U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDF	0.0762 ng/Kg	0.0762U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8-PECDF	0.0539 ng/Kg	0.0539U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	2,3,4,6,7,8-HXCDF	0.0373 ng/Kg	0.0373U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	2,3,4,7,8-PECDF	0.0469 ng/Kg	0.0469U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	OCDD	0.870 ng/Kg	0.870U ng/Kg
SL-809-NBZ-SB-2.5-3.5(RES)	OCDF	0.278 ng/Kg	0.278U ng/Kg

Method: **8270D SIM**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
PLKWI34B261515	12/10/2013 3:15:00 PM	BIS(2-ETHYLHEXYL)PHTHALATE	0.079 ug/L	EB-120313

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Method Blank Outlier Report

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **8270D SIM**
Matrix: **AQ**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
EB-120313(RES)	BIS(2-ETHYLHEXYL)PHTHALATE	0.13 ug/L	1.0U ug/L

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **8015M**
Matrix: **SO**

QC Sample ID (Associated Samples)	*Compound*	*MS %R*	*MSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
SL-504-NBZ-SB-0.0-0.5MS	EFH (C15-C20)	155	-	49.00-123.00	30 (20.00)	EFH (C15-C20)	J (all detects)
SL-504-NBZ-SB-0.0-0.5MSD	EFH (C21-C30)	343	-	49.00-123.00	102 (20.00)	EFH (C21-C30)	
(SL-504-NBZ-SB-0.0-0.5)	EFH (C30-C40)	559	-	49.00-123.00	138 (20.00)	EFH (C30-C40)	

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 8270D SIM
Matrix: AQ

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P0WILCSQ261542 P0WILCSY261609 (EB-120313)	BIS(2-ETHYLHEXYL)PHTHALAT	238	-	70.00-143.00	74 (30.00)	BIS(2-ETHYLHEXYL)PHTHALA	J(all detects) UJ(all non-detects)

Method: 8151A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P33454AQ242143A (SL-533-NBZ-SB-0.0-0.5)	2,4-D 2,4-DB	136 135	- -	59.00-122.00 54.00-131.00	- -	2,4-D 2,4-DB	J (all detects)

Method: 8270D SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	LCS %R	LCSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
P4LDLCSQ260542 (SL-509-NBZ-SB-0.0-0.5 SL-509-NBZ-SB-2.5-3.5 SL-510-NBZ-SB-0.0-0.5 SL-510-NBZ-SB-4.0-5.0 SL-809-NBZ-SB-2.5-3.5)	PYRENE	115	-	79.00-112.00	-	PYRENE	J(all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 160.3M
Matrix: SO

Analyte	Concentration (%)		Sample RPD	eQAPP RPD	Flag
	SL-504-NBZ-SB-0.0-0.5	SL-804-NBZ-SB-0.0-0.5			
MOISTURE	2.2	1.9	15		No Qualifiers Applied

Analyte	Concentration (%)		Sample RPD	eQAPP RPD	Flag
	SL-509-NBZ-SB-2.5-3.5	SL-809-NBZ-SB-2.5-3.5			
MOISTURE	4.5	5.4	18		No Qualifiers Applied

Method: 1613B
Matrix: SO

Analyte	Concentration (ng/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-509-NBZ-SB-2.5-3.5	SL-809-NBZ-SB-2.5-3.5			
1,2,3,4,7,8-HXCDF	0.0618	0.0616	0	50.00	No Qualifiers Applied
1,2,3,7,8,9-HXCDD	0.0645	0.0623	3	50.00	
1,2,3,7,8-PECDF	0.0572	0.0539	6	50.00	
2,3,4,7,8-PECDF	0.0346	0.0469	30	50.00	
OCDF	0.292	0.278	5	50.00	
1,2,3,4,6,7,8-HPCDD	0.526	0.235	76	50.00	J(all detects) UJ(all non-detects)
1,2,3,4,6,7,8-HPCDF	0.192	0.0628	101	50.00	
1,2,3,4,7,8,9-HPCDF	0.444	0.0419	166	50.00	
1,2,3,4,7,8-HxCDD	0.0880	0.0335	90	50.00	
1,2,3,6,7,8-HXCDD	0.114	0.0613	60	50.00	
1,2,3,6,7,8-HXCDF	5.18 U	0.0491	200	50.00	
1,2,3,7,8,9-HXCDF	5.18 U	0.0762	200	50.00	
1,2,3,7,8-PECDD	5.18 U	0.107	200	50.00	
2,3,4,6,7,8-HXCDF	5.18 U	0.0373	200	50.00	
OCDD	2.21	0.870	87	50.00	

Method: 9045M
Matrix: SO

Analyte	Concentration (pH unit)		Sample RPD	eQAPP RPD	Flag
	SL-509-NBZ-SB-2.5-3.5	SL-809-NBZ-SB-2.5-3.5			
PH	7.60	7.65	1	50.00	No Qualifiers Applied

Reporting Limit Outliers

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **8270D SIM**

Matrix: **AQ**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
EB-120313	BENZO(B)FLUORANTHENE	J	0.012	0.050	PQL	ug/L	J (all detects)
	BENZO(K)FLUORANTHENE	J	0.011	0.050	PQL	ug/L	
	BIS(2-ETHYLHEXYL)PHTHALATE	J	0.13	1.0	PQL	ug/L	
	Diethylphthalate	J	0.49	1.0	PQL	ug/L	
	Di-n-butylphthalate	J	0.18	1.0	PQL	ug/L	

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-509-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JBQ	0.626	4.98	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.196	4.98	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.155	4.98	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.831	4.98	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0801	4.98	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.139	4.98	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0603	4.98	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.0851	4.98	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0635	4.98	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0564	4.98	PQL	ng/Kg	
	2,3,7,8-TCDD	JBQ	0.0771	0.996	PQL	ng/Kg	
	OCDD	JB	2.95	9.96	PQL	ng/Kg	
	OCDF	JBQ	0.390	9.96	PQL	ng/Kg	
SL-509-NBZ-SB-2.5-3.5	1,2,3,4,6,7,8-HPCDD	JB	0.526	5.18	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.192	5.18	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.444	5.18	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0880	5.18	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0618	5.18	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.114	5.18	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0645	5.18	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0572	5.18	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0346	5.18	PQL	ng/Kg	
	OCDD	JB	2.21	10.4	PQL	ng/Kg	
	OCDF	JBQ	0.292	10.4	PQL	ng/Kg	
SL-510-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JBQ	0.539	5.17	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.110	5.17	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0570	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0756	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0681	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0595	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0883	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.0784	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.0446	5.17	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0301	5.17	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0316	5.17	PQL	ng/Kg	
	2,3,7,8-TCDD	JB	0.0636	1.03	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.0810	1.03	PQL	ng/Kg	
	OCDD	JB	3.04	10.3	PQL	ng/Kg	
	OCDF	JBQ	0.280	10.3	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH138 **Laboratory: LL**

EDD Filename: PH138_v1. **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-510-NBZ-SB-4.0-5.0	1,2,3,4,6,7,8-HPCDD	JB	0.283	5.31	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0670	5.31	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.0591	5.31	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0542	5.31	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0598	5.31	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0635	5.31	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0810	5.31	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0805	5.31	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0507	5.31	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0357	5.31	PQL	ng/Kg	
	OCDD	JB	1.28	10.6	PQL	ng/Kg	
	OCDF	JBQ	0.242	10.6	PQL	ng/Kg	
SL-809-NBZ-SB-2.5-3.5	1,2,3,4,6,7,8-HPCDD	JBQ	0.235	5.17	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0628	5.17	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0419	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0335	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.0616	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0613	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.0491	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0623	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0762	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JQ	0.107	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0539	5.17	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0373	5.17	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0469	5.17	PQL	ng/Kg	
	OCDD	JBQ	0.870	10.3	PQL	ng/Kg	
	OCDF	JBQ	0.278	10.3	PQL	ng/Kg	

Method: 8015M

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-530-NBZ-SB-0.0-0.5	EFH (C30-C40)	J	4.2	10	PQL	mg/Kg	J (all detects)
SL-531-NBZ-SB-0.0-0.5	EFH (C30-C40)	J	7.9	10	PQL	mg/Kg	J (all detects)
SL-533-NBZ-SB-0.0-0.5	EFH (C21-C30)	J	2.8	5.1	PQL	mg/Kg	J (all detects)
	EFH (C30-C40)	J	6.4	10	PQL	mg/Kg	

Method: 8081B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-503-NBZ-SB-0.0-0.5	4,4'-DDT	J	0.37	1.7	PQL	ug/Kg	J (all detects)
SL-532-NBZ-SB-0.0-0.5	4,4'-DDT	J	1.0	1.7	PQL	ug/Kg	J (all detects)

Data Validation Report
Santa Susana Field Laboratory

Subarea NBZ

SDG: PH139

Prepared for

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February 21, 2014

INTRODUCTION

This Data Validation Report (DVR) presents Level IV data validation results for samples collected on December 4, 2013. Data validation was performed in accordance with the Quality Assurance Project Plan (QAPP) for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFGs) for Superfund Organic Methods Data Review (June 2008), Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005) and for Inorganic Data Review (January 2010). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Semivolatiles (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)
Pesticides by EPA SW 846 Method 8081B
Polychlorinated Biphenyls (PCBs) by EPA SW 846 Method 8082A
Metals by EPA SW 846 Method 6010C, 6020A and 7471B
Total Petroleum Hydrocarbons (TPH) as Gasoline by EPA SW 846 Method 8015M
TPH as Extractables by EPA SW 846 Method 8015M
Dioxins and Dibenzofurans by EPA Method 1613B

Wet Chemistry:
Cyanide by EPA SW 846 Method 9012B

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment II. Level III Automated Data Review outliers are presented in Enclosure I. Level IV DVRs are presented in Enclosure II.

All sample results were subjected to Level IV data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibrations, initial and continuing calibration blanks (ICB/CCBs), surrogates, internal standards, interference check (ICSA and ICSAB) samples, matrix spike/matrix spike duplicates (MS/MSD), laboratory duplicates (DUP), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), ICP serial dilutions, method blanks, trip blanks, equipment blanks, field blanks, field duplicate samples, and the raw data to confirm sample quantitation and identification.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with exception of the initial and continuing calibrations, ICB/CCBs, interference check samples, internal standards (except dioxins), and ICP serial dilutions, which were validated manually. Quality assurance (QA)/QC criteria specified in the QAPP and CLPNFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met QC criteria.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

All criteria for the initial calibration verifications and continuing calibration of each method were met.

IV. Blanks

Method blanks were performed at the required frequencies. No contaminant concentrations were detected in the method or preparation blanks with the exception of two blanks for metals and dioxins. The associated sample results were qualified as non-detected (U) due to method blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosures I and II.

No contaminant concentrations were detected in the initial or continuing calibration blanks with the exception of several metals. The associated sample results were qualified as non-detected (U) due to initial or continuing calibration blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosure II.

V. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were performed at the required frequency. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for metals. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosures I and II.

VIII. Laboratory Duplicates Sample

Laboratory duplicates (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

IX. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one LCS/LCSD pair for SVOCs. The associated sample results were qualified as detected estimated (J). The details regarding the qualification of data are provided in Enclosures I and II.

X. Internal Standards

All internal standard areas and retention times or percent recoveries were within QC limits.

XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XII. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the RL as detected were qualified as follows:

Sample	Finding	Flag
All samples in SDG PH139	All compounds reported as detected below the RL.	J (all detects)

XIII. Field Duplicate Samples

One field duplicate pair was collected and analyzed for SVOCs, PCBs, metals, TPH as extractables, dioxins and cyanide. All RPDs were within QC limits with the exception of SVOCs, metals and dioxins. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The field duplicate result comparisons are provided in Enclosures I and II.

XIV. Field Blank Samples

One trip blank was collected and analyzed for TPH as gasoline. No volatile contaminants were found in the trip blank.

Three equipment blanks (from SDG PH140) were collected and analyzed for SVOCs, pesticides, PCBs, metals, TPH as extractables, dioxins and cyanide. The equipment blank had detections for SVOCs, metals and dioxins. The associated sample results were not detected or were significantly greater than the concentrations found in the equipment blanks, therefore no data were qualified. The details are provided in Enclosure II.

One field blank (from SDG PH032) was collected and analyzed for SVOCs, pesticides, PCBs, metals, TPH as gasoline, TPH as extractables, dioxins and cyanide. The field blank had detections for SVOCs, metals and dioxins. The associated sample results were qualified as non-detected (U) due to field blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the field blank were not qualified. The field blank outlier reports are presented in Enclosures I and II.

XV. Overall Assessment of Data

No data associated with this sampling event were rejected. The overall assessment of QA/QC data review by automated and manual validation of this sampling event met project requirements and analytical completeness levels with the exceptions noted in the above sections. All data are deemed useable for the intended use.

Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Dec-2013	TB-120413	7301925	TB	5030B	8015M	IV
04-Dec-2013	SL-549-NBZ-SB-0.0-0.5	7301924	N	3546	8015M	IV
04-Dec-2013	SL-508-NBZ-SB-0.0-0.5	7301920	N	3546	8015M	IV
04-Dec-2013	SL-508-NBZ-SB-0.0-0.5	7301920	N	3546	8081B	IV
04-Dec-2013	SL-508-NBZ-SB-0.0-0.5	7301920	N	3546	8082A	IV
04-Dec-2013	SL-508-NBZ-SB-0.0-0.5	7301920	N	3546	8270D SIM	IV
04-Dec-2013	SL-508-NBZ-SB-0.0-0.5	7301920	N	METHOD	1613B	IV
04-Dec-2013	SL-508-NBZ-SB-4.0-5.0	7301921	N	3546	8015M	IV
04-Dec-2013	SL-508-NBZ-SB-4.0-5.0	7301921	N	3546	8081B	IV
04-Dec-2013	SL-508-NBZ-SB-4.0-5.0	7301921	N	3546	8082A	IV
04-Dec-2013	SL-508-NBZ-SB-4.0-5.0	7301921	N	3546	8270D SIM	IV
04-Dec-2013	SL-508-NBZ-SB-4.0-5.0	7301921	N	5035A	8015M	IV
04-Dec-2013	SL-508-NBZ-SB-4.0-5.0	7301921	N	METHOD	1613B	IV
04-Dec-2013	SL-546-NBZ-SB-0.0-0.5	7301922	N	3546	8015M	IV
04-Dec-2013	SL-507-NBZ-SB-0.0-0.5	7301918	N	3546	8015M	IV
04-Dec-2013	SL-507-NBZ-SB-0.0-0.5	7301918	N	3546	8081B	IV
04-Dec-2013	SL-507-NBZ-SB-3.5-4.5	7301919	N	3546	8015M	IV
04-Dec-2013	SL-507-NBZ-SB-3.5-4.5	7301919	N	3546	8081B	IV
04-Dec-2013	SL-507-NBZ-SB-3.5-4.5	7301919	N	5035A	8015M	IV
04-Dec-2013	SL-506-NBZ-SB-0.0-0.5	7301917	N	3546	8015M	IV
04-Dec-2013	SL-506-NBZ-SB-0.0-0.5	7301917	N	3546	8081B	IV
04-Dec-2013	SL-547-NBZ-SB-0.0-0.5	7301923	N	3546	8015M	IV
04-Dec-2013	SL-511-NBZ-SB-0.0-0.5	7301931	N	3050B	6010C	IV
04-Dec-2013	SL-511-NBZ-SB-0.0-0.5	7301931	N	3050B	6020A	IV
04-Dec-2013	SL-511-NBZ-SB-0.0-0.5	7301931	N	3546	8015M	IV
04-Dec-2013	SL-511-NBZ-SB-0.0-0.5	7301931	N	3546	8270D SIM	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Dec-2013	SL-511-NBZ-SB-0.0-0.5	7301931	N	METHOD	1613B	IV
04-Dec-2013	SL-511-NBZ-SB-0.0-0.5	7301931	N	METHOD	7471B	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	3050B	6010C	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	3050B	6020A	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	3546	8015M	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	3546	8270D SIM	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	5035A	8015M	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	METHOD	1613B	IV
04-Dec-2013	SL-511-NBZ-SB-2.5-3.5	7301932	N	METHOD	7471B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	3050B	6010C	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	3050B	6020A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	3546	8015M	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	3546	8082A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	3546	8270D SIM	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	METHOD	1613B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	METHOD	7471B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5	7301926	N	METHOD	9012B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	3050B	6010C	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	3050B	6020A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	3546	8015M	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	3546	8082A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	3546	8270D SIM	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	METHOD	1613B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	METHOD	7471B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MS	7301927	MS	METHOD	9012B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	3050B	6010C	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	3050B	6020A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	3546	8015M	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	3546	8082A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	3546	8270D SIM	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	METHOD	1613B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5MSD	7301928	MSD	METHOD	7471B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5DUP	7301929	DUP	3050B	6010C	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5DUP	7301929	DUP	3050B	6020A	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5DUP	7301929	DUP	METHOD	7471B	IV
04-Dec-2013	SL-545-NBZ-SB-0.0-0.5DUP	7301929	DUP	METHOD	9012B	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	3050B	6010C	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	3050B	6020A	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	3546	8015M	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	3546	8082A	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	3546	8270D SIM	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	METHOD	1613B	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	METHOD	7471B	IV
04-Dec-2013	SL-845-NBZ-SB-0.0-0.5	7301930	FD	METHOD	9012B	IV
04-Dec-2013	SL-548-NBZ-SB-0.0-0.5	7301933	N	3546	8015M	IV
04-Dec-2013	SL-548-NBZ-SB-0.0-0.5	7301933	N	3546	8082A	IV
04-Dec-2013	SL-548-NBZ-SB-0.0-0.5	7301933	N	METHOD	1613B	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment 2
Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-511-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 12:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.18	U	0.772	MDL	4.18	PQL	mg/Kg	UJ	Q
BERYLLIUM	0.950	J	0.0699	MDL	1.04	PQL	mg/Kg	J	Z
CADMIUM	0.489	J	0.0793	MDL	1.04	PQL	mg/Kg	J	Z
SODIUM	99.6	J	17.4	MDL	104	PQL	mg/Kg	J	Z
TIN	3.49	J	0.230	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	2.33	J	0.877	MDL	5.22	PQL	mg/Kg	J	Z
MOLYBDENUM	0.396	J	0.177	MDL	2.09	PQL	mg/Kg	U	B, F

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.09	U	0.757	MDL	4.09	PQL	mg/Kg	UJ	Q
CADMIUM	0.354	J	0.0778	MDL	1.02	PQL	mg/Kg	J	Z
MOLYBDENUM	0.630	J	0.174	MDL	2.05	PQL	mg/Kg	U	B, F
TIN	3.68	J	0.225	MDL	10.2	PQL	mg/Kg	U	B
Zirconium	1.34	J	0.859	MDL	5.12	PQL	mg/Kg	J	Z

Sample ID: **SL-545-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:25:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.24	U	0.784	MDL	4.24	PQL	mg/Kg	UJ	Q
ARSENIC	3.24	J	0.742	MDL	4.24	PQL	mg/Kg	J	Z
BERYLLIUM	0.477	J	0.0710	MDL	1.06	PQL	mg/Kg	J	Z
BORON	4.79	J	0.890	MDL	10.6	PQL	mg/Kg	J	Z
CADMIUM	0.447	J	0.0806	MDL	1.06	PQL	mg/Kg	J	Z
MOLYBDENUM	0.998	J	0.180	MDL	2.12	PQL	mg/Kg	UJ	FD, B, F
SODIUM	78.3	J	17.7	MDL	106	PQL	mg/Kg	J	Z
TIN	2.85	J	0.233	MDL	10.6	PQL	mg/Kg	U	B
Zirconium	1.66	J	0.890	MDL	5.30	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.15	U	0.769	MDL	4.15	PQL	mg/Kg	UJ	Q
ARSENIC	2.90	J	0.727	MDL	4.15	PQL	mg/Kg	J	Z
BERYLLIUM	0.466	J	0.0696	MDL	1.04	PQL	mg/Kg	J	Z
BORON	5.57	J	0.872	MDL	10.4	PQL	mg/Kg	J	Z
CADMIUM	0.466	J	0.0789	MDL	1.04	PQL	mg/Kg	J	Z
MOLYBDENUM	0.561	J	0.177	MDL	2.08	PQL	mg/Kg	UJ	FD, B, F
SODIUM	92.1	J	17.3	MDL	104	PQL	mg/Kg	J	Z
TIN	2.85	J	0.228	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	2.00	J	0.872	MDL	5.19	PQL	mg/Kg	J	Z

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-511-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 12:40:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.402	J	0.104	MDL	0.418	PQL	mg/Kg	J	Z

Sample ID: **SL-511-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 12:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0824	J	0.0271	MDL	0.209	PQL	mg/Kg	J	Z
STRONTIUM	31.0		0.0710	MDL	0.418	PQL	mg/Kg	J	Q

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.402	J	0.102	MDL	0.409	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0769	J	0.0266	MDL	0.205	PQL	mg/Kg	J	Z
STRONTIUM	23.3		0.0696	MDL	0.409	PQL	mg/Kg	J	Q

Sample ID: **SL-545-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:25:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.203	J	0.106	MDL	0.424	PQL	mg/Kg	J	Z

Sample ID: **SL-545-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:25:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.201	J	0.0276	MDL	0.212	PQL	mg/Kg	J	Z
STRONTIUM	25.3		0.0721	MDL	0.424	PQL	mg/Kg	J	Q

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.189	J	0.104	MDL	0.415	PQL	mg/Kg	J	Z

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
STRONTIUM	29.2		0.0706	MDL	0.415	PQL	mg/Kg	J	Q
THALLIUM	0.204	J	0.0312	MDL	0.208	PQL	mg/Kg	U	B

Method Category: **METALS**

Method: **7471B** ***Matrix:*** **SO**

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0140	J	0.0103	MDL	0.0171	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-508-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 9:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.120	JB	0.0333	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.119	JB	0.0187	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.106	JB	0.0241	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0429	JBQ	0.0343	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0919	JBQ	0.0381	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0747	JBQ	0.0359	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.0630	JB	0.0344	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0602	JBQ	0.0334	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.126	JBQ	0.0372	MDL	5.51	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.107	JB	0.0348	MDL	5.51	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0919	JB	0.0338	MDL	5.51	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.131	JBQ	0.0313	MDL	5.51	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.112	JBQ	0.0791	MDL	1.10	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.122	JBQ	0.0868	MDL	1.10	PQL	ng/Kg	U	B
OCDD	0.486	JB	0.0398	MDL	11.0	PQL	ng/Kg	U	B
OCDF	0.328	JB	0.0639	MDL	11.0	PQL	ng/Kg	U	B

Sample ID: **SL-508-NBZ-SB-4.0-5.0** ***Collected:*** **12/4/2013 9:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.186	JBQ	0.0341	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.101	JBQ	0.0186	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0765	JBQ	0.0236	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0401	JBQ	0.0369	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0656	JB	0.0397	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0377	JBQ	0.0360	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.114	JBQ	0.0373	MDL	5.50	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0722	JBQ	0.0333	MDL	5.50	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0565	JBQ	0.0328	MDL	5.50	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.0629	JBQ	0.0307	MDL	5.50	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.107	JBQ	0.0753	MDL	1.10	PQL	ng/Kg	U	B
OCDD	1.22	JB	0.0432	MDL	11.0	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-508-NBZ-SB-4.0-5.0** ***Collected:*** **12/4/2013 9:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDF	0.322	JB	0.0597	MDL	11.0	PQL	ng/Kg	U	B

Sample ID: **SL-511-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 12:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	2.23	JB	0.0357	MDL	5.01	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.569	JB	0.0241	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0983	JBQ	0.0307	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0648	JB	0.0469	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.165	JB	0.0438	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.300	JB	0.0497	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.150	JB	0.0407	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.263	JBQ	0.0446	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.152	JBQ	0.0455	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0866	JBQ	0.0395	MDL	5.01	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.169	JBQ	0.0331	MDL	5.01	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.176	JB	0.0424	MDL	5.01	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.377	JB	0.0319	MDL	5.01	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.325	JBQ	0.0747	MDL	1.00	PQL	ng/Kg	U	B
OCDF	0.821	JBQ	0.0494	MDL	10.0	PQL	ng/Kg	U	B

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.196	JB	0.0275	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.105	JB	0.0129	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0526	JBQ	0.0173	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0507	JBQ	0.0270	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.112	JB	0.0240	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.114	JBQ	0.0280	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.0967	JB	0.0233	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.144	JB	0.0271	MDL	5.07	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,7,8,9-HXCDF	0.123	JBQ	0.0229	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.157	JBQ	0.0355	MDL	5.07	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.203	JB	0.0272	MDL	5.07	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0897	JBQ	0.0228	MDL	5.07	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.186	JBQ	0.0251	MDL	5.07	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.147	JBQ	0.0573	MDL	1.01	PQL	ng/Kg	U	B
OCDD	0.809	JB	0.0377	MDL	10.1	PQL	ng/Kg	U	B
OCDF	0.217	JBQ	0.0458	MDL	10.1	PQL	ng/Kg	U	B

Sample ID: **SL-545-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:25:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	3.75	JB	0.0398	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.363	JBQ	0.0488	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.441	JB	0.0592	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.466	JB	0.0550	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	1.04	JB	0.0604	MDL	5.17	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.470	JB	0.0548	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.790	JB	0.0584	MDL	5.17	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.206	JB	0.0516	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8-PECDD	0.269	JBQ	0.0631	MDL	5.17	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8-PECDF	0.878	JB	0.0517	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.462	JB	0.0505	MDL	5.17	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.889	JB	0.0492	MDL	5.17	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.0707	JB	0.0480	MDL	1.03	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.622	JBQ	0.0922	MDL	1.03	PQL	ng/Kg	J	Z
OCDF	8.97	JB	0.0378	MDL	10.3	PQL	ng/Kg	J	Z

Sample ID: **SL-548-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 2:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.137	JB	0.0275	MDL	4.97	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-548-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 2:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	0.109	JB	0.0152	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0269	JBQ	0.0196	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.0513	JBQ	0.0254	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.103	JBQ	0.0279	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	0.0726	JBQ	0.0269	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDF	0.102	JBQ	0.0260	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0822	JBQ	0.0251	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.0965	JB	0.0281	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.194	JBQ	0.0385	MDL	4.97	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.249	JB	0.0262	MDL	4.97	PQL	ng/Kg	U	B
2,3,4,6,7,8-HXCDF	0.0735	JBQ	0.0259	MDL	4.97	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.202	JBQ	0.0245	MDL	4.97	PQL	ng/Kg	U	B
2,3,7,8-TCDD	0.115	JBQ	0.0572	MDL	0.994	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.123	JBQ	0.0553	MDL	0.994	PQL	ng/Kg	U	B
OCDD	0.438	JB	0.0394	MDL	9.94	PQL	ng/Kg	U	B
OCDF	0.180	JBQ	0.0491	MDL	9.94	PQL	ng/Kg	U	B

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDF	4.26	JB	0.0356	MDL	5.27	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.597	JB	0.0434	MDL	5.27	PQL	ng/Kg	U	B
1,2,3,4,7,8-HxCDD	0.589	JB	0.0632	MDL	5.27	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.660	JBQ	0.0565	MDL	5.27	PQL	ng/Kg	U	B
1,2,3,6,7,8-HXCDD	1.10	JB	0.0678	MDL	5.27	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.682	JB	0.0536	MDL	5.27	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.926	JB	0.0612	MDL	5.27	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDF	0.466	JB	0.0558	MDL	5.27	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8-PECDD	0.688	JBQ	0.0711	MDL	5.27	PQL	ng/Kg	UJ	B, FD
1,2,3,7,8-PECDF	1.13	JB	0.0494	MDL	5.27	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.727	JB	0.0503	MDL	5.27	PQL	ng/Kg	U	B
2,3,4,7,8-PECDF	0.995	JB	0.0468	MDL	5.27	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2,3,7,8-TCDD	0.0848	JBQ	0.0552	MDL	1.05	PQL	ng/Kg	U	B
2,3,7,8-TCDF	0.487	JBQ	0.0849	MDL	1.05	PQL	ng/Kg	J	Z
OCDF	8.17	JB	0.0445	MDL	10.5	PQL	ng/Kg	J	Z

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: **SL-506-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 10:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	4.3	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z

Sample ID: **SL-507-NBZ-SB-3.5-4.5** ***Collected:*** **12/4/2013 10:15:00** ***Analysis Type:*** **REA** ***Dilution:*** **24.18**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
GASOLINE RANGE ORGANICS (C5-C12)	0.6	J	0.2	MDL	1.0	PQL	mg/Kg	J	Z

Sample ID: **SL-507-NBZ-SB-3.5-4.5** ***Collected:*** **12/4/2013 10:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.3	J	2.1	MDL	5.3	PQL	mg/Kg	J	Z
EFH (C30-C40)	8.3	J	4.3	MDL	11	PQL	mg/Kg	J	Z

Sample ID: **SL-508-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 9:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.2	J	2.2	MDL	5.5	PQL	mg/Kg	J	Z
EFH (C30-C40)	7.9	J	4.4	MDL	11	PQL	mg/Kg	J	Z

Sample ID: **SL-508-NBZ-SB-4.0-5.0** ***Collected:*** **12/4/2013 9:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.2	J	2.2	MDL	5.5	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8015M** ***Matrix:*** **SO**

Sample ID: **SL-508-NBZ-SB-4.0-5.0** ***Collected:*** **12/4/2013 9:15:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C30-C40)	8.2	J	4.4	MDL	11	PQL	mg/Kg	J	Z

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **REA** ***Dilution:*** **26.32**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
GASOLINE RANGE ORGANICS (C5-C12)	0.3	J	0.2	MDL	1.1	PQL	mg/Kg	J	Z

Sample ID: **SL-511-NBZ-SB-2.5-3.5** ***Collected:*** **12/4/2013 1:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C21-C30)	3.5	J	2.1	MDL	5.3	PQL	mg/Kg	J	Z
EFH (C30-C40)	8.9	J	4.2	MDL	11	PQL	mg/Kg	J	Z

Sample ID: **SL-546-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 9:55:00** ***Analysis Type:*** **RES** ***Dilution:*** **5**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	11	J	10	MDL	26	PQL	mg/Kg	J	Z

Sample ID: **SL-547-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 10:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	10	J	4.2	MDL	11	PQL	mg/Kg	J	Z

Method Category: **SVOA**

Method: **8081B** ***Matrix:*** **SO**

Sample ID: **SL-507-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 10:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	0.63	J	0.34	MDL	1.8	PQL	ug/Kg	J	Z
4,4'-DDT	0.43	J	0.36	MDL	1.8	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-508-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 9:00:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BIS(2-ETHYLHEXYL)PHTHALATE	7.6	J	6.6	MDL	20	PQL	ug/Kg	J	Z
PHENANTHRENE	1.2	J	0.74	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: **SL-508-NBZ-SB-4.0-5.0** ***Collected:*** **12/4/2013 9:15:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
CHRYSENE	0.48	J	0.37	MDL	1.9	PQL	ug/Kg	J	Z

Sample ID: **SL-511-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 12:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-511-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 12:40:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(K)FLUORANTHENE	0.71	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
FLUORANTHENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.70	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
PHENANTHRENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z, L

