



ANALYTICAL REPORT

Environmental Response Team/Scientific Engineering, Response and Analytical Services
2890 Woodbridge Avenue, Building 209 Annex
Edison NJ 08837
Prepared by
Lockheed Martin Information Systems and Global Services/Environmental Services
Scientific, Engineering, Response and Analytical Services

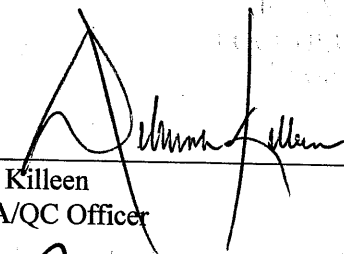
Diamond Alkali – Dioxin Investigation
Newark, New Jersey

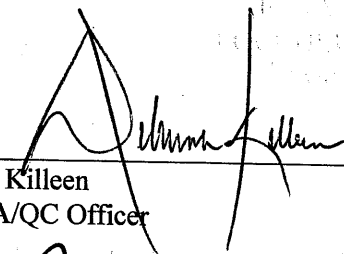
February 2016

EPA Work Assignment No. SERAS-222
LOCKHEED MARTIN Work Order SER00222
EPA Contract No. EP-W-09-031

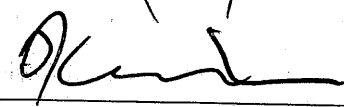
Submitted to
S. Blaze
EPA-ERT

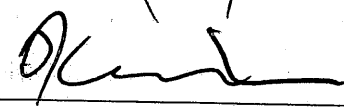
2890 Woodbridge Avenue
Edison, NJ 08837


D. Killeen
QA/QC Officer


Date

2/3/16


K. Taylor
Program Manager


Date

2/3/16

Analysis by:
Vista Analytical

Prepared/Validated by:
Y. Mehra/ R. Varsolona
J. Soroka (Dycon)



Table of Contents

Topic

Testing Laboratories Information
Detailed Sample Information
Introduction
Case Narrative
Summary of Abbreviations

Section I

Results of the Analysis of Dioxins/Furans in Soil	Table 1.1
Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil	Table 1.2
Results of the Analysis of PCB Congeners in Soil	Table 1.3
Results of the Analysis of Hexachloroxanthene in Soil	Table 1.4
Results of the Analysis of Hexachlorophene in Soil	Table 1.5
Results of the Analysis of Tetrachlorodibenzothiophene in Soil	Table 1.6

Section II

Results of the LCS Analysis of Dioxins/Furans in Soil	Table 2.1
Results of the MS/MSD Analysis of Dioxins/Furans in Soil	Table 2.2
Results of the Labeled Standard Recoveries for Dioxins/Furans in Soil	Table 2.3
Results of the LCS Analysis of PCB Congeners in Soil	Table 2.4
Results of the MS/MSD Analysis of PCB Congeners in Soil	Table 2.5
Results of the Internal Standard and Cleanup Recovery Standards Recoveries for PCB Congeners in Soil	Table 2.6
Results of the LCS Analysis of Hexachloroxanthene in Soil	Table 2.7
Results of the MS/MSD Analysis of Hexachloroxanthene in Soil	Table 2.8
Results of the Labeled Standard Recoveries for Hexachloroxanthene in Soil	Table 2.9
Results of the LCS Analysis of Hexachlorophene in Soil	Table 2.10
Results of the MS/MSD Analysis of Hexachlorophene in Soil	Table 2.11
Results of the Labeled Standard Recoveries for Hexachlorophene in Soil	Table 2.12
Results of the LCS Analysis of Tetrachlorodibenzothiophene in Soil	Table 2.13
Results of the MS/MSD Analysis of Tetrachlorodibenzothiophene in Soil	Table 2.14
Results of the Labeled Standard Recoveries for Tetrachlorodibenzothiophene in Soil	Table 2.15

Section III

Communications
Chains of Custody



Table of Contents (cont)

Appendices

Appendix A	Data for Dioxin/Furan in Soil	AA 182
Appendix B	Data for PCB Congeners in Soil	AA 152
Appendix C	Data for HCX in Soil	AA 134
Appendix D	Data for TCDD in Soil	AA 149
Appendix E	Data for HCP in Soil	AA 151

Appendices will be furnished on request.



TESTING LABORATORIES INFORMATION

Analysis of Dioxins/Furans in Soil by Vista SOP #26 (Rev. 11), *"Polychlorinated Dibenzo Dioxin/Furans by US EPA Method 1613B"*

Analysis of PCB Congeners in Soil by Vista SOP #31 (Rev. 12), *"Preparation and Analysis of Polychlorinated Biphenyls (PCBs) by Method 1668A/C"*

Analysis of Hexachloroxanthene in Soil by Vista SOP #41 (Rev. 3) *"Extraction and Analysis of Hexachloroxanthene by HRMS"*

Analysis of Hexachlorophene in Soil by Vista SOP #50 (Rev. 4) *"Preparation and Analysis of Aqueous and Solid Matrices for the Determination of Hexachlorophene"*

Analysis of Tetrachlorodibenzothiophene in Soil by Vista SOP #53 (Rev. 1) *"Preparation and Analysis of 2,4,6,8-Tetrachlorodibenzothiophene in Solid Matrices"*

Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills CA 95762

All analyses were performed according to NELAP-approved quality assurance programs. The test results meet the requirements of the current NELAP standards, where applicable, except as noted in the laboratory case narrative provided. Results are intended to be considered in their entirety and apply only to those analyzed and reported herein.

Vista Analytical Laboratory is certified by the New Jersey Department of Environmental Protection, National Environmental Laboratory Accreditation Program (NELAP) Laboratory Certification #CA0003 for dioxin/furans and PCB Congeners. HCX, HCP and TCDD are not NELAP-accredited.



Detailed Sample Information

<u>Vista Laboratory Sample #</u>	<u>Field Sample #</u>
1500767-01	222-0023
1500767-02	222-0024
1500767-03	222-0025
1500767-04	222-0026
1500767-05	222-0028
1500767-06	222-0029
1500767-07	222-0030
1500767-08	222-0031
1500767-09	222-0032
1500767-10	222-0027
1500768-01	222-0023
1500768-02	222-0024
1500768-03	222-0025
1500768-04	222-0026
1500768-05	222-0028
1500768-06	222-0029
1500768-07	222-0030
1500768-08	222-0031
1500768-09	222-0032
1500768-10	222-0027
1500769-01	222-0023
1500769-02	222-0024
1500769-03	222-0025
1500769-04	222-0026
1500769-05	222-0028
1500769-06	222-0029
1500769-07	222-0030
1500769-08	222-0031
1500769-09	222-0032
1500769-10	222-0027
1500770-01	222-0023
1500770-02	222-0024
1500770-03	222-0025
1500770-04	222-0026
1500770-05	222-0028
1500770-06	222-0029
1500770-07	222-0030
1500770-08	222-0031
1500770-09	222-0032
1500770-10	222-0037



Detailed Sample Information (cont)

<u>Vista Laboratory Sample #</u>	<u>Field Sample #</u>
1500771-01	222-0023
1500771-02	222-0024
1500771-03	222-0025
1500771-04	222-0026
1500771-05	222-0028
1500771-06	222-0029
1500771-07	222-0030
1500771-08	222-0031
1500771-09	222-0032
1500771-10	222-0027



Introduction

SERAS personnel, in response to Work Assignment (WA) #SERAS-222, provided analytical support for environmental samples collected from the Diamond Alkali – Dioxin Investigation in Newark, New Jersey as described in the following table. The support also included QA/QC, data review and preparation of an analytical report containing analytical and QA/QC results.

Chain of Custody #	Number of Sample	Sampling Date	Date Received	Date Analyzed	Matrix	Analysis/ Method	Laboratory	Data Package
2-081915-061338-0006	5	08/13/15	08/21/15	09/01/15 through 09/08/15	Soil	HCX/Vista SOP 41 Rev.3	Vista Analytical	AA 134
	5	08/18/15						
2-081915-061338-0006	5	08/13/15		09/04/15 through 09/28/15		Dioxins & Furans/Vista SOP 26 Rev. 11		AA 182
	5	08/18/15						
2-081915-061338-0006	5	08/13/15		09/02/15 through 09/23/15		PCB Congeners/Vista SOP 31 Rev.12		AA 152
	5	08/18/15						
2-081915-061338-0006	5	08/13/15		09/21/15 through 9/24/15		Hexachlorophene/ VISTA SOP 50 Rev. 4		AA 151
	5	08/18/15						
2-081915-061338-0006	5	08/13/15		09/01/15 through 10/08/15		TCDT/ Vista SOP #53 Rev. 1		AA 149
	5	08/18/15						

Case Narrative

Sampling was conducted as per the site-specific Quality Assurance Project Plan (QAPP) and analyzed by the analytical methods as stated in the QAPP. The laboratory reported the data to three significant figures. Any other representation of the data is the responsibility of the user. Data were validated using a Stage 4 validation done manually (S4VM) in accordance with the “Guidance for Labeling Externally Validated Data for Superfund Use.” All data validation flags have been inserted into the results tables.

Dioxin/Furans in Soil Package AA 182

The results of the non-2,3,7,8 dioxin/furan isomers are based on the average response factor (RF) of the homologue for which they are reported. The results of these isomers are estimated (J).

The following co-elutions were observed, 2,3,4,7,8-PeCDF with 1,2,3,6,9 and 1,2,4,6,8-PeCDF; 2,3,4,6,7,8-HxCDF with 1,2,3,6,8,9-HxCDF and 1,2,3,7,8,9-HxCDF with 1,2,3,4,8,9-HxCDF. These co-eluting furans are reported twice, once as a 2,3,7,8 congener and again as a non-2,3,7,8 congener. In both cases, the sample results should be used with caution as it may be biased high.

NOTE: The sub-contracting laboratory chose ions 353.857 and 355.855 instead of the exact m/z listed in the method for the penta- dioxins.



The lock mass drift of the tetra dioxin/furan channels exceed QC criteria for sample 222-0028. The non-2,3,7,8 tetra furan and dioxin results for this sample are qualified estimated (J).

The lock mass drift of the tetra dioxin/furan channels exceed QC criteria for sample 222-0030. The non-2,3,7,8 tetra furan and dioxin results for this sample are qualified estimated (J).

1,2,3,4,6,7,8-HpCDF was above the % recovery criteria for the continuing calibration of 9/5/2015. The 1,2,3,4,6,7,8-HpCDF result for samples 222-0029 and 222-0030 are qualified estimated (J).

PCB Congeners in Soil Package AA 152

The lock mass criteria was not met for the associated congeners in the following samples. Results for these congeners are qualified estimated (J).

Sample	Lock mass drift out for congener(s)	Associated congeners
222-0024	PCB-206, PCB-206L	
222-0025	PCB-206, PCB-206L	
222-0026	PCB-1, PCB-1L, PCB-3, PCB-3L	PCB-2
222-0027	PCB-77, PCB-77L, PCB-111/115, PCB-111L	PCB-82, PCB-83, PCB-84/92, PCB-85/116, PCB-86, PCB-87/117/125, PCB-88/91, PCB-89, PCB-90/101, PCB-93, PCB-94, PCB-95/98/102, PCB-96, PCB-97, PCB-99, PCB-100, PCB-103, PCB-104, PCB-106/118, PCB-108/112, PCB-107/109, PCB-113, PCB-119, PCB-120, PCB-121, PCB-123, PCB-124, PCB-135, PCB-136, PCB-139/149, PCB-140, PCB-144, PCB-145, PCB-147, PCB-148, PCB-150, PCB-151, PCB-152, PCB-154 and PCB-155
222-0028	PCB-77, PCB-77L, PCB-111/115, PCB-111L	PCB-82, PCB-83, PCB-84/92, PCB-85/116, PCB-86, PCB-87/117/125, PCB-88/91, PCB-89, PCB-90/101, PCB-93, PCB-94, PCB-95/98/102, PCB-96, PCB-97, PCB-99, PCB-100, PCB-103, PCB-104, PCB-106/118, PCB-108/112, PCB-107/109, PCB-113, PCB-119, PCB-120, PCB-121, PCB-123, PCB-124, PCB-135, PCB-136, PCB-139/149, PCB-140, PCB-144, PCB-145, PCB-147, PCB-148, PCB-150, PCB-151, PCB-152, PCB-154 and PCB-155
222-0029	PCB-77, PCB-77L, PCB-111/115, PCB-111L, PCB-85/116, PCB-120, PCB-176	PCB-82, PCB-83, PCB-84/92, PCB-85/116, PCB-86, PCB-87/117/125, PCB-88/91, PCB-89, PCB-90/101, PCB-93, PCB-94, PCB-95/98/102, PCB-96, PCB-97, PCB-99, PCB-100, PCB-103, PCB-104, PCB-106/118, PCB-108/112, PCB-107/109, PCB-113, PCB-119, PCB-120, PCB-121, PCB-123, PCB-124, PCB-135, PCB-136, PCB-139/149, PCB-140, PCB-144, PCB-145, PCB-147, PCB-148, PCB-150, PCB-151, PCB-152, PCB-154 and PCB-155



222-0030	PCB-56/60, PCB-77, PCB-77L, PCB-120	
222-0032	PCB-11, PCB-11L, PCB-41/64/71/72, PCB-77, PCB-77L, PCB-85/116, PCB-176	PCB-12/13, PCB-14 and PCB-15

The ion abundance ratios did not meet the criteria for the following congeners. Results for these congeners were qualified unusable (R). If the labeled congener was out, the associated congeners are qualified estimated (J).