Sample ID: **SL-545-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:25:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	15	J	7.2	MDL	18	PQL	ug/Kg	J	Z, FD
CHRYSENE	20		3.6	MDL	18	PQL	ug/Kg	J	FD
NAPHTHALENE	12	J	7.2	MDL	18	PQL	ug/Kg	J	Z, FD

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	18	U	7.1	MDL	18	PQL	ug/Kg	UJ	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-845-NBZ-SB-0.0-0.5** ***Collected:*** **12/4/2013 1:30:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **10**

Analyte	*Lab Result*	*Lab Qual*	*DL*	*DL Type*	*RL*	*RL Type*	*Units*	*Data Review Qual*	*Reason Code*
CHRYSENE	6.9	J	3.5	MDL	18	PQL	ug/Kg	J	Z, FD
NAPHTHALENE	18	U	7.1	MDL	18	PQL	ug/Kg	UJ	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Reason Code Legend

Reason Code	*Description*
B	Calibration Blank Contamination
B	Method Blank Contamination
E	Laboratory Duplicate Precision
E	Matrix Spike Precision
F	Field Blank Contamination
FD	Field Duplicate Precision
L	Laboratory Control Spike Upper Estimation
Q	Laboratory Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
S	Surrogate/Tracer Recovery Lower Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Enclosure I

EPA Level III ADR Outliers

(Including Manual Review Outliers)

Quality Control Outlier Reports

PH139

Method Blank Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK3470B371822	12/16/2013 6:22:00 PM	1,2,3,4,6,7,8-HPCDD	0.255 ng/Kg	SL-508-NBZ-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.219 ng/Kg	SL-508-NBZ-SB-4.0-5.0
		1,2,3,4,7,8,9-HPCDF	0.237 ng/Kg	SL-511-NBZ-SB-0.0-0.5
		1,2,3,4,7,8-HxCDD	0.164 ng/Kg	SL-511-NBZ-SB-2.5-3.5
		1,2,3,4,7,8-HXCDF	0.187 ng/Kg	SL-545-NBZ-SB-0.0-0.5
		1,2,3,6,7,8-HXCDD	0.174 ng/Kg	SL-548-NBZ-SB-0.0-0.5
		1,2,3,6,7,8-HXCDF	0.183 ng/Kg	SL-845-NBZ-SB-0.0-0.5
		1,2,3,7,8,9-HXCDD	0.220 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.333 ng/Kg	
		1,2,3,7,8-PECDD	0.186 ng/Kg	
		1,2,3,7,8-PECDF	0.219 ng/Kg	
		2,3,4,6,7,8-HXCDF	0.271 ng/Kg	
		2,3,4,7,8-PECDF	0.287 ng/Kg	
		2,3,7,8-TCDD	0.0842 ng/Kg	
		2,3,7,8-TCDF	0.0670 ng/Kg	
		OCDD	0.606 ng/Kg	
		OCDF	0.588 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDD	0.120 ng/Kg	0.120U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDF	0.119 ng/Kg	0.119U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.106 ng/Kg	0.106U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.0429 ng/Kg	0.0429U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.0919 ng/Kg	0.0919U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDD	0.0747 ng/Kg	0.0747U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.0630 ng/Kg	0.0630U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0602 ng/Kg	0.0602U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.126 ng/Kg	0.126U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.107 ng/Kg	0.107U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0919 ng/Kg	0.0919U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.131 ng/Kg	0.131U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.112 ng/Kg	0.112U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDF	0.122 ng/Kg	0.122U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	OCDD	0.486 ng/Kg	0.486U ng/Kg
SL-508-NBZ-SB-0.0-0.5(RES)	OCDF	0.328 ng/Kg	0.328U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,4,6,7,8-HPCDD	0.186 ng/Kg	0.186U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,4,6,7,8-HPCDF	0.101 ng/Kg	0.101U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0765 ng/Kg	0.0765U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8-HXCDF	0.0401 ng/Kg	0.0401U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,6,7,8-HXCDD	0.0656 ng/Kg	0.0656U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8,9-HXCDD	0.0377 ng/Kg	0.0377U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8,9-HXCDF	0.114 ng/Kg	0.114U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8-PECDF	0.0722 ng/Kg	0.0722U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	2,3,4,6,7,8-HXCDF	0.0565 ng/Kg	0.0565U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	2,3,4,7,8-PECDF	0.0629 ng/Kg	0.0629U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	2,3,7,8-TCDF	0.107 ng/Kg	0.107U ng/Kg
SL-508-NBZ-SB-4.0-5.0(RES)	OCDD	1.22 ng/Kg	1.22U ng/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-508-NBZ-SB-4.0-5.0(RES)	OCDF	0.322 ng/Kg	0.322U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDF	0.569 ng/Kg	0.569U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0983 ng/Kg	0.0983U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.0648 ng/Kg	0.0648U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.165 ng/Kg	0.165U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDD	0.300 ng/Kg	0.300U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.150 ng/Kg	0.150U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.263 ng/Kg	0.263U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.152 ng/Kg	0.152U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.0866 ng/Kg	0.0866U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.169 ng/Kg	0.169U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.176 ng/Kg	0.176U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.377 ng/Kg	0.377U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDF	0.325 ng/Kg	0.325U ng/Kg
SL-511-NBZ-SB-0.0-0.5(RES)	OCDF	0.821 ng/Kg	0.821U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDD	0.196 ng/Kg	0.196U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,4,6,7,8-HPCDF	0.105 ng/Kg	0.105U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0526 ng/Kg	0.0526U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8-HxCDD	0.0507 ng/Kg	0.0507U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,4,7,8-HXCDF	0.112 ng/Kg	0.112U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDD	0.114 ng/Kg	0.114U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,6,7,8-HXCDF	0.0967 ng/Kg	0.0967U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDD	0.144 ng/Kg	0.144U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8,9-HXCDF	0.123 ng/Kg	0.123U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8-PECDD	0.157 ng/Kg	0.157U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	1,2,3,7,8-PECDF	0.203 ng/Kg	0.203U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	2,3,4,6,7,8-HXCDF	0.0897 ng/Kg	0.0897U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	2,3,4,7,8-PECDF	0.186 ng/Kg	0.186U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	2,3,7,8-TCDF	0.147 ng/Kg	0.147U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	OCDD	0.809 ng/Kg	0.809U ng/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	OCDF	0.217 ng/Kg	0.217U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.363 ng/Kg	0.363U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.441 ng/Kg	0.441U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.466 ng/Kg	0.466U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.470 ng/Kg	0.470U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.790 ng/Kg	0.790U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.206 ng/Kg	0.206U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.269 ng/Kg	0.269U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.878 ng/Kg	0.878U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.462 ng/Kg	0.462U ng/Kg

Method Blank Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-545-NBZ-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.889 ng/Kg	0.889U ng/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.0707 ng/Kg	0.0707U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDD	0.137 ng/Kg	0.137U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,4,6,7,8-HPCDF	0.109 ng/Kg	0.109U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0269 ng/Kg	0.0269U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.0513 ng/Kg	0.0513U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.103 ng/Kg	0.103U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDD	0.0726 ng/Kg	0.0726U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.102 ng/Kg	0.102U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.0822 ng/Kg	0.0822U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.0965 ng/Kg	0.0965U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.194 ng/Kg	0.194U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDF	0.249 ng/Kg	0.249U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.0735 ng/Kg	0.0735U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.202 ng/Kg	0.202U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.115 ng/Kg	0.115U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDF	0.123 ng/Kg	0.123U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	OCDD	0.438 ng/Kg	0.438U ng/Kg
SL-548-NBZ-SB-0.0-0.5(RES)	OCDF	0.180 ng/Kg	0.180U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.597 ng/Kg	0.597U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HxCDD	0.589 ng/Kg	0.589U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8-HXCDF	0.660 ng/Kg	0.660U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.682 ng/Kg	0.682U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDD	0.926 ng/Kg	0.926U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.466 ng/Kg	0.466U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8-PECDD	0.688 ng/Kg	0.688U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	2,3,4,6,7,8-HXCDF	0.727 ng/Kg	0.727U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	2,3,4,7,8-PECDF	0.995 ng/Kg	0.995U ng/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	2,3,7,8-TCDD	0.0848 ng/Kg	0.0848U ng/Kg

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P34737AB221738	12/16/2013 5:38:00 PM	CALCIUM	4.84 mg/Kg	SL-511-NBZ-SB-0.0-0.5
		MAGNESIUM	2.30 mg/Kg	SL-511-NBZ-SB-2.5-3.5
		TIN	1.63 mg/Kg	SL-545-NBZ-SB-0.0-0.5
		ZINC	0.233 mg/Kg	SL-845-NBZ-SB-0.0-0.5

Method Blank Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-511-NBZ-SB-0.0-0.5(RES)	TIN	3.49 mg/Kg	3.49U mg/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	TIN	3.68 mg/Kg	3.68U mg/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	TIN	2.85 mg/Kg	2.85U mg/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	TIN	2.85 mg/Kg	2.85U mg/Kg

Field Blank Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PrepPH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **6010C**
Matrix: **SO**

Field Blank Sample ID	Collected Date	Analyte	Result	Associated Samples
FB-041613(REA2/TOT)	4/16/2013 3:15:00 PM	MOLYBDENUM TIN	0.0132 mg/L 0.0029 mg/L	SL-506-NBZ-SB-0.0-0.5 SL-507-NBZ-SB-0.0-0.5 SL-507-NBZ-SB-3.5-4.5 SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5 SL-545-NBZ-SB-0.0-0.5 SL-546-NBZ-SB-0.0-0.5 SL-547-NBZ-SB-0.0-0.5 SL-548-NBZ-SB-0.0-0.5 SL-549-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-511-NBZ-SB-0.0-0.5(RES)	MOLYBDENUM	0.396 mg/Kg	0.396U mg/Kg
SL-511-NBZ-SB-2.5-3.5(RES)	MOLYBDENUM	0.630 mg/Kg	0.630U mg/Kg
SL-545-NBZ-SB-0.0-0.5(RES)	MOLYBDENUM	0.998 mg/Kg	0.998U mg/Kg
SL-845-NBZ-SB-0.0-0.5(RES)	MOLYBDENUM	0.561 mg/Kg	0.561U mg/Kg

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-545-NBZ-SB-0.0-0.5MS SL-545-NBZ-SB-0.0-0.5MSD (SL-545-NBZ-SB-0.0-0.5)	EFH (C12-C14)	0	0	49.00-123.00	-	EFH (C12-C14)	No Qual, Diluted Out
	EFH (C15-C20)	-98	-	49.00-123.00	38 (20.00)	EFH (C15-C20)	
	EFH (C21-C30)	-219	-79	49.00-123.00	-	EFH (C21-C30)	
	EFH (C30-C40)	-386	248	49.00-123.00	29 (20.00)	EFH (C30-C40)	
	EFH (C8-C11)	0	0	49.00-123.00	-	EFH (C8-C11)	

Method: 8270D SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-545-NBZ-SB-0.0-0.5MS SL-545-NBZ-SB-0.0-0.5MSD (SL-545-NBZ-SB-0.0-0.5)	BENZO(E)PYRENE	0	-	70.00-130.00	200 (30.00)	BENZO(E)PYRENE	No Qual, Diluted Out
	BIS(2-ETHYLHEXYL)PHTHALAT	0	0	39.00-167.00	-	BIS(2-ETHYLHEXYL)PHTHALA	
	Butylbenzylphthalate	0	0	49.00-151.00	-	Butylbenzylphthalate	
	Diethylphthalate	0	0	43.00-145.00	-	Diethylphthalate	
	Dimethylphthalate	0	0	58.00-129.00	-	Dimethylphthalate	
	Di-n-butylphthalate	0	0	52.00-147.00	-	Di-n-butylphthalate	
	Di-n-octylphthalate	0	0	52.00-162.00	-	Di-n-octylphthalate	

Method: 6010C
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-545-NBZ-SB-0.0-0.5MS (TOT) SL-545-NBZ-SB-0.0-0.5MSD (TOT) (SL-511-NBZ-SB-0.0-0.5 SL -511-NBZ-SB-2.5-3.5 SL -545-NBZ-SB-0.0-0.5 SL -845-NBZ-SB-0.0-0.5)	ALUMINUM	1409	1052	75.00-125.00	-	ALUMINUM	No Qual, >4x
	CALCIUM	252	220	75.00-125.00	-	CALCIUM	
	MAGNESIUM	233	129	75.00-125.00	-	MAGNESIUM	
	MANGANESE	141	-	75.00-125.00	-	MANGANESE	
	TITANIUM	293	271	75.00-125.00	-	TITANIUM	
SL-545-NBZ-SB-0.0-0.5MS (TOT) SL-545-NBZ-SB-0.0-0.5MSD (TOT) (SL-511-NBZ-SB-0.0-0.5 SL -511-NBZ-SB-2.5-3.5 SL -545-NBZ-SB-0.0-0.5 SL -845-NBZ-SB-0.0-0.5)	ANTIMONY	63	62	75.00-125.00	-	ANTIMONY	J(all detects) UJ(all non-detects) Fe, P, No Qual, >4x
	IRON	1112	38	75.00-125.00	-	IRON	
	PHOSPHORUS	-	56	75.00-125.00	-	PHOSPHORUS	

Method: 6020A
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-545-NBZ-SB-0.0-0.5MSD (TOT) (SL-511-NBZ-SB-0.0-0.5 SL -511-NBZ-SB-2.5-3.5 SL -545-NBZ-SB-0.0-0.5 SL -845-NBZ-SB-0.0-0.5)	STRONTIUM	-	196	75.00-125.00	-	STRONTIUM	J(all detects)

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Lab Duplicate Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 9012B
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-545-NBZ-SB-0.0-0.5DUP (SL-545-NBZ-SB-0.0-0.5 SL -845-NBZ-SB-0.0-0.5)	CYANIDE	200	20.00	No Qual, OK by Difference

Method: 6010C
Matrix: SO

QC Sample ID (Associated Sample ID)	Analyte	Sample RPD	eQAPP RPD	Flag
SL-545-NBZ-SB-0.0-0.5DUP (TOT) (SL-511-NBZ-SB-0.0-0.5 SL -511-NBZ-SB-2.5-3.5 SL -545-NBZ-SB-0.0-0.5 SL -845-NBZ-SB-0.0-0.5)	MOLYBDENUM	83	20.00	No Qual, OK by Difference

Lab Control Spike/Lab Control Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **8270D SIM**

Matrix: **SO**

QC Sample ID (Associated Samples)	*Compound*	*LCS %R*	*LCSD %R*	*%R Limits*	*RPD (Limits)*	*Affected Compounds*	*Flag*
P4LELCSQ260443 (SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5)	PYRENE	115	-	79.00-112.00	-	PYRENE	J (all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 160.3M
Matrix: SO

Analyte	Concentration (%) SL-545-NBZ-SB-0.0-0.5	Concentration (%) SL-845-NBZ-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
MOISTURE	7.5	5.6	29		No Qualifiers Applied

Method: 1613B
Matrix: SO

Analyte	Concentration (ng/Kg) SL-545-NBZ-SB-0.0-0.5	Concentration (ng/Kg) SL-845-NBZ-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
1,2,3,4,6,7,8-HPCDD	17.3	13.2	27	50.00	No Qualifiers Applied
1,2,3,4,6,7,8-HPCDF	3.75	4.26	13	50.00	
1,2,3,4,7,8,9-HPCDF	0.363	0.597	49	50.00	
1,2,3,4,7,8-HxCDD	0.441	0.589	29	50.00	
1,2,3,4,7,8-HXCDF	0.466	0.660	34	50.00	
1,2,3,6,7,8-HXCDD	1.04	1.10	6	50.00	
1,2,3,6,7,8-HXCDF	0.470	0.682	37	50.00	
1,2,3,7,8,9-HXCDD	0.790	0.926	16	50.00	
1,2,3,7,8-PECDF	0.878	1.13	25	50.00	
2,3,4,6,7,8-HXCDF	0.462	0.727	45	50.00	
2,3,4,7,8-PECDF	0.889	0.995	11	50.00	
2,3,7,8-TCDD	0.0707	0.0848	18	50.00	
2,3,7,8-TCDF	0.622	0.487	24	50.00	
OCDD	142	106	29	50.00	
OCDF	8.97	8.17	9	50.00	
1,2,3,7,8,9-HXCDF	0.206	0.466	77	50.00	J(all detects)
1,2,3,7,8-PECDD	0.269	0.688	88	50.00	

Method: 6010C
Matrix: SO

Analyte	Concentration (mg/Kg) SL-545-NBZ-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-845-NBZ-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
ALUMINUM	12100	11800	3	50.00	No Qualifiers Applied
ARSENIC	3.24	2.90	11	50.00	
BARIUM	71.5	77.1	8	50.00	
BERYLLIUM	0.477	0.466	2	50.00	
BORON	4.79	5.57	15	50.00	
CADMIUM	0.447	0.466	4	50.00	
CALCIUM	5070	5200	3	50.00	
CHROMIUM	16.7	17.7	6	50.00	
COBALT	4.80	4.62	4	50.00	
COPPER	4.81	4.80	0	50.00	
IRON	18500	18000	3	50.00	
LEAD	14.8	15.1	2	50.00	
LITHIUM	22.7	22.0	3	50.00	
MAGNESIUM	4240	4070	4	50.00	
MANGANESE	283	273	4	50.00	
NICKEL	10.7	10.3	4	50.00	
PHOSPHORUS	431	372	15	50.00	
POTASSIUM	3490	3070	13	50.00	
SODIUM	78.3	92.1	16	50.00	
TIN	2.85	2.85	0	50.00	
TITANIUM	1010	1010	0	50.00	
VANADIUM	31.2	29.6	5	50.00	
ZINC	57.2	63.6	11	50.00	
Zirconium	1.66	2.00	19	50.00	

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Field Duplicate RPD Report

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 6010C
Matrix: SO

MOLYBDENUM	0.998	0.561	56	50.00	J(all detects)

Method: 6020A
Matrix: SO

Analyte	Concentration (mg/Kg) SL-545-NBZ-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-845-NBZ-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
SELENIUM	0.203	0.189	7	50.00	No Qualifiers Applied
SILVER	0.201	0.233	15	50.00	
STRONTIUM	25.3	29.2	14	50.00	
THALLIUM	0.213	0.204	4	50.00	

Method: 7471B
Matrix: SO

Analyte	Concentration (mg/Kg) SL-545-NBZ-SB-0.0-0.5 (TOT)	Concentration (mg/Kg) SL-845-NBZ-SB-0.0-0.5 (TOT)	Sample RPD	eQAPP RPD	Flag
MERCURY	0.182	0.284	44	50.00	No Qualifiers Applied

Method: 8015M
Matrix: SO

Analyte	Concentration (mg/Kg) SL-545-NBZ-SB-0.0-0.5	Concentration (mg/Kg) SL-845-NBZ-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
EFH (C15-C20)	35	33	6	50.00	No Qualifiers Applied
EFH (C21-C30)	150	200	29	50.00	
EFH (C30-C40)	370	460	22	50.00	

Method: 8270D SIM
Matrix: SO

Analyte	Concentration (ug/Kg) SL-545-NBZ-SB-0.0-0.5	Concentration (ug/Kg) SL-845-NBZ-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
BENZO(B)FLUORANTHENE	15	18 U	200	50.00	J(all detects) UJ(all non-detects)
CHRYSENE	20	6.9	97	50.00	
NAPHTHALENE	12	18 U	200	50.00	

Method: 9045M
Matrix: SO

Analyte	Concentration (pH unit) SL-545-NBZ-SB-0.0-0.5	Concentration (pH unit) SL-845-NBZ-SB-0.0-0.5	Sample RPD	eQAPP RPD	Flag
PH	6.97	7.06	1	50.00	No Qualifiers Applied

Reporting Limit Outliers

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-508-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	0.120	5.51	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.119	5.51	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JB	0.106	5.51	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0429	5.51	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0919	5.51	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0747	5.51	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.0630	5.51	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0602	5.51	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.126	5.51	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.107	5.51	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.0919	5.51	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.131	5.51	PQL	ng/Kg	
	2,3,7,8-TCDD	JBQ	0.112	1.10	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.122	1.10	PQL	ng/Kg	
	OCDD	JB	0.486	11.0	PQL	ng/Kg	
	OCDF	JB	0.328	11.0	PQL	ng/Kg	
SL-508-NBZ-SB-4.0-5.0	1,2,3,4,6,7,8-HPCDD	JBQ	0.186	5.50	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.101	5.50	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0765	5.50	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0401	5.50	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.0656	5.50	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0377	5.50	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.114	5.50	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0722	5.50	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0565	5.50	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.0629	5.50	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.107	1.10	PQL	ng/Kg	
	OCDD	JB	1.22	11.0	PQL	ng/Kg	
	OCDF	JB	0.322	11.0	PQL	ng/Kg	
SL-511-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	2.23	5.01	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.569	5.01	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0983	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.0648	5.01	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.165	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	0.300	5.01	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.150	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.263	5.01	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.152	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0866	5.01	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.169	5.01	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.176	5.01	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.377	5.01	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.325	1.00	PQL	ng/Kg	
	OCDF	JBQ	0.821	10.0	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-NBZ-SB-2.5-3.5	1,2,3,4,6,7,8-HPCDD	JB	0.196	5.07	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.105	5.07	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0526	5.07	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0507	5.07	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.112	5.07	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.114	5.07	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.0967	5.07	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.144	5.07	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.123	5.07	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.157	5.07	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.203	5.07	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0897	5.07	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.186	5.07	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.147	1.01	PQL	ng/Kg	
	OCDD	JB	0.809	10.1	PQL	ng/Kg	
	OCDF	JBQ	0.217	10.1	PQL	ng/Kg	
SL-545-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	3.75	5.17	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JBQ	0.363	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.441	5.17	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JB	0.466	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	1.04	5.17	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.470	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.790	5.17	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.206	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.269	5.17	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.878	5.17	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.462	5.17	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.889	5.17	PQL	ng/Kg	
	2,3,7,8-TCDD	JB	0.0707	1.03	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.622	1.03	PQL	ng/Kg	
	OCDF	JB	8.97	10.3	PQL	ng/Kg	
SL-548-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	0.137	4.97	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.109	4.97	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0269	4.97	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JBQ	0.0513	4.97	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.103	4.97	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JBQ	0.0726	4.97	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JBQ	0.102	4.97	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JBQ	0.0822	4.97	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.0965	4.97	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.194	4.97	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	0.249	4.97	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JBQ	0.0735	4.97	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JBQ	0.202	4.97	PQL	ng/Kg	
	2,3,7,8-TCDD	JBQ	0.115	0.994	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.123	0.994	PQL	ng/Kg	
	OCDD	JB	0.438	9.94	PQL	ng/Kg	
	OCDF	JBQ	0.180	9.94	PQL	ng/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-845-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDF	JB	4.26	5.27	PQL	ng/Kg	J (all detects)
	1,2,3,4,7,8,9-HPCDF	JB	0.597	5.27	PQL	ng/Kg	
	1,2,3,4,7,8-HxCDD	JB	0.589	5.27	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.660	5.27	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	JB	1.10	5.27	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.682	5.27	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JB	0.926	5.27	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.466	5.27	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.688	5.27	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JB	1.13	5.27	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	JB	0.727	5.27	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JB	0.995	5.27	PQL	ng/Kg	
	2,3,7,8-TCDD	JBQ	0.0848	1.05	PQL	ng/Kg	
	2,3,7,8-TCDF	JBQ	0.487	1.05	PQL	ng/Kg	
	OCDF	JB	8.17	10.5	PQL	ng/Kg	

Method: **6010C**

Matrix: **SO**

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-NBZ-SB-0.0-0.5	BERYLLIUM	J	0.950	1.04	PQL	mg/Kg	J (all detects)
	CADMIUM	J	0.489	1.04	PQL	mg/Kg	
	MOLYBDENUM	J	0.396	2.09	PQL	mg/Kg	
	SODIUM	J	99.6	104	PQL	mg/Kg	
	TIN	J	3.49	10.4	PQL	mg/Kg	
	Zirconium	J	2.33	5.22	PQL	mg/Kg	
SL-511-NBZ-SB-2.5-3.5	CADMIUM	J	0.354	1.02	PQL	mg/Kg	J (all detects)
	MOLYBDENUM	J	0.630	2.05	PQL	mg/Kg	
	TIN	J	3.68	10.2	PQL	mg/Kg	
	Zirconium	J	1.34	5.12	PQL	mg/Kg	
SL-545-NBZ-SB-0.0-0.5	ARSENIC	J	3.24	4.24	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.477	1.06	PQL	mg/Kg	
	BORON	J	4.79	10.6	PQL	mg/Kg	
	CADMIUM	J	0.447	1.06	PQL	mg/Kg	
	MOLYBDENUM	J	0.998	2.12	PQL	mg/Kg	
	SODIUM	J	78.3	106	PQL	mg/Kg	
	TIN	J	2.85	10.6	PQL	mg/Kg	
	Zirconium	J	1.66	5.30	PQL	mg/Kg	
SL-845-NBZ-SB-0.0-0.5	ARSENIC	J	2.90	4.15	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.466	1.04	PQL	mg/Kg	
	BORON	J	5.57	10.4	PQL	mg/Kg	
	CADMIUM	J	0.466	1.04	PQL	mg/Kg	
	MOLYBDENUM	J	0.561	2.08	PQL	mg/Kg	
	SODIUM	J	92.1	104	PQL	mg/Kg	
	TIN	J	2.85	10.4	PQL	mg/Kg	
	Zirconium	J	2.00	5.19	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 6020A

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-NBZ-SB-0.0-0.5	SELENIUM SILVER	J J	0.402 0.0824	0.418 0.209	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-511-NBZ-SB-2.5-3.5	SELENIUM SILVER	J J	0.402 0.0769	0.409 0.205	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-545-NBZ-SB-0.0-0.5	SELENIUM SILVER	J J	0.203 0.201	0.424 0.212	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-845-NBZ-SB-0.0-0.5	SELENIUM THALLIUM	J J	0.189 0.204	0.415 0.208	PQL PQL	mg/Kg mg/Kg	J (all detects)

Method: 7471B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-511-NBZ-SB-2.5-3.5	MERCURY	J	0.0140	0.0171	PQL	mg/Kg	J (all detects)

Method: 8015M

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-506-NBZ-SB-0.0-0.5	EFH (C21-C30)	J	4.3	5.2	PQL	mg/Kg	J (all detects)
SL-507-NBZ-SB-3.5-4.5	EFH (C21-C30) EFH (C30-C40) GASOLINE RANGE ORGANICS (C5-C12)	J J J	3.3 8.3 0.6	5.3 11 1.0	PQL PQL PQL	mg/Kg mg/Kg mg/Kg	J (all detects)
SL-508-NBZ-SB-0.0-0.5	EFH (C21-C30) EFH (C30-C40)	J J	3.2 7.9	5.5 11	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-508-NBZ-SB-4.0-5.0	EFH (C21-C30) EFH (C30-C40)	J J	3.2 8.2	5.5 11	PQL PQL	mg/Kg mg/Kg	J (all detects)
SL-511-NBZ-SB-2.5-3.5	EFH (C21-C30) EFH (C30-C40) GASOLINE RANGE ORGANICS (C5-C12)	J J J	3.5 8.9 0.3	5.3 11 1.1	PQL PQL PQL	mg/Kg mg/Kg mg/Kg	J (all detects)
SL-546-NBZ-SB-0.0-0.5	EFH (C15-C20)	J	11	26	PQL	mg/Kg	J (all detects)
SL-547-NBZ-SB-0.0-0.5	EFH (C15-C20)	J	10	11	PQL	mg/Kg	J (all detects)

Method: 8081B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-507-NBZ-SB-0.0-0.5	4,4'-DDE 4,4'-DDT	J J	0.63 0.43	1.8 1.8	PQL PQL	ug/Kg ug/Kg	J (all detects)

Reporting Limit Outliers

Lab Reporting Batch ID: PH139 **Laboratory: LL**

EDD Filename: PH139 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
SL-508-NBZ-SB-0.0-0.5	BIS(2-ETHYLHEXYL)PHTHALATE	J	7.6	20	PQL	ug/Kg	J (all detects)
	PHENANTHRENE	J	1.2	1.8	PQL	ug/Kg	
SL-508-NBZ-SB-4.0-5.0	CHRYSENE	J	0.48	1.9	PQL	ug/Kg	J (all detects)
SL-511-NBZ-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	BENZO(K)FLUORANTHENE	J	0.71	1.7	PQL	ug/Kg	
	FLUORANTHENE	J	1.4	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.70	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	1.4	1.7	PQL	ug/Kg	
	PYRENE	J	1.4	1.7	PQL	ug/Kg	
SL-545-NBZ-SB-0.0-0.5	BENZO(B)FLUORANTHENE	J	15	18	PQL	ug/Kg	J (all detects)
	NAPHTHALENE	J	12	18	PQL	ug/Kg	
SL-845-NBZ-SB-0.0-0.5	CHRYSENE	J	6.9	18	PQL	ug/Kg	J (all detects)

Enclosure II

EPA Level IV Data Validation Reports

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 11, 2014
Matrix:	Soil
Parameters:	Semivolatiles
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-508-NBZ-SB-0.0-0.5
SL-508-NBZ-SB-4.0-5.0
SL-545-NBZ-SB-0.0-0.5
SL-845-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-2.5-3.5
SL-545-NBZ-SB-0.0-0.5MS
SL-545-NBZ-SB-0.0-0.5MSD

Introduction

This data review covers 8 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs) and 25.0% for all other compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method.