Sample	PCB Congener	Associated congeners
Method Blank 0902	PCB-16/32, PCB-194, PCB-209	
Method Blank 0918	PCB-18, PCB-16/32, PCB-31, PCB-28, PCB-20/21/33, PCB-106/118, PCB-153 and PCB-138/163/164	
222-0023	PCB-73, PCB-83, PCB-120, PCB-135	
222-0024	PCB-34, PCB-86, PCB-111/115, PCB-188	
222-0025	PCB-34, PCB-38, PCB-86	
222-0026	PCB-100, PCB-103, PCB-111/115	
222-0028	PCB-62, PCB-79, PCB-104, PCB-103, PCB-100, PCB-94, PCB-204, PCB-205	
222-0027	PCB-51, PCB-86, PCB-111/115, PCB-81, PCB-40	
222-0029	PCB-68, PCB-79, PCB-89, PCB-190, PCB-189L, PCB-209	PCB-189
222-0030	PCB-79, PCB-104, PCB-128/162, PCB-204, PCB-189L	PCB-189
222-0031	PCB-65, PCB-79	
222-0032	PCB-54, PCB-79, PCB-205	

For samples 222-0028 and 222-0029, results for PCB congener 209 exceeded calibration. Results for this congener is qualified estimated (J).

For 222-0032 MS, the percent recovery (%R) exceeded the QC criteria for congeners PCB-1, PCB-3, PCB-37, PCB-105, PCB-106/118 and PCB-156. For 222-0032 MSD, the %R exceeded the QC criteria for the congeners PCB-37, PCB-105, and PCB-106/118. The relative percent difference (RPD) exceeded the QC criterion for congeners PCB-1 and PCB-3. Results for these congeners in sample 222-0032 are qualified estimated (J).

Hexachloroxanthene (HCX) in Soil Package AA 134

Sample 222-0032 extraction exceeded the holding time limit. HCX result in sample 222-0032 is qualified estimated (J).



HCX was detected in the method blank extracted on 09/17/15 at a concentration under the reporting limit (RL). Since the HCX result in sample 222-0032 was ten times less than the concentration in the method blank, the result is qualified estimated (J).

The percent recovery of HCX was above QC limits for the MS of sample 222-0023 and below QC limits for the MSD of 222-0023. The RPD was above QC limits for the MS/MSD of 222-0023. The HCX result for 222-0023 is qualified estimated (J).

Hexachlorophene (HCP) in Soil Package AA 151

Samples 222-0023 through 222-0027 required a 50x dilution. The HCP concentration in these samples was greater than the range of the calibration curve and additional dilution was not performed due to insufficient response of the internal standard. HCP results in these sample are qualified estimated (J).

2,4,6,8-Tetrachlorodibenzothiophene (TCDT) in Soil Package AA 149

The data package was examined and found to be acceptable.

The results presented in this report only relate to the samples analyzed. All results are intended to be considered in their entirety. The Environmental Response Team/Scientific, Engineering, Response and Analytical Services laboratory is not responsible for utilization of less than the complete report.



Summary of Abbreviations

BFB	Bromofluorobenzene
BS	Blank Spike
BSD	Blank Spike Duplicate
°C	Degree Centigrade
COC	Chain of Custody
conc	concentration
cont	continued
PCDD/PCDF	Polychlorinated dibenzo-p-dioxins (PCDD) and Polychlorinated dibenzofurans (PCDF)
DFTPP	Decafluorotriphenylphosphine
EMPC	Estimated maximum possible concentration
GC/ECD	Gas Chromatography/Electron Capture Detector
GC/MS	Gas Chromatography/ Mass Spectrometry
Hg-CVAA	Mercury-Cold Vapor Atomic Absorption
ICP-AES	Inductively Coupled Plasma- Atomic Emission Spectroscopy
ID	Identification
IS	Internal Standard
LCS	Laboratory Control Sample
LCSD	Laboratory Control Sample Duplicate
MDA	Minimum Detectable Activity
MDL	Method Detection Limit
MS	Matrix Spike
MSD	Matrix Spike Duplicate
MW	Molecular Weight
NA	Not Applicable or Not Available
NAD	Normalized Absolute Difference
NC	Not Calculated
NR	Not Requested/Not Reported
% D	Percent Difference
% R	Percent Recovery
SOP	Standard Operating Procedure
PCB	Polychlorinated Biphenyl
PDS	Post Digestion Spike
Percent RSD	Percent Relative Standard Deviation
ppbv	parts per billion by volume
ppm	parts per million
pptv	parts per trillion by volume
QA/QC	Quality Assurance/Quality Control
QAPP	Quality Assurance Project Plan
RL	Reporting Limit
RPD	Relative Percent Difference
S4VM	Stage 4 validation done manually
SIM	Selected Ion Monitoring
SERAS	Scientific Engineering Response and Analytical Services
TIC	Tentatively Identified Compound
TCLP	Toxicity Characteristic Leaching Procedure
SVOC	Semi Volatile Organic Compound
VOC	Volatile Organic Compound
*	Value exceeds the acceptable QC limits

m ³	cubic meter	g	gram	kg	kilogram	L	liter
µg	microgram	µL	microliter	mg	milligram	mL	milliliter
ng	nanogram	pg	picogram	pCi	picocurie	σ	sigma

Data Validation Flags

J	Value is estimated	R	Rejected or Value is unusable
J+	Value is estimated high	U	Not detected
J-	Value is estimated low	UJ	Not detected and RL is estimated

Rev. 01/01/15, YRM



Table 1.1 Results of the Analysis of Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev.11)

Page 1 of 2

Laboratory Sample Number	B5H0169-BLK1	1500771-01	1500771-02
Sample Number	Method Blank	222-0023	222-0024
Sample Location	9/28/2015	GWC-2-0407	GWC-2-0710
Percent Solids		91	90

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
2,3,7,8-TCDD	U	2.50	1860	2.46	4580	12.4
1,2,3,7,8-PeCDD	U	12.5	285	12.3	2990	12.4
1,2,3,4,7,8-HxCDD	U	12.5	115	12.3	1760	12.4
1,2,3,6,7,8-HxCDD	U	12.5	173	12.3	2100	12.4
1,2,3,7,8,9-HxCDD	U	12.5	141	12.3	1530	12.4
1,2,3,4,6,7,8-HpCDD	U	12.5	341	12.3	4210	12.4
OCDD	U	25.0	848	24.6	3710	24.7
2,3,7,8-TCDF	U	2.50	16.6	2.46	67.1	2.47
1,2,3,7,8-PeCDF	U	12.5	6.68 J	12.3	72.1	12.4
2,3,4,7,8-PeCDF	U	12.5	16.4	12.3	152	12.4
1,2,3,4,7,8-HxCDF	0.353 EMPC	12.5	14.9	12.3	190	12.4
1,2,3,6,7,8-HxCDF	0.290 J	12.5	12.3 J	12.3	136	12.4
2,3,4,6,7,8-HxCDF	0.362 J	12.5	150	12.3	180	12.4
1,2,3,7,8,9-HxCDF	U	12.5	4.24 J	12.3	31.5	12.4
1,2,3,4,6,7,8-HpCDF	U	12.5	66.1	12.3	601	12.4
1,2,3,4,7,8,9-HpCDF	U	12.5	5.42 J	12.3	47.8	12.4
OCDF	U	25.0	53.4	24.6	342	24.7
TEQMinWHO2005Dioxin	0.0652		2220		8270	

Table 1.1(cont.) Results of the Analysis of Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev.11)

Laboratory Sample Number	1500771-03	1500771-04	1500771-05
Sample Number	222-0025	222-0026	222-0028
Sample Location	GWC-DUP	GWC-1-0608	DWC-3-0406
Percent Solids	91	91	76

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
2,3,7,8-TCDD	9230	11.6	2780	2.35	839000	983.0
1,2,3,7,8-PeCDD	5270	11.6	433	11.7	2010	12.3
1,2,3,4,7,8-HxCDD	3220	11.6	191	11.7	955	12.3
1,2,3,6,7,8-HxCDD	3780	11.6	265	11.7	1620	12.3
1,2,3,7,8,9-HxCDD	2570	11.6	203	11.7	767	12.3
1,2,3,4,6,7,8-HpCDD	8330	11.6	556	11.7	8870	614
OCDD	6300	23.2	1010	23.5	221000	1230
2,3,7,8-TCDF	118	2.32	24.9	2.35	1170	12.3
1,2,3,7,8-PeCDF	136	11.6	15.3	11.7	3770	614
2,3,4,7,8-PeCDF	272	11.6	31.8	11.7	30100	614
1,2,3,4,7,8-HxCDF	337	11.6	24.4	11.7	247000	614
1,2,3,6,7,8-HxCDF	255	11.6	19.3	11.7	49900	614
2,3,4,6,7,8-HxCDF	326	11.6	212	11.7	15200	614
1,2,3,7,8,9-HxCDF	60.9	11.6	6.59 J	11.7	4130	12.3
1,2,3,4,6,7,8-HpCDF	930	11.6	93.7	11.7	638000	614
1,2,3,4,7,8,9-HpCDF	95.6	11.6	8.14 J	11.7	25200	614
OCDF	512	23.2	74.6	23.5	1460000	1230
TEQMinWHO2005Dioxin	15700		3310		889000	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.1 (cont) Results of the Analysis of Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev.11)

Page 2 of 2

Laboratory Sample Number	1500771-06		1500771-07		1500771-08	
Sample Number	222-0029		222-0030		222-0031	
Sample Location	DWC-3-0608		DWC-4-0405		DWC-2-0405	
Percent Solids	77		90		90	
Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
2,3,7,8-TCDD	858000	1240	359000	525	32800	48.4
1,2,3,7,8-PeCDD	2480	12.4	365	10.5	18.7	12.1
1,2,3,4,7,8-HxCDD	1170	12.4	177	10.5	9.20 J	12.1
1,2,3,6,7,8-HxCDD	2150	12.4	402	10.5	26.3	12.1
1,2,3,7,8,9-HxCDD	981	12.4	185	10.5	14.2	12.1
1,2,3,4,6,7,8-HpCDD	13300	12.4	3240	10.5	421	12.1
OCDD	220000	2480	39800	1050	7390	24.2
2,3,7,8-TCDF	1370	2.48	335	2.10	26.9	2.42
1,2,3,7,8-PeCDF	4320	12.4	1020	10.5	34.7	12.1
2,3,4,7,8-PeCDF	28700	12.4	5510	10.5	169	12.1
1,2,3,4,7,8-HxCDF	294000	1240	52900	525	1100	12.1
1,2,3,6,7,8-HxCDF	54100	1240	8010	10.5	275	12.1
2,3,4,6,7,8-HxCDF	13400	12.4	2590	10.5	94.3	12.1
1,2,3,7,8,9-HxCDF	4970	12.4	885	10.5	26.1	12.1
1,2,3,4,6,7,8-HpCDF	754000 J	1240	169000 J	525	3490	12.1
1,2,3,4,7,8,9-HpCDF	33100	1240	4410	10.5	128	12.1
OCDF	1610000	2480	276000	1050	6250	24.2
TEQMinWHO2005Dioxin	915000		369000		33000	

Table 1.1 (cont) Results of the Analysis of Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev.11)

Laboratory Sample Number	1500771-10		B5I0103-BLK1		1500771-09	
Sample Number	222-0027		Method Blank		222-0032	
Sample Location	GW-C-1-0810		9/17/2015		DWC-1-0405	
Percent Solids	93				86	
Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
2,3,7,8-TCDD	475	2.40	U	25.0	370000	2380
1,2,3,7,8-PeCDD	24.3	12.0	U	125	590	119
1,2,3,4,7,8-HxCDD	6.06 J	12.0	U	125	286	119
1,2,3,6,7,8-HxCDD	16.3	12.0	U	125	609	119
1,2,3,7,8,9-HxCDD	U	12.0	U	125	274	119
1,2,3,4,6,7,8-HpCDD	72.8	12.0	U	125	4240	119
OCDD	846	24.0	109 J	250	31100	238
2,3,7,8-TCDF	4.79	2.40	U	25.0	478	23.8
1,2,3,7,8-PeCDF	3.29 J	12.0	U	125	1140	119
2,3,4,7,8-PeCDF	12.8	12.0	U	125	7450	119
1,2,3,4,7,8-HxCDF	24.9	12.0	U	125	52500	119
1,2,3,6,7,8-HxCDF	7.46 J	12.0	U	125	9190	119
2,3,4,6,7,8-HxCDF	44.2	12.0	U	125	3430	119
1,2,3,7,8,9-HxCDF	1.21 J	12.0	U	125	1220	119
1,2,3,4,6,7,8-HpCDF	91.5	12.0	15.1 J	125	140000	11900
1,2,3,4,7,8,9-HpCDF	5.38 EMPC	12.0	U	125	6050	119
OCDF	231	24.0	U	250	275000	238
TEQMinWHO2005Dioxin	516		0.184		381000	

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory



Table 1.2 Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev. 11)

Page 1 of 6

Laboratory Sample Number	B5H0169-BLK1	1500771-01	1500771-012	1500771-03
Sample Number	Method Blank	222-0023	222-0024	222-0025
Sample Location	8/28/2015	GWC-2-0407	GWC-2-0710	GWC-DUP
Percent Solids		91	90	91
Analyte	Result pg/g	Result pg/g	Result pg/g	Result pg/g
1,3,6,8-TCDD	U J	11.9 J	130 J	251 J
1,3,7,9-TCDD	U J	7.20 J	95.7 J	184 J
1,3,6,9-TCDD	U J	3.01 J	31.1 J	54.8 J
1,4,6,9-TCDD	U J	0.867 J	5.24 J	9.72 J
1247/1246/1248/1249-TCDD	U J	28.1 J	278 J	507 J
1,3,7,8-TCDD	U J	76.2 J	541 J	960 J
1,2,6,8-TCDD	U J	3.31 J	39.9 J	68.9 J
1,4,7,8-TCDD	U J	18.3 J	136 J	250 J
1,2,7,9-TCDD	U J	3.78 J	49.7 J	83.2 J
1,2,3,4/1,2,6,9-TCDD	U J	3.35 J	31.9 J	63.1 J
1,2,3,6-TCDD	U J	1.09 J	16.0 J	26.3 J
1,2,3,7/1,2,3,8-TCDD	U J	19.5 J	260 J	498 J
1,2,3,9-TCDD	U J	U J	9.09 J	21.9 J
1,2,7,8-TCDD	U J	34.0 J	327 J	593 J
1,2,6,7-TCDD	U J	U J	12.4 J	20.7 J
1,2,8,9-TCDD	U J	1.57 J	16.8 J	39.1 J
1,2,4,6,8/1,2,4,7,9-PeCDD	U J	66.2 J	1050 J	1860 J
1,2,4,6,9-PeCDD	U J	10.8 J	102 J	199 J
1,2,3,6,8-PeCDD	U J	35.7 J	628 J	1020 J
1,2,4,7,8-PeCDD	U J	447 J	4100 J	6850 J
1,2,3,7,9-PeCDD	U J	53.9 J	551 J	1130 J
12467/12369/12489-PeCDD	U J	38.4 J	510 J	845 J
1,2,3,4,7/1,2,3,4,6-PeCDD	U J	10.6 J	184 J	308 J
1,2,3,6,7-PeCDD	U J	9.98 J	115 J	188 J
1,2,3,8,9-PeCDD	U J	15.0 J	202 J	348 J
1,2,4,6,7,9/1,2,4,6,8,9-HxCDD	U J	391 J	3540 J	6040 J
1,2,3,4,6,8-HxCDD	U J	45.8 J	450 J	672 J
1,2,3,6,7,9/1,2,3,6,8,9-HxCDD	U J	693 J	7190 J	12200 J
1,2,3,4,6,9-HxCDD	U J	U J	U J	U J
1,2,3,4,6,7-HxCDD	U J	18.8 J	289 J	U J
1,2,3,4,6,7,9-HpCDD	U J	371 J	4050 J	7280 J
1,3,6,8-TCDF	U J	24.1 J	97.8 J	157 J
1,4,6,8-TCDF	U J	22.8 J	72.3 J	128 J
2,4,6,8-TCDF	U J	6.26 J	37.5 J	69.7 J
1346/1246/1347/1378/1247-TCDF	U J	104 J	431 J	734 J
1,3,4,8-TCDF	U J	7.31 J	30.0 J	63.6 J
1,2,4,8/1,3,6,7/1,3,7,9-TCDF	U J	53.7 J	245 J	415 J
1,2,6,8-TCDF	U J	5.41 J	56.4 J	103 J
1,4,6,7-TCDF	U J	3.79 J	30.3 J	61.1 J
1,4,7,8-TCDF	U J	20.7 J	82.5 J	146 J
1,3,6,9/1,2,3,7-TCDF	U J	3.49 J	39.6 J	72.7 J
2,4,6,7-TCDF	U J	9.41 J	54.6 J	104 J
2,3,6,8-TCDF	U J	198 J	542 J	990 J

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.2 (cont) Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev. 11)

Page 2 of 6

Laboratory Sample Number	B5H0169-BLK1	1500771-01	1500771-012	1500771-03
Sample Number	Method Blank	222-0023	222-0024	222-0025
Sample Location	8/28/2015	GWC-2-0407	GWC-2-0710	GWC-DUP
Percent Solids		91	90	91
Analyte	Result pg/g	Result pg/g	Result pg/g	Result pg/g
1234/1238/1678/1469/1236-TCDF	U J	9.32 J	112 J	198 J
1,2,7,8-TCDF	U J	43.0 J	149 J	266 J
1,3,4,9-TCDF	U J	U J	4.98 J	13.4 J
1,2,6,7-TCDF	U J	6.39 J	44.1 J	72.5 J
2,3,4,6/1,2,4,9-TCDF	U J	5.19 J	41.5 J	77.5 J
1,2,7,9/2,3,4,7-TCDF	U J	5.54 J	57.5 J	111 J
2,3,4,8-TCDF	U J	U J	38.7 J	71.9 J
2,3,6,7/3,4,6,7-TCDF	U J	5.88 J	83.1 J	153 J
1,2,6,9-TCDF	U J	U J	9.22 J	14.3 J
1,2,3,9-TCDF	U J	1.27 J	6.78 J	13.1 J
1,2,8,9-TCDF	U J	17.4 J	31.5 J	46.4 J
1,3,4,6,8/1,2,4,6,8-PeCDF	U J	669 J	1010 J	1660 J
13678/12467/13467-PeCDF	U J	499 J	1370 J	1880 J
12368/13478/12478-PeCDF	U J	218 J	612 J	1150 J
1,4,6,7,8-PeCDF	U J	U J	81.1 J	119 J
1,3,4,7,9-PeCDF	U J	8.05 J	U J	U J
13469/12479/12346-PeCDF	U J	201 J	342 J	484 J
23468/12469/12347-PeCDF	U J	115 J	302 J	545 J
1,2,3,4,8-PeCDF	U J	6.41 J	U J	102 J
1,2,3,6,7/1,2,6,7,8-PeCDF	U J	10.2 J	119 J	229 J
1,2,3,7,9-PeCDF	U J	1.34 J	9.13 J	14.8 J
1,2,6,7,9-PeCDF	U J	59.8 J	72.0 J	112 J
1,2,3,4,9-PeCDF	U J	7.99 J	70.3 J	146 J
1,2,3,6,9/2,3,4,7,8/1,2,4,8,9-PeCDF	U J	16.4 J	152 J	272 J
2,3,4,6,7-PeCDF	U J	1.30 J	8.18 J	16.5 J
1,2,3,8,9-PeCDF	U J	1.22 J	8.45 J	16.3 J
1,2,3,4,6,8-HxCDF	U J	12.9 J	150 J	298 J
1,2,4,6,7,8/1,3,4,6,7,8-HxCDF	U J	165 J	655 J	1200 J
1,3,4,6,7,9-HxCDF	U J	186 J	228 J	358 J
1,2,4,6,7,9-HxCDF	U J	11600 J	9350 J	13600 J
1,2,4,6,8,9-HxCDF	U J	190 J	921 J	1660 J
1,2,3,4,6,7-HxCDF	U J	11.3 J	140 J	261 J
1,2,3,4,7,9-HxCDF	U J	U J	25.0 J	47.0 J
1,2,3,4,6,9-HxCDF	U J	U J	26.1 J	50.6 J
1,2,3,6,7,9-HxCDF	U J	14.9 J	44.5 J	75.0 J
2,3,4,6,7,8/1,2,3,6,8,9-HxCDF	U J	150 J	180 J	326 J
1,2,3,7,8,9/1,2,3,6,8,9-HxCDF	U J	4.24 J	31.5 J	60.9 J
1,2,3,4,6,7,9-HpCDF	U J	22.9 J	89.8 J	169 J
1,2,3,4,6,8,9-HpCDF	U J	55.8 J	204 J	385 J

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.2 (cont) Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev. 11)

Page 3 of 6

Laboratory Sample Number	1500771-04	1500771-05	1500771-06	1500771-07
Sample Number	222-0026	222-0028	222-0029	222-0030
Sample Location	GWC-1-0608	DWC-3-0406	DWC-3-0608	DWC-4-0405
Percent Solids	91	76	77	90

Analyte	Result pg/g		Result pg/g		Result pg/g		Result pg/g	
1,3,6,8-TCDD	21.3	J	70500	J	22400	J	7130	J
1,3,7,9-TCDD	14.1	J	2710	J	4010	J	1760	J
1,3,6,9-TCDD	4.95	J	1060	J	1810	J	284	J
1,4,6,9-TCDD	U	J	U	J	U	J	U	J
1247/1246/1248/1249-TCDD	43.0	J	2990	J	4410	J	701	J
1,3,7,8-TCDD	112	J	8960	J	32200	J	7470	J
1,2,6,8-TCDD	5.01	J	986	J	1520	J	195	J
1,4,7,8-TCDD	24.9	J	1050	J	1880	J	406	J
1,2,7,9-TCDD	6.32	J	1100	J	1780	J	219	J
1,2,3,4/1,2,6,9-TCDD	5.22	J	3050	J	5060	J	739	J
1,2,3,6-TCDD	1.63	J	465	J	324	J	66.1	J
1,2,3,7/1,2,3,8-TCDD	35.2	J	2290	J	U	J	502	J
1,2,3,9-TCDD	U	J	U	J	131	J	U	J
1,2,7,8-TCDD	61.8	J	2250	J	4340	J	714	J
1,2,6,7-TCDD	U	J	U	J	U	J	U	J
1,2,8,9-TCDD	U	J	99.9	J	155	J	21.9	J
1,2,4,6,8/1,2,4,7,9-PeCDD	105	J	10400	J	11900	J	2100	J
1,2,4,6,9-PeCDD	15.9	J	769	J	911	J	134	J
1,2,3,6,8-PeCDD	56.5	J	6480	J	5770	J	1090	J
1,2,4,7,8-PeCDD	683	J	3890	J	5810	J	681	J
1,2,3,7,9-PeCDD	76.3	J	2610	J	3050	J	486	J
12467/12369/12489-PeCDD	54.4	J	1680	J	2020	J	319	J
1,2,3,4,7/1,2,3,4,6-PeCDD	17.8	J	2020	J	2410	J	391	J
1,2,3,6,7-PeCDD	21.1	J	159	J	660	J	34.4	J
1,2,3,8,9-PeCDD	22.5	J	364	J	407	J	60.9	J
1,2,4,6,7,9/1,2,4,6,8,9-HxCDD	627	J	5400	J	6380	J	972	J
1,2,3,4,6,8-HxCDD	44.5	J	6010	J	6800	J	1200	J
1,2,3,6,7,9/1,2,3,6,8,9-HxCDD	1050	J	6640	J	8720	J	1410	J
1,2,3,4,6,9-HxCDD	U	J	668	J	795	J	133	J
1,2,3,4,6,7-HxCDD	U	J	624	J	752	J	114	J
1,2,3,4,6,7,9-HpCDD	585	J	11000	J	12600	J	2640	J
1,3,6,8-TCDF	60.9	J	1960	J	2680	J	549	J
1,4,6,8-TCDF	46.0	J	4970	J	6370	J	1110	J
2,4,6,8-TCDF	13.9	J	5360	J	6540	J	1140	J
1346/1246/1347/1378/1247-TCDF	186	J	13000	J	16000	J	3210	J
1,3,4,8-TCDF	11.4	J	765	J	2080	J	184	J
1,2,4,8/1,3,6,7/1,3,7,9-TCDF	89.2	J	33300	J	39200	J	8220	J
1,2,6,8-TCDF	8.98	J	6650	J	8390	J	1820	J
1,4,6,7-TCDF	7.07	J	U	J	644	J	94.3	J
1,4,7,8-TCDF	30.4	J	347	J	1300	J	275	J
1,3,6,9/1,2,3,7-TCDF	6.10	J	475	J	540	J	104	J
2,4,6,7-TCDF	22.6	J	1690	J	1910	J	282	J
2,3,6,8-TCDF	297	J	6340	J	6810	J	1310	J

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.2 (cont) Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev. 11)