Samples EB1-120513, EB2-120513, and EB3-120513 (all from SDG PH140) were identified as equipment blanks. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB1-120513	12/5/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate	0.21 ug/L 0.50 ug/L 0.11 ug/L	SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0
EB2-120513	12/5/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate	0.20 ug/L 0.50 ug/L 0.095 ug/L	SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5
EB3-120513	12/5/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate	0.20 ug/L 0.51 ug/L 0.063 ug/L	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5

Sample FB-041613 (from SDG PH032) was identified as a field blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041613	4/16/13	Di-n-butylphthalate Bis(2-ethylhexyl)phthalate 2-Methylnaphthalene	0.11 ug/L 0.25 ug/L 0.012 ug/L	All samples in SDG PH139

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>10X for common contaminants, >5X for other contaminants) than the concentrations found in the associated method blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the samples were diluted out, no data were qualified.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits with the following exceptions:

LCS ID	Compound	%R (Limits)	Associated Samples	Flag	A or P
344LELCS	Pyrene	115 (79-112)	All samples in SDG PH139	J (all detects)	P

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation

All compound quantitation were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH139	All compounds reported below the RL.	J (all detects)	A

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples SL-545-NBZ-SB-0.0-0.5 and SL-845-NBZ-SB-0.0-0.5 were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
Benzo(b)fluoranthene	15	18U	200 (≤50)	J (all detects) UJ (all non-detects)	A

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
Chrysene	20	6.9	97 (≤50)	J (all detects)	A
Naphthalene	12	18U	200 (≤50)	J (all detects) UJ (all non-detects)	A

Santa Susana Field Laboratory
Semivolatiles - Data Qualification Summary - SDG PH139

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH139	SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5	Pyrene	J (all detects)	P	Laboratory control samples (%R)(L)
PH139	SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5	Benzo(b)fluoranthene Naphthalene	J (all detects) UJ (all non-detects) J (all detects) UJ (all non-detects)	A	Field duplicates (RPD) (FD)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5	Chrysene	J (all detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Semivolatiles - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B2b **VALIDATION COMPLETENESS WORKSHEET** Date: 2/6/14
SDG #: PH139 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: BR
2nd Reviewer: SM

METHOD: GC/MS ~~Polynuclear Aromatic Hydrocarbons~~ SVOCs (EPA SW 846 Method 8270~~C~~D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 30%
IV.	Continuing calibration/ICV	A	|CW|CCV ≤ 25%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	SW	LCS
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 3 + 4
XVII.	Field blanks	SW	EB1 = EB1-120513 EB2 = EB2-120513 EB3 = EB3-120513 All EBs from SDG # PH140 FB = FB-041613 (SDG # PH032)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1	SL-508-NBZ-SB-0.0-0.5	11		21		31	SBLKLE344
2	SL-508-NBZ-SB-4.0-5.0	12		22		32	
3	SL-545-NBZ-SB-0.0-0.5	13		23		33	
4	SL-845-NBZ-SB-0.0-0.5	14		24		34	
5	SL-511-NBZ-SB-0.0-0.5	15		25		35	
6	SL-511-NBZ-SB-2.5-3.5	16		26		36	
7	SL-545-NBZ-SB-0.0-0.5MS	17		27		37	
8	SL-545-NBZ-SB-0.0-0.5MSD	18		28		38	
9		19		29		39	
10		20		30		40	

LDC #: 31224B2b

VALIDATION FINDINGS CHECKLIST

Reviewer: RR
2nd Reviewer: SM

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?				
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 31224B26

VALIDATION FINDINGS CHECKLIST

Reviewer: SK
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓	✓ SM		
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 31224B26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: BR
2nd Reviewer: SM

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

FB = FB-041613 (SDG # PH032)

Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

Code: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 4/16/13
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: All

Compound	Blank ID		Sample Identification							
	FB	5X/10X	+							
XX	0.11	1.1								
EEE	0.25	2.5	~~7.6/200~~ 5u							
W	0.012	0.06								

EB1 = EB1-120513 (SDG # PH140)

Code: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 12/5/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 1-2 (NO + 75X)

Compound	Blank ID		Sample Identification							
	EB1	10X								
XX	0.21	2.1								
LL	0.50	5.0								
EEE	0.11	1.1								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31224B26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: BK
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

EB2 = EB2-120513 (SDG# PH140)
Code: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 12/5/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 5-6 (ND) ND

Compound	Blank ID		Sample Identification							
	EB2	10X								
XX	0.20	2.0								
LL	0.50	5.0								
EEE	0.095	0.95								

EB3 = EB3-120513 (SDG# PH140)
Code: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 12/5/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 3-4 (ND)

Compound	Blank ID		Sample Identification							
	EB3	10X								
XX	0.20	2.0								
LL	0.51	5.1								
EEE	0.063	0.63								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31224B26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: BR
2nd Reviewer: SM

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Code: Q Qualifications
		7/8	CC	% Recoveries and/or RPDs were			3	No qual.
			LL	outside acceptable criteria.				DIL 75X
			XX	( )	( )	( )		
			AAA	( )	( )	( )		
			EEE	( )	( )	( )		
			FFF	( )	( )	( )		
			WWW	( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

LDC #: 31224B2J

VALIDATION FINDINGS WORKSHEET
Laboratory Control Samples (LCS)

Reviewer: BR
2nd Reviewer: SM

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".
Y N N/A Was a LCS required?
Y N N/A Were the LCS/LCSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	LCS/LCSD ID	Compound	LCS %R (Limits)	LCSD %R (Limits)	RPD (Limits)	Associated Samples	Code: L Qualifications
		344LELCS	ZZ	115 (79-112)	( )	( )	All	J UJ / P
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		

LDC #: 31224B2b

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: BR
2nd reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270)

Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds identified in the field duplicate pairs?

Code: FD

Compound	Concentration (ug/kg)		RPD	Qualification
	3	4	50	
GGG	15	18 U	200	J/UJ/A
DDD	20	6.9	97	J det/A
S	12	18 U	200	J/UJ/A

Compound	Concentration ( )		RPD	Qualification

Compound	Concentration ( )		RPD	Qualification

Compound	Concentration ( )		RPD	Qualification

LDC #: 31224B2b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer BR
2nd Reviewer [illegible]

METHOD: GC/MS SVOA (EPA SW 846 Method 8270DSIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

%RSD = 100 * (S/X)

A_x = Area of Compound

C_x = Concentration of compound,

S= Standard deviation of the RRFs,

A_{is} = Area of associated internal standard

C_{is} = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (1 std)	Recalculated RRF (1 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	HP10976	12/3/2013	N-Nitrosodimethylamine (IS1)	1.188	1.188	1.169	1.169	3	3
			Naphthalene (IS2)	1.027	1.027	1.024	1.025	2	2
			Fluorene (IS3)	1.265	1.265	1.259	1.258	2	2
			Anthracene (IS4)	1.080	1.080	1.080	1.080	4	4
			Chrysene (IS5)	1.113	1.113	1.100	1.100	1	1
			Benzo(a)pyrene (IS6)	1.129	1.129	1.106	1.106	3	3

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC# 31224B2b

VALIDATION FINDINGS WORSHEET
Continuing Calibration Results Verification

Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC/MS SVOA (EPA SW 846 Method 8270DSIM)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound
Cx = Concentration of compound
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial RRF)	Reported (CC RRF)	Recalculated (CC RRF)	Reported %D	Recalculated %D
1	IL0671	12/24/13	N-Nitrosodimethylamine (IS1)	1.169	1.209	1.209	3	3
			Naphthalene (IS2)	1.024	1.031	1.031	1	1
			Fluorene (IS3)	1.259	1.257	1.257	0	0
			Anthracene (IS4)	1.080	1.067	1.067	1	1
			Chrysene (IS5)	1.100	1.187	1.187	8	8
			Benzo(a)pyrene (IS6)	1.106	1.182	1.182	7	7

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Surrogate Results Verification

Reviewer: BR
2nd reviewer: SM

METHOD: GC/MS Semivolatiles (EPA SW 846 Method 8270D)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
~~Nitrobenzene-d5~~ Fluoranthene-d10	1.00	0.865	87	87	0
~~2-Fluorobiphenyl~~ Benzo(a)pyrene-d12	↓	0.874	87	87	0
~~Terphenyl-d14~~ 1-Methylnaphthalene-d10	↓	1.053	105	105	0
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

Sample ID:

	Surrogate Spiked	Surrogate Found	Percent Recovery Reported	Percent Recovery Recalculated	Percent Difference
Nitrobenzene-d5					
2-Fluorobiphenyl					
Terphenyl-d14					
Phenol-d5					
2-Fluorophenol					
2,4,6-Tribromophenol					
2-Chlorophenol-d4					
1,2-Dichlorobenzene-d4					

LDC #: 31224826

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: BR
2nd Reviewer: SL

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified belc using the following calculation:

% Recovery = 100 * (SSC - SC)/SA Where: SSC = Spiked sample concentration; SA = Spike added; SC = Sample concentation

RPD = I MSC - MSC I * 2/(MSC + MSDC) MSC = Matrix spike concentration MSDC = Matrix spike duplicate concentration

MS/MSD samples: 7/8

Compound	Spike Added (µg/kg)		Sample Concentration (µg/kg)	Spiked Sample Concentration (µg/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	------	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculatec
Phenol											
N-Nitroso-di-n-propylamine											
4-Chloro-3-methylphenol											
Acenaphthene	33.33	33.33	0	29.86	30.9	90	90	93	93	3	3.4
Pentachlorophenol											
Pyrene	33.33	33.33	0	35.35	39.41	106	106	118	118	11	11

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0 of the recalculated results.

LDC #: 31224326

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: BR

2nd Reviewer: YM

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for tl compounds identified below using the following calculation:

% Recovery = 100 * (SC/SA

Where: SSC = Spike concentration
SA = Spike added

RPD = I LCSC - LCSDC I * 2/(LCSC + LCSDC)

LCSC = Laboratory control sample concentration LCSDC = Laboratory control sample duplicate concentration

LCS/LCSD samples: 344LELCS

Compound	Spike Added (µg/kg)		Spike Concentration (µg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculatec
Phenol										
N-Nitroso-di-n-propylamine										
4-Chloro-3-methylphenol										
Acenaphthene	33.33	—	32.97	—	99	99	—	—	—	—
Pentachlorophenol										
Pyrene	33.33	—	38.34	—	115	115	—	—	—	—

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicates findings worksheet for list of qualifications and associated samples when reporte results do not agree within 10.0% of the recalculated results.

LDC #: 31224B2L

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: BR
2nd reviewer: SM

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(V_t)(DF)(2.0)}{(A_{is})(RRF)(V_o)(V_i)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
V_i	=	Volume of extract injected in microliters (ul)
V_t	=	Volume of the concentrated extract in microliters (ul)
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.
2.0	=	Factor of 2 to account for GPC cleanup

Example:

Sample I.D. 2, DDD:

DDD = ~~0.5~~ 0.48 µg/kg

Conc. = (3781)(1)(1000)( )( ) / (265805)(1.100)(30)(0.90)( )

= 0.478946586 µg/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 11, 2014
Matrix:	Soil
Parameters:	Chlorinated Pesticides
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-506-NBZ-SB-0.0-0.5
SL-507-NBZ-SB-0.0-0.5
SL-507-NBZ-SB-3.5-4.5
SL-508-NBZ-SB-0.0-0.5
SL-508-NBZ-SB-4.0-5.0

Introduction

This data review covers 5 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8081B for Chlorinated Pesticides.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration of single compounds was performed for the primary (quantitation) column and confirmation column as required by this method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) of calibration factors in continuing standard mixtures were within the 20.0% QC limits with the following exceptions:

Date	Standard	Column	Compound	%D	Associated Samples	Flag	A or P
12/16/13	CCV-MIXA3WK	RTX-CLP	4,4'-DDE 4,4'-DDD Endosulfan II	23 25 33	PBLK20344	J (all detects) UJ (all non-detects)	A

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

The individual 4,4'-DDT and Endrin breakdowns (%BD) were less than or equal to 15.0%.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No chlorinated pesticide contaminants were found in the method blanks.

Sample EB1-120513 (from SDG PH140) was identified as an equipment blank. No chlorinated pesticide contaminants were found.

Sample FB-041613 (from SDG PH032) was identified as a field blank. No chlorinated pesticide contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Florisil Cartridge Check

Florisil cleanup was not required and therefore not performed in this SDG.

XI. GPC Calibration

GPC cleanup was not required and therefore not performed in this SDG.

XII. Target Compound Identification

All target compound identifications were within validation criteria.

XIII. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH139	All compounds reported below the RL.	J (all detects)	A

XIV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XV. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Chlorinated Pesticides - Data Qualification Summary - SDG PH139

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH139	SL-506-NBZ-SB-0.0-0.5 SL-507-NBZ-SB-0.0-0.5 SL-507-NBZ-SB-3.5-4.5 SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Chlorinated Pesticides - Laboratory Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Chlorinated Pesticides - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B3a

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 2/7/14

SDG #: PH139

Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories

Reviewer: BR

2nd Reviewer: SM

METHOD: GC Chlorinated Pesticides (EPA SW846 Method 8081~~A~~B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: ~~11~~ 12/4/13
II.	GC/ECD Instrument Performance Check	A	
III.	Initial calibration	A	RSD ≤ 20%
IV.	Continuing calibration/ICV	SW	ICV/CCV ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	N	Client spec.
VIII.	Laboratory control samples	A	LCS
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	N	
XVI.	Field blanks	ND	EB1 = EB1-120513 (SDG# PH140) FB = FB-041613 (PH032)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1	SL-506-NBZ-SB-0.0-0.5	11		21		31	PBLK20344
2	SL-507-NBZ-SB-0.0-0.5	12		22		32	
3	SL-507-NBZ-SB-3.5-4.5	13		23		33	
4	SL-508-NBZ-SB-0.0-0.5	14		24		34	
5	SL-508-NBZ-SB-4.0-5.0	15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 31224B3a

VALIDATION FINDINGS CHECKLIST

Reviewer: KR
2nd Reviewer: SM

Method: Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/ECD Instrument performance check				
Was the instrument performance found to be acceptable?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
Were the required standard concentrations analyzed in the initial calibration?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? X %D or ___ %R	✓			
Were Evaluation mix standards analyzed prior to the initial calibration and sample analysis?	✓			
Were endrin and 4,4'-DDT breakdowns ≤ 15%.0 for individual breakdown in the Evaluation mix standards?	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recovieries 80-120%?	✓	✓		
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Were extract cleanup blanks analyzed with every batch requiring clean-up?			✓	
Was there contamination in the method blanks or clean-up blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	

LDC #: 31224B3a

VALIDATION FINDINGS CHECKLIST

Reviewer: KR
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.		✓		
Was a MS/MSD analyzed every 20 samples of each matrix?			✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticide/PCBs (EPASW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG. Chlordane
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH. Chlordane (Technical)
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II. Aroclor 1262
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ. Aroclor 1268
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. 2,4'-DDD	KK. Oxychlordane
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. 2,4'-DDE	LL. trans-Nonachlor
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE. 2,4'-DDT	MM. cis-Nonachlor
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF. Hexachlorobenzene	NN.

Notes:_____

LDC #: 31224B3a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration

Page: 1 of 1
Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)
Please see qualifications below for all questions answered "N" Not applicable questions are identified as "N/A".

Y N N/A Were Evaluation mix standards run before initial calibration and before samples?
Y N N/A Were Endrin & 4,4'-DDT breakdowns acceptable in the Evaluation Mix standard (≤15.0% for individual breakdowns)?
Y N N/A Was at least one standard run daily to verify the working curve?
Y N N/A Did the continuing calibration standards meet the percent difference (%D) / relative percent difference (RPD) criteria of ≤20.0%?
Level IV/D Only
Y N N/A Were the retention times for all calibrated compounds within their respective acceptance windows?

#	Date	Standard ID	Column	Compound	%D (Limit ≤ 20.0)	RT (Limits)	Associated Samples	Code: C Qualifications
	12/16/B	CCV-MIX A	BWK RTX-CLP	J	23	( )	PBLK 20344	J/UJ/A
				M	25	( )		↓
				L	33	( )		
						( )		
						( )		
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A. alpha-BHC	E. Heptachlor	I. Dieldrin	M. 4,4'-DDD	Q. Endrin ketone	U. Toxaphene	Y. Aroclor-1242	CC. DB 608	GG._____
B. beta-BHC	F. Aldrin	J. 4,4'-DDE	N. Endosulfan sulfate	R. Endrin aldehyde	V. Aroclor-1016	Z. Aroclor-1248	DD. DB 1701	HH._____
C. delta-BHC	G. Heptachlor epoxide	K. Endrin	O. 4,4'-DDT	S. alpha-Chlordane	W. Aroclor-1221	AA. Aroclor-1254	EE. Hexachlobenzene	II._____
D. gamma-BHC	H. Endosulfan I	L. Endosulfan II	P. Methoxychlor	T. gamma-Chlordane	X. Aroclor-1232	BB. Aroclor-1260	FF._____	JJ._____

LDC#: 31224B3a

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: BR
2nd Reviewer: SM

METHOD: GC Pesticides (EPA SW 846 Method 8081B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$

average RRF = sum of the RRFs/number of standards

%RSD = 100 * (S/X)

Where

A_x = Area of Compound

C_x = Concentration of compound,

S= Standard deviation of the RRFs,

A_{is} = Area of associated internal standard

C_{is} = Concentration of internal standard

X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound	Reported RRF (10 std)	Recalculated RRF (10 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL	12/11/2013	Endosulfan I (RTX-CLP)	577000	576598	588000	588200	5	5
	H9191A		Methoxychlor (RTX-CLP)	243000	242738	243000	243400	2	2
			Endosulfan I (RTX-CLPII)	77300	77278	79100	79080	3	3
			Methoxychlor (RTX-CLPII)	46400	46400	47000	47000	1	1.5

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 31224B3a

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

Reviewer: BR
2nd Reviewer: SM

METHOD: GC Pesticides (EPA SW 846 Method 8081B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound,
Cx = Concentration of compound,
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound	Average CF/ Conc	Reported Conc/CF (CC)	Recalculated Conc/CF (CC)	Reported % D	Recalculated %D
1	MIXA3WK	12/16/2013	Endosulfan I (RTX-CLP)	10.00	11.20	11.20	12	12
		9:10	Methoxychlor (RTX-CLP)	100.0	107.77	107.77	8	8
			Endosulfan I (RTX-CLPII)	10.00	10.90	10.90	9	9
			Methoxychlor (RTX-CLPII)	100.0	97.59	100.84	1	1
2	MIXA3WL	12/16/2013	Endosulfan I (RTX-CLP)	10.00	9.84	9.84	2	2
		15:16	Methoxychlor (RTX-CLP)	100.00	103.79	103.79	4	4
			Endosulfan I (RTX-CLPII)	10.00	9.38	9.38	6	6
			Methoxychlor (RTX-CLPII)	100.00	98.06	98.06	2	2

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B3A

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: BR
2nd reviewer: SM

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene	STX-CLP	10.1	9.724	97	97	0
Decachlorobiphenyl	STX-CLP II	10.2	11.123	110	109.4	0.5
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Notes:

LDC #: 31224B3a

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

Where: SSC = Spiked sample concentration
SA = Spike added
SC = Concentration

RPD = | LCS - LCSD | * 2/(LCS + LCSD)

LCS = Laboratory control sample percent recovery
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS20344

Compound	Spike Added (ug/kg)		Spiked Sample Concentration (ug/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC	3.99 ~~2.42~~	—	3.99	—	117	117	—	—	—	—
4,4'-DDT	7.15	—	8.45	—	118	118	—	—	—	—
Aroclor 1260										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B3A

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: BR
2nd reviewer: SM

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Example: RTX-CLPII 0.43 µg/kg

Sample I.D. 2 4,4-DDT

Conc. = $\frac{5(103193)(10)}{(8.34e^4)(30.3)(0.955)}$

= 0.427600483 µg/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 10, 2014
Matrix:	Soil
Parameters:	Polychlorinated Biphenyls
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-508-NBZ-SB-0.0-0.5
SL-508-NBZ-SB-4.0-5.0
SL-545-NBZ-SB-0.0-0.5
SL-845-NBZ-SB-0.0-0.5
SL-548-NBZ-SB-0.0-0.5
SL-545-NBZ-SB-0.0-0.5MS
SL-545-NBZ-SB-0.0-0.5MSD

Introduction

This data review covers 7 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8082A for Polychlorinated Biphenyls.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/ECD Instrument Performance Check

Instrument performance was acceptable unless noted otherwise under initial calibration and continuing calibration sections.

III. Initial Calibration

Initial calibration was performed as required by the method.

The percent relative standard deviations (%RSD) were less than or equal to 20.0% for all compounds.

Retention time windows were evaluated and considered technically acceptable.

IV. Continuing Calibration

Continuing calibration was performed at required frequencies.

The percent differences (%D) were less than or equal to 20.0% for all compounds.

The percent difference (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

Retention times (RT) of all compounds in the calibration standards were within QC limits.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated biphenyl contaminants were found in the method blanks.

Samples EB1-120513 and EB3-120513 (both from SDG PH140) were identified as equipment blanks. No polychlorinated biphenyl contaminants were found.

Sample FB-041613 (from SDG PH032) was identified as a field blank. No polychlorinated biphenyl contaminants were found.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Data Qualification Summary - SDG PH139

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH139	SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-548-NBZ-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Laboratory Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Polychlorinated Biphenyls - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B3b

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 12/7/14

SDG #: PH139

Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories

Reviewer: BR

2nd Reviewer: SM

METHOD: GC Polychlorinated Biphenyls (EPA SW 846 Method 8082A)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
II.	GC/ECD Instrument Performance Check	N	
III.	Initial calibration	A	RSD ≤ 20%
IV.	Continuing calibration/ICV	A	|CC| CCV ≤ 20%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	A	
VIII.	Laboratory control samples	A	LCS/D
IX.	Regional quality assurance and quality control	N	
X.	Florisil cartridge check	N	
XI.	GPC Calibration	N	
XII.	Target compound identification	A	
XIII.	Compound quantitation/RL/LOQ/LODs	A	
XIV.	Overall assessment of data	A	
XV.	Field duplicates	ND	FD = 3 + 4

XVI.	Field blanks	ND	EB1 = EB1-120513 ? SDG # PH140 ~~132~~
			EB2 = EB3-120513 ?
			FB = FB-041613

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank SDG# PH 032

Validated Samples: Soil

1	SL-508-NBZ-SB-0.0-0.5	11		21		31	PBLK07344
2	SL-508-NBZ-SB-4.0-5.0	12		22		32	
3	SL-545-NBZ-SB-0.0-0.5	13		23		33	
4	SL-845-NBZ-SB-0.0-0.5	14		24		34	
5	SL-548-NBZ-SB-0.0-0.5	15		25		35	
6	SL-545-NBZ-SB-0.0-0.5MS	16		26		36	
7	SL-545-NBZ-SB-0.0-0.5MSD	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 31224B3b

VALIDATION FINDINGS CHECKLIST

Reviewer: KR
2nd Reviewer: SM

Method: Pesticides/PCBs (EPA SW 846 Method 8081/8082)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/ECD Instrument performance check				
Was the instrument performance found to be acceptable?	✓	✓	✓	
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?			✓	
Did the initial calibration meet the curve fit acceptance criteria?		✓		
Were the RT windows properly established?	✓			
Were the required standard concentrations analyzed in the initial calibration?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? X %D or ____%R	✓			
Were Evaluation mix standards analyzed prior to the initial calibration and sample analysis?			✓	
Were endrin and 4,4'-DDT breakdowns ≤ 15%.0 for individual breakdown in the Evaluation mix standards?			✓	
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recovieries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Were extract cleanup blanks analyzed with every batch requiring clean-up?			✓	
Was there contamination in the method blanks or clean-up blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	

LDC #: 31224B36

VALIDATION FINDINGS CHECKLIST

Reviewer: KR
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions, dry weight factors, and clean-up activities applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	~~✓~~ BM	✓		
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

VALIDATION FINDINGS WORKSHEET

METHOD: Pesticide/PCBs (EPASW 846 Method 8081/8082)

A. alpha-BHC	I. Dieldrin	Q. Endrin ketone	Y. Aroclor-1242	GG. Chlordane
B. beta-BHC	J. 4,4'-DDE	R. Endrin aldehyde	Z. Aroclor-1248	HH. Chlordane (Technical)
C. delta-BHC	K. Endrin	S. alpha-Chlordane	AA. Aroclor-1254	II. Aroclor 1262
D. gamma-BHC	L. Endosulfan II	T. gamma-Chlordane	BB. Aroclor-1260	JJ. Aroclor 1268
E. Heptachlor	M. 4,4'-DDD	U. Toxaphene	CC. 2,4'-DDD	KK. Oxychlordane
F. Aldrin	N. Endosulfan sulfate	V. Aroclor-1016	DD. 2,4'-DDE	LL. trans-Nonachlor
G. Heptachlor epoxide	O. 4,4'-DDT	W. Aroclor-1221	EE. 2,4'-DDT	MM. cis-Nonachlor
H. Endosulfan I	P. Methoxychlor	X. Aroclor-1232	FF. Hexachlorobenzene	NN.

Notes:_____

LDC#: 31224B3b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Page: 1 of 1
Reviewer: BR
2nd Reviewer: SM

METHOD: GC PCBs (EPA SW 846 Method 8082A)

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (500 std)	Recalculated CF (500 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL 17342A	12/6/2013	PCB1260-1 (ZB-MultiR1)	46341	46341	47185	47185	2	2
			PCB1260-1 (ZB-MultiR2I)	2749	2749	2973	2973	11	11

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC#: 31224B3b

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

Reviewer: BR
2nd Reviewer: SM

METHOD: GC PCBs (EPA SW 846 Method 8082)

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where:
N = Initial Calibration Factor or Nominal Amount
C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	Conc	Reported Conc (CCV)	Recalculated Conc (CCV)	Reported % D	Recalculated %D
1	AR163GP	12/11/2013	PCB1260 (ZB-MultiR1)	200	176.18	176.18	12	12
			PCB1260 (ZB-MultiR2)	200	222.66	222.66	11	11

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B2b

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Page: 1 of 1
Reviewer: BR
2nd reviewer: SM

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene	RBMultiR2	10.1	10.595152	105	105	0
Decachlorobiphenyl	↓	10.2	10.384684	102	102	0
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Sample ID:

Surrogate	Column	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Tetrachloro-m-xylene						
Tetrachloro-m-xylene						
Decachlorobiphenyl						
Decachlorobiphenyl						

Notes:

LDC #: 31224B3b

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: BR
2nd Reviewer: SM

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

Where: SSC = Spiked sample concentration; SA = Spike added; SC = Concentration

RPD = I MS - MSD I * 2/(MS + MSD)

MS = Matrix spike percent recovery; MSD = Matrix spike duplicate percent recovery

MS/MSD samples: 6/7

Compound	Spike Added (µg/kg)		Sample Concentration (µg/kg)	Spiked Sample Concentration (µg/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
[redacted]	MS	MSD	-	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
gamma-BHC											
4,4'-DDT											
Aroclor 1260	167	167	0	154.39	146.48	92	92	88	88	5	5.3

Comments: Refer ot Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B3b

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicate Results Verification

Page: 1 of 1
Reviewer: BR
2nd Reviewer: SM

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

The percent recoveries (%R) and Relative Percent difference (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100* (SSC-SC)/SA

Where: SSC = Spiked sample concentration
SA = Spike added
SC = Concentration

RPD = I LCS - LCSD I * 2/(LCS + LCSD)

LCS = Laboratory control sample percent recovery
LCSD = Laboratory control sample duplicate percent recovery

LCS/LCSD samples: LCS07344

Compound	Spike Added (µg/kg)		Spiked Sample Concentration (µg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
gamma-BHC										
4,4'-DDT										
Aroclor 1260	167	—	189.93	—	114	114	—	—	—	—

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 32248 3b

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: BR
2nd reviewer: SM

METHOD: GC Pesticides/PCBs (EPA SW 846 Method 8081/8082)

N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

ZB Multi R2

Aroclor 1260-1 $= \frac{(1714933.5)(10)}{(2973)(30)}$

$= 192.2786747$

1260-2 = 185.395477

1260-3 = 192.670334

1260-4 = 186.70852

1260-5 = 195.407775

1260-6 = 187.108605

$= 189.9282343$ ug/kg

Example: BB = 190 ug/kg

Sample I.D. Ah ND LCS07344:

Conc. = 189.9282343

= 190 ug/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Note:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 10, 2014
Matrix:	Soil
Parameters:	Metals
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-545-NBZ-SB-0.0-0.5
SL-845-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-2.5-3.5
SL-545-NBZ-SB-0.0-0.5MS
SL-545-NBZ-SB-0.0-0.5MSD
SL-545-NBZ-SB-0.0-0.5DUP

Introduction

This data review covers 7 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Methods 6010C, 6020A and 7471B for Metals. The metals analyzed were Aluminum, Antimony, Arsenic, Barium, Beryllium, Boron, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Lithium, Magnesium, Molybdenum, Manganese, Mercury, Nickel, Phosphorus, Potassium, Selenium, Silver, Sodium, Strontium, Thallium, Tin, Titanium, Vanadium, Zinc, and Zirconium.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. ICPMS Tune

The mass calibration was within 0.1 AMU and the percent relative standard deviation (%RSD) was less than or equal to 5%.

III. Calibration

An initial calibration was performed.

The frequency and analysis criteria of the initial calibration verification (ICV) and continuing calibration verification (CCV) were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No metal contaminants were found in the initial, continuing and preparation blanks with the following exceptions:

Method Blank ID	Analyte	Maximum Concentration	Associated Samples
PB (prep blank)	Calcium Magnesium Tin Zinc	4.84 mg/Kg 2.30 mg/Kg 1.63 mg/Kg 0.233 mg/Kg	All samples in SDG PH139
ICB/CCB	Molybdenum Titanium Thallium	2.9 ug/L 2.5 ug/L 0.21 ug/L	All samples in SDG PH139
ICB/CCB	Magnesium	38.0 ug/L	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5

Data qualification by the initial, continuing and preparation blanks (ICB/CCB/PBs) was based on the maximum contaminant concentration in the ICB/CCB/PBs in the analysis of each analyte. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-545-NBZ-SB-0.0-0.5	Molybdenum Tin	0.998 mg/Kg 2.85 mg/Kg	0.998U mg/Kg 2.85U mg/Kg
SL-845-NBZ-SB-0.0-0.5	Molybdenum Tin Thallium	0.561 mg/Kg 2.85 mg/Kg 0.204 mg/Kg	0.561U mg/Kg 2.85U mg/Kg 0.204U mg/Kg
SL-511-NBZ-SB-0.0-0.5	Molybdenum Tin	0.396 mg/Kg 3.49 mg/Kg	0.396U mg/Kg 3.49U mg/Kg
SL-511-NBZ-SB-2.5-3.5	Molybdenum Tin	0.630 mg/Kg 3.68 mg/Kg	0.630U mg/Kg 3.68U mg/Kg

Samples EB2-120513 and EB3-120513 (both from SDG PH140) were identified as equipment blanks. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
EB2-120513	12/5/13	Zinc	0.0048 mg/L	SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5
EB3-120513	12/5/13	Zinc	0.0062 mg/L	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5

Sample FB-041613 (from SDG PH032) was identified as a field blank. No metal contaminants were found with the following exceptions:

Blank ID	Sampling Date	Analyte	Concentration	Associated Samples
FB-041613	4/16/13	Molybdenum Tin	0.0132 mg/L 0.0029 mg/L	All samples in SDG PH139

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks with the following exceptions:

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-545-NBZ-SB-0.0-0.5	Molybdenum	0.998 mg/Kg	0.998U mg/Kg
SL-845-NBZ-SB-0.0-0.5	Molybdenum	0.561 mg/Kg	0.561U mg/Kg

Sample	Analyte	Reported Concentration	Modified Final Concentration
SL-511-NBZ-SB-0.0-0.5	Molybdenum	0.396 mg/Kg	0.396U mg/Kg
SL-511-NBZ-SB-2.5-3.5	Molybdenum	0.630 mg/Kg	0.630U mg/Kg

V. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VI. Matrix Spike Analysis

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Analyte	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-545-NBZ-SB-0.0-0.5MS/MSD (All samples in SDG PH139)	Antimony	63 (75-125)	62 (75-125)	-	J (all detects) UJ (all non-detects)	A
SL-545-NBZ-SB-0.0-0.5MS/MSD (All samples in SDG PH139)	Strontium	-	196 (75-125)	-	J (all detects)	A

VII. Duplicate Sample Analysis

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

IX. Internal Standards

All internal standard percent recoveries (%R) were within QC limits.

X. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XI. Sample Result Verification

All sample result verifications were acceptable.