Page 4 of 6

Laboratory Sample Number	1500771-04	1500771-05	1500771-06	1500771-07
Sample Number	222-0026	222-0028	222-0029	222-0030
Sample Location	GWC-1-0608	DWC-3-0406	DWC-3-0608	DWC-4-0405
Percent Solids	91	76	77	90

Analyte	Result pg/g		Result pg/g		Result pg/g		Result pg/g	
1234/1238/1678/1469/1236-TCDF	18.7	J	11200	J	13500	J	2480	J
1,2,7,8-TCDF	65.2	J	2250	J	2790	J	571	J
1,3,4,9-TCDF	U	J	U	J	U	J	U	J
1,2,6,7-TCDF	12.4	J	389	J	457	J	88.8	J
2,3,4,6/1,2,4,9-TCDF	9.34	J	2090	J	2440	J	387	J
1,2,7,9/2,3,4,7-TCDF	11.4	J	8090	J	9850	J	1600	J
2,3,4,8-TCDF	5.54	J	17100	J	19900	J	3550	J
2,3,6,7/3,4,6,7-TCDF	13.2	J	811	J	931	J	171	J
1,2,6,9-TCDF	2.82	J	25.3	J	21.9	J	8.85	J
1,2,3,9-TCDF	1.99	J	316	J	352	J	145	J
1,2,8,9-TCDF	34.7	J	809	J	1190	J	209	J
1,3,4,6,8/1,2,4,6,8-PeCDF	1440	J	30600	J	63400	J	10200	J
13678/12467/13467-PeCDF	977	J	8680	J	10700	J	2330	J
12368/13478/12478-PeCDF	348	J	47300	J	54800	J	11100	J
1,4,6,7,8-PeCDF	U	J	5840	J	6880	J	1680	J
1,3,4,7,9-PeCDF	12.9	J	U	J	U	J	U	J
13469/12479/12346-PeCDF	421	J	168	J	205	J	39.7	J
23468/12469/12347-PeCDF	200	J	17900	J	21700	J	4220	J
1,2,3,4,8-PeCDF	10.3	J	13600	J	16100	J	3110	J
1,2,3,6,7/1,2,6,7,8-PeCDF	U	J	16500	J	19200	J	3740	J
1,2,3,7,9-PeCDF	2.80	J	U	J	U	J	U	J
1,2,6,7,9-PeCDF	119	J	U	J	U	J	10.2	J
1,2,3,4,9-PeCDF	15.0	J	2180	J	2500	J	468	J
1,2,3,6,9/2,3,4,7,8/1,2,4,8,9-PeCDF	31.8	J	30100	J	28700	J	5510	J
2,3,4,6,7-PeCDF	U	J	87.0	J	95.8	J	17.3	J
1,2,3,8,9-PeCDF	U	J	42.9	J	50.4	J	14.7	J
1,2,3,4,6,8-HxCDF	20.0	J	17200	J	22500	J	4630	J
1,2,4,6,7,8/1,3,4,6,7,8-HxCDF	258	J	79500	J	92700	J	20900	J
1,3,4,6,7,9-HxCDF	436	J	144	J	302	J	83.4	J
1,2,4,6,7,9-HxCDF	21300	J	1770	J	2130	J	402	J
1,2,4,6,8,9-HxCDF	351	J	15800	J	23600	J	4800	J
1,2,3,4,6,7-HxCDF	17.2	J	9310	J	11600	J	2120	J
1,2,3,4,7,9-HxCDF	U	J	1190	J	1470	J	359	J
1,2,3,4,6,9-HxCDF	2.76	J	998	J	1170	J	285	J
1,2,3,6,7,9-HxCDF	38.2	J	578	J	687	J	191	J
2,3,4,6,7,8/1,2,3,6,8,9-HxCDF	212	J	15200	J	13400	J	2590	J
1,2,3,7,8,9/1,2,3,6,8,9-HxCDF	6.59	J	4240	J	4970	J	885	J
1,2,3,4,6,7,9-HpCDF	38.4	J	7460	J	9660	J	2190	J
1,2,3,4,6,8,9-HpCDF	70.6	J	46900	J	65100	J	11400	J

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.2 (cont) Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev. 11)

Page 5 of 6

Laboratory Sample Number	1500771-08	1500771-10	B5I0103	1500771-09
Sample Number	222-0031	222-0027	Method Blank	222-0032
Sample Location	DWC-2-0405	GWC-1-0810	9/17/2015	DWC-1-0405
Percent Solids	90	93		86

Analyte	Result pg/g		Result pg/g		Result pg/g		Result pg/g	
1,3,6,8-TCDD	217	J	15.2	J	U	J	10600	J
1,3,7,9-TCDD	35.0	J	5.71	J	U	J	1070	J
1,3,6,9-TCDD	6.58	J	U	J	U	J	291	J
1,4,6,9-TCDD	U	J	U	J	U	J	U	J
1247/1246/1248/1249-TCDD	20.7	J	7.13	J	U	J	771	J
1,3,7,8-TCDD	208	J	12.5	J	U	J	4250	J
1,2,6,8-TCDD	U	J	U	J	U	J	194	J
1,4,7,8-TCDD	6.96	J	U	J	U	J	305	J
1,2,7,9-TCDD	5.38	J	U	J	U	J	213	J
1,2,3,4/1,2,6,9-TCDD	12.0	J	U	J	U	J	855	J
1,2,3,6-TCDD	1.85	J	U	J	U	J	73.4	J
1,2,3,7/1,2,3,8-TCDD	15.7	J	4.02	J	U	J	720	J
1,2,3,9-TCDD	U	J	U	J	U	J	U	J
1,2,7,8-TCDD	U	J	4.42	J	U	J	557	J
1,2,6,7-TCDD	U	J	U	J	U	J	U	J
1,2,8,9-TCDD	U	J	U	J	U	J	U	J
1,2,4,6,8/1,2,4,7,9-PeCDD	95.4	J	13.2	J	U	J	3220	J
1,2,4,6,9-PeCDD	7.47	J	2.27	J	U	J	236	J
1,2,3,6,8-PeCDD	42.5	J	5.71	J	U	J	1930	J
1,2,4,7,8-PeCDD	44.0	J	53.9	J	U	J	1170	J
1,2,3,7,9-PeCDD	18.4	J	4.65	J	U	J	757	J
12467/12369/12489-PeCDD	14.9	J	4.30	J	U	J	530	J
1,2,3,4,7/1,2,3,4,6-PeCDD	14.5	J	1.83	J	U	J	618	J
1,2,3,6,7-PeCDD	1.53	J	U	J	U	J	55.5	J
1,2,3,8,9-PeCDD	U	J	1.34	J	U	J	122	J
1,2,4,6,7,9/1,2,4,6,8,9-HxCDD	92.3	J	83.0	J	U	J	1360	J
1,2,3,4,6,8-HxCDD	46.0	J	8.60	J	U	J	1790	J
1,2,3,6,7,9/1,2,3,6,8,9-HxCDD	89.1	J	51.7	J	U	J	1800	J
1,2,3,4,6,9-HxCDD	7.80	J	U	J	U	J	176	J
1,2,3,4,6,7-HxCDD	6.09	J	U	J	U	J	182	J
1,2,3,4,6,7,9-HpCDD	336	J	74.6	J	U	J	3200	J
1,3,6,8-TCDF	18.2	J	43.9	J	U	J	717	J
1,4,6,8-TCDF	31.5	J	43.2	J	U	J	1400	J
2,4,6,8-TCDF	81.3	J	5.45	J	U	J	1660	J
1346/1246/1347/1378/1247-TCDF	93.0	J	124	J	U	J	4030	J
1,3,4,8-TCDF	7.55	J	8.73	J	U	J	342	J
1,2,4,8/1,3,6,7/1,3,7,9-TCDF	201	J	29.2	J	U	J	11900	J
1,2,6,8-TCDF	65.8	J	3.96	J	U	J	2960	J
1,4,6,7-TCDF	8.17	J	3.80	J	U	J	130	J
1,4,7,8-TCDF	14.5	J	4.66	J	U	J	371	J
1,3,6,9/1,2,3,7-TCDF	6.41	J	1.75	J	U	J	129	J
2,4,6,7-TCDF	14.8	J	18.5	J	U	J	366	J
2,3,6,8-TCDF	65.0	J	36.8	J	U	J	1920	J

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.2 (cont) Results of the Analysis of Non-2,3,7,8 Dioxin/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 26 (rev. 11)

Page 6 of 6

Laboratory Sample Number	1500771-08	1500771-10	B5I0103	1500771-09
Sample Number	222-0031	222-0027	Method Blank	222-0032
Sample Location	DWC-2-0405	GWC-1-0810	9/17/2015	DWC-1-0405
Percent Solids	90	93		86

Analyte	Result pg/g		Result pg/g		Result pg/g		Result pg/g	
1234/1238/1678/1469/1236-TCDF	103	J	5.57	J	U	J	4430	J
1,2,7,8-TCDF	22.8	J	8.33	J	U	J	U	J
1,3,4,9-TCDF	U	J	U	J	U	J	U	J
1,2,6,7-TCDF	8.69	J	7.58	J	U	J	121	J
2,3,4,6/1,2,4,9-TCDF	25.8	J	4.13	J	U	J	696	J
1,2,7,9/2,3,4,7-TCDF	35.9	J	4.83	J	U	J	1560	J
2,3,4,8-TCDF	164	J	3.21	J	U	J	6400	J
2,3,6,7/3,4,6,7-TCDF	34.0	J	5.31	J	U	J	194	J
1,2,6,9-TCDF	U	J	1.35	J	U	J	18.2	J
1,2,3,9-TCDF	16.7	J	U	J	U	J	233	J
1,2,8,9-TCDF	17.4	J	30.7	J	U	J	562	J
1,3,4,6,8/1,2,4,6,8-PeCDF	719	J	1360	J	U	J	14900	J
13678/12467/13467-PeCDF	74.4	J	711	J	U	J	2760	J
12368/13478/12478-PeCDF	438	J	122	J	U	J	15600	J
1,4,6,7,8-PeCDF	U	J	3.70	J	U	J	1600	J
1,3,4,7,9-PeCDF	U	J	8.20	J	U	J	U	J
13469/12479/12346-PeCDF	3.02	J	229	J	U	J	U	J
23468/12469/12347-PeCDF	221	J	108	J	U	J	7390	J
1,2,3,4,8-PeCDF	U	J	U	J	U	J	4210	J
1,2,3,6,7/1,2,6,7,8-PeCDF	109	J	8.04	J	U	J	5060	J
1,2,3,7,9-PeCDF	U	J	1.15	J	U	J	U	J
1,2,6,7,9-PeCDF	1.23	J	79.5	J	U	J	U	J
1,2,3,4,9-PeCDF	23.2	J	6.11	J	U	J	714	J
12369/23478/12489-PeCDF	169	J	12.8	J	U	J	7450	J
2,3,4,6,7-PeCDF	U	J	U	J	U	J	29.6	J
1,2,3,8,9-PeCDF	U	J	0.632	J	U	J	20.9	J
1,2,3,4,6,8-HxCDF	250	J	6.96	J	U	J	6570	J
1,2,4,6,7,8/1,3,4,6,7,8-HxCDF	896	J	72.6	J	U	J	27500	J
1,3,4,6,7,9-HxCDF	U	J	281	J	U	J	82.1	J
1,2,4,6,7,9-HxCDF	U	J	11300	J	U	J	513	J
1,2,4,6,8,9-HxCDF	407	J	13.6	J	U	J	8980	J
1,2,3,4,6,7-HxCDF	80.0	J	5.11	J	U	J	2970	J
1,2,3,4,7,9-HxCDF	U	J	U	J	U	J	404	J
1,2,3,4,6,9-HxCDF	11.8	J	U	J	U	J	250	J
1,2,3,6,7,9-HxCDF	7.97	J	23.0	J	U	J	177	J
2,3,4,6,7,8/1,2,3,6,8,9-HxCDF	94.3	J	44.2	J	U	J	3430	J
1,2,3,7,8,9/1,2,3,4,8,9-HxCDF	26.1	J	1.21	J	U	J	1220	J
1,2,3,4,6,7,9-HpCDF	108	J	13.0	J	U	J	2270	J
1,2,3,4,6,8,9-HpCDF	569	J	28.2	J	U	J	15600	J

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 1 of 16

Laboratory Sample Number	B5H0184-BLK1		1500770-01		1500770-02		1500770-03	
Sample Number	Method Blank		222-0023		222-0024		222-0025	
Sample Location	9/1/2015		GWC-2-0407		GWC-2-0710		GWC-DUP	
Percent Solids			91		90		91	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-1	U	16.7	29.5	15.0	U	14.9	24.3	15.0
PCB-2	U	16.7	16.9	15.0	32.7	14.9	60.7	15.0
PCB-3	U	16.7	192	15.0	59.1	14.9	85.5	15.0
PCB-4/10	U	66.7	U	60.1	U	59.7	U	60.1
PCB-5/8	U	66.7	U	60.1	U	59.7	U	60.1
PCB-6	U	33.3	U	30.0	U	29.8	U	30.0
PCB-7/9	U	66.7	U	60.1	U	59.7	U	60.1
PCB-11	U	33.3	U	30.0	U	29.8	30.4	30.0
PCB-12/13	U	66.7	U	60.1	59.9	59.7	104	60.1
PCB-14	U	33.3	U	30.0	U	29.9	U	30.0
PCB-15	U	33.3	54.3	30.0	47.8	29.8	61.7	30.0
PCB-16/32	U	33.3	169	30.0	73.9	29.8	86.7	30.0
PCB-17	U	16.7	55.9	15.0	31.4	14.9	39.3	15.0
PCB-18	U	16.7	154	15.0	100	14.9	118	15.0
PCB-19	U	16.7	17.5	15.0	U	14.9	12.5	15.0
PCB-20/21/33	U	50.0	108	45.1	83.4	44.8	104	45.1
PCB-22	U	16.7	91.1	15.0	56.2	14.9	68.0	15.0
PCB-23	U	16.7	U	15.0	U	14.9	U	15.0
PCB-24/27	U	33.3	U	30.0	U	29.8	U	30.0
PCB-25	U	16.7	U	15.0	U	14.9	17.3	15.0
PCB-26	U	16.7	34.2	15.0	21.0	14.9	27.3	15.0
PCB-28	U	16.7	230	15.0	124	14.9	142	15.0
PCB-29	U	16.7	U	15.0	U	14.9	21.5	15.0
PCB-30	U	16.7	U	15.0	U	14.9	U	15.0
PCB-31	U	16.7	186	15.0	120	14.9	144	15.0
PCB-34	U	16.7	U	15.0	R		R	
PCB-35	U	16.7	U	15.0	23.1	14.9	41.3	15.0
PCB-36	U	16.7	U	15.0	U	14.9	U	15.0
PCB-37	U	16.7	113	15.0	85.9	14.9	112	15.0
PCB-38	U	16.7	U	15.0	U	14.9	R	
PCB-39	U	16.7	U	15.0	U	14.9	U	15.0
PCB-40	U	16.7	100	15.0	69.3	14.9	86.6	15.0
PCB-41/64/71/72	U	66.7	742	60.1	343	59.7	454	60.1
PCB-42/59	U	33.3	243	30.0	106	29.8	149	30.0
PCB-43/49	U	33.3	470	30.0	245	29.8	323	30.0
PCB-44	U	16.7	620	15.0	403	14.9	502	15.0
PCB-45	U	16.7	102	15.0	65.1	14.9	70.4	15.0
PCB-46	U	16.7	33.8	15.0	21.4	14.9	27.8	15.0
PCB-47	U	16.7	184	15.0	89.4	14.9	124	15.0
PCB-48/75	U	33.3	93.1	30.0	55.4	29.8	70.1	30.0
PCB-50	U	16.7	U	15.0	U	14.9	U	15.0
PCB-51	U	16.7	25.4	15.0	18.6	14.9	20.4	15.0
PCB-52/69	U	33.3	727	30.0	487	29.8	628	30.0
PCB-53	U	16.7	92.3	15.0	64.1	14.9	69.5	15.0
PCB-54	U	16.7	U	15.0	U	14.9	U	15.0
PCB-55	U	16.7	U	15.0	U	14.9	U	15.0
PCB-56/60	U	33.3	464	30.0	265	29.8	366	30.0
PCB-57	U	16.7	U	15.0	U	14.9	U	15.0
PCB-58	U	16.7	U	15.0	U	14.9	U	15.0
PCB-61/70	U	33.3	500	30.0	474	29.8	626	30.0
PCB-62	U	16.7	U	15.0	U	14.9	U	15.0
PCB-63	U	16.7	20.9	15.0	13.7	14.9	18.9	15.0

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 2 of 16

Laboratory Sample Number	B5H0184-BLK1		1500770-01		1500770-02		1500770-03	
Sample Number	Method Blank		222-0023		222-0024		222-0025	
Sample Location	9/1/2015		GWC-2-0407		GWC-2-0710		GWC-DUP	
Percent Solids			91		90		91	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-65	U	16.7	45.5	15.0	41.4	14.9	69.4	15.0
PCB-66/76	U	33.3	639	30.0	326	29.8	437	30.0
PCB-67	U	16.7	21.3	15.0	U	14.9	22.5	15.0
PCB-68	U	16.7	U	15.0	U	14.9	U	15.0
PCB-73	U	16.7	R		U	14.9	U	15.0
PCB-74	U	16.7	204	15.0	140	14.9	193	15.0
PCB-77	U	16.7	93.3	15.0	81.2	14.9	114	15.0
PCB-78	U	16.7	U	15.0	U	14.9	U	15.0
PCB-79	U	16.7	U	15.0	16.5	14.9	25.4	15.0
PCB-80	U	16.7	U	15.0	U	14.9	U	15.0
PCB-81	U	16.7	U	15.0	U	14.9	U	15.0
PCB-82	U	16.7	136	15.0	143	14.9	178	15.0
PCB-83	U	16.7	R	15.0	U	14.9	U	15.0
PCB-84/92	U	33.3	344	30.0	447	29.8	533	30.0
PCB-85/116	U	33.3	186	30.0	174	29.8	210	30.0
PCB-86	U	16.7	U	15.0	R		R	
PCB-87/117/125	U	50.0	328	45.1	430	44.8	507	45.1
PCB-88/91	U	33.3	145	30.0	130	29.8	153	30.0
PCB-89	U	16.7	15.0	15.0	U	14.9	17.9	15.0
PCB-90/101	U	33.3	804	30.0	1640	29.8	1940	30.0
PCB-93	U	16.7	U	15.0	U	14.9	U	15.0
PCB-94	U	16.7	U	15.0	U	14.9	U	15.0
PCB-95/98/102	U	50.0	637	45.1	1150	44.8	1380	45.1
PCB-96	U	16.7	U	15.0	U	14.9	U	15.0
PCB-97	U	16.7	268	15.0	284	14.9	341	15.0
PCB-99	U	16.7	345	15.0	338	14.9	411	15.0
PCB-100	U	16.7	U	15.0	U	14.9	U	15.0
PCB-103	U	16.7	U	15.0	U	14.9	U	15.0
PCB-104	U	16.7	U	15.0	U	14.9	U	15.0
PCB-105	U	16.7	255	15.0	344	14.9	420	15.0
PCB-106/118	U	33.3	637	30.0	1000	29.8	1200	30.0
PCB-107/109	U	33.3	46.8	30.0	67.6	29.8	87.5	30.0
PCB-108/112	U	33.3	43.9	30.0	44.5	29.8	58.3	30.0
PCB-110	U	16.7	942	15.0	1400	14.9	1590	15.0
PCB-111/115	U	33.3	U	30.0	R		34.3	30.0
PCB-113	U	16.7	U	15.0	U	14.9	U	15.0
PCB-114	U	16.7	U	15.0	27.0	14.9	32.7	15.0
PCB-119	U	16.7	U	15.0	U	14.9	19.3	15.0
PCB-120	U	16.7	R		U	14.9	15.8	15.0
PCB-121	U	16.7	U	15.0	U	14.9	U	15.0
PCB-122	U	16.7	U	15.0	15.3	14.9	17.3	15.0
PCB-123	U	16.7	U	15.0	17.6	14.9	26.8	15.0
PCB-124	U	16.7	34.4	15.0	73.6	14.9	83.7	15.0
PCB-126	U	16.7	U	15.0	27.8	14.9	45.1	15.0
PCB-127	U	16.7	U	15.0	U	14.9	U	15.0
PCB-128/162	U	33.3	118	30.0	294	29.8	351	30.0
PCB-129	U	16.7	39.7	15.0	89.9	14.9	104	15.0
PCB-130	U	16.7	57.1	15.0	165	14.9	199	15.0
PCB-131	U	16.7	U	15.0	U	14.9	U	15.0
PCB-132/161	U	33.3	243	30.0	912	29.8	1050	30.0
PCB-133/142	U	33.3	U	30.0	70.9	29.8	85.1	30.0
PCB-134/143	U	33.3	44.8	30.0	142	29.8	168	30.0

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 3 of 16

Laboratory Sample Number	B5H0184-BLK1		1500770-01		1500770-02		1500770-03	
Sample Number	Method Blank		222-0023		222-0024		222-0025	
Sample Location	9/1/2015		GWC-2-0407		GWC-2-0710		GWC-DUP	
Percent Solids			91		90		91	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-135	U	16.7	R		504	14.9	593	15.0
PCB-136	U	16.7	135	15.0	531	14.9	620	15.0
PCB-137	U	16.7	32.1	15.0	62.6	14.9	68.4	15.0
PCB-138/163/164	U	50.0	891	45.1	3470	44.8	4010	45.1
PCB-139/149	U	33.3	827	30.0	3640	29.8	4100	30.0
PCB-140	U	16.7	U	15.0	U	14.9	U	15.0
PCB-141	U	16.7	217	15.0	982	14.9	1120	15.0
PCB-144	U	16.7	61.1	15.0	240	14.9	287	15.0
PCB-145	U	16.7	U	15.0	U	14.9	U	15.0
PCB-146/165	U	33.3	124	30.0	493	29.8	592	30.0
PCB-147	U	16.7	U	15.0	23.7	14.9	30.6	15.0
PCB-148	U	16.7	U	15.0	U	14.9	U	15.0
PCB-150	U	16.7	U	15.0	U	14.9	U	15.0
PCB-151	U	16.7	266	15.0	1250	14.9	1440	15.0
PCB-152	U	16.7	U	15.0	U	14.9	U	15.0
PCB-153	U	16.7	853	15.0	3760	14.9	4370	15.0
PCB-154	U	16.7	U	15.0	U	14.9	15.1	15.0
PCB-155	U	16.7	U	15.0	U	14.9	U	15.0
PCB-156	U	16.7	78.9	15.0	263	14.9	300	15.0
PCB-157	U	16.7	20.2	15.0	35.2	14.9	54.5	15.0
PCB-158/160	U	33.3	102	30.0	348	29.9	408	30.0
PCB-159	U	16.7	U	15.0	U	14.9	U	15.0
PCB-166	U	16.7	U	15.0	U	14.9	U	15.0
PCB-167	U	16.7	35.8	15.0	117	14.9	143	15.0
PCB-168	U	16.7	U	15.0	U	14.9	U	15.0
PCB-169	U	16.7	U	15.0	U	14.9	U	15.0
PCB-170	U	16.7	323	15.0	1710	14.9	1870	15.0
PCB-171	U	16.7	96.6	15.0	479	14.9	555	15.0
PCB-172	U	16.7	66.1	15.0	328	14.9	359	15.0
PCB-173	U	16.7	U	15.0	50.8	14.9	58.8	15.0
PCB-174	U	16.7	437	15.0	2330	14.9	2590	15.0
PCB-175	U	16.7	15.2	15.0	87.1	14.9	93.0	15.0
PCB-176	U	16.7	50.9	15.0	262	14.9	282	15.0
PCB-177	U	16.7	225	15.0	1220	14.9	1350	15.0
PCB-178	U	16.7	74.0	15.0	395	14.9	447	15.0
PCB-179	U	16.7	169	15.0	896	14.9	974	15.0
PCB-180	U	16.7	863	15.0	4750	14.9	5100	15.0
PCB-181	U	16.7	U	15.0	U	14.9	U	15.0
PCB-182/187	U	33.3	462	30.0	2570	29.8	2760	30.0
PCB-183	U	16.7	208	15.0	1100	14.9	1200	15.0
PCB-184	U	16.7	U	15.0	U	14.9	U	15.0
PCB-185	U	16.7	50.7	15.0	283	14.9	315	15.0
PCB-186	U	16.7	U	15.0	U	14.9	U	15.0
PCB-188	U	16.7	U	15.0	R		U	15.0
PCB-189	U	16.7	U	15.0	76.0	14.9	92.0	15.0
PCB-190	U	16.7	71.8	15.0	397	14.9	429	15.0
PCB-191	U	16.7	U	15.0	77.2	14.9	95.1	15.0
PCB-192	U	16.7	U	15.0	U	14.9	U	15.0
PCB-193	U	16.7	41.0	15.0	220	14.9	244	15.0
PCB-194	U	16.7	188	15.0	1070	14.9	1060	15.0
PCB-195	U	16.7	89.1	15.0	469	14.9	466	15.0
PCB-196/203	U	33.3	269	30.0	1370	29.8	1470	30.0

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 4 of 16

Laboratory Sample Number	B5H0184-BLK1	1500770-01	1500770-02	1500770-03
Sample Number	Method Blank	222-0023	222-0024	222-0025
Sample Location	9/1/2015	GWC-2-0407	GWC-2-0710	GWC-DUP
Percent Solids		91	90	91