All metals reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG PH139	All analytes reported below the RL and above the MDL.	J (all detects)	A

XII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIII. Field Duplicates

Samples SL-545-NBZ-SB-0.0-0.5 and SL-845-NBZ-SB-0.0-0.5 were identified as field duplicates. No metals were detected in any of the samples with the following exceptions:

Analyte	Concentration (mg/Kg)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
Aluminum	12100	11800	3 (≤50)	-	-
Arsenic	3.24	2.90	11 (≤50)	-	-
Barium	71.5	77.1	8 (≤50)	-	-
Beryllium	0.477	0.466	2 (≤50)	-	-
Boron	4.79	5.57	15 (≤50)	-	-
Cadmium	0.447	0.466	4 (≤50)	-	-
Calcium	5070	5200	3 (≤50)	-	-
Chromium	16.7	17.7	6 (≤50)	-	-
Cobalt	4.80	4.62	4 (≤50)	-	-
Copper	4.81	4.80	0 (≤50)	-	-
Iron	18500	18000	3 (≤50)	-	-

Analyte	Concentration (mg/Kg)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
Lead	14.8	15.1	2 (≤50)	-	-
Lithium	22.7	22.0	3 (≤50)	-	-
Magnesium	4240	4070	4 (≤50)	-	-
Manganese	283	273	4 (≤50)	-	-
Mercury	0.182	0.284	44 (≤50)	-	-
Molybdenum	0.998	0.561	56 (≤50)	J (all detects)	A
Nickel	10.7	10.3	4 (≤50)	-	-
Phosphorus	431	372	15 (≤50)	-	-
Potassium	3490	3070	13 (≤50)	-	-
Selenium	0.203	0.189	7 (≤50)	-	-
Silver	0.201	0.233	15 (≤50)	-	-
Sodium	78.3	92.1	16 (≤50)	-	-
Strontium	25.3	29.2	14 (≤50)	-	-
Thallium	0.213	0.204	4 (≤50)	-	-
Tin	2.85	2.85	0 (≤50)	-	-
Titanium	1010	1010	0 (≤50)	-	-
Vanadium	31.2	29.6	5 (≤50)	-	-
Zinc	57.2	63.6	11 (≤50)	-	-
Zirconium	1.66	2.00	19 (≤50)	-	-

Santa Susana Field Laboratory
Metals - Data Qualification Summary - SDG PH139

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5	Antimony	J (all detects) UJ (all non-detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5	Strontium	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (Z)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5	Molybdenum	J (all detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Metals - Laboratory Blank Data Qualification Summary - SDG PH139

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH139	SL-545-NBZ-SB-0.0-0.5	Molybdenum Tin	0.998U mg/Kg 2.85U mg/Kg	A	B
PH139	SL-845-NBZ-SB-0.0-0.5	Molybdenum Tin Thallium	0.561U mg/Kg 2.85U mg/Kg 0.204U mg/Kg	A	B
PH139	SL-511-NBZ-SB-0.0-0.5	Molybdenum Tin	0.396U mg/Kg 3.49U mg/Kg	A	B
PH139	SL-511-NBZ-SB-2.5-3.5	Molybdenum Tin	0.630U mg/Kg 3.68U mg/Kg	A	B

Santa Susana Field Laboratory
Metals - Field Blank Data Qualification Summary - SDG PH139

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH139	SL-545-NBZ-SB-0.0-0.5	Molybdenum	0.998U mg/Kg	A	F
PH139	SL-845-NBZ-SB-0.0-0.5	Molybdenum	0.561U mg/Kg	A	F

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH139	SL-511-NBZ-SB-0.0-0.5	Molybdenum	0.396U mg/Kg	A	F
PH139	SL-511-NBZ-SB-2.5-3.5	Molybdenum	0.630U mg/Kg	A	F

LDC #: 31224B4

SDG #: PH139

Laboratory: Eurofins Lancaster Laboratories

VALIDATION COMPLETENESS WORKSHEET

Level IV

Date: 2/5/14

Page: 1 of 1

Reviewer: [illegible]

2nd Reviewer: [illegible]

METHOD: Metals (EPA SW 846 Method 6010C/6020A/~~7000~~ 7471B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
II.	ICP/MS Tune	A	
III.	Calibration	A	
IV.	Blanks	SW	
V.	ICP Interference Check Sample (ICS) Analysis	A	
VI.	Matrix Spike Analysis	SW	MS/D
VII.	Duplicate Sample Analysis	A	DUP
VIII.	Laboratory Control Samples (LCS)	A	LCS
IX.	Internal Standard (ICP-MS)	A	
X.	ICP Serial Dilution	A	
XI.	Sample Result Verification	A	
XII.	Overall Assessment of Data	A	
XIII.	Field Duplicates	SW	(1,2)
XIV.	Field Blanks	SW	FB= FB-041613 (PH032) EB=EB2-120513 =EB3-120513 (PH140)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: soil

1	SL-545-NBZ-SB-0.0-0.5	11		21		31	
2	SL-845-NBZ-SB-0.0-0.5	12		22		32	
3	SL-511-NBZ-SB-0.0-0.5	13		23		33	
4	SL-511-NBZ-SB-2.5-3.5	14		24		34	
5	SL-545-NBZ-SB-0.0-0.5MS	15		25		35	
6	SL-545-NBZ-SB-0.0-0.5MSD	16		26		36	
7	SL-545-NBZ-SB-0.0-0.5DUP	17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 31224B4

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: SM

Method: Metals (EPA SW 846 Method 6010B/7000/6020)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. ICP/MS Tune				
Were all isotopes in the tuning solution mass resolution within 0.1 amu?	✓			
Were %RSD of isotopes in the tuning solution ≤5%?	✓			
III. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% (80-120% for mercury) QC limits?	✓			
Were all initial calibration correlation coefficients ≥ 0.995?	✓			
IV. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.	✓			
V. ICP Interference Check Sample				
Were ICP interference check samples performed daily?	✓			
Were the AB solution percent recoveries (%R) with the 80-120% QC limits?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.		✓		
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of +/- RL(+/-2X RL for soil) was used for samples that were ≤ 5X the RL, including when only one of the duplicate sample values were < 5X the RL.	✓			
VII. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% QC limits for water samples and laboratory established QC limits for soils?	✓			

LDC #: 31224154

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
VIII. Furnace Atomic Absorption QC				
If MSA was performed, was the correlation coefficients > 0.995?			✓	
Do all applicable analysies have duplicate injections? (Level IV only)			✓	
For sample concentrations > RL, are applicable duplicate injection RSD values < 20%? (Level IV only)			✓	
Were analytical spike recoveries within the 85-115% QC limits?			✓	
IX. ICP Serial Dilution				
Was an ICP serial dilution analyzed if analyte concentrations were > 50X the MDL (ICP)/>100X the MDL(ICP/MS)?	✓			
Were all percent differences (%Ds) < 10%?	✓			
Was there evidence of negative interference? If yes, professional judgement will be used to qualify the data.			✓	
X. Internal Standards (EPA SW 846 Method 6020/EPA 200.8)				
Were all the percent recoveries (%R) within the 30-120% (6020)/60-125% (200.8) of the intensity of the internal standard in the associated initial calibration?	✓			
If the %Rs were outside the criteria, was a reanalysis performed?			✓	
XI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
XII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target analytes were detected in the field blanks.	✓			

LDC #: 31224B4

VALIDATION FINDINGS WORKSHEET
Sample Specific Element Reference

Reviewer: CR
2nd reviewer: SM

All circled elements are applicable to each sample.

Sample ID	Matrix	Target Analyte List (TAL)
1-4		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
1-57		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
Analysis Method		
ICP		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr
ICP-MS		Al, Sb, As, Ba, Be, B, Cd, Ca, Cr, Co, Cu, Fe, Pb, Li, Mg, Mo, Mn, Hg, Ni, P, K, Se, Ag, Na, Sr, Tl, Sn, Ti, V, Zn, Zr

Comments: Mercury by CVAA if performed

LDC #: 31224B4

VALIDATION FINDINGS WORKSHEET
PB/ICB/CCB QUALIFIED SAMPLES

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace metals (EPA SW 864 Method 6010B/6020/7000) Soil preparation factor applied: 100x Reason: B

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: All

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	1	2	3	4							
Ca	4.84 ~~4.838~~			24.19											
Mg	2.30 ~~2.298~~			11.49											
Mo			2.9	1.45	0.998	0.561	0.396	0.630							
Sn	1.63 ~~1.627~~			8.135	2.85	2.85	3.49	3.68							
Ti			2.5	1.45											
Tl			0.21	0.21		0.204									
Zn	0.233			1.165											

Sample Concentration units, unless otherwise noted: mg/Kg Associated Samples: 1-3

					Sample Identification										
Analyte	Maximum PB[a] (mg/Kg)	Maximum PB[a] (ug/L)	Maximum ICB/CCB[a] (ug/L)	Action Level	No Qualifiers										
Mg			38.0	19											

Samples with analyte concentrations within five times the associated ICB, CCB or PB concentration are listed above with the identifications from the Validation Completeness Worksheet. These sample results were qualified as not detected, "U".

Note : a - The listed analyte concentration is the highest ICB, CCB, or PB detected in the analysis of each element.

LDC #: 31224B4

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW846 6010B/7000)

Blank units: mg/L **Associated sample units:** mg/Kg Reason: F
Sampling date: 4/16/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: All

Analyte	Blank ID	Sample Identification												
	FB-041613 (SDG: PH032)	Action Limit	1	2	3	4								
Mo	0.0132	6.60	0.998	0.561	0.396	0.630								
Sn	0.0029	1.45												

Sampling date: 12/5/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: 3, 4

Analyte	Blank ID	Sample Identification												
	EB2-120513 (SDG: PH140)	Action Limit	No Qualifiers											
Zn	0.0048	2.4												

Sampling date: 12/5/13 Soil factor applied 100x
Field blank type: (circle one) Field Blank / Rinsate / Other: Associated Samples: 1, 2

Analyte	Blank ID	Sample Identification												
	EB3-120513 (SDG: PH140)	Action Limit	No Qualifiers											
Zn	0.0062	3.1												

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Samples with analyte concentrations within five times the associated field blank concentration are listed above, these sample results were qualified as not detected, "U".

LDC #: 31[illegible]

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: CR
2nd Reviewer: SM

METHOD: Trace metals (EPA SW 846 Method 6010B/6020A/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Was a matrix spike analyzed for each matrix in this SDG?

Y N N/A Were matrix spike percent recoveries (%R) within the control limits of 75-125? If the sample concentration exceeded the spike concentration by a fact of 4 or more, no action was taken.

Y N N/A Were all duplicate sample relative percent differences (RPD) ≤ 20% for water samples and ≤35% for soil samples?

LEVEL IV ONLY:

Y N N/A Were recalculated results acceptable? See Level IV Recalculation Worksheet for recalculations.

#	MS/MSD ID	Matrix	Analyte	MS %Recovery	MSD %Recovery	RPD (Limits)	Associated Samples	Qualifications
	5/6	S	Sb	63	62		All	J/UJ/A (Q)
			Sr		196			J det/A

Comments: Al, Ca, Fe, Mg, Mn, P, Ti >4x Text

MSD.4SW

LDC: 31224B4

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Page: 1 of 1
Reviewer: CL
2nd Reviewer: SM

Method: Metals

Analyte	Concentration (mg/Kg)		RPD (≤ 50)	Qualifiers (Parents Only)
	1	2		
Aluminum	12100	11800	3	
Arsenic	3.24	2.90	11	
Barium	71.5	77.1	8	
Beryllium	0.477	0.466	2	
Boron	4.79	5.57	~~14~~ 15	
Cadmium	0.447	0.466	4	
Calcium	5070	5200	3	
Chromium	16.7	17.7	6	
Cobalt	4.80	4.62	4	
Copper	4.81	4.80	0	
Iron	18500	18000	3	
Lead	14.8	15.1	2	
Lithium	22.7	22.0	3	
Magnesium	4240	4070	4	
Manganese	283	273	4	
Mercury	0.182	0.284	44	
Molybdenum	0.998	0.561	56	Jdet/A (FD)
Nickel	10.7	10.3	4	
Phosphorus	431	372	15	
Potassium	3490	3070	13	
Selenium	0.203	0.189	7	
Silver	0.201	0.233	15	
Sodium	78.3	92.1	16	
Strontium	25.3	29.2	14	
Thallium	0.213	0.204	4	
Tin	2.85	2.85	0	
Titanium	1010	1010	0	
Vanadium	31.2	29.6	5	
Zinc	57.2	63.6	11	
Zirconium	1.66	2.00	19	

APL 2/21/14

LDC #: 31224B4

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of
Reviewer: 9R
2nd Reviewer: SM

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Percent recoveries (%R) for an ICP interference check sample, a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$

Where, Found = Concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = Concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$

Where, S = Original sample concentration
D = Duplicate sample concentration

An ICP serial dilution percent difference (%D) was recalculated using the following formula:

$\%D = \frac{|I-SDR|}{I} \times 100$

Where, I = Initial Sample Result (mg/L)
SDR = Serial Dilution Result (mg/L) (Instrument Reading x 5)

Sample ID	Type of Analysis	Element	Found / S / I (units)	True / D / SDR (units)	Recalculated %R / RPD / %D	Reported %R / RPD / %D	Acceptable (Y/N)
ICSAB	ICP interference check	Cu	528.9	500	105.8	105.8	Y
LCS	Laboratory control sample	Hg	0.1	0.1	100	100	
5	Matrix spike	Sb	(SSR-SR) 30.7735	49.0196	63	63	
7	Duplicate	Ba	66.1333	63.8245	4	4	
1	ICP serial dilution	Sr	119.5	120.8	1	1	

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31264B1

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer: SM

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments and within the linear range of the ICP?
Y N N/A Are all detection limits below the CRDL?

Detected analyte results for Ca were recalculated and verified using the following equation:

Concentration = (RD)(FV)(Dil) / (In. Vol.)

RD = Raw data concentration
FV = Final volume (ml)
In. Vol. = Initial volume (ml) or weight (G)
Dil = Dilution factor

Recalculation:

$$1 = \frac{100mL(47.84509 mg/L)}{0.925(1.02g)} = 5071 mg/kg$$

#	Sample ID	Analyte	Reported Concentration (mg/kg)	Calculated Concentration (mg/kg)	Acceptable (Y/N)
	1	Ca	5070	5070	Y
	2	Hg	0.28	0.28	
	3	Sr	31.0	31.0	
	4	Zn	82.1	82.1	

Note:

RECALC.4SW

LDC #: 31224B4

VALIDATION FINDINGS WORKSHEET
Initial and Continuing Calibration Calculation Verification

Reviewer: QR
2nd Reviewer: [illegible]

METHOD: Trace Metals (EPA SW 846 Method 6010/6020/7000)

An initial and continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

%R = Found / True x 100 Where, Found = concentration (in ug/L) of each analyte measured in the analysis of the ICV or CCV solution
True = concentration (in ug/L) of each analyte in the ICV or CCV source

Standard ID	Type of Analysis	Element	Found (ug/L)	True (ug/L)	Recalculated %R	Reported %R	Acceptable (Y/N)
ICV	ICP (Initial calibration)	Cr	574.2	600	95.7	95.7	Y
↓	ICP/MS (Initial calibration)	As	52.19	50	104.4	104.4	↓
↓	CVAA (Initial calibration)	Hg	2.73	2.5	109.2	109.2	↓
CCV2	ICP (Continuing calibration)	V	503.23	500	100.6	100.6	↓
↓	ICP/MS (Continuing calibration)	Se	25.78	25	103.1	103.1	↓
↓	CVAA (Continuing calibration)	Hg	1.07	1	107.0	107.0	↓
	GFAA (Initial calibration)						
	GFAA (Continuing calibation)						

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 11, 2014
Matrix:	Soil/Water
Parameters:	Total Petroleum Hydrocarbons as Gasoline
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-507-NBZ-SB-3.5-4.5
SL-508-NBZ-SB-4.0-5.0
TB-120413
SL-511-NBZ-SB-2.5-3.5

Introduction

This data review covers 3 soil samples and one water sample listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Gasoline.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for all compounds were less than or equal to 20.0%

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as gasoline contaminants were found in the method blanks.

Sample TB-120413 was identified as a trip blank. No total petroleum hydrocarbons as gasoline contaminants were found.

Sample FB-041613 (from SDG PH032) was identified as a field blank. No total petroleum hydrocarbons as gasoline contaminants were found.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

VIII. Target Compound Identification

All target compound identifications were within validation criteria.

IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH139	All compounds reported below the RL.	J (all detects)	A

X. System Performance

The system performance was acceptable.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

No field duplicates were identified in this SDG.

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Data Qualification Summary - SDG PH139

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH139	SL-507-NBZ-SB-3.5-4.5 SL-508-NBZ-SB-4.0-5.0 TB-120413 SL-511-NBZ-SB-2.5-3.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Laboratory Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Gasoline - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B7 **VALIDATION COMPLETENESS WORKSHEET** Date: 2/6/14
SDG #: PH139 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: BR
2nd Reviewer: SM

METHOD: GC TPH as Gasoline (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
II	Initial calibration	A	RSD ≤ 20%
III.	Calibration verification/ICV	A	1 of CCV ≤ 20%
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	N	Client spec.
VII.	Laboratory control samples	A	LCS/D
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	N	
XIII.	Field blanks	ND	TB = 3 FB = FB-041613 (SDG# PH632)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil + Water

1	SL-507-NBZ-SB-3.5-4.5	11		21		31	BLKAH
2	SL-508-NBZ-SB-4.0-5.0	12		22		32	BLK9D
3	TB-120413 W	13		23		33	
4	SL-511-NBZ-SB-2.5-3.5	14		24		34	
5		15		25		35	
6		16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 31224B7

VALIDATION FINDINGS CHECKLIST

Reviewer: BR
2nd Reviewer: SM

Method: X GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? X %D or __ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	~~✓~~	✓		
Was a MS/MSD analyzed every 20 samples of each matrix?	~~✓~~		✓	
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?			✓	
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 31224B7

VALIDATION FINDINGS CHECKLIST

Reviewer: BR
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.		✓		
Target compounds were detected in the field duplicates.			✓	
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 31224B7

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: BR

2nd Reviewer: [illegible]

METHOD: GC X HPLC _____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C

average CF = sum of the CF/number of standards

%RSD = 100 * (S/X)

Where:

A = Area of compound

C = Concentration of compound

S = Standard deviation of calibration factors

X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (550 std)	Recalculated CF (550 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL 11379F J&W DB-MTB	9/27/2013	GRO	53902	53902	55635	55635	4	4

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B7

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC X HPLC _____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C
average CF = sum of the CF/number of standards
%RSD = 100 * (S/X)

Where:
A = Area of compound
C = Concentration of compound
S = Standard deviation of calibration factors
X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (550 std)	Recalculated CF (550 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL 16394F Restek VRX	10/8/2013	GRO	28604	28604	28046	28046	6	6

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B7

VALIDATION FINDINGS WORKSHEET
Continuing Calibration Calculation Verification

Page: 1 of 1
Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC_____HPLC_____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where: N = Initial Calibration Factor or Nominal Amount
C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc/CF	Reported Conc/CF	Recalculated Conc/CF	Reported % D	Recalculated %D
1	SGCKXGK	12/16/2013	GRO	220.04	209.72	209.72	5	5
	11379F	16:40						
2	WGCCXUS	12/6/2013	GRO	550.00	539.15	539.15	2	2
	16394F	10:19						
3								

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3122487

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: BR
2nd reviewer: [illegible]

METHOD: X GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Trifluorotoluene	JW DB-MTB	781.2	632.7919	81	81	0

Sample ID: 3

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Trifluorotoluene	Restek VRX	30	26.4863	88	88	0

Sample ID: ___

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 3122487

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: BR

2nd Reviewer: SM

METHOD: X GC __HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; LCS = Laboratory Control Sample; SC = Sample concentration; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCSQ8 / LCSDFA

Compound	Spike Added (mg/kg)		Spike Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)	11	11	9.16	9.52	83	83	87	87	4	4
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B7

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: BR
2nd Reviewer: SM

METHOD: X GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example: 0.6 mg/kg

Sample ID. 1 Compound Name GRO

Concentration = (3165391 − 2710446)(25) / (55635)(1)(0.936)(1000)

= 0.602477399 mg/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments:

SAMPCALCnew.wpd

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 10, 2014
Matrix:	Soil
Parameters:	Cyanide
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-545-NBZ-SB-0.0-0.5
SL-845-NBZ-SB-0.0-0.5
SL-545-NBZ-SB-0.0-0.5MS
SL-545-NBZ-SB-0.0-0.5DUP

Introduction

This data review covers 4 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 9012B for Cyanide.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review (January 2010).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

All criteria for the initial calibration were met.

III. Continuing Calibration

Continuing calibration frequency and analysis criteria were met.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No contaminant concentrations were found in the initial, continuing and preparation blanks.

Sample EB3-120513 (from SDG PH140) was identified as an equipment blank. No contaminant concentrations were found.

Sample FB-041613 (from SDG PH032) was identified as a field blank. No contaminant concentrations were found.

V. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) analyses were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VI. Duplicates

Duplicate (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Sample Result Verification

All sample result verifications were acceptable.

All analytes reported below the RL and above the MDL were qualified as follows:

Sample	Analyte	Flag	A or P
All samples in SDG PH139	All analytes reported below the RL and above the MDL.	J (all detects)	A

IX. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

X. Field Duplicates

Samples SL-545-NBZ-SB-0.0-0.5 and SL-845-NBZ-SB-0.0-0.5 were identified as field duplicates. No contaminant concentrations were detected in any of the samples.

Santa Susana Field Laboratory
Cyanide - Data Qualification Summary - SDG PH139

SDG	Sample	Analyte	Flag	A or P	Reason (Code)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5	All analytes reported below the RL and above the MDL.	J (all detects)	A	Sample result verification (Z)

Santa Susana Field Laboratory
Cyanide - Laboratory Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Cyanide - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B6 **VALIDATION COMPLETENESS WORKSHEET** Date: 2/5/14
SDG #: PH139 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: CL
2nd Reviewer: SM

METHOD: (Analyte) Cyanide (EPA SW846 Method 9012B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
IIa.	Initial calibration	A	
IIb.	Calibration verification	A	
III.	Blanks	A	
IV	Matrix Spike/Matrix Spike Duplicates	A	MS
V	Duplicates	A	DUP
VI.	Laboratory control samples	A	LCS
VII.	Sample result verification	A	
VIII.	Overall assessment of data	A	
IX.	Field duplicates	ND	(1,2)
X	Field blanks	ND	EB= EB3-120513 (PH140) FB= FB-041613 (PH032)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1	SL-545-NBZ-SB-0.0-0.5	11		21		31	
2	SL-845-NBZ-SB-0.0-0.5	12		22		32	
3	SL-545-NBZ-SB-0.0-0.5MS	13		23		33	
4	SL-545-NBZ-SB-0.0-0.5DUP	14		24		34	
~~5~~	~~SL-545-NBZ-SB-0.0-0.5MS~~	15		25		35	
~~6~~	~~SL-545-NBZ-SB-0.0-0.5DUP~~	16		26		36	
7		17		27		37	
8		18		28		38	
9		19		29		39	
10		20		30		40	

Notes:

LDC #: 31224B6

VALIDATION FINDINGS CHECKLIST

Reviewer: CR
2nd Reviewer: SM

Method: Inorganics (EPA Method See cover)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Calibration				
Were all instruments calibrated daily, each set-up time?	✓			
Were the proper number of standards used?	✓			
Were all initial calibration correlation coefficients > 0.995?	✓			
Were all initial and continuing calibration verification %Rs within the 90-110% QC limits?	✓			
Were titrant checks performed as required? (Level IV only)			✓	
Were balance checks performed as required? (Level IV only)			✓	
III. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
IV. Matrix spike/Matrix spike duplicates and Duplicates				
Were a matrix spike (MS) and duplicate (DUP) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD or MS/DUP. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the 75-125 QC limits? If the sample concentration exceeded the spike concentration by a factor of 4 or more, no action was taken.	✓			
Were the MS/MSD or duplicate relative percent differences (RPD) ≤ 20% for waters and ≤ 35% for soil samples? A control limit of ≤ CRDL(≤ 2X CRDL for soil) was used for samples that were ≤ 5X the CRDL, including when only one of the duplicate sample values were ≤ 5X the CRDL.	✓			
V. Laboratory control samples				
Was an LCS anaylzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the 80-120% (85-115% for Method 300.0) QC limits?	✓			
VI. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	

LDC #: 31224B6

VALIDATION FINDINGS CHECKLIST

Reviewer: 2nd Reviewer:

Validation Area	Yes	No	NA	Findings/Comments
VII. Sample Result Verification				
Were RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
Were detection limits < RL?	✓			
VIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
IX. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target analytes were detected in the field duplicates.		✓		
X. Field blanks				
Field blanks were identified in this SDG.	✓	✓		
Target analytes were detected in the field blanks.				

LDC #: 31224B

VALIDATION FINDINGS WORKSHEET
Level IV Recalculation Worksheet

Page: 1 of 1
Reviewer: QR
2nd Reviewer: SM

METHOD: Inorganics, Method seecover

Percent recoveries (%R) for a laboratory control sample and a matrix spike sample were recalculated using the following formula:

$\%R = \frac{Found}{True} \times 100$ Where, Found = concentration of each analyte measured in the analysis of the sample. For the matrix spike calculation, Found = SSR (spiked sample result) - SR (sample result).
True = concentration of each analyte in the source.

A sample and duplicate relative percent difference (RPD) was recalculated using the following formula:

$RPD = \frac{|S-D|}{(S+D)/2} \times 100$ Where, S = Original sample concentration
D = Duplicate sample concentration

Sample ID	Type of Analysis	Element	Found / S (units)	True / D (units)	Recalculated %R / RPD	Reported %R / RPD	Acceptable (Y/N)
LCS	Laboratory control sample	CN	9.94	10	99	99	Y
3	Matrix spike sample	↓	(SSR-SR) 5.25	4.88	108	108	↓
4	Duplicate sample	↓	ND	0.23	200	200	↓

Comments: Refer to appropriate worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

TOTCLC.6

LDC #: 3124B36

Validation Findings Worksheet
Initial and Continuing Calibration Calculation Verification

Reviewer: OL
2nd Reviewer: PZ

Method: Inorganics, Method See Cover

The correlation coefficient (r) for the calibration of CN was recalculated. Calibration date: 12/16/13

An initial or continuing calibration verification percent recovery (%R) was recalculated for each type of analysis using the following formula:

$$\%R = \frac{\text{Found} \times 100}{\text{True}}$$

Where, Found = concentration of each analyte measured in the analysis of the ICV or CCV solution
True = concentration of each analyte in the ICV or CCV source

Type of analysis	Analyte	Standard	Conc. (mg/L)	Area	Recalculated r or r^2	Reported r or r^2	Acceptable (Y/N)
Initial calibration	CN	s1	0.0	0.4098	0.99999	0.99999	Y
		s2	0.02	0.4842			
		s3	0.05	0.7169			
		s4	0.1	1.0929			
		s5	0.2	1.8409			
		s6	0.35	2.9826			
Calibration verification		ICV	0.15	0.1554	104	104	
Calibration verification		CCV		0.1570	105	105	
Calibration verification							

Comments: Refer to Calibration Verification findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B6

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Page: 1 of 1
Reviewer: CR
2nd reviewer: SM

METHOD: Inorganics, Method See cover

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Have results been reported and calculated correctly?
Y N N/A Are results within the calibrated range of the instruments?
Y N N/A Are all detection limits below the CRQL?

Compound (analyte) results for _____ reported with a positive detect were recalculated and verified using the following equation:

Concentration = Recalculation:

Non Detect

#	Sample ID	Analyte	Reported Concentration ( )	Calculated Concentration ( )	Acceptable (Y/N)

Note: _____

RECALC.6

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 10, 2014
Matrix:	Soil
Parameters:	Total Petroleum Hydrocarbons as Extractables
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-506-NBZ-SB-0.0-0.5
SL-507-NBZ-SB-0.0-0.5
SL-507-NBZ-SB-3.5-4.5
SL-508-NBZ-SB-0.0-0.5
SL-508-NBZ-SB-4.0-5.0
SL-546-NBZ-SB-0.0-0.5
SL-547-NBZ-SB-0.0-0.5
SL-549-NBZ-SB-0.0-0.5
SL-545-NBZ-SB-0.0-0.5
SL-845-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-2.5-3.5
SL-548-NBZ-SB-0.0-0.5
SL-545-NBZ-SB-0.0-0.5MS
SL-545-NBZ-SB-0.0-0.5MSD

Introduction

This data review covers 15 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8015B for Total Petroleum Hydrocarbons (TPH) as Extractables.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. Initial Calibration

Initial calibration of compounds was performed as required by the method.

The percent relative standard deviations (%RSD) of calibration factors for compounds were less than or equal to 20.0%.

III. Calibration Verification

Calibration verification was performed at required frequencies. The percent differences (%D) of amounts in continuing standard mixtures were within the 20.0% QC limits.

The percent differences (%D) of the second source calibration standard were less than or equal to 20.0% for all compounds.

IV. Blanks

Method blanks were reviewed for each matrix as applicable. No total petroleum hydrocarbons as extractables contaminants were found in the method blanks.

Samples EB1-120513, EB2-120513, and EB3-120513 (all from SDG PH140) were identified as equipment blanks. No total petroleum hydrocarbons as extractables contaminants were found.

Sample FB-041613 (from SDG PH032) was identified as a field blank. No total petroleum hydrocarbons as extractables contaminants were found.

V. Surrogate Recovery

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were not within QC limits. Since the samples were diluted out, no data were qualified.

VII. Laboratory Control Samples

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Target Compound Identification

All target compound identifications were within validation criteria.

IX. Compound Quantitation

All compound quantitations were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH139	All compounds reported below the RL.	J (all detects)	A

X. System Performance

The system performance was acceptable.