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-197	U	16.7	U	15.0	49.6	14.9	60.1	15.0
PCB-198	U	16.7	U	15.0	51.9	14.9	64.7	15.0
PCB-199	U	16.7	251	15.0	1280	14.9	1390	15.0
PCB-200	U	16.7	34.5	15.0	177	14.9	185	15.0
PCB-201	U	16.7	30.2	15.0	169	14.9	183	15.0
PCB-202	U	16.7	44.0	15.0	243	14.9	265	15.0
PCB-204	U	16.7	U	15.0	U	14.9	U	15.0
PCB-205	U	16.7	U	15.0	65.9	14.9	73.5	15.0
PCB-206	U	16.7	159	15.0	499 J	14.9	576 J	15.0
PCB-207	U	16.7	23.8	15.0	79.3	14.9	102	15.0
PCB-208	U	16.7	59.1	15.0	128	14.9	167	15.0
PCB-209	U	16.7	387	15.0	490	14.9	738	15.0
Total monoCB	U		238		106		171	
Total diCB	U		131		173		235	
Total triCB	U		1240		799		981	
Total tetraCB	U		5460		3370		4440	
Total pentaCB	U		5290		7820		9330	
Total hexaCB	U		4190		17400		20200	
Total heptaCB	U		3190		17200		18800	
Total octaCB	2.17		943		4940		5230	
Total nonaCB	U		242		707		845	
DecaCB	U		387		490		738	
Total PCB	2.17		21300		53100		60900	
TEQ	0		0.928		3.04		4.89	



Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 5 of 16

Laboratory Sample Number	1500770-04		1500770-06		1500770-07		1500770-08	
Sample Number	22-0026		222-0029		222-0030		222-0031	
Sample Location	GWC-1-0608		DWC-3-0608		DWC-4-0405		DWC-2-0405	
Percent Solids	91		77		90		90	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-1	35.8 J	15.2	101000	504	13900	294	432	148
PCB-2	18.5 J	15.2	74000	504	7050	294	230	148
PCB-3	200 J	15.2	46400	504	6080	294	336	148
PCB-4/10	U	60.6	36900	2020	7600	1180	U	590
PCB-5/8	U	60.6	129000	2020	27300	1180	1760	590
PCB-6	U	30.3	32000	1010	5720	588	372	295
PCB-7/9	U	60.6	73100	2020	13700	1180	U	590
PCB-11	U	30.3	13900	1010	1920	588	U	295
PCB-12/13	68.2	60.6	195000	2020	19800	1180	727	590
PCB-14	U	30.3	71000	1010	4930	588	U	295
PCB-15	73.1	30.3	50500	1010	22300	588	3650	295
PCB-16/32	165	30.3	27200	1010	19800	588	4010	295
PCB-17	72.4	15.2	18300	504	9430	294	1550	148
PCB-18	258	15.2	48900	504	24200	294	3830	148
PCB-19	18.9	15.2	3550	504	3080	294	743	148
PCB-20/21/33	152	45.5	61300	1510	17300	882	2260	443
PCB-22	125	15.2	28100	504	16500	294	2720	148
PCB-23	U	15.2	9470	504	856	294	U	148
PCB-24/27	U	30.3	26000	1010	4270	588	596	295
PCB-25	19.5	15.2	6240	504	2850	294	492	148
PCB-26	45.7	15.2	13200	504	5740	294	1030	148
PCB-28	350	15.2	131000	504	56600	294	9570	148
PCB-29	U	15.2	5370	504	808	294	U	148
PCB-30	U	15.2	1760	504	U	294	U	148
PCB-31	321	15.2	64600	504	42600	294	5050	148
PCB-34	U	15.2	7230	504	569	294	U	148
PCB-35	16.5	15.2	11100	504	1820	294	212	148
PCB-36	U	15.2	4820	504	558	294	U	148
PCB-37	148	15.2	61600	504	21200	294	3690	148
PCB-38	U	15.2	1840	504	427	294	U	148
PCB-39	U	15.2	11500	504	U	294	U	148
PCB-40	127	15.2	5790	504	7630	294	2210	148
PCB-41/64/71/72	676	60.6	35900	2020	41700	1180	12300	590
PCB-42/59	216	30.3	11400	1010	15100	588	4380	295
PCB-43/49	516	30.3	28100	1010	38500	588	9560	295
PCB-44	791	15.2	36300	504	55800	294	15400	148
PCB-45	109	15.2	6000	504	8390	294	2230	148
PCB-46	44.0	15.2	2470	504	3270	294	951	148
PCB-47	174	15.2	15000	504	13400	294	3600	148
PCB-48/75	118	30.3	8890	1010	7480	588	1750	295
PCB-50	U	15.2	U	504	U	294	U	148
PCB-51	32.3	15.2	2220	504	2210	294	592	148
PCB-52/69	957	30.3	43400	1010	79800	588	18300	295
PCB-53	110	15.2	6180	504	8000	294	2180	148
PCB-54	U	15.2	U	504	U	294	U	148
PCB-55	U	15.2	762	504	1050	294	305	148
PCB-56/60	560	30.3	29100	1010	24800 J	588	5980	295
PCB-57	U	15.2	521	504	U	294	U	148
PCB-58	U	15.2	U	504	U	294	U	148
PCB-61/70	930	30.3	43900	1010	49300	588	12700	295
PCB-62	U	15.2	691	504	U	294	U	148
PCB-63	26.0	15.2	2740	504	1460	294	268	148

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 6 of 16

Laboratory Sample Number	1500770-04		1500770-06		1500770-07		1500770-08	
Sample Number	22-0026		222-0029		222-0030		222-0031	
Sample Location	GWC-1-0608		DWC-3-0608		DWC-4-0405		DWC-2-0405	
Percent Solids	91		77		90		90	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-65	64.3	15.2	U	504	U	294	R	
PCB-66/76	705	30.3	46800	1010	43000	588	10100	295
PCB-67	19.5	15.2	1800	504	1230	294	260	148
PCB-68	U	15.2	R	504	U	294	U	148
PCB-73	U	15.2	U	504	U	294	U	148
PCB-74	326	15.2	55600	504	24600	294	4000	148
PCB-77	106	15.2	5650 J	504	4220 J	294	1320	148
PCB-78	U	15.2	U	504	U	294	U	148
PCB-79	U	15.2	R		R		R	
PCB-80	U	15.2	U	504	U	294	U	148
PCB-81	U	15.2	822	504	566	294	186	148
PCB-82	212	15.2	5770 J	504	16900	294	6140	148
PCB-83	U	15.2	U J	504	U	294	U	148
PCB-84/92	625	30.3	16600 J	1010	64600	588	21900	295
PCB-85/116	244	30.3	7340 J	1010	18600	588	10300	295
PCB-86	21.9	15.2	2120 J	504	801	294	U	148
PCB-87/117/125	589	45.5	16300 J	1510	54000	882	17400	443
PCB-88/91	195	30.3	6320 J	1010	21300	588	8790	295
PCB-89	21.1	15.2	R		1510	294	493	148
PCB-90/101	1920	30.3	45600 J	1010	197000	588	45500	295
PCB-93	U	15.2	U J	504	U	294	U	148
PCB-94	U	15.2	646 J	504	637	294	256	148
PCB-95/98/102	1440	45.5	38300 J	1510	155000	882	42300	443
PCB-96	U	15.2	U J	504	1100	294	438	148
PCB-97	425	15.2	11100 J	504	40500	294	15100	148
PCB-99	528	15.2	27700 J	504	64700	294	21400	148
PCB-100	R		775 J	504	351	294	U	148
PCB-103	R		821 J	504	728	294	197	148
PCB-104	U	15.2	U J	504	R		U	148
PCB-105	496	15.2	18200	504	36000	294	12100	148
PCB-106/118	1290	30.3	65900 J	1010	119000	588	36200	295
PCB-107/109	91.1	30.3	3800 J	1010	6190	588	2310	295
PCB-108/112	63.6	30.3	2160 J	1010	5720	588	2310	295
PCB-110	1730	15.2	44100	504	181000	294	73400	148
PCB-111/115	R		2930 J	1010	2360	588	607	295
PCB-113	U	15.2	U J	504	U	294	U	148
PCB-114	27.7	15.2	15700	504	5310	294	549	148
PCB-119	20.9	15.2	1410 J	504	2230	294	812	148
PCB-120	U	15.2	U J	504	546 J	294	U	148
PCB-121	U	15.2	U J	504	U	294	U	148
PCB-122	17.0	15.2	U	504	822	294	643	148
PCB-123	21.8	15.2	2870 J	504	2160	294	831	148
PCB-124	80.3	15.2	3060 J	504	6520	294	1920	148
PCB-126	U	15.2	1210	504	832	294	264	148
PCB-127	U	15.2	U	504	U	294	U	148
PCB-128/162	310	30.3	6830	1010	R		12900	295
PCB-129	103	15.2	2780	504	10100	294	3530	148
PCB-130	151	15.2	1520	504	2840	294	4590	148
PCB-131	U	15.2	536	504	U	294	U	148
PCB-132/161	825	30.3	15700	1010	73800	588	19800	295
PCB-133/142	65.7	30.3	1960	1010	5930	588	1760	295
PCB-134/143	144	30.3	3490	1010	13300	588	3420	295

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory



Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 7 of 16

Laboratory Sample Number	1500770-04		1500770-06		1500770-07		1500770-08	
Sample Number	22-0026		222-0029		222-0030		222-0031	
Sample Location	GWC-1-0608		DWC-3-0608		DWC-4-0405		DWC-2-0405	
Percent Solids	91		77		90		90	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-135	479	15.2	8190	J 504	38700	294	6930	148
PCB-136	469	15.2	10900	J 504	41800	294	7260	148
PCB-137	73.7	15.2	5710	504	9600	294	4400	148
PCB-138/163/164	3110	45.5	59300	1510	273000	882	61400	443
PCB-139/149	3110	30.3	56000	J 1010	251000	588	45000	295
PCB-140	U	15.2	U	J 504	314	294	337	148
PCB-141	858	15.2	23800	504	65400	294	10600	148
PCB-144	212	15.2	4640	J 504	17100	294	2510	148
PCB-145	U	15.2	155	J 504	U	294	U	148
PCB-146/165	421	30.3	8790	1010	34600	588	7120	295
PCB-147	28.0	15.2	850	J 504	2860	294	1380	148
PCB-148	U	15.2	U	J 504	U	294	U	148
PCB-150	U	15.2	U	J 504	U	294	U	148
PCB-151	1070	15.2	19500	J 504	74700	294	10400	148
PCB-152	U	15.2	U	J 504	U	294	U	148
PCB-153	3280	15.2	67600	504	274000	294	44800	148
PCB-154	U	15.2	948	J 504	1230	294	447	148
PCB-155	U	15.2	1650	J 504	U	294	U	148
PCB-156	249	15.2	25100	504	25400	294	4810	148
PCB-157	40.4	15.2	2750	504	4300	294	1740	148
PCB-158/160	324	30.3	9230	1010	30900	588	7290	295
PCB-159	U	15.2	U	504	U	294	U	148
PCB-166	U	15.2	3390	504	1370	294	309	148
PCB-167	105	15.2	6400	504	10800	294	2690	148
PCB-168	U	15.2	U	504	U	294	U	148
PCB-169	U	15.2	U	504	U	294	U	148
PCB-170	1420	15.2	27700	504	88700	294	11600	148
PCB-171	397	15.2	7850	504	26100	294	3360	148
PCB-172	256	15.2	5740	504	15000	294	1910	148
PCB-173	37.0	15.2	1400	504	2660	294	386	148
PCB-174	1910	15.2	35300	504	103000	294	14000	148
PCB-175	62.4	15.2	1830	504	4080	294	542	148
PCB-176	205	15.2	R	504	425	294	1680	148
PCB-177	1020	15.2	16600	504	55400	294	7260	148
PCB-178	299	15.2	5470	504	15900	294	2270	148
PCB-179	700	15.2	11700	504	39500	294	5160	148
PCB-180	3750	15.2	79200	504	215000	294	27200	148
PCB-181	U	15.2	U	504	U	294	U	148
PCB-182/187	1850	30.3	35000	1010	107000	588	14700	295
PCB-183	842	15.2	17100	504	55400	294	6750	148
PCB-184	U	15.2	545	504	U	294	U	148
PCB-185	238	15.2	7610	504	12300	294	1560	148
PCB-186	U	15.2	U	504	U	294	U	148
PCB-188	U	15.2	U	504	U	294	U	148
PCB-189	47.3	15.2	8230	J 504	4670	J 294	483	148
PCB-190	303	15.2	R		20100	294	2320	148
PCB-191	59.9	15.2	2180	504	3570	294	460	148
PCB-192	U	15.2	U	504	U	294	U	148
PCB-193	178	15.2	3200	504	8700	294	1150	148
PCB-194	774	15.2	26300	504	40700	294	6200	148
PCB-195	350	15.2	10000	504	18500	294	2630	148
PCB-196/203	1000	30.3	30400	1010	55100	588	8520	295