XI. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XII. Field Duplicates

Samples SL-545-NBZ-SB-0.0-0.5 and SL-845-NBZ-SB-0.0-0.5 were identified as field duplicates. No total petroleum hydrocarbons as extractables were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
EFH (C15-C20)	35	33	6 (≤50)	-	-
EFH (C21-C30)	150	200	29 (≤50)	-	-
EFH (C30-C40)	370	460	22 (≤50)	-	-

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Data Qualification Summary - SDG PH139

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH139	SL-506-NBZ-SB-0.0-0.5 SL-507-NBZ-SB-0.0-0.5 SL-507-NBZ-SB-3.5-4.5 SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-546-NBZ-SB-0.0-0.5 SL-547-NBZ-SB-0.0-0.5 SL-549-NBZ-SB-0.0-0.5 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5 SL-548-NBZ-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Laboratory Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Total Petroleum Hydrocarbons as Extractables - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B8 **VALIDATION COMPLETENESS WORKSHEET** Date: 2/7/14
SDG #: PH139 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: BK
2nd Reviewer: SM

METHOD: GC TPH as Extractables (EPA SW 846 Method 8015B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
II	Initial calibration	A	RSD ≤ 20%
III.	Calibration verification/ICV	A	ICV/CCV ≤ 20%
IV.	Blanks	A	
V	Surrogate recovery	A	
VI.	Matrix spike/Matrix spike duplicates	SW	
VII.	Laboratory control samples	A	LCS
VIII.	Target compound identification	A	
IX.	Compound quantitation/RL/LOQ/LODs	A	
X.	System Performance	A	
XI.	Overall assessment of data	A	
XII.	Field duplicates	SW	FD = 9 + 10
XIII.	Field blanks	ND	EB1 = EB1-120513 EB2 = EB2-120513 EB3 = EB3-120513 All EBs from SDG # PH140

Note: A = Acceptable
N = Not provided/applicable
SW = See worksheet
ND = No compounds detected
R = Rinsate
FB = Field blank
D = Duplicate
TB = Trip blank
EB = Equipment blank
FB = FB-041613 (SDG # PH032)

Validated Samples: Soil

1	SL-506-NBZ-SB-0.0-0.5	11	SL-511-NBZ-SB-0.0-0.5	21		31	PBLK21345
2	SL-507-NBZ-SB-0.0-0.5	12	SL-511-NBZ-SB-2.5-3.5	22		32	
3	SL-507-NBZ-SB-3.5-4.5	13	SL-548-NBZ-SB-0.0-0.5	23		33	
4	SL-508-NBZ-SB-0.0-0.5	14	SL-545-NBZ-SB-0.0-0.5MS	24		34	
5	SL-508-NBZ-SB-4.0-5.0	15	SL-545-NBZ-SB-0.0-0.5MSD	25		35	
6	SL-546-NBZ-SB-0.0-0.5	16		26		36	
7	SL-547-NBZ-SB-0.0-0.5	17		27		37	
8	SL-549-NBZ-SB-0.0-0.5	18		28		38	
9	SL-545-NBZ-SB-0.0-0.5	19		29		39	
10	SL-845-NBZ-SB-0.0-0.5	20		30		40	

Notes:

LDC #: 3122488

VALIDATION FINDINGS CHECKLIST

Reviewer: BR
2nd Reviewer: SM

Method: X GC _____ HPLC

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Was a linear fit used for evaluation? If yes, were all percent relative standard deviations (%RSD) ≤ 20%?	✓			
Was a curve fit used for evaluation? If Yes, what was the acceptance criteria used?		✓		
Did the initial calibration meet the curve fit acceptance criteria?			✓	
Were the RT windows properly established?	✓			
IV. Continuing calibration				
What type of continuing calibration calculation was performed? X %D or __ %R	✓			
Was a continuing calibration analyzed daily?	✓			
Were all percent differences (%D) ≤ 20%.0 or percent recoveries 80-120%?	✓			
Were all the retention times within the acceptance windows?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within the QC limits?	✓			
If the percent recovery (%R) of one or more surrogates was outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 3122488

VALIDATION FINDINGS CHECKLIST

Reviewer: BR
2nd Reviewer: SMA

Validation Area	Yes	No	NA	Findings/Comments
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Target compound identification				
Were the retention times of reported detects within the RT windows?	✓			
XI. Compound quantitation/CRQLs				
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.		✓		

LDC #: 31224B8

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Page: 1 of 1
Reviewer: BR
2nd Reviewer: SM

METHOD: X GC ___ HPLC

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG?
Y N N/A Was an MS/MSD analyzed every 20 samples for each matrix or whenever a sample extraction was performed?
Y N N/A Were the MS/MSD percent recoveries (%R) and relative percent differences (RPD) within QC limits?

#	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Qualifications (Code: Q)
	14/15	All TCLs	% Recoveries and/or % RPDs were outside acceptable criteria.			9	No qual. DIL = 5X
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		
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			( )	( )	( )		
			( )	( )	( )		
			( )	( )	( )		

LDC #: 31224B8
SDG #: See cover

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: BK
2nd reviewer: SM

METHOD: X GC __ HPLC
Y N N/A Were field duplicate pairs identified in this SDG?
Y N N/A Were target compounds detected in the field duplicate pairs?

Compound	Concentration (mg/kg)		%RPD Limit 50	Qualification
	9	10		Parent only / All Samples
EFH (C15-C20)	35	33	6	
EFH (C21-C30)	150	200	29	
EFH (C30-C40)	370	460	22	

Compound	Concentration ( )		%RPD Limit_____	Qualification
				Parent only / All Samples

Compound	Concentration ( )		%RPD Limit_____	Qualification
				Parent only / All Samples

Compound	Concentration ( )		%RPD Limit_____	Qualification
				Parent only / All Samples

LDC #: 31224B8

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: BR

2nd Reviewer: [signature]

METHOD: GC X HPLC _____

The calibration factors (CF), average CF, and relative standard deviation (%RSD) were recalculated for compounds identified below using the following calculations:

CF = A/C

average CF = sum of the CF/number of standards

%RSD = 100 * (S/X)

Where:

A = Area of compound

C = Concentration of compound

S = Standard deviation of calibration factors

X = Mean of calibration factors

#	Standard ID	Calibration Date	Compound	Reported CF (144 std)	Recalculated CF (144 std)	Reported Average CF (Initial)	Recalculated Average CF (Initial)	Reported %RSD	Recalculated %RSD
1	ICAL CP23-19879A ZB-5	12/2/2013	C8-C40	22576	22576	22983	22983	7%	7%

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B8

VALIDATION FINDINGS WORKSHEET

Continuing Calibration Calculation Verification

Reviewer: BR

2nd Reviewer: [illegible]

METHOD: GC_____HPLC_____

The percent difference (%D) of the initial calibration average Calibration Factors (CF) and the continuing calibration percent difference (%D) values were recalculated for the compounds identified below using the following calculation:

Percent difference (%D) = 100 * (N - C)/N

Where: N = Initial Calibration Factor or Nominal Amount

C = Calibration Factor from Continuing Calibration Standard or Calculated Amount

#	Standard ID	Calibration Date	Compound	CCV Conc/CF	Reported Conc/CF	Recalculated Conc/CF	Reported % D	Recalculated %D
1	TPH_3FH	12/12/2013	C8-C40	288.01	313.75	313.75	9	9
	J345.0067	20:54						
2	TPH_3FI	12/13/2013	C8-C40	288.01	307.05	307.65	7	7
	J345.0081	1:57						
3	TPH_3FO	12/13/2013	C8-C40	288.01	317.49	317.49	10	10
	J347.0004	18:24						

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B8

VALIDATION FINDINGS WORKSHEET
Surrogate Results Verification

Reviewer: BR
2nd reviewer: [illegible]

METHOD: X GC ___ HPLC

The percent recoveries (%R) of surrogates were recalculated for the compounds identified below using the following calculation:

% Recovery: SF/SS * 100

Where: SF = Surrogate Found
SS = Surrogate Spiked

Sample ID: 1

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	
Chlorobenzene	ZB5	2.0	2.037959	102	102	0
Orthoterphenyl		↓	2.068881	103	103	0

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

Sample ID: _____

Surrogate	Column/Detector	Surrogate Spiked	Surrogate Found	Percent Recovery	Percent Recovery	Percent Difference
				Reported	Recalculated	

LDC #: 3122488

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: BR
2nd Reviewer: [illegible]

METHOD: ✓ GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(((SSCMS - SSCMSD) * 2) / (SSCMS + SSCMSD))*100

Where SSC = Spiked sample concentration; SC = Sample concentration; SA = Spike added; MS = Matrix spike; MSD = Matrix spike duplicate

MS/MSD samples: 14/15

Compound	Spike Added ( )		Sample Conc. ( )	Spike Sample Concentration ( )		Matrix spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		MS/MSD RPD	
	MS	MSD	---	MS	MSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)											
Diesel (8015)											
Benzene (8021B)											
Methane (RSK-175)											
2,4-D (8151)											
Dinoseb (8151)											
Naphthalene (8310)											
Anthracene (8310)											
HMX (8330)											
2,4,6-Trinitrotoluene (8330)											
C30-C40	15	15	340.21	282.1	377.47	386	387.4	248	248	29	29

Comments: Refer to Matrix Spike/Matrix Spike Duplicates findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3122488

VALIDATION FINDINGS WORKSHEET

Laboratory Control Sample/Laboratory Control Sample Duplicates Results Verification

Reviewer: BR

2nd Reviewer: [illegible]

METHOD: X GC ___HPLC

The percent recoveries (%R) and relative percent differences (RPD) of the laboratory control sample and laboratory control sample duplicate were recalculated for the compounds identified below using the following calculation:

%Recovery = 100 * (SSC - SC)/SA

RPD =(({SSCLCS - SSCLCSD} * 2) / (SSCLCS + SSCLCSD))*100

Where SSC = Spiked sample concentration; SA = Spike added; LCS = Laboratory Control Sample; SC = Sample concentration; LCSD = Laboratory Control Sample duplicate

LCS/LCSD samples: LCS21345

Compound	Spike Added (mg/kg)		Spike Sample Concentration (mg/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalc.
Gasoline (8015)										
Diesel (8015)										
Benzene (8021B)										
Methane (RSK-175)										
2,4-D (8151)										
Dinoseb (8151)										
Naphthalene (8310)										
Anthracene (8310)										
HMX (8330)										
2,4,6-Trinitrotoluene (8330)										
EPH C30-C40	15	–	8.58	–	57	57.2	–	–	–	–

Comments: Refer to Laboratory Control Sample/Laboratory Control Sample Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 3122488

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: BR
2nd Reviewer: SM

METHOD: X GC __ HPLC

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds within 10% of the reported results?

EFH C30-C40 = 13 mg/kg

Concentration= (A)(Fv)(Df) / (RF)(Vs or Ws)(%S/100)

A= Area or height of the compound to be measured
Fv= Final Volume of extract
Df= Dilution Factor
RF= Average response factor of the compound In the initial calibration
Vs= Initial volume of the sample
Ws= Initial weight of the sample
%S= Percent Solid

Example:

Sample ID. 1 Compound Name C30-C40

Concentration = (8310603)(1) / (22983)(30)(0.956)
= 12.60801371 mg/kg

#	Sample ID	Compound	Reported Concentrations ( )	Recalculated Results Concentrations ( )	Qualifications

Comments:

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 4, 2013
LDC Report Date:	February 11, 2014
Matrix:	Soil
Parameters:	Dioxins/Dibenzofurans
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH139

Sample Identification

SL-508-NBZ-SB-0.0-0.5
SL-508-NBZ-SB-4.0-5.0
SL-545-NBZ-SB-0.0-0.5
SL-845-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-0.0-0.5
SL-511-NBZ-SB-2.5-3.5
SL-548-NBZ-SB-0.0-0.5
SL-545-NBZ-SB-0.0-0.5MS
SL-545-NBZ-SB-0.0-0.5MSD

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA Method 1613B for Polychlorinated Dioxins/Dibenzofurans.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and the USEPA Contract Laboratory Program National Functional Guidelines for Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. HRGC/HRMS Instrument Performance Check

Instrument performance was checked at the required daily frequency.

The chromatographic resolution between 2,3,7,8-TCDD and the peaks representing any other unlabeled TCDD isomers was resolved with a valley of less than or equal to 25%.

PFK and static resolving power were within validation criteria.

III. Initial Calibration

A five point initial calibration was performed as required by the method.

Percent relative standard deviations (%RSD) were less than or equal to 20.0% for unlabeled compounds and less than or equal to 35.0% for labeled compounds.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

The minimum S/N ratio was greater than or equal to 10 for each unlabeled compound and labeled compound.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

All of the continuing calibration percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within QC limits.

The ion abundance ratios for all PCDDs and PCDFs were within validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No polychlorinated dioxin/dibenzofuran contaminants were found in the method blanks with the following exceptions:

Method Blank ID	Extraction Date	Compound	Concentration	Associated Samples
BLK347003	12/13/13	2,3,7,8-TCDD	0.0842 ng/Kg	All samples in SDG PH139
		1,2,3,7,8-PeCDD	0.186 ng/Kg	
		1,2,3,4,7,8-HxCDD	0.164 ng/Kg	
		1,2,3,6,7,8-HxCDD	0.174 ng/Kg	
		1,2,3,7,8,9-HxCDD	0.220 ng/Kg	
		1,2,3,4,6,7,8-HpCDD	0.255 ng/Kg	
		OCDD	0.606 ng/Kg	
		2,3,7,8-TCDF	0.0670 ng/Kg	
		1,2,3,7,8-PeCDF	0.219 ng/Kg	
		2,3,4,7,8-PeCDF	0.287 ng/Kg	
		1,2,3,4,7,8-HxCDF	0.187 ng/Kg	
		1,2,3,6,7,8-HxCDF	0.183 ng/Kg	
		2,3,4,6,7,8-HxCDF	0.271 ng/Kg	
		1,2,3,7,8,9-HxCDF	0.333 ng/Kg	
		1,2,3,4,6,7,8-HpCDF	0.219 ng/Kg	
		1,2,3,4,7,8,9-HpCDF	0.237 ng/Kg	
		OCDF	0.588 ng/Kg	

Sample concentrations were compared to concentrations detected in the method blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated method blanks with the following exceptions:

Sample	Compound	Reported Concentration	Modified Final Concentration
SL-508-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.112 ng/Kg	0.112U ng/Kg
	1,2,3,4,7,8-HxCDD	0.0429 ng/Kg	0.0429U ng/Kg
	1,2,3,6,7,8-HxCDD	0.0747 ng/Kg	0.0747U ng/Kg
	1,2,3,7,8,9-HxCDD	0.0602 ng/Kg	0.0602U ng/Kg
	1,2,3,4,6,7,8-HpCDD	0.120 ng/Kg	0.120U ng/Kg
	OCDD	0.486 ng/Kg	0.486U ng/Kg
	2,3,7,8-TCDF	0.122 ng/Kg	0.122U ng/Kg
	1,2,3,7,8-PeCDF	0.107 ng/Kg	0.107U ng/Kg
	2,3,4,7,8-PeCDF	0.131 ng/Kg	0.131U ng/Kg
	1,2,3,4,7,8-HxCDF	0.0919 ng/Kg	0.0919U ng/Kg
	1,2,3,6,7,8-HxCDF	0.0630 ng/Kg	0.0630U ng/Kg
	2,3,4,6,7,8-HxCDF	0.0919 ng/Kg	0.0919U ng/Kg
	1,2,3,7,8,9-HxCDF	0.126 ng/Kg	0.126U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.119 ng/Kg	0.119U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.106 ng/Kg	0.106U ng/Kg
	OCDF	0.328 ng/Kg	0.328U ng/Kg
SL-508-NBZ-SB-4.0-5.0	1,2,3,6,7,8-HxCDD	0.0656 ng/Kg	0.0656U ng/Kg
	1,2,3,7,8,9-HxCDD	0.0377 ng/Kg	0.0377U ng/Kg
	1,2,3,4,6,7,8-HpCDD	0.186 ng/Kg	0.186U ng/Kg
	OCDD	1.22 ng/Kg	1.22U ng/Kg
	2,3,7,8-TCDF	0.107 ng/Kg	0.107U ng/Kg
	1,2,3,7,8-PeCDF	0.0722 ng/Kg	0.0722U ng/Kg
	2,3,4,7,8-PeCDF	0.0629 ng/Kg	0.0629U ng/Kg
	1,2,3,4,7,8-HxCDF	0.0401 ng/Kg	0.0401U ng/Kg
	2,3,4,6,7,8-HxCDF	0.0565 ng/Kg	0.0565U ng/Kg
	1,2,3,7,8,9-HxCDF	0.114 ng/Kg	0.114U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.101 ng/Kg	0.101U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.0765 ng/Kg	0.0765U ng/Kg
	OCDF	0.322 ng/Kg	0.322U ng/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
SL-545-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.0707 ng/Kg	0.0707U ng/Kg
	1,2,3,7,8-PeCDD	0.269 ng/Kg	0.269U ng/Kg
	1,2,3,4,7,8-HxCDD	0.441 ng/Kg	0.441U ng/Kg
	1,2,3,7,8,9-HxCDD	0.790 ng/Kg	0.790U ng/Kg
	1,2,3,7,8-PeCDF	0.878 ng/Kg	0.878U ng/Kg
	2,3,4,7,8-PeCDF	0.889 ng/Kg	0.889U ng/Kg
	1,2,3,4,7,8-HxCDF	0.466 ng/Kg	0.466U ng/Kg
	1,2,3,6,7,8-HxCDF	0.470 ng/Kg	0.470U ng/Kg
	2,3,4,6,7,8-HxCDF	0.462 ng/Kg	0.462U ng/Kg
	1,2,3,7,8,9-HxCDF	0.206 ng/Kg	0.206U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.363 ng/Kg	0.363U ng/Kg
SL-845-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.0848 ng/Kg	0.0848U ng/Kg
	1,2,3,7,8-PeCDD	0.688 ng/Kg	0.688U ng/Kg
	1,2,3,4,7,8-HxCDD	0.589 ng/Kg	0.589U ng/Kg
	1,2,3,7,8,9-HxCDD	0.926 ng/Kg	0.926U ng/Kg
	2,3,4,7,8-PeCDF	0.995 ng/Kg	0.995U ng/Kg
	1,2,3,4,7,8-HxCDF	0.660 ng/Kg	0.660U ng/Kg
	1,2,3,6,7,8-HxCDF	0.682 ng/Kg	0.682U ng/Kg
	2,3,4,6,7,8-HxCDF	0.727 ng/Kg	0.727U ng/Kg
	1,2,3,7,8,9-HxCDF	0.466 ng/Kg	0.466U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.597 ng/Kg	0.597U ng/Kg
SL-511-NBZ-SB-0.0-0.5	1,2,3,7,8-PeCDD	0.0866 ng/Kg	0.0866U ng/Kg
	1,2,3,4,7,8-HxCDD	0.0648 ng/Kg	0.0648U ng/Kg
	1,2,3,6,7,8-HxCDD	0.300 ng/Kg	0.300U ng/Kg
	1,2,3,7,8,9-HxCDD	0.263 ng/Kg	0.263U ng/Kg
	2,3,7,8-TCDF	0.325 ng/Kg	0.325U ng/Kg
	1,2,3,7,8-PeCDF	0.169 ng/Kg	0.169U ng/Kg
	2,3,4,7,8-PeCDF	0.377 ng/Kg	0.377U ng/Kg
	1,2,3,4,7,8-HxCDF	0.165 ng/Kg	0.165U ng/Kg
	1,2,3,6,7,8-HxCDF	0.150 ng/Kg	0.150U ng/Kg
	2,3,4,6,7,8-HxCDF	0.176 ng/Kg	0.176U ng/Kg
	1,2,3,7,8,9-HxCDF	0.152 ng/Kg	0.152U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.569 ng/Kg	0.569U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.0983 ng/Kg	0.0983U ng/Kg
	OCDF	0.821 ng/Kg	0.821U ng/Kg
SL-511-NBZ-SB-2.5-3.5	1,2,3,7,8-PeCDD	0.157 ng/Kg	0.157U ng/Kg
	1,2,3,4,7,8-HxCDD	0.0507 ng/Kg	0.0507U ng/Kg
	1,2,3,6,7,8-HxCDD	0.114 ng/Kg	0.114U ng/Kg
	1,2,3,7,8,9-HxCDD	0.144 ng/Kg	0.144U ng/Kg
	1,2,3,4,6,7,8-HpCDD	0.196 ng/Kg	0.196U ng/Kg
	OCDD	0.809 ng/Kg	0.809U ng/Kg
	2,3,7,8-TCDF	0.147 ng/Kg	0.147U ng/Kg
	1,2,3,7,8-PeCDF	0.203 ng/Kg	0.203U ng/Kg
	2,3,4,7,8-PeCDF	0.186 ng/Kg	0.186U ng/Kg
	1,2,3,4,7,8-HxCDF	0.112 ng/Kg	0.112U ng/Kg
	1,2,3,6,7,8-HxCDF	0.0967 ng/Kg	0.0967U ng/Kg
	2,3,4,6,7,8-HxCDF	0.0897 ng/Kg	0.0897U ng/Kg
	1,2,3,7,8,9-HxCDF	0.123 ng/Kg	0.123U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.105 ng/Kg	0.105U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.0526 ng/Kg	0.0526U ng/Kg
	OCDF	0.217 ng/Kg	0.217U ng/Kg

Sample	Compound	Reported Concentration	Modified Final Concentration
SL-548-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.115 ng/Kg	0.115U ng/Kg
	1,2,3,7,8-PeCDD	0.194 ng/Kg	0.194U ng/Kg
	1,2,3,4,7,8-HxCDD	0.0513 ng/Kg	0.0513U ng/Kg
	1,2,3,6,7,8-HxCDD	0.0726 ng/Kg	0.0726U ng/Kg
	1,2,3,7,8,9-HxCDD	0.0822 ng/Kg	0.0822U ng/Kg
	1,2,3,4,6,7,8-HpCDD	0.137 ng/Kg	0.137U ng/Kg
	OCDD	0.438 ng/Kg	0.438U ng/Kg
	2,3,7,8-TCDF	0.123 ng/Kg	0.123U ng/Kg
	1,2,3,7,8-PeCDF	0.249 ng/Kg	0.249U ng/Kg
	2,3,4,7,8-PeCDF	0.202 ng/Kg	0.202U ng/Kg
	1,2,3,4,7,8-HxCDF	0.103 ng/Kg	0.103U ng/Kg
	1,2,3,6,7,8-HxCDF	0.102 ng/Kg	0.102U ng/Kg
	2,3,4,6,7,8-HxCDF	0.0735 ng/Kg	0.0735U ng/Kg
	1,2,3,7,8,9-HxCDF	0.0965 ng/Kg	0.0965U ng/Kg
	1,2,3,4,6,7,8-HpCDF	0.109 ng/Kg	0.109U ng/Kg
	1,2,3,4,7,8,9-HpCDF	0.0269 ng/Kg	0.0269U ng/Kg
	OCDF	0.180 ng/Kg	0.180U ng/Kg

Samples EB1-120513, EB2-120513, and EB3-120513 (all from SDG PH140) were identified as equipment blanks. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB1-120513	12/5/13	OCDD	1.48 pg/L	SL-508-NBZ-SB-0.0-0.5
		1,2,3,7,8-PeCDF	0.646 pg/L	SL-508-NBZ-SB-4.0-5.0
		1,2,3,6,7,8-HxCDF	0.488 pg/L	SL-548-NBZ-SB-0.0-0.5
		1,2,3,4,6,7,8-HpCDF	0.815 pg/L	
		1,2,3,4,7,8,9-HpCDF	0.583 pg/L	
EB2-120513	12/5/13	OCDD	1.88 pg/L	SL-511-NBZ-SB-0.0-0.5
		2,3,4,7,8-PeCDF	0.627 pg/L	SL-511-NBZ-SB-2.5-3.5
EB3-120513	12/5/13	1,2,3,7,8-PeCDD	0.635 pg/L	SL-545-NBZ-SB-0.0-0.5
		1,2,3,7,8,9-HxCDD	0.353 pg/L	SL-845-NBZ-SB-0.0-0.5
		1,2,3,4,6,7,8-HpCDD	0.436 pg/L	
		OCDD	19.6 pg/L	
		1,2,3,7,8-PeCDF	0.499 pg/L	
		2,3,4,7,8-PeCDF	0.244 pg/L	
		1,2,3,4,7,8-HxCDF	0.225 pg/L	
		1,2,3,6,7,8-HxCDF	0.118 pg/L	
		1,2,3,7,8,9-HxCDF	0.390 pg/L	
		1,2,3,4,6,7,8-HpCDF	0.380 pg/L	
		1,2,3,4,7,8,9-HpCDF	0.446 pg/L	
		OCDF	1.02 pg/L	

Sample FB-041613 (from SDG PH032) was identified as a field blank. No polychlorinated dioxin/dibenzofuran contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041613	4/16/13	1,2,3,7,8-PeCDD 1,2,3,4,6,7,8-HpCDD OCDD 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,7,8,9-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,4,6,7,8-HpCDF OCDF	0.434 pg/L 0.309 pg/L 0.838 pg/L 0.324 pg/L 0.429 pg/L 0.257 pg/L 0.241 pg/L 0.284 pg/L 0.314 pg/L 0.357 pg/L	All samples in SDG PH139

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X for other contaminants) than the concentrations found in the associated field blanks.

VI. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within the QC limits.

VII. Ongoing Precision Recovery (OPR)

Ongoing precision recovery samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

VIII. Regional Quality Assurance and Quality Control

Not applicable.

IX. Internal Standards

All internal standard recoveries were within QC limits.

X. Target Compound Identifications

All target compound identifications were within validation criteria.

XI. Compound Quantitation

All compound quantitations were within validation criteria.

The 2,3,7,8-TCDF confirmation was performed with the following exceptions:

Sample	Compound	Finding	Criteria	Flag	A or P
All samples in SDG PH139	2,3,7,8-TCDF	2nd column confirmation was not performed for this compound.	2,3,7,8-TCDF must be confirmed on the 2nd column per the method.	None	P

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH139	All compounds reported below the RL.	J (all detects)	A

XII. System Performance

The system performance was acceptable.

XIII. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XIV. Field Duplicates

Samples SL-545-NBZ-SB-0.0-0.5 and SL-845-NBZ-SB-0.0-0.5 were identified as field duplicates. No polychlorinated dioxins/dibenzofurans were detected in any of the samples with the following exceptions:

Compound	Concentration (pg/g)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
2,3,7,8-TCDD	0.0707	0.0848	18 (≤50)	-	-
1,2,3,7,8-PeCDD	0.269	0.688	88 (≤50)	J (all detects)	A
1,2,3,4,7,8-HxCDD	0.441	0.589	29 (≤50)	-	-
1,2,3,6,7,8-HxCDD	1.04	1.10	6 (≤50)	-	-
1,2,3,7,8,9-HxCDD	0.790	0.926	16 (≤50)	-	-
1,2,3,4,6,7,8-HpCDD	17.3	13.2	27 (≤50)	-	-
OCDD	142	106	29 (≤50)	-	-
2,3,7,8-TCDF	0.622	0.487	24 (≤50)	-	-

Compound	Concentration (pg/g)		RPD (Limits)	Flag	A or P
	SL-545-NBZ-SB-0.0-0.5	SL-845-NBZ-SB-0.0-0.5			
1,2,3,7,8-PeCDF	0.878	1.13	25 (≤50)	-	-
2,3,4,7,8-PeCDF	0.889	0.995	11 (≤50)	-	-
1,2,3,4,7,8-HxCDF	0.466	0.660	34 (≤50)	-	-
1,2,3,6,7,8-HxCDF	0.470	0.682	37 (≤50)	-	-
2,3,4,6,7,8-HxCDF	0.462	0.727	45 (≤50)	-	-
1,2,3,7,8,9-HxCDF	0.206	0.466	77 (≤50)	J (all detects)	A
1,2,3,4,6,7,8-HpCDF	3.75	4.26	13 (≤50)	-	-
1,2,3,4,7,8,9-HpCDF	0.363	0.597	49 (≤50)	-	-
OCDF	8.97	8.17	9 (≤50)	-	-

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Data Qualification Summary - SDG PH139

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH139	SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5 SL-548-NBZ-SB-0.0-0.5	2,3,7,8-TCDF	None	P	Compound quantitation (column confirmation)
PH139	SL-508-NBZ-SB-0.0-0.5 SL-508-NBZ-SB-4.0-5.0 SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-0.0-0.5 SL-511-NBZ-SB-2.5-3.5 SL-548-NBZ-SB-0.0-0.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)
PH139	SL-545-NBZ-SB-0.0-0.5 SL-845-NBZ-SB-0.0-0.5	1,2,3,7,8-PeCDD 1,2,3,7,8,9-HxCDF	J (all detects) J (all detects)	A	Field duplicates (RPD) (FD)

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Laboratory Blank Data Qualification Summary - SDG PH139

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH139	SL-508-NBZ-SB-0.0-0.5	2,3,7,8-TCDD 1,2,3,4,7,8-HxCDD 1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 1,2,3,6,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.112U ng/Kg 0.0429U ng/Kg 0.0747U ng/Kg 0.0602U ng/Kg 0.120U ng/Kg 0.486U ng/Kg 0.122U ng/Kg 0.107U ng/Kg 0.131U ng/Kg 0.0919U ng/Kg 0.0630U ng/Kg 0.0919U ng/Kg 0.126U ng/Kg 0.119U ng/Kg 0.106U ng/Kg 0.328U ng/Kg	A	B
PH139	SL-508-NBZ-SB-4.0-5.0	1,2,3,6,7,8-HxCDD 1,2,3,7,8,9-HxCDD 1,2,3,4,6,7,8-HpCDD OCDD 2,3,7,8-TCDF 1,2,3,7,8-PeCDF 2,3,4,7,8-PeCDF 1,2,3,4,7,8-HxCDF 2,3,4,6,7,8-HxCDF 1,2,3,7,8,9-HxCDF 1,2,3,4,6,7,8-HpCDF 1,2,3,4,7,8,9-HpCDF OCDF	0.0656U ng/Kg 0.0377U ng/Kg 0.186U ng/Kg 1.22U ng/Kg 0.107U ng/Kg 0.0722U ng/Kg 0.0629U ng/Kg 0.0401U ng/Kg 0.0565U ng/Kg 0.114U ng/Kg 0.101U ng/Kg 0.0765U ng/Kg 0.322U ng/Kg	A	B

SDG	Sample	Compound	Modified Final Concentration	A or P	Code
PH139	SL-545-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.0707U ng/Kg	A	B
		1,2,3,7,8-PeCDD	0.269U ng/Kg		
		1,2,3,4,7,8-HxCDD	0.441U ng/Kg		
		1,2,3,7,8,9-HxCDD	0.790U ng/Kg		
		1,2,3,7,8-PeCDF	0.878U ng/Kg		
		2,3,4,7,8-PeCDF	0.889U ng/Kg		
		1,2,3,4,7,8-HxCDF	0.466U ng/Kg		
		1,2,3,6,7,8-HxCDF	0.470U ng/Kg		
		2,3,4,6,7,8-HxCDF	0.462U ng/Kg		
		1,2,3,7,8,9-HxCDF	0.206U ng/Kg		
		1,2,3,4,7,8,9-HpCDF	0.363U ng/Kg		
PH139	SL-845-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.0848U ng/Kg	A	B
		1,2,3,7,8-PeCDD	0.688U ng/Kg		
		1,2,3,4,7,8-HxCDD	0.589U ng/Kg		
		1,2,3,7,8,9-HxCDD	0.926U ng/Kg		
		2,3,4,7,8-PeCDF	0.995U ng/Kg		
		1,2,3,4,7,8-HxCDF	0.660U ng/Kg		
		1,2,3,6,7,8-HxCDF	0.682U ng/Kg		
		2,3,4,6,7,8-HxCDF	0.727U ng/Kg		
		1,2,3,7,8,9-HxCDF	0.466U ng/Kg		
		1,2,3,4,7,8,9-HpCDF	0.597U ng/Kg		
PH139	SL-511-NBZ-SB-0.0-0.5	1,2,3,7,8-PeCDD	0.0866U ng/Kg	A	B
		1,2,3,4,7,8-HxCDD	0.0648U ng/Kg		
		1,2,3,6,7,8-HxCDD	0.300U ng/Kg		
		1,2,3,7,8,9-HxCDD	0.263U ng/Kg		
		2,3,7,8-TCDF	0.325U ng/Kg		
		1,2,3,7,8-PeCDF	0.169U ng/Kg		
		2,3,4,7,8-PeCDF	0.377U ng/Kg		
		1,2,3,4,7,8-HxCDF	0.165U ng/Kg		
		1,2,3,6,7,8-HxCDF	0.150U ng/Kg		
		2,3,4,6,7,8-HxCDF	0.176U ng/Kg		
		1,2,3,7,8,9-HxCDF	0.152U ng/Kg		
		1,2,3,4,6,7,8-HpCDF	0.569U ng/Kg		
		1,2,3,4,7,8,9-HpCDF	0.0983U ng/Kg		
		OCDF	0.821U ng/Kg		
PH139	SL-511-NBZ-SB-2.5-3.5	1,2,3,7,8-PeCDD	0.157U ng/Kg	A	B
		1,2,3,4,7,8-HxCDD	0.0507U ng/Kg		
		1,2,3,6,7,8-HxCDD	0.114U ng/Kg		
		1,2,3,7,8,9-HxCDD	0.144U ng/Kg		
		1,2,3,4,6,7,8-HpCDD	0.196U ng/Kg		
		OCDD	0.809U ng/Kg		
		2,3,7,8-TCDF	0.147U ng/Kg		
		1,2,3,7,8-PeCDF	0.203U ng/Kg		
		2,3,4,7,8-PeCDF	0.186U ng/Kg		
		1,2,3,4,7,8-HxCDF	0.112U ng/Kg		
		1,2,3,6,7,8-HxCDF	0.0967U ng/Kg		
		2,3,4,6,7,8-HxCDF	0.0897U ng/Kg		
		1,2,3,7,8,9-HxCDF	0.123U ng/Kg		
		1,2,3,4,6,7,8-HpCDF	0.105U ng/Kg		
		1,2,3,4,7,8,9-HpCDF	0.0526U ng/Kg		
		OCDF	0.217U ng/Kg		

SDG	Sample	Analyte	Modified Final Concentration	A or P	Code
PH139	SL-548-NBZ-SB-0.0-0.5	2,3,7,8-TCDD	0.115U ng/Kg	A	B
		1,2,3,7,8-PeCDD	0.194U ng/Kg		
		1,2,3,4,7,8-HxCDD	0.0513U ng/Kg		
		1,2,3,6,7,8-HxCDD	0.0726U ng/Kg		
		1,2,3,7,8,9-HxCDD	0.0822U ng/Kg		
		1,2,3,4,6,7,8-HpCDD	0.137U ng/Kg		
		OCDD	0.438U ng/Kg		
		2,3,7,8-TCDF	0.123U ng/Kg		
		1,2,3,7,8-PeCDF	0.249U ng/Kg		
		2,3,4,7,8-PeCDF	0.202U ng/Kg		
		1,2,3,4,7,8-HxCDF	0.103U ng/Kg		
		1,2,3,6,7,8-HxCDF	0.102U ng/Kg		
		2,3,4,6,7,8-HxCDF	0.0735U ng/Kg		
		1,2,3,7,8,9-HxCDF	0.0965U ng/Kg		
		1,2,3,4,6,7,8-HpCDF	0.109U ng/Kg		
		1,2,3,4,7,8,9-HpCDF	0.0269U ng/Kg		
		OCDF	0.180U ng/Kg		

Santa Susana Field Laboratory
Dioxins/Dibenzofurans - Field Blank Data Qualification Summary - SDG PH139

No Sample Data Qualified in this SDG

LDC #: 31224B21 **VALIDATION COMPLETENESS WORKSHEET** Date: 1-31-14
SDG #: PH139 Level IV Page: 1 of 1
Laboratory: Eurofins Lancaster Laboratories Reviewer: 9m
2nd Reviewer: SM

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/4/13
II.	HRGC/HRMS Instrument performance check	A	
III.	Initial calibration	A	≤20/35
IV.	Continuing Calibration	A	QC limits
V.	Blanks	SW	
VI.	Matrix spike/Matrix spike duplicates	A	
VII.	Laboratory control samples	A	OPR
VIII.	Regional quality assurance and quality control	N	
IX.	Internal standards	A	
X.	Target compound identifications	A	
XI.	Compound quantitation/RL/~~LOQ/LODs~~	SW	
XII.	System performance	A	
XIII.	Overall assessment of data	A	
XIV.	Field duplicates	SW	D = 3+4
XV.	Field blanks	SW	FB = FB-041613 (PH032) ★

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1	SL-508-NBZ-SB-0.0-0.5	~~11~~	~~SL-545-NBZ-SB-0.0-0.5MSD~~	21		31	
2	SL-508-NBZ-SB-4.0-5.0	12		22		32	
3	SL-545-NBZ-SB-0.0-0.5	13		23		33	
4	SL-845-NBZ-SB-0.0-0.5	14		24		34	
5	SL-511-NBZ-SB-0.0-0.5	15		25		35	
6	SL-511-NBZ-SB-2.5-3.5	16		26		36	
7	SL-548-NBZ-SB-0.0-0.5	17		27		37	
8	SL-545-NBZ-SB-0.0-0.5MS	18		28		38	
9	SL-545-NBZ-SB-0.0-0.5MSD	19		29		39	
~~10~~	~~SL-545-NBZ-SB-0.0-0.5MS~~	20		30	BLK 347003	40	

Notes: ★EB = EB1-120513 (PH140)
EB2-120513 (PH140)
EB3-120513 (PH140)

LDC #: 31224B21

VALIDATION FINDINGS CHECKLIST

Reviewer: SM
2nd Reviewer: SM

Method: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Was PFK exact mass 380.9760 verified?	✓			
Were the retention time windows established for all homologues?	✓			
Was the chromatographic resolution between 2,3,7,8-TCDD and peaks representing any other unlabeled TCDD isomers ≤ 25% ?	✓			
Is the static resolving power at least 10,000 (10% valley definition)?	✓			
Was the mass resolution adequately check with PFK?	✓			
Was the presence of 1,2,8,9-TCDD and 1,3,4,6,8-PeCDF verified?	✓			
III. Initial calibration				
Was the initial calibration performed at 5 concentration levels?	✓			
Were all percent relative standard deviations (%RSD) ≤ 20% for unlabeled compounds and ≤ 35% for labeled compounds ?	✓			
Did all calibration standards meet the Ion Abundance Ratio criteria?	✓			
Was the signal to noise ratio for each target compound ≥ 2.5 and for each recovery and internal standard ≥ 10?	✓			
IV. Continuing calibration				
Was a routine calibration performed at the beginning and end of each 12 hour period?	✓			
Were all the concentrations for the unlabeled compounds and labeled compounds within the QC limits (Method 1613B, Table 6)?	✓			
Did all routine calibration standards meet the Ion Abundance Ratio criteria?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank performed for each matrix and concentration?			✓	
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet?	✓			
VI. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?	✓			
VII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			
Was an LCS analyzed per extraction batch?			✓	
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			

LDC #: 31224B21

VALIDATION FINDINGS CHECKLIST

Reviewer: 9m
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
VIII. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?			✓	
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
IX. Internal standards				
Were internal standard recoveries within the 25-150% criteria?	✓			
Was the minimum S/N ratio of all internal standard peaks ≥ 10?	✓			
X. Target compound identification				
For 2,3,7,8 substituted congeners with associated labeled standards, were the retention times of the two quantitation peaks within -1 to 3 sec. of the RT of the labeled standard?	✓			
For 2,3,7,8 substituted congeners without associated labeled standards, were the relative retention times of the two quantitation peaks within 0.005 time units of the RRT measured in the routine calibration?	✓			
For non-2,3,7,8 substituted congeners, were the retention times of the two quantitation peaks within RT established in the performance check solution?			✓	
Did compound spectra contain all characteristic ions listed in the table attached?	✓			
Was the Ion Abundance Ratio for the two quantitation ions within criteria?		✓		
Was the signal to noise ratio for each target compound and labeled standard ≥ 2.5?	✓			
Does the maximum intensity of each specified characteristic ion coincide within ± 2 seconds (includes labeled standards)?	✓			
For PCDF identification, was any signal (S/N ≥ 2.5, at ± seconds RT) detected in the corresponding PCDPE channel?		✓		
Was an acceptable lock mass recorded and monitored?	✓			
XI. Compound quantitation/CRQLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and CRQLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XII. System performance				
System performance was found to be acceptable.	✓			
XIII. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XIV. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XV. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

A. 2,3,7,8-TCDD	F. 1,2,3,4,6,7,8-HpCDD	K. 1,2,3,4,7,8-HxCDF	P. 1,2,3,4,7,8,9-HpCDF	U. Total HpCDD
B. 1,2,3,7,8-PeCDD	G. OCDD	L. 1,2,3,6,7,8-HxCDF	Q. OCDF	V. Total TCDF
C. 1,2,3,4,7,8-HxCDD	H. 2,3,7,8-TCDF	M. 2,3,4,6,7,8-HxCDF	R. Total TCDD	W. Total PeCDF
D. 1,2,3,6,7,8-HxCDD	I. 1,2,3,7,8-PeCDF	N. 1,2,3,7,8,9-HxCDF	S. Total PeCDD	X. Total HxCDF
E. 1,2,3,7,8,9-HxCDD	J. 2,3,4,7,8-PeCDF	O. 1,2,3,4,6,7,8-HpCDF	T. Total HxCDD	Y. Total HpCDF

Notes:

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Blanks

Page: 1 of 1
Reviewer:
2nd Reviewer:

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were all samples associated with a method blank?
Y N N/A Was a method blank performed for each matrix and whenever a sample extraction was performed?
Y N N/A Was the method blank contaminated?

Blank extraction date: 12/13/13 **Blank analysis date:** 12/16/13 **Associated samples:** All Qual U
Conc. units: ng/kg

Compound	Blank ID	Sample Identification								
	BLK347003	5x	1	2	3	4	5	6	7	
A	0.0842*	0.421	0.112*		0.0707	0.0848*			0.115*	
B	0.186	0.930			0.269*	0.688*	0.0866*	0.157*	0.194*	
C	0.164	0.820	0.0429*		0.441	0.589	0.0648	0.0507*	0.0513*	
D	0.174*	0.870	0.0747*	0.0656			0.300	0.114*	0.0726*	
E	0.220	1.10	0.0602*	0.0377*	0.790	0.926	0.263*	0.144	0.0822*	
F	0.255	1.28	0.120	0.186*				0.196	0.137	
G	0.606	3.03	0.486	1.22				0.809	0.438	
H	0.0670	0.335	0.122*	0.107*			0.325*	0.147*	0.123*	
I	0.219*	1.10	0.107	0.0722*	0.878		0.169*	0.203	0.249	
J	0.287	1.44	0.131*	0.0629*	0.889	0.995	0.377	0.186*	0.202*	
K	0.187*	0.935	0.0919*	0.0401*	0.466	0.660*	0.165	0.112	0.103*	
L	0.183*	0.915	0.0630		0.470	0.682	0.150	0.0967	0.102*	
M	0.271*	1.36	0.0919	0.0565*	0.462	0.727	0.176	0.0897	0.0735*	
N	0.333*	1.67	0.126*	0.114*	0.206	0.466	0.152*	0.123*	0.0965	
O	0.219	1.10	0.119	0.101*			0.569	0.105	0.109	
P	0.237	1.19	0.106	0.0765*	0.363*	0.597	0.0983*	0.0526*	0.0269*	
Q	0.588	2.94	0.328	0.322			0.821*	0.217*	0.180*	

*EMPC

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the method blank concentration were qualified as not detected, "U".

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Page: 1 of 1
Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 12/05/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 1-2, 7 >5x

Compound	Blank ID	Sample Identification								
	EB1-120513	5X								
G	1.48	0.00740								
I	0.646*	0.00323								
L	0.488*	0.00244								
O	0.815*	0.00408								
P	0.583*	0.00292								

* EMPC
EB1-120513 (PH140)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 12/05/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 5-6 >5x

Compound	Blank ID	Sample Identification								
	EB2-120513	5X								
G	1.88*	0.00940								
J	0.627*	0.00314								

* EMPC
EB2-120513 (PH140)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\31224B21_EB1-120513 EB2-120513.wpd

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: gh
2nd Reviewer: SM

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 12/05/13
Field blank type: (circle one) Field Blank / Rinsate / Other: EB Associated Samples: 3-4 >5x

Compound	Blank ID	Sample Identification								
	EB3-120513	5X								
B	0.635*	0.00318								
E	0.353*	0.00177								
F	0.436*	0.00218								
G	19.6*	0.09800								
I	0.499*	0.00250								
J	0.244*	0.00122								
K	0.225*	0.00113								
L	0.118*	0.00059								
N	0.390	0.00195								
O	0.380*	0.00190								
P	0.446*	0.00223								
Q	1.02*	0.00510								

* EMPC

EB3-120513 (PH140)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\31224B21_EB3-120513.wpd

LDC #: 31224A21

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer:
2nd Reviewer:

METHOD: HRGC/HRMS Dioxins (EPA Method 1613B)

Blank units: pg/L **Associated sample units:** ng/kg
Sampling date: 04/16/13
Field blank type: (circle one) Field Blank / Rinsate / Other: FB Associated Samples: All >5x

Compound	Blank ID	Sample Identification								
	FB-041613	5X								
B	0.434*	0.00217								
F	0.309*	0.00155								
G	0.838*	0.00419								
I	0.324	0.00162								
J	0.429*	0.00215								
K	0.257	0.00129								
N	0.241*	0.00121								
M	0.284*	0.00142								
O	0.314*	0.00157								
Q	0.357*	0.00179								

* EMPC

FB-041613 (PH032)

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
All contaminants within five times the blank concentration were qualified as not detected, "U".

V:\Field Blanks\31224B21_FB-041613.wpd

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Compound Quantitation and Reported RLs

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: GC/MS Dioxins/Dibenzofurans (EPA Method 1613B)

Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were the correct internal standard (IS), quantitation ions and relative response factors (RRF) used to quantitate the compound?
Y N N/A Compound quantitation and RLs were adjusted to reflect all sample dilutions and dry weight factors (if necessary).

#	Date	Compund	Finding	Associated Samples	Qualifications
			No 2,3,7,8-TCDF confirmation analysis	All	None/P

Comments: See sample calculation verification worksheet for recalculations

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer:
2nd Reviewer:

Method: HRGC/HRMS D/Fs (EPA Method 1613B)

Analyte	Concentration (pg/g)		RPD	Qualifications
	3	4	(≤ 50%)	Parent Sample Only
A	0.0707	0.0848	18	--
B	0.269	0.688	88	Jdets/A (FD)
C	0.441	0.589	29	--
D	1.04	1.10	6	--
E	0.790	0.926	16	--
F	17.3	13.2	27	--
G	142	106	29	--
H	0.622	0.487	24	--
I	0.878	1.13	25	--
J	0.889	0.995	11	--
K	0.466	0.660	34	--
L	0.470	0.682	37	--
M	0.462	0.727	45	--
N	0.206	0.466	77	Jdets/A (FD)
O	3.75	4.26	13	--
P	0.363	0.597	49	--
Q	8.97	8.17	9	--

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

RRF = $(A_x)(C_{is})/(A_{is})(C_x)$
average RRF = sum of the RRFs/number of standards
%RSD = 100 * (S/X)

A_x = Area of compound,
C_x = Concentration of compound,
S = Standard deviation of the RRFs,

A_{is} = Area of associated internal standard
C_{is} = Concentration of internal standard
X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Reported Average RRF (initial)	Recalculated Average RRF (initial)	Reported RRF (CS3 std)	Recalculated RRF (CS3 std)	Reported %RSD	Recalculated %RSD
1	ICAL	11-14-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	0.996	0.996	0.928	0.928	6.11	6.11
	DF19780		2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	1.163	1.163	1.058	1.058	12.37	12.38
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	0.924	0.924	0.906	0.906	3.51	3.49
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	1.023	1.023	0.987	0.987	1.93	1.96
			OCDF (^{13}C-OCDF)	0.927	0.927	0.917	0.917	5.16	5.18
2			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDF)						
3			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)						
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)						
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)						
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)						
			OCDF (^{13}C-OCDF)						

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Routine Calibration Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = $(A_x)(C_{is})/(A_{is})(C_x)$

Where: ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
A_x = Area of compound, A_{is} = Area of associated internal standard
C_x = Concentration of compound, C_{is} = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (Reference Internal Standard)	Spiked Conc (ng/mL)	Reported Conc (ng/mL)	Recalculated Conc (ng/mL)	Reported %R	Recalculated %R
1	CS3CC02	12-16-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	9.15	9.15	92	92
	DF19780		2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10	10.53	10.53	105	105
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50	49.09	49.07	98	98
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50	48.85	48.83	98	98
			OCDF (^{13}C-OCDF)	100	97.87	97.84	98	98
2	CS3CC03	12-17-13	2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10	9.02	9.025	90	90
	DF19780		2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10	8.63	8.63	86	86
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50	47.54	47.52	95	95
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50	46.89	46.86	94	94
			OCDF (^{13}C-OCDF)	100	95.67	95.65	96	96
3			2,3,7,8-TCDF (^{13}C-2,3,7,8-TCDF)	10				
			2,3,7,8-TCDD (^{13}C-2,3,7,8-TCDD)	10				
			1,2,3,6,7,8-HxCDD (^{13}C-1,2,3,6,7,8-HxCDD)	50				
			1,2,3,4,6,7,8-HpCDD (^{13}C-1,2,4,6,7,8,-HpCDD)	50				
			OCDF (^{13}C-OCDF)	100				

Comments: Refer to Routine Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates Results Verification

Reviewer: [illegible]
2nd Reviewer: [illegible]

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the matrix spike and matrix spike duplicate were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * (SSR - SR)/SA Where: SSR = Spiked sample result, SR = Sample result
SA = Spike added

RPD = I MSR - MSDR I * 2/(MSR + MSDR) MSR = Matrix spike percent recovery MSDR = Matrix spike duplicate percent recovery

MS/MSD samples: 8/9

Compound	Spike Added (ng/kg)		Sample Concentration (ng/kg)	Spiked Sample Concentration (ng/kg)		Matrix Spike Percent Recovery		Matrix Spike Duplicate Percent Recovery		Reported RPD	Recalculated RPD
	MS	MSD	-----	MS	MSD	Reported	Recalc	Reported	Recalc	----	----
2,3,7,8-TCDD	21.6	21.3	0.0707	18.8	19.0	87	87	89	89	1	1
1,2,3,7,8-PeCDD	108	106.5	0.2169	101	102	93	93	95	95	1	1
1,2,3,4,7,8-HxCDD	108	106.5	0.441	106	107	98	98	100	100	1	1
1,2,3,4,7,8,9-HpCDF	108	106.5	0.363	110	109	101	101	102	102	Ø	1
OCDF	216	213	8.97	218	213	97	97	96	96	2	2

Comments: Refer to Matrix Spike/Matrix Spike Duplicate findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Laboratory Control Sample Results Verification

Reviewer: JM
2nd Reviewer: SY

METHOD: GC/MS Dioxins/Dibenzofurans (EPA Method 1613B)

The percent recoveries (%R) and Relative Percent Difference (RPD) of the laboratoy control sample and laboratory control sample duplicate (if applicable) were recalculated for the compounds identified below using the following calculation:

% Recovery = 100 * SSC/SA Where: SSC = Spiked sample concentration
SA = Spike added

RPD = I LCS - LCSD I * 2/(LCS + LCSD) LCS = Laboraotry control sample percent recovery LCSD = Laboratory control sample duplicate percent recovery

LCS ID: OPR347003

Compound	Spike Added (ng/kg)		Spiked Sample Concentration (ng/kg)		LCS Percent Recovery		LCSD Percent Recovery		LCS/LCSD RPD	
	LCS	LCSD	LCS	LCSD	Reported	Recalc.	Reported	Recalc.	Reported	Recalculated
2,3,7,8-TCDD	20	NA	18.6	NA	93	93				
1,2,3,7,8-PeCDD	100		94.7		95	95				
1,2,3,4,7,8-HxCDD	100		99.5		100	100				
1,2,3,4,7,8,9-HpCDF	100		103		103	103				
OCDF	200		200		100	100				

Comments: Refer to Laboratory Control Sample findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC #: 31224B21

VALIDATION FINDINGS WORKSHEET
Sample Calculation Verification

Reviewer: [illegible]
2nd reviewer: SM

METHOD: HRGC/HRMS Dioxins/Dibenzofurans (EPA Method 1613B)

Y N N/A Were all reported results recalculated and verified for all level IV samples?
Y N N/A Were all recalculated results for detected target compounds agree within 10.0% of the reported results?

Concentration = $\frac{(A_x)(I_s)(DF)}{(A_{is})(RRF)(V_o)(\%S)}$

A_x	=	Area of the characteristic ion (EICP) for the compound to be measured
A_{is}	=	Area of the characteristic ion (EICP) for the specific internal standard
I_s	=	Amount of internal standard added in nanograms (ng)
V_o	=	Volume or weight of sample extract in milliliters (ml) or grams (g).
RRF	=	Relative Response Factor (average) from the initial calibration
Df	=	Dilution Factor.
%S	=	Percent solids, applicable to soil and solid matrices only.

Example:

Sample I.D. 1 , H :

Conc. = $\frac{(176+196)(2000)(1)}{(380194+295080)(0.996)(10.01)(.906)}$

= 0.122 ng/kg

#	Sample ID	Compound	Reported Concentration ( )	Calculated Concentration ( )	Qualification

Data Validation Report
Santa Susana Field Laboratory

Subarea NBZ

SDG: PH157

Prepared for

CDM Smith
555 17th Street, Suite 1100
Denver, CO 80202

Prepared by

Laboratory Data Consultants, Inc.
2701 Loker Ave West, Suite 220
Carlsbad, California 92010

February 21, 2014

INTRODUCTION

This Data Validation Report (DVR) presents Level III data validation results for one sample collected on December 17, 2013. Data validation was performed in accordance with the Quality Assurance Project Plan (QAPP) for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFGs) for Superfund Organic Methods Data Review (June 2008). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Semivolatiles (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Level III Automated Data Review outliers are presented in Enclosure I.

All sample results were subjected to Level III data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, surrogates, laboratory control sample (LCS), method blanks, equipment blanks and field blanks. No samples in this SDG were subjected to Level IV evaluation.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013). Quality assurance (QA)/QC criteria specified in the QAPP and CLPNFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met QC criteria.

II. Initial Calibration

Initial Calibration data were not reviewed for level III.

III. Continuing Calibration

Continuing calibration data were not reviewed for level III.

IV. Blanks

Method blanks were performed at the required frequencies. No contaminant concentrations were detected in the method or preparation blanks.

V. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. Matrix Spike/Matrix Spike Duplicates

The laboratory has indicated that there were no matrix spike (MS) and matrix spike duplicate (MSD) analyses specified for the samples in this SDG, and therefore matrix spike and matrix spike duplicate analyses were not performed for this SDG.

VII. Laboratory Duplicates Sample

The laboratory has indicated that there were no laboratory duplicate (DUP) analyses specified for the samples in this SDG, and therefore laboratory duplicate analyses were not performed for this SDG.

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Internal Standards

Internal standards were not reviewed for level III.

X. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

All compounds reported below the RL as detected were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH157	All compounds reported as detected below the RL.	J (all detects)	A

XI. Field Duplicate Samples

No field duplicates were identified in this SDG.

XII. Field Blank Samples

No trip blanks were identified in this SDG.

One equipment blank (from SDG PH140) was collected and analyzed for SVOCs. The equipment blank had detections for several SVOCs. The sample results were not detected or were significantly greater than the concentrations found in the equipment blank, therefore no data were qualified.

One field blank (from SDG PH032) was collected and analyzed for SVOCs. The field blank had detections for several SVOCs. The sample results were not detected or were significantly greater than the concentrations found in the field blank, therefore no data were qualified.

XIII. Overall Assessment of Data

The overall assessment of QA/QC data review by automated and manual validation of this sampling event met project requirements and analytical completeness levels with the exceptions noted in the above sections. The remainder of the data are deemed useable for the intended use.

Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
17-Dec-2013	SL-551-NBZ-SB-0.0-0.5	7316781	N	3546	8270D SIM	III

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment 2
Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH157 **Laboratory: LL**

EDD Filename: PH157 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-551-NBZ-SB-0.0-0.5** ***Collected:*** **12/17/2013 11:25:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	0.86	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-551-NBZ-SB-0.0-0.5** ***Collected:*** **12/17/2013 11:25:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	1.1	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.3	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	0.96	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	0.88	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	0.88	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z
Butylbenzylphthalate	13	J	6.1	MDL	18	PQL	ug/Kg	J	Z
PHENANTHRENE	1.5	J	0.68	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH157 **Laboratory: LL**

EDD Filename: PH157 **eQAPP Name: CDM_SSFL_140113_Lan**

Reason Code Legend

Reason Code	*Description*
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Enclosure I

EPA Level III ADR Outliers

(Including Manual Review Outliers)

Quality Control Outlier Reports

PH157

Reporting Limit Outliers

Lab Reporting Batch ID: PH157 **Laboratory: LL**

EDD Filename: PH157 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **8270D SIM**

Matrix: **SO**

SampleID	*Analyte*	*Lab Qual*	*Result*	*Reporting Limit*	*RL Type*	*Units*	*Flag*
SL-551-NBZ-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	0.86	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.3	1.7	PQL	ug/Kg	
	BENZO(A)PYRENE	J	0.96	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	0.88	1.7	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	0.88	1.7	PQL	ug/Kg	
	Butylbenzylphthalate	J	13	18	PQL	ug/Kg	
	PHENANTHRENE	J	1.5	1.7	PQL	ug/Kg	

LABORATORY DATA CONSULTANTS, INC.

2701 Loker Ave. West, Suite 220, Carlsbad, CA 92010 Bus: 760-827-1100 Fax: 760-827-1099

CDM
555 17th Street, Suite 1100
Denver, CO 80202
ATTN: Mrs. Cherie Zakowski

March 3, 2014

SUBJECT: Santa Susana Field Laboratory, Subarea NBZ Data Validation

Dear Mrs. Zakowski,

Enclosed are the final validation reports for the fractions listed below. These SDGs were received on January 31, 2014. Attachment 1 is a summary of the samples that were reviewed for each analysis.

LDC Project # 31254:

SDG #	Fraction
PH142, PH140 PH143, PH146 PH148, PH151	Semivolatiles, Chlorinated Pesticides, Metals, Total Petroleum Hydrocarbons as Gasoline, Total Petroleum Hydrocarbons as Extractables, Nitrate as Nitrogen, Dioxins/Dibenzofurans, PSBs, Herbicides, Wet Chemistry

The data validation was performed under Level III & IV guidelines. The analyses were validated using the following documents, as applicable to each method:

- Quality Assurance Project Plan for Santa Susana Field Laboratory, RCRA Facility Investigation, Surficial Media Operable Unit, March 2009, Revision 4
- USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review, June 2008
- USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Superfund Data Review, January 2010
- Polychlorinated Dioxins/Dibenzofurans Data Review, September 2005
- EPA SW 846, Third Edition, Test Methods for Evaluating Solid Waste, update 1, July 1992; update IIA, August 1993; update II, September 1994; update IIB, January 1995; update III, December 1996; update IIIA, April 1998; IIIB, November 2004; Update IV, February 2007

Please feel free to contact us if you have any questions.

Sincerely,

Shauna McKellar
Project Manager/Chemist

90/10 ADR/IV

LDC #31254 (CDM Federal Programs-Chantilly VA / Santa Susana Field Laboratory, Subarea NBZ)

LDC	SDG#	DATE REC'D	(4) DATE DUE	SVOA (8270D -SIM)		Pest. (8081B)		PCBs (8082A)		Metals & Hg (SW846)		Herbs. (8151A)		TPH-G (8015M)		TPH-E (8015M)		Dioxins (1613B)		CN- (9012B)		NO_2-N (300.0)																			
Matrix:	Water/Soil			W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S	W	S
A	PH142	01/31/14	03/03/14	0	7	0	2	-	-	0	2	-	-	1	2	0	8	0	2	-	-	0	5																		
B	PH140	01/31/14	03/03/14	3	3	3	5	2	3	2	0	2	5	-	-	3	5	3	3	1	0	-	-																		
C	PH143	01/31/14	03/03/14	-	-	-	-	0	3	-	-	-	-	-	-	-	-	-	-	-	-	-	-																		
D	PH146	01/31/14	03/03/14	2	2	2	0	1	0	2	0	1	0	2	0	2	0	2	0	-	-	1	0																		
E	PH148	01/31/14	03/03/14	0	8	0	7	-	-	0	2	0	4	-	-	0	4	0	7	-	-	-	-																		
F	PH151	01/31/14	03/03/14	0	2	-	-	0	1	0	2	-	-	-	-	0	2	0	2	-	-	-	-																		
Total	T/SM			5	22	5	14	3	7	4	6	3	9	3	2	5	19	5	14	1	0	1	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133

Shaded cells indicate Level IV validation (all other cells are ADR review). These sample counts do not include MS/MSD, and DUPs

Data Validation Report
Santa Susana Field Laboratory

Subarea NBZ

SDG: PH142

Prepared for

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February 26, 2014

INTRODUCTION

This Data Validation Report (DVR) presents Level IV data validation results for samples collected on December 9, 2013. Data validation was performed in accordance with the Quality Assurance Project Plan (QAPP) for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines (CLPNFGs) for Superfund Organic Methods Data Review (June 2008), Polychlorinated Dioxins/Dibenzofurans Data Review (September 2005) and for Inorganic Data Review (January 2010). Where specific guidance is not available, the data has been evaluated in a conservative manner consistent with industry standards using professional experience.

The analyses were performed by the following methods:

Semivolatiles (SVOCs) by Environmental Protection Agency (EPA) SW 846 Method 8270D utilizing Selective Ion Monitoring (SIM)
Pesticides by EPA SW 846 Method 8081B
Metals by EPA SW 846 Method 6010C, 6020A and 7471B
Total Petroleum Hydrocarbons (TPH) as Gasoline by EPA SW 846 Method 8015M
TPH as Extractables by EPA SW 846 Method 8015M
Dioxins and Dibenzofurans by EPA Method 1613B

Wet Chemistry:
Nitrate as Nitrogen by EPA Method 300.0

The sample identification and methods of analyses performed on each sample is presented in Attachment 1. Overall data qualification summary is presented in Attachment 2. Level III Automated Data Review outliers are presented in Enclosure I. Level IV DVRs are presented in Enclosure II.

All sample results were subjected to Level IV data validation, which comprises an evaluation of quality control (QC) summary results for sample holding times, initial and continuing calibrations, initial and continuing calibration blanks (ICB/CCBs), surrogates, internal standards, interference check (ICSA and ICSAB) samples, matrix spike/matrix spike duplicates (MS/MSD), laboratory control sample/laboratory control sample duplicates (LCS/LCSD), ICP serial dilutions, method blanks, trip blanks, equipment blanks, field blanks, field duplicate samples, and the raw data to confirm sample quantitation and identification.

Automated data review was performed on all QC summary results using the Automated Data Review (ADR) software program (LDC, 2013) with exception of the initial and continuing calibrations, ICB/CCBs, interference check samples, internal standards (except dioxins), and ICP serial dilutions, which were validated manually. Quality assurance (QA)/QC criteria specified in the QAPP and CLPNFGs were incorporated with the program's reference library to assess compliance with project requirements.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met QC criteria.

II. Initial Calibration

All criteria for the initial calibration of each method were met.

III. Continuing Calibration

All criteria for the initial calibration verifications and continuing calibration of each method were met with the exception of Endosulfan II. The associated sample results were qualified as non-detected estimated (UJ). The details regarding the qualification of data are provided in Enclosure II.

IV. Blanks

Method blanks were performed at the required frequencies. No contaminant concentrations were detected in the method or preparation blanks with the exception of two blanks for metals and dioxins. The associated sample results were qualified as non-detected (U) due to method blank contamination as applicable. The sample results that were not detected or were significantly greater than the concentrations found in the associated blanks were not qualified. The details regarding the qualification of data are provided in Enclosures I and II.

No contaminant concentrations were detected in the initial or continuing calibration blanks with the exception of several metals. The associated sample results were not detected or were significantly greater than the concentrations found in the associated blanks, therefore no data were qualified. The details are presented in Enclosure II.

V. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VI. ICP Interference Check Sample (ICS) Analysis

The frequency of analysis was met.

The criteria for analysis were met.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were performed at the required frequency. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the exception of one MS/MSD pair for SVOCs, TPH as extractables, nitrate as nitrogen and one MS/MSD pair for metals from SDG PH139. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The details regarding the qualification of data are provided in Enclosures I and II.

VIII. Laboratory Duplicates Sample

Laboratory duplicates (DUP) sample analyses were reviewed for each matrix as applicable. Results were within QC limits.

IX. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits.

X. Internal Standards

All internal standard areas and retention times or percent recoveries were within QC limits.

XI. ICP Serial Dilution

ICP serial dilution analysis was performed by the laboratory. The analysis criteria were met.

XII. Compound Quantitation

The laboratory reporting limits were evaluated. All laboratory reporting limits met the specified requirements.

The sample results for detected compounds from the two columns were within 40% relative percent difference (RPD) with the exception of two samples for pesticides. The associated sample results were qualified as detected estimated (J). The details regarding the qualification of data are provided in Enclosure II.

All compounds reported below the RL as detected were qualified as follows:

Sample	Finding	Flag
All samples in SDG PH142	All compounds reported as detected below the RL.	J (all detects)

XIII. Field Duplicate Samples

One field duplicate pair was collected and analyzed for SVOCs, TPH as extractables and nitrate as nitrogen. All RPDs were within QC limits with the exception of SVOCs, TPH as extractables and nitrate as nitrogen. The associated sample results were qualified as detected estimated (J) or non-detected estimated (UJ) as applicable. The field duplicate result comparisons are provided in Enclosures I and II.

XIV. Field Blank Samples

One trip blank was collected and analyzed for TPH as gasoline. No volatile contaminants were found in the trip blank.

Two equipment blanks (from SDG PH146) were collected and analyzed for SVOCs, pesticides, metals, TPH as gasoline, TPH as extractables, nitrate as nitrogen and dioxins. The equipment blanks had detections for SVOCs, metals and dioxins. The associated sample results were not

detected or were significantly greater than the concentrations found in the equipment blanks, therefore no data were qualified. The details are provided in Enclosure II.

One field blank (from SDG PH032) was collected and analyzed for SVOCs, pesticides, metals, TPH as gasoline, TPH as extractables, dioxins and nitrate as nitrogen. The field blank had detections for SVOCs, metals and dioxins. The associated sample results were not detected or were significantly greater than the concentrations found in the field blank, therefore no data were qualified. The details are provided in Enclosure II.

XV. Overall Assessment of Data

No data associated with this sampling event were rejected. The overall assessment of QA/QC data review by automated and manual validation of this sampling event met project requirements and analytical completeness levels with the exceptions noted in the above sections. All data are deemed useable for the intended use.

Data flags are summarized and are presented as Attachment 2.

Attachment 1

Sample Cross Reference

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
09-Dec-2013	TB-120913	7307341	TB	5030B	8015M	IV
09-Dec-2013	SL-513-NBZ-SB-0.0-0.5	7307346	N	3546	8015M	IV
09-Dec-2013	SL-516-NBZ-SB-0.0-0.5	7307344	N	3050B	6010C	IV
09-Dec-2013	SL-516-NBZ-SB-0.0-0.5	7307344	N	3050B	6020A	IV
09-Dec-2013	SL-516-NBZ-SB-0.0-0.5	7307344	N	3546	8015M	IV
09-Dec-2013	SL-516-NBZ-SB-0.0-0.5	7307344	N	3546	8270D SIM	IV
09-Dec-2013	SL-516-NBZ-SB-0.0-0.5	7307344	N	METHOD	1613B	IV
09-Dec-2013	SL-516-NBZ-SB-0.0-0.5	7307344	N	METHOD	7471B	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	3050B	6010C	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	3050B	6020A	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	3546	8015M	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	3546	8270D SIM	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	5035A	8015M	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	METHOD	1613B	IV
09-Dec-2013	SL-516-NBZ-SB-4.0-5.0	7307345	N	METHOD	7471B	IV
09-Dec-2013	SL-522-NBZ-SB-0.0-0.5	7307347	N	3546	8015M	IV
09-Dec-2013	SL-522-NBZ-SB-0.0-0.5	7307347	N	3546	8270D SIM	IV
09-Dec-2013	SL-522-NBZ-SB-0.0-0.5	7307347	N	METHOD	300.0	IV
09-Dec-2013	SL-522-NBZ-SB-2.5-3.5	7307354	N	3546	8015M	IV
09-Dec-2013	SL-522-NBZ-SB-2.5-3.5	7307354	N	3546	8270D SIM	IV
09-Dec-2013	SL-522-NBZ-SB-2.5-3.5	7307354	N	5035A	8015M	IV
09-Dec-2013	SL-522-NBZ-SB-2.5-3.5	7307354	N	METHOD	300.0	IV
09-Dec-2013	SL-514-NBZ-SB-0.0-0.5	7307342	N	3546	8081B	IV
09-Dec-2013	SL-523-NBZ-SB-0.0-0.5	7307348	N	3546	8015M	IV
09-Dec-2013	SL-523-NBZ-SB-0.0-0.5	7307348	N	3546	8270D SIM	IV
09-Dec-2013	SL-523-NBZ-SB-0.0-0.5	7307348	N	METHOD	300.0	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Sample Cross Reference

Date Collected	Field Sample ID	Lab Sample ID	Sample Type	Prep Method	Analytical Method	Review Level
09-Dec-2013	SL-515-NBZ-SB-0.0-0.5	7307343	N	3546	8081B	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5	7307349	N	3546	8015M	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5	7307349	N	3546	8270D SIM	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5	7307349	N	METHOD	300.0	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5MS	7307350	MS	3546	8015M	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5MS	7307350	MS	3546	8270D SIM	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5MS	7307350	MS	METHOD	300.0	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5MSD	7307351	MSD	3546	8015M	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5MSD	7307351	MSD	3546	8270D SIM	IV
09-Dec-2013	SL-524-NBZ-SB-0.0-0.5DUP	7307352	DUP	METHOD	300.0	IV
09-Dec-2013	SL-824-NBZ-SB-0.0-0.5	7307353	FD	3546	8015M	IV
09-Dec-2013	SL-824-NBZ-SB-0.0-0.5	7307353	FD	3546	8270D SIM	IV
09-Dec-2013	SL-824-NBZ-SB-0.0-0.5	7307353	FD	METHOD	300.0	IV

III = EPA Level 3 Data Review *N = Normal Sample* *TB = Trip Blank* *MS = Matrix Spike*
IV = EPA Level 4 Data Validation *FD = Field Duplicate* *FB = Field Blank* *MSD = Matrix Spike Duplicate*

Attachment 2
Overall Data Qualification Summary

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **GENCHEM**

Method: **300.0** ***Matrix:*** **SO**

Sample ID: **SL-522-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 11:05:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrate-NO3	3.2		0.42	MDL	0.78	PQL	mg/Kg	J	Q

Sample ID: **SL-522-NBZ-SB-2.5-3.5** ***Collected:*** **12/9/2013 11:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrate-NO3	0.61	J	0.42	MDL	0.79	PQL	mg/Kg	J	Z, Q

Sample ID: **SL-523-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 12:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrate-NO3	8.6		0.42	MDL	0.78	PQL	mg/Kg	J	Q

Sample ID: **SL-524-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 1:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrate-NO3	0.70	J	0.42	MDL	0.78	PQL	mg/Kg	J	Z, Q, FD

Sample ID: **SL-824-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 2:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
Nitrate-NO3	5.8		0.42	MDL	0.79	PQL	mg/Kg	J	Q, FD

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-516-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 10:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.15	U	0.768	MDL	4.15	PQL	mg/Kg	UJ	Q
BERYLLIUM	0.658	J	0.0695	MDL	1.04	PQL	mg/Kg	J	Z
BORON	2.00	J	0.871	MDL	10.4	PQL	mg/Kg	J	Z
CADMIUM	0.430	J	0.0788	MDL	1.04	PQL	mg/Kg	J	Z
SODIUM	71.7	J	17.3	MDL	104	PQL	mg/Kg	J	Z
TIN	3.17	J	0.228	MDL	10.4	PQL	mg/Kg	U	B
Zirconium	2.35	J	0.871	MDL	5.19	PQL	mg/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **METALS**

Method: **6010C** ***Matrix:*** **SO**

Sample ID: **SL-516-NBZ-SB-4.0-5.0** ***Collected:*** **12/9/2013 11:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
ANTIMONY	4.13	U	0.764	MDL	4.13	PQL	mg/Kg	UJ	Q
ARSENIC	2.81	J	0.722	MDL	4.13	PQL	mg/Kg	J	Z
BERYLLIUM	0.577	J	0.0691	MDL	1.03	PQL	mg/Kg	J	Z
BORON	1.24	J	0.867	MDL	10.3	PQL	mg/Kg	J	Z
CADMIUM	0.303	J	0.0784	MDL	1.03	PQL	mg/Kg	J	Z
COPPER	1.31	J	0.299	MDL	2.06	PQL	mg/Kg	J	Z
SODIUM	58.9	J	17.2	MDL	103	PQL	mg/Kg	J	Z
TIN	2.93	J	0.227	MDL	10.3	PQL	mg/Kg	U	B
Zirconium	3.65	J	0.867	MDL	5.16	PQL	mg/Kg	J	Z

Method Category: **METALS**

Method: **6020A** ***Matrix:*** **SO**

Sample ID: **SL-516-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 10:30:00** ***Analysis Type:*** **REA** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SELENIUM	0.184	J	0.104	MDL	0.415	PQL	mg/Kg	J	Z

Sample ID: **SL-516-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 10:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
SILVER	0.0598	J	0.0270	MDL	0.207	PQL	mg/Kg	J	Z
STRONTIUM	18.9		0.0705	MDL	0.415	PQL	mg/Kg	J	Q

Sample ID: **SL-516-NBZ-SB-4.0-5.0** ***Collected:*** **12/9/2013 11:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **2**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
STRONTIUM	10.7		0.0702	MDL	0.413	PQL	mg/Kg	J	Q

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **METALS**

Method: **7471B** ***Matrix:*** **SO**

Sample ID: **SL-516-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 10:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
MERCURY	0.0162	J	0.0105	MDL	0.0176	PQL	mg/Kg	J	Z

Method Category: **SVOA**

Method: **1613B** ***Matrix:*** **SO**

Sample ID: **SL-516-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 10:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	1.52	JB	0.0422	MDL	5.15	PQL	ng/Kg	J	Z
1,2,3,4,6,7,8-HPCDF	0.411	JB	0.0239	MDL	5.15	PQL	ng/Kg	J	Z
1,2,3,4,7,8,9-HPCDF	0.0540	JBQ	0.0295	MDL	5.15	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.156	JBQ	0.0353	MDL	5.15	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDD	0.144	J	0.0420	MDL	5.15	PQL	ng/Kg	J	Z
1,2,3,6,7,8-HXCDF	0.101	JB	0.0339	MDL	5.15	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.140	JQ	0.0394	MDL	5.15	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.129	JB	0.0402	MDL	5.15	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.231	JBQ	0.0381	MDL	5.15	PQL	ng/Kg	J	Z
2,3,4,6,7,8-HXCDF	0.153	J	0.0355	MDL	5.15	PQL	ng/Kg	J	Z
2,3,4,7,8-PECDF	0.300	JQ	0.0343	MDL	5.15	PQL	ng/Kg	J	Z
2,3,7,8-TCDF	0.115	JQ	0.0896	MDL	1.03	PQL	ng/Kg	J	Z
OCDF	0.775	JB	0.0434	MDL	10.3	PQL	ng/Kg	J	Z

Sample ID: **SL-516-NBZ-SB-4.0-5.0** ***Collected:*** **12/9/2013 11:00:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1,2,3,4,6,7,8-HPCDD	0.0566	JBQ	0.0271	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,4,6,7,8-HPCDF	0.0309	JBQ	0.0118	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,4,7,8,9-HPCDF	0.0275	JBQ	0.0137	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,4,7,8-HXCDF	0.0296	JBQ	0.0194	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,7,8,9-HXCDD	0.0337	JQ	0.0229	MDL	5.10	PQL	ng/Kg	J	Z
1,2,3,7,8,9-HXCDF	0.0225	JBQ	0.0205	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,7,8-PECDD	0.0392	JBQ	0.0390	MDL	5.10	PQL	ng/Kg	U	B
1,2,3,7,8-PECDF	0.0646	JBQ	0.0292	MDL	5.10	PQL	ng/Kg	U	B
OCDD	0.285	JB	0.0217	MDL	10.2	PQL	ng/Kg	U	B

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: SVOA
Method: 1613B **Matrix:** SO

Sample ID: SL-516-NBZ-SB-4.0-5.0 *Collected:* 12/9/2013 11:00:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
OCDF	0.118	JBQ	0.0303	MDL	10.2	PQL	ng/Kg	U	B

Method Category: SVOA
Method: 8015M **Matrix:** SO

Sample ID: SL-522-NBZ-SB-0.0-0.5 *Collected:* 12/9/2013 11:05:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	2.7	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z

Sample ID: SL-523-NBZ-SB-0.0-0.5 *Collected:* 12/9/2013 12:45:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	3.3	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z

Sample ID: SL-524-NBZ-SB-0.0-0.5 *Collected:* 12/9/2013 1:40:00 *Analysis Type:* RES *Dilution:* 2

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	8.4	J	4.2	MDL	10	PQL	mg/Kg	J	Z, Q, Q, FD
EFH (C21-C30)	58		4.2	MDL	10	PQL	mg/Kg	J	FD
EFH (C30-C40)	120		8.4	MDL	21	PQL	mg/Kg	J	FD

Sample ID: SL-824-NBZ-SB-0.0-0.5 *Collected:* 12/9/2013 2:30:00 *Analysis Type:* RES *Dilution:* 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
EFH (C15-C20)	2.2	J	2.1	MDL	5.2	PQL	mg/Kg	J	Z, FD
EFH (C21-C30)	28		2.1	MDL	5.2	PQL	mg/Kg	J	FD
EFH (C30-C40)	50		4.2	MDL	10	PQL	mg/Kg	J	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: SVOA

Method: 8081B **Matrix:** SO

Sample ID: SL-514-NBZ-SB-0.0-0.5 **Collected:** 12/9/2013 12:00:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	0.85	J	0.36	MDL	1.8	PQL	ug/Kg	J	Z
4,4'-DDT	0.61	J	0.38	MDL	1.8	PQL	ug/Kg	J	Z, *XIII
ENDOSULFAN I	0.42	J	0.24	MDL	0.90	PQL	ug/Kg	J	Z
ENDRIN ALDEHYDE	0.50	J	0.36	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: SL-515-NBZ-SB-0.0-0.5 **Collected:** 12/9/2013 1:00:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
4,4'-DDE	1.0	J	0.36	MDL	1.9	PQL	ug/Kg	J	Z, *XIII
4,4'-DDT	1.2	J	0.39	MDL	1.9	PQL	ug/Kg	J	Z
ENDOSULFAN II	1.9	U	0.36	MDL	1.9	PQL	ug/Kg	UJ	C

Method Category: SVOA

Method: 8270D SIM **Matrix:** SO

Sample ID: SL-516-NBZ-SB-0.0-0.5 **Collected:** 12/9/2013 10:30:00 **Analysis Type:** RES **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: SL-516-NBZ-SB-0.0-0.5 **Collected:** 12/9/2013 10:30:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	1.1	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.1	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.2	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.0	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	1.0	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.82	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z
PHENANTHRENE	1.7	J	0.71	MDL	1.8	PQL	ug/Kg	J	Z

Sample ID: SL-516-NBZ-SB-4.0-5.0 **Collected:** 12/9/2013 11:00:00 **Analysis Type:** RES-BASE/NEUTRAL **Dilution:** 1

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
NAPHTHALENE	1.4	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-522-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 11:05:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(G,H,I)PERYLENE	0.93	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
FLUORANTHENE	1.3	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.77	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
NAPHTHALENE	0.78	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PHENANTHRENE	1.1	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
PYRENE	1.4	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-523-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 12:45:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.1	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-523-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 12:45:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	1.6	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)ANTHRACENE	1.0	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(A)PYRENE	1.4	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(G,H,I)PERYLENE	1.1	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
BENZO(K)FLUORANTHENE	0.87	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z
Butylbenzylphthalate	7.6	J	6.3	MDL	19	PQL	ug/Kg	J	Z
INDENO(1,2,3-CD)PYRENE	0.79	J	0.70	MDL	1.7	PQL	ug/Kg	J	Z

Sample ID: **SL-524-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 1:40:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD

Sample ID: **SL-524-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 1:40:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	0.87	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z
ANTHRACENE	1.7	U	0.35	MDL	1.7	PQL	ug/Kg	UJ	FD
BENZO(A)ANTHRACENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD
BENZO(A)PYRENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method Category: **SVOA**

Method: **8270D SIM** ***Matrix:*** **SO**

Sample ID: **SL-524-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 1:40:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
BENZO(B)FLUORANTHENE	2.0		0.69	MDL	1.7	PQL	ug/Kg	J	FD
BENZO(G,H,I)PERYLENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD
BENZO(K)FLUORANTHENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD
BIS(2-ETHYLHEXYL)PHTHALATE	19	U	6.2	MDL	19	PQL	ug/Kg	UJ	FD
Butylbenzylphthalate	19	U	6.2	MDL	19	PQL	ug/Kg	UJ	FD
CHRYSENE	2.4		0.35	MDL	1.7	PQL	ug/Kg	J	FD
FLUORANTHENE	1.3	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD
FLUORENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD
INDENO(1,2,3-CD)PYRENE	1.7	U	0.69	MDL	1.7	PQL	ug/Kg	UJ	FD
PYRENE	1.4	J	0.69	MDL	1.7	PQL	ug/Kg	J	Z, FD

Sample ID: **SL-824-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 2:30:00** ***Analysis Type:*** **RES** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
1-METHYLNAPHTHALENE	1.2	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z, FD

Sample ID: **SL-824-NBZ-SB-0.0-0.5** ***Collected:*** **12/9/2013 2:30:00** ***Analysis Type:*** **RES-BASE/NEUTRAL** ***Dilution:*** **1**

Analyte	Lab Result	Lab Qual	DL	DL Type	RL	RL Type	Units	Data Review Qual	Reason Code
2-METHYLNAPHTHALENE	1.4	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z
ANTHRACENE	0.37	J	0.35	MDL	1.8	PQL	ug/Kg	J	Z, FD
BENZO(A)ANTHRACENE	1.7	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z, FD
BENZO(A)PYRENE	2.2		0.70	MDL	1.8	PQL	ug/Kg	J	FD
BENZO(B)FLUORANTHENE	5.7		0.70	MDL	1.8	PQL	ug/Kg	J	FD
BENZO(G,H,I)PERYLENE	1.6	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z, FD
BENZO(K)FLUORANTHENE	1.7	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z, FD
BIS(2-ETHYLHEXYL)PHTHALATE	31		6.3	MDL	19	PQL	ug/Kg	J	FD
Butylbenzylphthalate	12	J	6.3	MDL	19	PQL	ug/Kg	J	Z, FD
CHRYSENE	5.4		0.35	MDL	1.8	PQL	ug/Kg	J	FD
FLUORANTHENE	4.1		0.70	MDL	1.8	PQL	ug/Kg	J	FD
FLUORENE	0.97	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z, FD
INDENO(1,2,3-CD)PYRENE	1.1	J	0.70	MDL	1.8	PQL	ug/Kg	J	Z, FD
PYRENE	4.7		0.70	MDL	1.8	PQL	ug/Kg	J	FD

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Data Qualifier Summary

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Reason Code Legend

Reason Code	*Description*
*XIII	RPD Between Two Columns
A	Professional Judgment
B	Method Blank Contamination
C	Continuing Calibration Verification Percent Difference Lower Estimation
E	Matrix Spike Precision
FD	Field Duplicate Precision
Q	Matrix Spike Lower Estimation
Q	Matrix Spike Lower Rejection
Q	Matrix Spike Precision
Q	Matrix Spike Upper Estimation
Z	Reporting Limit Trace Value

* denotes a non-reportable result

Project Name and Number: 1204-002-001-AL - SSFL Area IV Phase 3

Enclosure I

EPA Level III ADR Outliers

(Including Manual Review Outliers)

Quality Control Outlier Reports

PH142

Method Blank Outlier Report

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: **1613B**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
BLK3480B370830	12/17/2013 8:30:00 AM	1,2,3,4,6,7,8-HPCDD	0.0876 ng/Kg	SL-516-NBZ-SB-0.0-0.5
		1,2,3,4,6,7,8-HPCDF	0.0437 ng/Kg	SL-516-NBZ-SB-4.0-5.0
		1,2,3,4,7,8,9-HPCDF	0.0211 ng/Kg	
		1,2,3,4,7,8-HxCDD	0.0259 ng/Kg	
		1,2,3,4,7,8-HXCDF	0.0161 ng/Kg	
		1,2,3,6,7,8-HXCDF	0.0232 ng/Kg	
		1,2,3,7,8,9-HXCDF	0.0688 ng/Kg	
		1,2,3,7,8-PECDD	0.0326 ng/Kg	
		1,2,3,7,8-PECDF	0.0310 ng/Kg	
		OCDD	0.213 ng/Kg	
		OCDF	0.125 ng/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-516-NBZ-SB-0.0-0.5(RES)	1,2,3,4,7,8,9-HPCDF	0.0540 ng/Kg	0.0540U ng/Kg
SL-516-NBZ-SB-0.0-0.5(RES)	1,2,3,6,7,8-HXCDF	0.101 ng/Kg	0.101U ng/Kg
SL-516-NBZ-SB-0.0-0.5(RES)	1,2,3,7,8,9-HXCDF	0.129 ng/Kg	0.129U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,4,6,7,8-HPCDD	0.0566 ng/Kg	0.0566U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,4,6,7,8-HPCDF	0.0309 ng/Kg	0.0309U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8,9-HPCDF	0.0275 ng/Kg	0.0275U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,4,7,8-HXCDF	0.0296 ng/Kg	0.0296U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8,9-HXCDF	0.0225 ng/Kg	0.0225U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8-PECDD	0.0392 ng/Kg	0.0392U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	1,2,3,7,8-PECDF	0.0646 ng/Kg	0.0646U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	OCDD	0.285 ng/Kg	0.285U ng/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	OCDF	0.118 ng/Kg	0.118U ng/Kg

Method: **6010C**
Matrix: **SO**

Method Blank Sample ID	Analysis Date	Analyte	Result	Associated Samples
P34737AB221738	12/16/2013 5:38:00 PM	CALCIUM	4.84 mg/Kg	SL-516-NBZ-SB-0.0-0.5
		MAGNESIUM	2.30 mg/Kg	SL-516-NBZ-SB-4.0-5.0
		TIN	1.63 mg/Kg	
		ZINC	0.233 mg/Kg	

The following samples and their listed target analytes were qualified due to contamination reported in this blank

Sample ID	Analyte	Reported Result	Modified Final Result
SL-516-NBZ-SB-0.0-0.5(RES)	TIN	3.17 mg/Kg	3.17U mg/Kg
SL-516-NBZ-SB-4.0-5.0(RES)	TIN	2.93 mg/Kg	2.93U mg/Kg

Matrix Spike/Matrix Spike Duplicate Outlier Report

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 8015M
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-524-NBZ-SB-0.0-0.5MS SL-524-NBZ-SB-0.0-0.5MSD (SL-524-NBZ-SB-0.0-0.5)	EFH (C21-C30) EFH (C30-C40)	-40 -178	-175 -294	49.00-123.00 49.00-123.00	40 (20.00) 23 (20.00)	EFH (C21-C30) EFH (C30-C40)	No Qual, >4x
SL-524-NBZ-SB-0.0-0.5MSD (SL-524-NBZ-SB-0.0-0.5)	EFH (C15-C20)	-	15	49.00-123.00	40 (20.00)	EFH (C15-C20)	J(all detects) UJ(all non-detects)

Method: 8270D SIM
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-524-NBZ-SB-0.0-0.5MSD (SL-524-NBZ-SB-0.0-0.5)	Di-n-octylphthalate	-	171	52.00-162.00	-	Di-n-octylphthalate	J(all detects)

Method: 300.0
Matrix: SO

QC Sample ID (Associated Samples)	Compound	MS %R	MSD %R	%R Limits	RPD (Limits)	Affected Compounds	Flag
SL-524-NBZ-SB-0.0-0.5MS (SL-522-NBZ-SB-0.0-0.5 SL -522-NBZ-SB-2.5-3.5 SL -523-NBZ-SB-0.0-0.5 SL -524-NBZ-SB-0.0-0.5 SL -824-NBZ-SB-0.0-0.5)	Nitrate-NO3	129	-	80.00-120.00	-	Nitrate-NO3	J(all detects)

Field Duplicate RPD Report

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PrepPH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 160.3M
Matrix: SO

Analyte	Concentration (%)		Sample RPD	eQAPP RPD	Flag
	SL-524-NBZ-SB-0.0-0.5	SL-824-NBZ-SB-0.0-0.5			
MOISTURE	4.6	5.4	16		No Qualifiers Applied

Method: 300.0
Matrix: SO

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-524-NBZ-SB-0.0-0.5	SL-824-NBZ-SB-0.0-0.5			
Nitrate-NO3	0.70	5.8	157	50.00	J(all detects)

Method: 8015M
Matrix: SO

Analyte	Concentration (mg/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-524-NBZ-SB-0.0-0.5	SL-824-NBZ-SB-0.0-0.5			
EFH (C15-C20)	8.4	2.2	117	50.00	J(all detects)
EFH (C21-C30)	58	28	70	50.00	
EFH (C30-C40)	120	50	82	50.00	

Method: 8270D SIM
Matrix: SO

Analyte	Concentration (ug/Kg)		Sample RPD	eQAPP RPD	Flag
	SL-524-NBZ-SB-0.0-0.5	SL-824-NBZ-SB-0.0-0.5			
2-METHYLNAPHTHALENE	0.87	1.4	47	50.00	No Qualifiers Applied
NAPHTHALENE	1.7	2.3	30	50.00	
PHENANTHRENE	2.1	3.3	44	50.00	
1-METHYLNAPHTHALENE	1.7 U	1.2	200	50.00	J(all detects) UJ(all non-detects)
ANTHRACENE	1.7 U	0.37	200	50.00	
BENZO(A)ANTHRACENE	1.7 U	1.7	200	50.00	
BENZO(A)PYRENE	1.7 U	2.2	200	50.00	
BENZO(B)FLUORANTHENE	2.0	5.7	96	50.00	
BENZO(G,H,I)PERYLENE	1.7 U	1.6	200	50.00	
BENZO(K)FLUORANTHENE	1.7 U	1.7	200	50.00	
BIS(2-ETHYLHEXYL)PHTHALATE	19 U	31	200	50.00	
Butylbenzylphthalate	19 U	12	200	50.00	
CHRYSENE	2.4	5.4	77	50.00	
FLUORANTHENE	1.3	4.1	104	50.00	
FLUORENE	1.7 U	0.97	200	50.00	
INDENO(1,2,3-CD)PYRENE	1.7 U	1.1	200	50.00	
PYRENE	1.4	4.7	108	50.00	

Reporting Limit Outliers

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 1613B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-NBZ-SB-0.0-0.5	1,2,3,4,6,7,8-HPCDD	JB	1.52	5.15	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JB	0.411	5.15	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0540	5.15	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.156	5.15	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDD	J	0.144	5.15	PQL	ng/Kg	
	1,2,3,6,7,8-HXCDF	JB	0.101	5.15	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JQ	0.140	5.15	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JB	0.129	5.15	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.231	5.15	PQL	ng/Kg	
	2,3,4,6,7,8-HXCDF	J	0.153	5.15	PQL	ng/Kg	
	2,3,4,7,8-PECDF	JQ	0.300	5.15	PQL	ng/Kg	
	2,3,7,8-TCDF	JQ	0.115	1.03	PQL	ng/Kg	
	OCDF	JB	0.775	10.3	PQL	ng/Kg	
SL-516-NBZ-SB-4.0-5.0	1,2,3,4,6,7,8-HPCDD	JBQ	0.0566	5.10	PQL	ng/Kg	J (all detects)
	1,2,3,4,6,7,8-HPCDF	JBQ	0.0309	5.10	PQL	ng/Kg	
	1,2,3,4,7,8,9-HPCDF	JBQ	0.0275	5.10	PQL	ng/Kg	
	1,2,3,4,7,8-HXCDF	JBQ	0.0296	5.10	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDD	JQ	0.0337	5.10	PQL	ng/Kg	
	1,2,3,7,8,9-HXCDF	JBQ	0.0225	5.10	PQL	ng/Kg	
	1,2,3,7,8-PECDD	JBQ	0.0392	5.10	PQL	ng/Kg	
	1,2,3,7,8-PECDF	JBQ	0.0646	5.10	PQL	ng/Kg	
	OCDD	JB	0.285	10.2	PQL	ng/Kg	
	OCDF	JBQ	0.118	10.2	PQL	ng/Kg	

Method: 300.0

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-522-NBZ-SB-2.5-3.5	Nitrate-NO3	J	0.61	0.79	PQL	mg/Kg	J (all detects)
SL-524-NBZ-SB-0.0-0.5	Nitrate-NO3	J	0.70	0.78	PQL	mg/Kg	J (all detects)

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-NBZ-SB-0.0-0.5	BERYLLIUM	J	0.658	1.04	PQL	mg/Kg	J (all detects)
	BORON	J	2.00	10.4	PQL	mg/Kg	
	CADMIUM	J	0.430	1.04	PQL	mg/Kg	
	SODIUM	J	71.7	104	PQL	mg/Kg	
	TIN	J	3.17	10.4	PQL	mg/Kg	
	Zirconium	J	2.35	5.19	PQL	mg/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 6010C

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-NBZ-SB-4.0-5.0	ARSENIC	J	2.81	4.13	PQL	mg/Kg	J (all detects)
	BERYLLIUM	J	0.577	1.03	PQL	mg/Kg	
	BORON	J	1.24	10.3	PQL	mg/Kg	
	CADMIUM	J	0.303	1.03	PQL	mg/Kg	
	COPPER	J	1.31	2.06	PQL	mg/Kg	
	SODIUM	J	58.9	103	PQL	mg/Kg	
	TIN	J	2.93	10.3	PQL	mg/Kg	
	Zirconium	J	3.65	5.16	PQL	mg/Kg	

Method: 6020A

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-NBZ-SB-0.0-0.5	SELENIUM	J	0.184	0.415	PQL	mg/Kg	J (all detects)
	SILVER	J	0.0598	0.207	PQL	mg/Kg	

Method: 7471B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-NBZ-SB-0.0-0.5	MERCURY	J	0.0162	0.0176	PQL	mg/Kg	J (all detects)

Method: 8015M

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-522-NBZ-SB-0.0-0.5	EFH (C15-C20)	J	2.7	5.2	PQL	mg/Kg	J (all detects)
SL-523-NBZ-SB-0.0-0.5	EFH (C15-C20)	J	3.3	5.2	PQL	mg/Kg	J (all detects)
SL-524-NBZ-SB-0.0-0.5	EFH (C15-C20)	J	8.4	10	PQL	mg/Kg	J (all detects)
SL-824-NBZ-SB-0.0-0.5	EFH (C15-C20)	J	2.2	5.2	PQL	mg/Kg	J (all detects)

Method: 8081B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-514-NBZ-SB-0.0-0.5	4,4'-DDE	J	0.85	1.8	PQL	ug/Kg	J (all detects)
	4,4'-DDT	J	0.61	1.8	PQL	ug/Kg	
	ENDOSULFAN I	J	0.42	0.90	PQL	ug/Kg	
	ENDRIN ALDEHYDE	J	0.50	1.8	PQL	ug/Kg	

Reporting Limit Outliers

Lab Reporting Batch ID: PH142 **Laboratory: LL**

EDD Filename: PH142 **eQAPP Name: CDM_SSFL_140113_Lan**

Method: 8081B

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-515-NBZ-SB-0.0-0.5	4,4'-DDE	J	1.0	1.9	PQL	ug/Kg	J (all detects)
	4,4'-DDT	J	1.2	1.9	PQL	ug/Kg	

Method: 8270D SIM

Matrix: SO

SampleID	Analyte	Lab Qual	Result	Reporting Limit	RL Type	Units	Flag
SL-516-NBZ-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.8	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.1	1.8	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.1	1.8	PQL	ug/Kg	
	BENZO(A)PYRENE	J	1.2	1.8	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.0	1.8	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	1.0	1.8	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.82	1.8	PQL	ug/Kg	
	PHENANTHRENE	J	1.7	1.8	PQL	ug/Kg	
SL-516-NBZ-SB-4.0-5.0	NAPHTHALENE	J	1.4	1.7	PQL	ug/Kg	J (all detects)
SL-522-NBZ-SB-0.0-0.5	BENZO(G,H,I)PERYLENE	J	0.93	1.7	PQL	ug/Kg	J (all detects)
	FLUORANTHENE	J	1.3	1.7	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.77	1.7	PQL	ug/Kg	
	NAPHTHALENE	J	0.78	1.7	PQL	ug/Kg	
	PHENANTHRENE	J	1.1	1.7	PQL	ug/Kg	
	PYRENE	J	1.4	1.7	PQL	ug/Kg	
SL-523-NBZ-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.1	1.7	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.6	1.7	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.0	1.7	PQL	ug/Kg	
	BENZO(A)PYRENE	J	1.4	1.7	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.1	1.7	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	0.87	1.7	PQL	ug/Kg	
	Butylbenzylphthalate	J	7.6	19	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	0.79	1.7	PQL	ug/Kg	
SL-524-NBZ-SB-0.0-0.5	2-METHYLNAPHTHALENE	J	0.87	1.7	PQL	ug/Kg	J (all detects)
	FLUORANTHENE	J	1.3	1.7	PQL	ug/Kg	
	PYRENE	J	1.4	1.7	PQL	ug/Kg	
SL-824-NBZ-SB-0.0-0.5	1-METHYLNAPHTHALENE	J	1.2	1.8	PQL	ug/Kg	J (all detects)
	2-METHYLNAPHTHALENE	J	1.4	1.8	PQL	ug/Kg	
	ANTHRACENE	J	0.37	1.8	PQL	ug/Kg	
	BENZO(A)ANTHRACENE	J	1.7	1.8	PQL	ug/Kg	
	BENZO(G,H,I)PERYLENE	J	1.6	1.8	PQL	ug/Kg	
	BENZO(K)FLUORANTHENE	J	1.7	1.8	PQL	ug/Kg	
	Butylbenzylphthalate	J	12	19	PQL	ug/Kg	
	FLUORENE	J	0.97	1.8	PQL	ug/Kg	
	INDENO(1,2,3-CD)PYRENE	J	1.1	1.8	PQL	ug/Kg	

Enclosure II

EPA Level IV Data Validation Reports

Laboratory Data Consultants, Inc.
Data Validation Report

Project/Site Name:	Santa Susana Field Laboratory
Collection Date:	December 9, 2013
LDC Report Date:	February 19, 2014
Matrix:	Soil
Parameters:	Semivolatiles
Validation Level:	Level IV
Laboratory:	Eurofins Lancaster Laboratories
Sample Delivery Group (SDG):	PH142

Sample Identification

SL-516-NBZ-SB-0.0-0.5
SL-516-NBZ-SB-4.0-5.0
SL-522-NBZ-SB-0.0-0.5
SL-523-NBZ-SB-0.0-0.5
SL-524-NBZ-SB-0.0-0.5
SL-824-NBZ-SB-0.0-0.5
SL-522-NBZ-SB-2.5-3.5
SL-524-NBZ-SB-0.0-0.5MS
SL-524-NBZ-SB-0.0-0.5MSD

Introduction

This data review covers 9 soil samples listed on the cover sheet including dilutions and reanalysis as applicable. The analyses were per EPA SW 846 Method 8270D using Selected Ion Monitoring (SIM) for Semivolatiles.

This review follows the Quality Assurance Project Plan for Santa Susana Field Laboratory (SSFL), RCRA Facility Investigation, Surficial Media Operable Unit (March 2009, Revision 4) and a modified outline of the USEPA Contract Laboratory Program National Functional Guidelines for Superfund Organic Methods Data Review (June 2008).

A qualification summary table is provided at the end of this report if data has been qualified. Flags are classified as P (protocol) or A (advisory) to indicate whether the flag is due to a laboratory deviation from a specified protocol or is of technical advisory nature.

The following are definitions of the data qualifiers:

U Indicates the compound or analyte was analyzed for but not detected at or above the stated limit.

J Indicates an estimated value.

R Quality control indicates the data is not usable.

NJ Presumptive evidence of presence of the compound at an estimated quantity.

UJ Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value.

A Indicates the finding is based upon technical validation criteria.

P Indicates the finding is related to a protocol/contractual deviation.

None Indicates the data was not significantly impacted by the finding, therefore qualification was not required.

I. Technical Holding Times

All technical holding time requirements were met.

The chain-of-custodies were reviewed for documentation of cooler temperatures. All cooler temperatures met validation criteria.

II. GC/MS Instrument Performance Check

Instrument performance was checked at 12 hour intervals. All ion abundance requirements were met.

III. Initial Calibration

Initial calibration was performed using required standard.

Percent relative standard deviations (%RSD) were less than or equal to 30.0% for all compounds.

Average relative response factors (RRF) for all compounds were within method and validation criteria.

IV. Continuing Calibration

Continuing calibration was performed at the required frequencies.

Percent differences (%D) between the initial calibration RRF and the continuing calibration RRF were within the method criteria of less than or equal to 20.0% for calibration check compounds (CCCs) and 25.0% for all other compounds.

The percent differences (%D) of the second source calibration standard were less than or equal to 25.0% for all compounds.

All of the continuing calibration relative response factors (RRF) were within method and validation criteria.

V. Blanks

Method blanks were reviewed for each matrix as applicable. No semivolatile contaminants were found in the method.

Samples EB1-121113, and EB2-121113 (both from SDG PH146) were identified as equipment blanks. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
EB1-121113	12/11/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate	0.13 ug/L 0.15 ug/L 2.2 ug/L	SL-516-NBZ-SB-0.0-0.5 SL-516-NBZ-SB-4.0-5.0
EB2-121113	12/11/13	Di-n-butylphthalate Diethylphthalate Bis(2-ethylhexyl)phthalate Fluoranthene Pyrene	0.13 ug/L 0.16 ug/L 0.42 ug/L 0.012 ug/L 0.049 ug/L	SL-522-NBZ-SB-0.0-0.5 SL-523-NBZ-SB-0.0-0.5 SL-524-NBZ-SB-0.0-0.5 SL-824-NBZ-SB-0.0-0.5 SL-522-NBZ-SB-2.5-3.5

Sample FB-041613 (from SDG PH032) was identified as a field blank. No semivolatile contaminants were found with the following exceptions:

Blank ID	Sampling Date	Compound	Concentration	Associated Samples
FB-041613	4/16/13	Di-n-butylphthalate Bis(2-ethylhexyl)phthalate 2-Methylnaphthalene	0.11 ug/L 0.25 ug/L 0.012 ug/L	All samples in SDG PH142

Sample concentrations were compared to concentrations detected in the field blanks. The sample concentrations were either not detected or were significantly greater (>5X blank contaminants) than the concentrations found in the associated field blanks.

VI. Surrogate Spikes

Surrogates were added to all samples and blanks as required by the method. All surrogate recoveries (%R) were within QC limits.

VII. Matrix Spike/Matrix Spike Duplicates

Matrix spike (MS) and matrix spike duplicate (MSD) samples were reviewed for each matrix as applicable. Percent recoveries (%R) and relative percent differences (RPD) were within QC limits with the following exceptions:

Spike ID (Associated Samples)	Compound	MS (%R) (Limits)	MSD (%R) (Limits)	RPD (Limits)	Flag	A or P
SL-524-NBZ-SB-0.0-0.5MS/MSD (SL-524-NBZ-SB-0.0-0.5)	Di-n-octylphthalate	-	171 (52-162)	-	J (all detects)	A

VIII. Laboratory Control Samples (LCS)

Laboratory control samples were reviewed for each matrix as applicable. Percent recoveries (%R) were within QC limits.

IX. Regional Quality Assurance and Quality Control

Not applicable.

X. Internal Standards

All internal standard areas and retention times were within QC limits.

XI. Target Compound Identifications

All target compound identifications were within validation criteria.

XII. Compound Quantitation

All compound quantitation were within validation criteria.

All compounds reported below the RL were qualified as follows:

Sample	Finding	Flag	A or P
All samples in SDG PH142	All compounds reported below the RL.	J (all detects)	A

XIII. Tentatively Identified Compounds (TICs)

Tentatively identified compounds were not reported by the laboratory.

XIV. System Performance

The system performance was acceptable.

XV. Overall Assessment of Data

Data flags are summarized at the end of this report if data has been qualified.

XVI. Field Duplicates

Samples SL-524-NBZ-SB-0.0-0.5 and SL-824-NBZ-SB-0.0-0.5 were identified as field duplicates. No semivolatiles were detected in any of the samples with the following exceptions:

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	SL-524-NBZ-SB-0.0-0.5	SL-824-NBZ-SB-0.0-0.5			
Anthracene	1.7U	0.37	200 (≤50)	J (all detects) UJ (all non-detects)	A

Compound	Concentration (ug/Kg)		RPD (Limits)	Flag	A or P
	SL-524-NBZ-SB-0.0-0.5	SL-824-NBZ-SB-0.0-0.5			
Benzo(a)anthracene	1.7U	1.7	200 (≤50)	J (all detects) UJ (all non-detects)	A
Benzo(a)pyrene	1.7U	2.2	200 (≤50)	J (all detects) UJ (all non-detects)	A
Benzo(b)fluoranthene	2.0	5.7	96 (≤50)	J (all detects)	A
Benzo(g,h,i)perylene	1.7U	1.6	200 (≤50)	J (all detects) UJ (all non-detects)	A
Benzo(k)fluoranthene	1.7U	1.7	200 (≤50)	J (all detects) UJ (all non-detects)	A
Butylbenzylphthalate	19U	12	200 (≤50)	J (all detects) UJ (all non-detects)	A
Chrysene	2.4	5.4	77 (≤50)	J (all detects)	A
Bis(2-ethylhexyl)phthalate	19U	31	200 (≤50)	J (all detects) UJ (all non-detects)	A
Fluoranthene	1.3	4.1	104 (≤50)	J (all detects)	A
Fluorene	1.7U	0.97	200 (≤50)	J (all detects) UJ (all non-detects)	A
Indeno(1,2,3-cd)pyrene	1.7U	1.1	200 (≤50)	J (all detects) UJ (all non-detects)	A
1-Methylnaphthalene	1.7U	1.2	200 (≤50)	J (all detects) UJ (all non-detects)	A
2-Methylnaphthalene	0.87	1.4	47 (≤50)	-	-
Naphthalene	1.7	2.3	30 (≤50)	-	-
Phenanthrene	2.1	3.3	44 (≤50)	-	-
Pyrene	1.4	4.7	108 (≤50)	J (all detects)	A

Santa Susana Field Laboratory
Semivolatiles - Data Qualification Summary - SDG PH142

SDG	Sample	Compound	Flag	A or P	Reason (Code)
PH142	SL-524-NBZ-SB-0.0-0.5	Di-n-octylphthalate	J (all detects)	A	Matrix spike/Matrix spike duplicate (%R) (Q)
PH142	SL-524-NBZ-SB-0.0-0.5 SL-824-NBZ-SB-0.0-0.5	Anthracene Benzo(a)anthracene Benzo(a)pyrene Benzo(g,h,i)perylene Benzo(k)fluoranthene Butylbenzylphthalate Bis(2-ethylhexyl)phthalate Fluorene Indeno(1,2,3-cd)pyrene 1-Methylnaphthalene	J (all detects) UJ (all non-detects)	A	Field duplicates (RPD) (FD)
PH142	SL-524-NBZ-SB-0.0-0.5 SL-824-NBZ-SB-0.0-0.5	Pyrene Chrysene Fluoranthene Benzo(b)fluoranthene	J (all detects) J (all detects) J (all detects) J (all detects)	A	Field duplicates (RPD) (FD)
PH142	SL-516-NBZ-SB-0.0-0.5 SL-516-NBZ-SB-4.0-5.0 SL-522-NBZ-SB-0.0-0.5 SL-523-NBZ-SB-0.0-0.5 SL-524-NBZ-SB-0.0-0.5 SL-824-NBZ-SB-0.0-0.5 SL-522-NBZ-SB-2.5-3.5	All compounds reported below the RL.	J (all detects)	A	Compound quantitation (Z)

Santa Susana Field Laboratory
Semivolatiles - Laboratory Blank Data Qualification Summary - SDG PH142

No Sample Data Qualified in this SDG

Santa Susana Field Laboratory
Semivolatiles - Field Blank Data Qualification Summary - SDG PH142

No Sample Data Qualified in this SDG

LDC #: 31254A2b **VALIDATION COMPLETENESS WORKSHEET** Date: 2/13/14

SDG #: PH142 Level IV Page: 1 of 1

Laboratory: Eurofins Lancaster Laboratories Reviewer: BR

2nd Reviewer: Sm

METHOD: GC/MS ~~Polynuclear Aromatic Hydrocarbons~~ SVOCs (EPA SW 846 Method 8270~~C~~D-SIM)

The samples listed below were reviewed for each of the following validation areas. Validation findings are noted in attached validation findings worksheets.

	Validation Area		Comments
I.	Technical holding times	A	Sampling dates: 12/9/13
II.	GC/MS Instrument performance check	A	
III.	Initial calibration	A	RSD ≤ 30%
IV.	Continuing calibration/ICV	A	|CV| ≤ 25%
V.	Blanks	A	
VI.	Surrogate spikes	A	
VII.	Matrix spike/Matrix spike duplicates	SW	
VIII.	Laboratory control samples	A	LCS ≠ 100
IX.	Regional Quality Assurance and Quality Control	N	
X.	Internal standards	A	
XI.	Target compound identification	A	
XII.	Compound quantitation/RL/LOQ/LODs	A	
XIII.	Tentatively identified compounds (TICs)	N	
XIV.	System performance	A	
XV.	Overall assessment of data	A	
XVI.	Field duplicates	SW	FD = 5 + 6
XVII.	Field blanks	SW	FB = FB-041613 (SDG # PH032) EB = EB1-121113, EB2-121113 (SDG # PH146)

Note: A = Acceptable; N = Not provided/applicable; SW = See worksheet; ND = No compounds detected; R = Rinsate; FB = Field blank; D = Duplicate; TB = Trip blank; EB = Equipment blank

Validated Samples: Soil

1	SL-516-NBZ-SB-0.0-0.5	11		21		31	SBLKG348
2	SL-516-NBZ-SB-4.0-5.0	12		22		32	
3	SL-522-NBZ-SB-0.0-0.5	13		23		33	
4	SL-523-NBZ-SB-0.0-0.5	14		24		34	
5	SL-524-NBZ-SB-0.0-0.5	15		25		35	
6	SL-824-NBZ-SB-0.0-0.5	16		26		36	
7	SL-522-NBZ-SB-2.5-3.5	17		27		37	
8	SL-524-NBZ-SB-0.0-0.5MS	18		28		38	
9	SL-524-NBZ-SB-0.0-0.5MSD	19		29		39	
10		20		30		40	

LDC #: 31254A26

VALIDATION FINDINGS CHECKLIST

Reviewer: KX
2nd Reviewer: SM

Method: Semivolatiles (EPA SW 846 Method 8270D)

Validation Area	Yes	No	NA	Findings/Comments
I. Technical holding times				
All technical holding times were met.	✓			
Cooler temperature criteria was met.	✓			
II. GC/MS Instrument performance check				
Were the DFTPP performance results reviewed and found to be within the specified criteria?	✓			
Were all samples analyzed within the 12 hour clock criteria?	✓			
III. Initial calibration				
Did the laboratory perform a 5 point calibration prior to sample analysis?	✓			
Were all percent relative standard deviations (%RSD) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Was a curve fit used for evaluation?		✓		
Did the initial calibration meet the curve fit acceptance criteria of ≥ 0.990?			✓	
Were all percent relative standard deviations (%RSD) ≤ 30% and relative response factors (RRF) ≥ 0.05?	✓			
IV. Continuing calibration				
Was a continuing calibration standard analyzed at least once every 12 hours for each instrument?	✓			
Were all percent differences (%D) and relative response factors (RRF) within method criteria for all CCCs and SPCCs?	✓			
Were all percent differences (%D) ≤ 25% and relative response factors (RRF) ≥ 0.05?	✓			
V. Blanks				
Was a method blank associated with every sample in this SDG?	✓			
Was a method blank analyzed for each matrix and concentration?	✓			
Was there contamination in the method blanks? If yes, please see the Blanks validation completeness worksheet.		✓		
VI. Surrogate spikes				
Were all surrogate %R within QC limits?	✓			
If 2 or more base neutral or acid surrogates were outside QC limits, was a reanalysis performed to confirm %R?			✓	
If any %R was less than 10 percent, was a reanalysis performed to confirm %R?			✓	
VII. Matrix spike/Matrix spike duplicates				
Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.	✓			
Was a MS/MSD analyzed every 20 samples of each matrix?	✓			
Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?		✓		
VIII. Laboratory control samples				
Was an LCS analyzed for this SDG?	✓			

LDC #: 31254A26

VALIDATION FINDINGS CHECKLIST

Reviewer: BK
2nd Reviewer: SM

Validation Area	Yes	No	NA	Findings/Comments
Was an LCS analyzed per extraction batch?	✓			
Were the LCS percent recoveries (%R) and relative percent difference (RPD) within the QC limits?	✓			
IX. Regional Quality Assurance and Quality Control				
Were performance evaluation (PE) samples performed?		✓		
Were the performance evaluation (PE) samples within the acceptance limits?			✓	
X. Internal standards				
Were internal standard area counts within -50% or +100% of the associated calibration standard?	✓			
Were retention times within ± 30 seconds from the associated calibration standard?	✓			
XI. Target compound identification				
Were relative retention times (RRT's) within ± 0.06 RRT units of the standard?	✓			
Did compound spectra meet specified EPA "Functional Guidelines" criteria?	✓			
Were chromatogram peaks verified and accounted for?	✓			
XII. Compound quantitation/RLs				
Were the correct internal standard (IS), quantitation ion and relative response factor (RRF) used to quantitate the compound?	✓			
Were compound quantitation and RLs adjusted to reflect all sample dilutions and dry weight factors applicable to level IV validation?	✓			
XIII. Tentatively identified compounds (TICs)				
Were the major ions (> 10 percent relative intensity) in the reference spectrum evaluated in sample spectrum?			✓	
Were relative intensities of the major ions within ± 20% between the sample and the reference spectra?			✓	
Did the raw data indicate that the laboratory performed a library search for all required peaks in the chromatograms (samples and blanks)?		✓		
XIV. System performance				
System performance was found to be acceptable.	✓			
XV. Overall assessment of data				
Overall assessment of data was found to be acceptable.	✓			
XVI. Field duplicates				
Field duplicate pairs were identified in this SDG.	✓			
Target compounds were detected in the field duplicates.	✓			
XVII. Field blanks				
Field blanks were identified in this SDG.	✓			
Target compounds were detected in the field blanks.	✓			

VALIDATION FINDINGS WORKSHEET

METHOD: GC/MS SVOA

A. Phenol	T. 4-Chloroaniline	MM. 4-Chlorophenyl-phenyl ether	FFF. Di-n-octylphthalate	YYY. 2,3,5-Trimethylnaphthalene
B. Bis (2-chloroethyl) ether	U. Hexachlorobutadiene	NN. Fluorene	GGG. Benzo(b)fluoranthene	ZZZ. Perylene
C. 2-Chlorophenol	V. 4-Chloro-3-methylphenol	OO. 4-Nitroaniline	HHH. Benzo(k)fluoranthene	AAAA. Dibenzothiophene
D. 1,3-Dichlorobenzene	W. 2-Methylnaphthalene	PP. 4,6-Dinitro-2-methylphenol	III. Benzo(a)pyrene	BBBB. Benzo(a)fluoranthene
E. 1,4-Dichlorobenzene	X. Hexachlorocyclopentadiene	QQ. N-Nitrosodiphenylamine	JJJ. Indeno(1,2,3-cd)pyrene	CCCC. Benzo(b)fluorene
F. 1,2-Dichlorobenzene	Y. 2,4,6-Trichlorophenol	RR. 4-Bromophenyl-phenylether	KKK. Dibenz(a,h)anthracene	DDDD. cis/trans-Decalin
G. 2-Methylphenol	Z. 2,4,5-Trichlorophenol	SS. Hexachlorobenzene	LLL. Benzo(g,h,i)perylene	EEEE. Biphenyl
H. 2,2'-Oxybis(1-chloropropane)	AA. 2-Chloronaphthalene	TT. Pentachlorophenol	MMM. Bis(2-Chloroisopropyl)ether	FFFF. Retene
I. 4-Methylphenol	BB. 2-Nitroaniline	UU. Phenanthrene	NNN. Aniline	GGGG. C30-Hopane
J. N-Nitroso-di-n-propylamine	CC. Dimethylphthalate	VV. Anthracene	OOO. N-Nitrosodimethylamine	HHHH. 1-Methylphenanthrene
K. Hexachloroethane	DD. Acenaphthylene	WW. Carbazole	PPP. Benzoic Acid	IIII. 1,4-Dioxane
L. Nitrobenzene	EE. 2,6-Dinitrotoluene	XX. Di-n-butylphthalate	QQQ. Benzyl alcohol	JJJJ. Acetophenone
M. Isophorone	FF. 3-Nitroaniline	YY. Fluoranthene	RRR. Pyridine	KKKK. Atrazine
N. 2-Nitrophenol	GG. Acenaphthene	ZZ. Pyrene	SSS. Benzidine	LLLL. Benzaldehyde
O. 2,4-Dimethylphenol	HH. 2,4-Dinitrophenol	AAA. Butylbenzylphthalate	TTT. 1-Methylnaphthalene	MMMM. Caprolactam
P. Bis(2-chloroethoxy)methane	II. 4-Nitrophenol	BBB. 3,3'-Dichlorobenzidine	UUU.Benzo(b)thiophene	NNNN.
Q. 2,4-Dichlorophenol	JJ. Dibenzofuran	CCC. Benzo(a)anthracene	VVV.Benzonaphthothiophene	OOOO.
R. 1,2,4-Trichlorobenzene	KK. 2,4-Dinitrotoluene	DDD. Chrysene	WWW.Benzo(e)pyrene	PPPP.
S. Naphthalene	LL. Diethylphthalate	EEE. Bis(2-ethylhexyl)phthalate	XXX. 2,6-Dimethylnaphthalene	QQQQ.

LDC #: 31254A26

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: BX
2nd Reviewer: M

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

FB = FB - ~~06~~ 041613 (SDG # PH032) Code: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 4/16/13
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: All (ND + 75x)

Compound	Blank ID	Sample Identification								
	FB	5X/10X								
XX	0.11	1.1								
EEE	0.25 ~~7.0~~	~~10~~ 2.5								
W	0.012	0.06								

EB1 = EB1-121113 (SDG # PH146) Code: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 12/11/13
Field blank type: (circle one) Field Blank / Rinsate / Other: _____ Associated Samples: 1-2 (ND)

Compound	Blank ID	Sample Identification								
	EB1	10X								
XX	0.13	1.3								
LL	0.15	1.5								
EEE	2.2	22								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31254A2b

VALIDATION FINDINGS WORKSHEET
Field Blanks

Reviewer: BK
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Y N N/A Were field blanks identified in this SDG?
Y N N/A Were target compounds detected in the field blanks?

EB2 = EB2-121113
(SDG# PH146)

Lab: F

Blank units: ug/L **Associated sample units:** ug/kg
Sampling date: 12/11/13
Field blank type: (circle one) Field Blank / Rinsate / Other:_____ Associated Samples: 3-7 (ND + >5x)

Compound	Blank ID	Sample Identification								
	EB2	10x								
XX	0.13	1.3								
LL	0.16	1.6								
EEE	0.42	4.2								
YY	0.012	0.06								
ZZ	0.049	0.245								

Blank units:_____ **Associated sample units:**_____
Sampling date:_____
Field blank type: (circle one) Field Blank / Rinsate / Other:_____ Associated Samples:_____

Compound	Blank ID	Sample Identification								

CIRCLED RESULTS WERE NOT QUALIFIED. ALL RESULTS NOT CIRCLED WERE QUALIFIED BY THE FOLLOWING STATEMENT:
Common contaminants such as the phthalates and TICs noted above that were detected in samples within ten times the associated field blank concentration were qualified as not detected, "U". Other contaminants within five times the field blank concentration were also qualified as not detected, "U".

LDC #: 31284A26

VALIDATION FINDINGS WORKSHEET
Matrix Spike/Matrix Spike Duplicates

Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC/MS BNA (EPA SW 846 Method 8270D)
Please see qualifications below for all questions answered "N". Not applicable questions are identified as "N/A".

Y N N/A Were a matrix spike (MS) and matrix spike duplicate (MSD) analyzed for each matrix in this SDG? If no, indicate which matrix does not have an associated MS/MSD. Soil / Water.

Y N N/A Was a MS/MSD analyzed every 20 samples of each matrix?

Y N N/A Were the MS/MSD percent recoveries (%R) and the relative percent differences (RPD) within the QC limits?

#	Date	MS/MSD ID	Compound	MS %R (Limits)	MSD %R (Limits)	RPD (Limits)	Associated Samples	Code: Q Qualifications
		8/9	FFF	( )	171 (52-162)	( )	5	J det/a
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
				( )	( )	( )		
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				( )	( )	( )		
				( )	( )	( )		

VALIDATION FINDINGS WORKSHEET
Field Duplicates

Reviewer: BR
2nd Reviewer: Sm

Method: GC/MS SVOCs (EPA Method 8270D-SIM)

Analyte	Concentration (µg/kg)		RPD (≤50%)	Qualifiers (Parents Only) Code: FD
	5	6		
VV	1.7U	0.37	200	J/UJ/A
CCC	1.7U	1.7	200	J/UJ/A
III	1.7U	2.2	200	J/UJ/A
GGG	2.0	5.7	96	J DET/A
LLL	1.7U	1.6	200	J/UJ/A
HHH	1.7U	1.7	200	J/UJ/A
AAA	19U	12	200	J/UJ/A
DDD	2.4	5.4	77	J DET/A
EEE	19U	31	200	J/UJ/A
YY	1.3	4.1	104	J DET/A
NN	1.7U	0.97	200	J/UJ/A
JJJ	1.7U	1.1	200	J/UJ/A
TTT	1.7U	1.2	200	J/UJ/A
W	0.87	1.4	47	
S	1.7	2.3	30	
UU	2.1	3.3	44	
ZZ	1.4	4.7	108	J DET/A

LDC #: 31254A2b

VALIDATION FINDINGS WORKSHEET
Initial Calibration Calculation Verification

Reviewer BR
2nd Reviewer SM

METHOD: GC/MS SVOA (EPA SW 846 Method 8270DSIM)

The Relative Response Factor (RRF), average RRF, and percent relative standard deviation (%RSD) were recalculated for the compounds identified below using the following calculations:

$RRF = (A_x)(C_{is})/(A_{is})(C_x)$ — A_x = Area of Compound — A_{is} = Area of associated internal standard

average RRF = sum of the RRFs/number of standards — C_x = Concentration of compound, — C_{is} = Concentration of internal standard

%RSD = 100 * (S/X) — S= Standard deviation of the RRFs, — X = Mean of the RRFs

#	Standard ID	Calibration Date	Compound (IS)	Reported RRF (1 std)	Recalculated RRF (1 std)	Reported Average RRF (Initial)	Recalculated Average RRF (Initial)	Reported %RSD	Recalculated %RSD
1	HP10976	12/3/2013	N-Nitrosodimethylamine (IS1)	1.188	1.188	1.169	1.169	3	3
			Naphthalene (IS2)	1.027	1.027	1.024	1.025	2	2
			Fluorene (IS3)	1.265	1.265	1.259	1.258	2	2
			Anthracene (IS4)	1.080	1.080	1.080	1.080	4	4
			Chrysene (IS5)	1.113	1.113	1.100	1.100	1	1
			Benzo(a)pyrene (IS6)	1.129	1.129	1.106	1.106	3	3

Comments: Refer to Initial Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.

LDC# 31254A2b

VALIDATION FINDINGS WORSHEET
Continuing Calibration Results Verification

Reviewer: BR
2nd Reviewer: [illegible]

METHOD: GC/MS SVOA (EPA SW 846 Method 8270DSIM)

The percent difference (%D) of the initial calibration average Relative Response Factors (RRFs) and the continuing calibration RRFs were recalculated for the compounds identified below using the following calculation:

% Difference = 100 * (ave. RRF - RRF)/ave. RRF
RRF = (Ax)(Cis)/(Ais)(Cx)

Where:
ave. RRF = initial calibration average RRF
RRF = continuing calibration RRF
Ax = Area of compound
Cx = Concentration of compound
Ais = Area of associated internal standard
Cis = Concentration of internal standard

#	Standard ID	Calibration Date	Compound (IS)	Average RRF (Initial RRF)	Reported (CC RRF)	Recalculated (CC RRF)	Reported %D	Recalculated %D
1	IL0711	12/27/13	N-Nitrosodimethylamine (IS1)	1.169	1.191	1.191	2	2
			Naphthalene (IS2)	1.024	1.034	1.034	1	1
			Fluorene (IS3)	1.259	1.274	1.274	1	1
			Anthracene (IS4)	1.080	1.089	1.089	1	1
			Chrysene (IS5)	1.100	1.228	1.228	12	12
			Benzo(a)pyrene (IS6)	1.106	1.184	1.184	7	7

Comments: Refer to Continuing Calibration findings worksheet for list of qualifications and associated samples when reported results do not agree within 10.0% of the recalculated results.