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 8 of 16

Laboratory Sample Number	1500770-04		1500770-06		1500770-07		1500770-08	
Sample Number	22-0026		222-0029		222-0030		222-0031	
Sample Location	GWC-1-0608		DWC-3-0608		DWC-4-0405		DWC-2-0405	
Percent Solids	91		77		90		90	
	Result	RL	Result	RL	Result	RL	Result	RL
Analyte	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g	pg/g
PCB-197	32.9	15.2	1310	504	2040	294	250	148
PCB-198	44.3	15.2	2260	504	2490	294	298	148
PCB-199	876	15.2	21300	504	47400	294	8550	148
PCB-200	118	15.2	3150	504	6500	294	1020	148
PCB-201	121	15.2	3120	504	6400	294	1050	148
PCB-202	175	15.2	5100	504	8950	294	1890	148
PCB-204	U	15.2	U	504	R		U	148
PCB-205	42.3	15.2	R		4090	294	335	148
PCB-206	513	15.2	55000	504	27800	294	5680	148
PCB-207	70.4	15.2	7020	504	3950	294	555	148
PCB-208	195	15.2	9660	504	6170	294	1530	148
PCB-209	1390	15.2	3960000	J 504	260000	294	8380	148
Total monoCB	255		222000		27000		998	
Total diCB	239		601000		103000		7660	
Total triCB	1740		543000		229000		36000	
Total tetraCB	6660		391000		433000		109000	
Total pentaCB	10100		342000		1010000		323000	
Total hexaCB	15400		349000		1260000		266000	
Total heptaCB	13600		264000		777000		103000	
Total octaCB	3540		103000		192000		30700	
Total nonaCB	778		71600		37900		7760	
DecaCB	1390		3960000		260000		8380	
Total PCB	53700		6850000		4330000		891000	
TEQ	1.55		131		90		28.7	





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 9 of 16

Laboratory Sample Number	1500770-10	B510008-BLK1	1500770-05
Sample Number	222-0027	Method Blank	222-0028
Sample Location	GWC-1-0810	9/2/15	DWC-3-0406
Percent Solids	93		76

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-1	U	14.9	U	16.7	81700	504
PCB-2	U	14.9	U	16.7	74500	504
PCB-3	27.8	14.9	U	16.7	41900	504
PCB-4/10	U	59.6	U	66.7	34000	2010
PCB-5/8	U	59.6	U	66.7	116000	2010
PCB-6	U	29.8	U	33.3	33700	1010
PCB-7/9	U	59.6	U	66.7	71500	2010
PCB-11	13.1	29.8	U	33.3	15900	1010
PCB-12/13	31.3	59.6	U	66.7	216000	2010
PCB-14	R		U	33.3	80900	1010
PCB-15	U	29.8	U	33.3	41700	1010
PCB-16/32	52.5	29.8	R		16200	1010
PCB-17	24.5	14.9	U	16.7	10800	504
PCB-18	73.1	14.9	U	16.7	30100	504
PCB-19	U	14.9	U	16.7	1830	504
PCB-20/21/33	63.6	44.7	U	50.0	41800	1510
PCB-22	49.9	14.9	U	16.7	18300	504
PCB-23	R		U	16.7	8330	504
PCB-24/27	U	29.8	U	33.3	24000	1010
PCB-25	U	14.9	U	16.7	3050	504
PCB-26	16.8	14.9	U	16.7	8340	504
PCB-28	102	14.9	U	16.7	73300	504
PCB-29	U	14.9	U	16.7	4570	504
PCB-30	U	14.9	U	16.7	1640	504
PCB-31	92.4	14.9	U	16.7	44800	504
PCB-34	U	14.9	U	16.7	6190	504
PCB-35	U	14.9	U	16.7	8600	504
PCB-36	U	14.9	U	16.7	3970	504
PCB-37	60.4	14.9	U	16.7	45200	504
PCB-38	U	14.9	U	16.7	1340	504
PCB-39	U	14.9	U	16.7	10300	504
PCB-40	R		U	16.7	3230	504
PCB-41/64/71/72	244	59.6	U	66.7	20800	2010
PCB-42/59	67.3	29.8	U	33.3	5970	1010
PCB-43/49	199	29.8	U	33.3	14600	1010
PCB-44	358	14.9	U	16.7	19600	504
PCB-45	25.2	14.9	U	16.7	2900	504
PCB-46	U	14.9	U	16.7	1290	504
PCB-47	52.0	14.9	U	16.7	9300	504
PCB-48/75	30.6	29.8	U	33.3	4690	1010
PCB-50	U	14.9	U	16.7	U	504
PCB-51	R		U	16.7	1110	504
PCB-52/69	648	29.8	U	33.3	25300	1010
PCB-53	28.4	14.9	U	16.7	3360	504
PCB-54	U	14.9	U	16.7	U	504
PCB-55	U	14.9	U	16.7	592	504
PCB-56/60	202	29.8	U	33.3	18700	1010
PCB-57	U	14.9	U	16.7	U	504
PCB-58	U	14.9	U	16.7	U	504
PCB-61/70	516	29.8	U	33.3	25900	1010
PCB-62	U	14.9	U	16.7	R	
PCB-63	U	14.9	U	16.7	1980	504

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 10 of 16

Laboratory Sample Number	1500770-10	B510008-BLK1	1500770-05
Sample Number	222-0027	Method Blank	222-0028
Sample Location	GWC-1-0810	9/2/2015	DWC-3-0406
Percent Solids	93		76

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-65	U	14.9	U	16.7	U	504
PCB-66/76	255	29.8	U	33.3	30900	1010
PCB-67	U	14.9	U	16.7	981	504
PCB-68	U	14.9	U	16.7	U	504
PCB-73	U	14.9	U	16.7	U	504
PCB-74	139	14.9	U	16.7	37300	504
PCB-77	52.1 J	14.9	U	16.7	3910 J	504
PCB-78	U	14.9	U	16.7	U	504
PCB-79	15.3	14.9	U	16.7	R	
PCB-80	U	14.9	U	16.7	U	504
PCB-81	R		U	16.7	576	504
PCB-82	197 J	14.9	U	16.7	3120 J	504
PCB-83	U J	14.9	U	16.7	U J	504
PCB-84/92	936 J	29.8	U	33.3	15500 J	1010
PCB-85/116	276 J	29.8	U	33.3	3860 J	1010
PCB-86	R		U	16.7	1800 J	504
PCB-87/117/125	889 J	44.7	U	50.0	14500 J	1510
PCB-88/91	205 J	29.8	U	33.3	3840 J	1010
PCB-89	U J	14.9	U	16.7	443 J	504
PCB-90/101	4260 J	29.8	U	33.3	69400 J	1010
PCB-93	U J	14.9	U	16.7	U J	504
PCB-94	U J	14.9	U	16.7	R	
PCB-95/98/102	3020 J	44.7	U	50.0	56500 J	1510
PCB-96	U J	14.9	U	16.7	U J	504
PCB-97	531 J	14.9	U	16.7	7490 J	504
PCB-99	622 J	14.9	U	16.7	17900 J	504
PCB-100	U J	14.9	U	16.7	R	
PCB-103	U J	14.9	U	16.7	R	
PCB-104	U J	14.9	U	16.7	R	
PCB-105	577	14.9	U	16.7	12000	504
PCB-106/118	1990 J	29.8	U	33.3	54800 J	1010
PCB-107/109	108 J	29.8	U	33.3	2440 J	1010
PCB-108/112	75.0 J	29.8	U	33.3	1400 J	1010
PCB-110	2890 J	14.9	U	16.7	51200	504
PCB-111/115	R		U	33.3	2020 J	1010
PCB-113	U J	14.9	U	16.7	U J	504
PCB-114	46.0	14.9	U	16.7	11300	504
PCB-119	21.3 J	14.9	U	16.7	1120 J	504
PCB-120	20.4 J	14.9	U	16.7	480 J	504
PCB-121	U J	14.9	U	16.7	U J	504
PCB-122	17.2	14.9	U	16.7	U	504
PCB-123	22.2 J	14.9	U	16.7	1620 J	504
PCB-124	140 J	14.9	U	16.7	2620 J	504
PCB-126	17.0	14.9	U	16.7	874	504
PCB-127	U	14.9	U	16.7	U	504
PCB-128/162	614	29.8	U	33.3	12200	1010
PCB-129	191	14.9	U	16.7	3510	504
PCB-130	393	14.9	U	16.7	2330	504
PCB-131	U	14.9	U	16.7	U	504
PCB-132/161	2210	29.8	U	33.3	38800	1010
PCB-133/142	162	29.8	U	33.3	3010	1010
PCB-134/143	350	29.8	U	33.3	7020	1010

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 11 of 16

Laboratory Sample Number	1500770-10	B510008-BLK1	1500770-05
Sample Number	222-0027	Method Blank	222-0028
Sample Location	GWC-1-0810	9/2/2015	DWC-3-0406
Percent Solids	93		76

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-135	1260	J 14.9	U	16.7	21900	J 504
PCB-136	1470	J 14.9	U	16.7	31500	J 504
PCB-137	121	14.9	U	16.7	4630	504
PCB-138/163/164	8330	44.7	U	50.0	132000	1510
PCB-139/149	9240	J 29.8	U	33.3	166000	J 1010
PCB-140	15.7	J 14.9	U	16.7	U	J 504
PCB-141	2460	14.9	U	16.7	45900	504
PCB-144	650	J 14.9	U	16.7	11800	J 504
PCB-145	U	J 14.9	U	16.7	U	J 504
PCB-146/165	1140	29.8	U	33.3	19100	1010
PCB-147	56.3	J 14.9	U	16.7	791	J 504
PCB-148	U	J 14.9	U	16.7	U	J 504
PCB-150	U	J 14.9	U	16.7	U	J 504
PCB-151	3230	J 14.9	U	16.7	55800	J 504
PCB-152	2.57	J 14.9	U	16.7	U	J 504
PCB-153	9140	14.9	U	16.7	162000	504
PCB-154	16.8	J 14.9	U	16.7	852	J 504
PCB-155	U	J 14.9	U	16.7	1000	J 504
PCB-156	602	14.9	U	16.7	24200	504
PCB-157	72.7	14.9	U	16.7	2360	504
PCB-158/160	819	29.8	U	33.3	15500	1010
PCB-159	U	14.9	U	16.7	U	504
PCB-166	U	14.9	U	16.7	2890	504
PCB-167	240	14.9	U	16.7	7020	504
PCB-168	U	14.9	U	16.7	U	504
PCB-169	U	14.9	U	16.7	U	504
PCB-170	3670	14.9	U	16.7	63500	504
PCB-171	1060	14.9	U	16.7	19200	504
PCB-172	668	14.9	U	16.7	11200	504
PCB-173	109	14.9	U	16.7	2350	504
PCB-174	5100	14.9	U	16.7	79000	504
PCB-175	190	14.9	U	16.7	3520	504
PCB-176	606	14.9	U	16.7	561	504
PCB-177	2660	14.9	U	16.7	41000	504
PCB-178	880	14.9	U	16.7	12900	504
PCB-179	2080	14.9	U	16.7	28900	504
PCB-180	9760	14.9	U	16.7	163000	504
PCB-181	U	14.9	U	16.7	U	504
PCB-182/187	5330	29.8	U	33.3	78900	1010
PCB-183	2400	14.9	U	16.7	40000	504
PCB-184	U	14.9	U	16.7	U	504
PCB-185	592	14.9	U	16.7	11400	504
PCB-186	U	14.9	U	16.7	U	504
PCB-188	U	14.9	U	16.7	U	504
PCB-189	127	14.9	U	16.7	6780	504
PCB-190	840	14.9	U	16.7	24900	504
PCB-191	155	14.9	U	16.7	3420	504
PCB-192	U	14.9	U	16.7	U	504
PCB-193	452	14.9	U	16.7	6870	504
PCB-194	1810	14.9	R		34100	504
PCB-195	910	14.9	U	16.7	15300	504
PCB-196/203	2470	29.8	U	33.3	51200	1010

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 12 of 16

Laboratory Sample Number	1500770-10		B510008-BLK1		1500770-05	
Sample Number	222-0027		Method Blank		222-0028	
Sample Location	GWC-1-0810		9/2/2015		DWC-3-0406	
Percent Solids	93				76	
Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-197	81.0	14.9	U	16.7	2110	504
PCB-198	99.5	14.9	U	16.7	3170	504
PCB-199	2250	14.9	U	16.7	37500	504
PCB-200	320	14.9	U	16.7	5850	504
PCB-201	281	14.9	U	16.7	5440	504
PCB-202	384	14.9	U	16.7	7390	504
PCB-204	U	14.9	U	16.7	R	
PCB-205	102	14.9	U	16.7	R	
PCB-206	552	14.9	U	16.7	41100	504
PCB-207	84.1	14.9	U	16.7	7050	504
PCB-208	144	14.9	U	16.7	10900	504
PCB-209	510	14.9	R		3200000	J 504
Total monoCB	44.6		U		198000	
Total diCB	101		U		610000	
Total triCB	570		U		363000	
Total tetraCB	2880		U		234000	
Total pentaCB	16900		U		337000	
Total hexaCB	42800		U		774000	
Total heptaCB	36700		U		598000	
Total octaCB	8700		2.17		162000	
Total nonaCB	780		U		59100	
DecaCB	510		U		3200000	
Total PCB	110000		2.17		6540000	
TEQ	1.82		0		94.8	



Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 13 of 16

Laboratory Sample Number B5I0116-BLK1 1500770-09
Sample Number Method Blank 222-0032
Sample Location 9/18/2015 DWC-1-0405
Percent Solids 86

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-1	U	25.0	18300	J 424
PCB-2	U	25.0	13600	424
PCB-3	U	25.0	8300	J 424
PCB-4/10	U	100	13700	1700
PCB-5/8	U	100	36100	1700
PCB-6	U	50.0	8920	848
PCB-7/9	U	100	13800	1700
PCB-11	U	50.0	2820	J 848
PCB-12/13	U	100	36000	J 1700
PCB-14	U	50.0	12700	J 848
PCB-15	U	50.0	24100	J 848
PCB-16/32	R		30400	848
PCB-17	U	25.0	17000	424
PCB-18	R		43600	424
PCB-19	U	25.0	5460	424
PCB-20/21/33	R		27900	1270
PCB-22	U		19900	424
PCB-23	U	25.0	1470	424
PCB-24/27	U	50.0	8020	848
PCB-25	U	25.0	3610	424
PCB-26	U	25.0	8070	424
PCB-28	R		68400	424
PCB-29	U	25.0	1130	424
PCB-30	U	25.0	U	424
PCB-31	R		40200	424
PCB-34	U	25.0	1370	424
PCB-35	U	25.0	2650	424
PCB-36	U	25.0	921	424
PCB-37	U	25.0	22600	J 424
PCB-38	U	25.0	461	424
PCB-39	U	25.0	U	424
PCB-40	U	25.0	7800	424
PCB-41/64/71/72	U	100	41400	J 1700
PCB-42/59	U	50.0	14300	848
PCB-43/49	U	50.0	32900	848
PCB-44	U	25.0	50000	424
PCB-45	U	25.0	8520	424
PCB-46	U	25.0	3600	424
PCB-47	U	25.0	12700	424
PCB-48/75	U	50.0	8330	848
PCB-50	U	25.0	U	424
PCB-51	U	25.0	2290	424
PCB-52/69	U	50.0	58000	848
PCB-53	U	25.0	7720	424
PCB-54	U	25.0	R	
PCB-55	U	25.0	895	424
PCB-56/60	U	50.0	25600	848
PCB-57	U	25.0	U	424
PCB-58	U	25.0	U	424
PCB-61/70	U	50.0	45100	848
PCB-62	U	25.0	U	424
PCB-63	U	25.0	1570	424

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 14 of 16

Laboratory Sample Number B5I0116-BLK1 1500770-09
Sample Number Method Blank 222-0032
Sample Location 9/18/2015 DWC-1-0405
Percent Solids 86

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-65	U	25.0	U	424
PCB-66/76	U	50.0	39300	848
PCB-67	U	25.0	1300	424
PCB-68	U	25.0	U	424
PCB-73	U	25.0	U	424
PCB-74	U	25.0	26300	424
PCB-77	U	25.0	4080 J	424
PCB-78	U	25.0	U	424
PCB-79	U	25.0	R	
PCB-80	U	25.0	U	424
PCB-81	U	25.0	U	424
PCB-82	U	25.0	10800	424
PCB-83	U	25.0	U	424
PCB-84/92	U	50.0	41200	848
PCB-85/116	U	50.0	13900 J	848
PCB-86	U	25.0	724	424
PCB-87/117/125	U	75.0	36500	1270
PCB-88/91	U	50.0	13100	848
PCB-89	U	25.0	1040	424
PCB-90/101	U	50.0	137000	848
PCB-93	U	25.0	U	424
PCB-94	U	25.0	494	424
PCB-95/98/102	U	75.0	117000	1270
PCB-96	U	25.0	748	424
PCB-97	U	25.0	25500	424
PCB-99	U	25.0	37500	424
PCB-100	U	25.0	U	424
PCB-103	U	25.0	577	424
PCB-104	U	25.0	U	424
PCB-105	U	25.0	22000 J	424
PCB-106/118	R		87800 J	848
PCB-107/109	U	50.0	4650	848
PCB-108/112	U	50.0	3680	848
PCB-110	U	25.0	113000	424
PCB-111/115	U	50.0	2120	848
PCB-113	U	25.0	U	424
PCB-114	U	25.0	5170	424
PCB-119	U	25.0	1520	424
PCB-120	U	25.0	664	424
PCB-121	U	25.0	U	424
PCB-122	U	25.0	495	424
PCB-123	U	25.0	1740	424
PCB-124	U	25.0	5410	424
PCB-126	U	25.0	676	424
PCB-127	U	25.0	U	424
PCB-128/162	U	50.0	24000	848
PCB-129	U	25.0	7410	424
PCB-130	U	25.0	2610	424
PCB-131	U	25.0	U	424
PCB-132/161	U	50.0	66000	848
PCB-133/142	U	50.0	4600	848
PCB-134/143	U	50.0	10600	848

Page 2 of 4

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 15 of 16

Laboratory Sample Number B5I0116-BLK1 1500770-09
Sample Number Method Blank 222-0032
Sample Location 9/18/2015 DWC-1-0405
Percent Solids 86

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-135	U	25.0	33900	424
PCB-136	U	25.0	40700	424
PCB-137	U	25.0	5130	424
PCB-138/163/164	R		249000	1270
PCB-139/149	U	50.0	244000	848
PCB-140	U	25.0	U	424
PCB-141	U	25.0	65300	424
PCB-144	U	25.0	16000	424
PCB-145	U	25.0	U	424
PCB-146/165	U	50.0	30700	848
PCB-147	U	25.0	1920	424
PCB-148	U	25.0	U	424
PCB-150	U	25.0	U	424
PCB-151	U	25.0	79500	424
PCB-152	U	25.0	U	424
PCB-153	R		253000	424
PCB-154	U	25.0	929	424
PCB-155	U	25.0	U	424
PCB-156	U	25.0	22000 J	424
PCB-157	U	25.0	3130	424
PCB-158/160	U	50.0	28500	848
PCB-159	U	25.0	U	424
PCB-166	U	25.0	1100	424
PCB-167	U	25.0	9450	424
PCB-168	U	25.0	U	424
PCB-169	U	25.0	U	424
PCB-170	U	25.0	94700	424
PCB-171	U	25.0	27200	424
PCB-172	U	25.0	15200	424
PCB-173	U	25.0	2800	424
PCB-174	U	25.0	113000	424
PCB-175	U	25.0	4420	424
PCB-176	U	25.0	U J	424
PCB-177	U	25.0	60300	424
PCB-178	U	25.0	17900	424
PCB-179	U	25.0	47400	424
PCB-180	U	25.0	231000	424
PCB-181	U	25.0	U	424
PCB-182/187	U	50.0	120000	848
PCB-183	U	25.0	61900	424
PCB-184	U	25.0	U	424
PCB-185	U	25.0	13300	424
PCB-186	U	25.0	U	424
PCB-188	U	25.0	U	424
PCB-189	U	25.0	5380	424
PCB-190	U	25.0	23800	424
PCB-191	U	25.0	4050	424
PCB-192	U	25.0	U	424
PCB-193	U	25.0	10000	424
PCB-194	U	25.0	42200	424
PCB-195	U	25.0	19400	424
PCB-196/203	U	50.0	59000	848

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.3 (cont) Results of the Analysis for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 31

Page 16 of 16

Laboratory Sample Number	B5I0116-BLK1	1500770-09
Sample Number	Method Blank	222-0032
Sample Location	9/18/2015	DWC-1-0405
Percent Solids		86

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g
PCB-197	U	25.0	2070	424
PCB-198	R	25.0	1750	424
PCB-199	U	25.0	50600	424
PCB-200	U	25.0	6980	424
PCB-201	U	25.0	6250	424
PCB-202	U	25.0	8570	424
PCB-204	U	25.0	U	424
PCB-205	U	25.0	R	
PCB-206	U	25.0	25700	424
PCB-207	U	25.0	3170	424
PCB-208	U	25.0	4710	424
PCB-209	U	25.0	540000	424
Total monoCB	U		40200	
Total diCB	43.4		148000	
Total triCB	4.33		304000	
Total tetraCB	46.2		393000	
Total pentaCB	4.66		686000	
Total hexaCB	U		1200000	
Total heptaCB	U		853000	
Total octaCB	3.51		197000	
Total nonaCB	U		33600	
DecaCB	U		540000	
Total PCB	102		4400000	
TEQ	0		72.8	





Table 1.4 Results of the Analysis of Hexachloroxanthene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method: Vista SOP 41 (rev.3)

Page 1 of 1

Laboratory Sample Number	B5H0163-BLK1	1500768-01	1500768-02	1500768-03
Sample Number	Method Blank	222-0023	222-0024	222-0025
Sample Location	8/27/2015	GWC-2-0407	GWC-2-0710	GWC-DUP
Percent Solids		94	93	91

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
1,2,4,5,7,8-HCX	U	20.0	26200 J	195	612000	194	588000	196

Table 1.4 (cont) Results of the Analysis of Hexachloroxanthene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #41(rev. 3)

Laboratory Sample Number	1500768-04	1500768-05	1500768-06	1500768-07
Sample Number	222-0026	222-0028	222-0029	222-0030
Sample Location	GWC-1-0608	DWC-3-0406	DWC-3-0608	DWC-4-0405
Percent Solids	93	82	81	89

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
1,2,4,5,7,8-HCX	31800	196	117	19.9	161	19.9	28.4	19.8

Table 1.4 (cont) Results of the Analysis of Hexachloroxanthene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #41(rev. 3)

Laboratory Sample Number	1500768-08	1500768-10	B5I0104-BLK1	1500768-09
Sample Number	222-0031	222-0027	Method Blank	222-0032
Sample Location	DWC-2-0405	GWC-1-0810	9/17/2015	DWC-1-0405
Percent Solids	90	93		88

Analyte	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g	Result pg/g	RL pg/g
1,2,4,5,7,8-HCX	U	19.7	15200	195	17.3 J	20.0	71.7 J	19.4

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.5 Results of the Analysis of Hexachlorophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #50 (rev.4)

Page 1 of 1

Laboratory Sample Number	B5I0027-blk1	1500767-01	1500767-02	1500767-03
Sample Number	Method Blank	222-0023	222-0024	222-0025
Sample Location	9/4/2015	GWC-2-0407	GWC-2-0710	GWC-DUP
Percent Solids		91	90	91
Analyte	Result ng/g	RL ng/g	Result ng/g	RL ng/g
Hexachlorophene	0.157 J	0.550	134000 J	27.4

Table 1.5 (cont) Results of the Analysis of Hexachlorophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #50 (rev.4)

Laboratory Sample Number	1500767-04	1500767-05	1500767-06	1500767-07
Sample Number	222-0026	222-0028	222-0029	222-0030
Sample Location	GWC-1-0608	DWC-3-0406	DWC-3-0608	DWC-4-0405
Percent Solids	91	76	76	90
Analyte	Result ng/g	RL ng/g	Result ng/g	RL ng/g
Hexachlorophene	189000 J	25.5	223	0.543

Table 1.5 (cont) Results of the Analysis of Hexachlorophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #50 (rev.4)

Laboratory Sample Number	1500767-08	1500767-10
Sample Number	222-0031	222-0027
Sample Location	DWC-2-0405	GWC-1-0810
Percent Solids	90	93
Analyte	Result ng/g	RL ng/g
Hexachlorophene	7.89	0.518

Table 1.5 (cont) Results of the Analysis of Hexachlorophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #50 (rev.4)

Laboratory Sample Number	B5I0135-BLK1	1500767-09
Sample Number	Method Blank	222-0032
Sample Location	9/22/2015	DWC-1-0405
Percent Solids		86
Analyte	Result ng/g	RL ng/g
Hexachlorophene	U	0.550

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 1.6 Results of the Analysis of Tetrachlorodibenzothiophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #53 Rev. 1

Page 1 of 1

Laboratory Sample Number	B5H0185-BLK1	1570769-01	1570769-02	1570769-03
Sample Number	Method Blank	222-0023	222-0024	222-0025
Sample Location	8/31/2015	GWC-2-0407	GWC-2-0710	GWC-DUP
Percent Solids		91	90	91
	Result RL	Result RL	Result RL	Result RL
	pg/g pg/g	pg/g pg/g	pg/g pg/g	pg/g pg/g
Analyte				
2,4,6,8-TCDT	U 1.00	2.25 1.00	3.38 0.967	4.47 0.989

Table 1.6 (cont) Results of the Analysis of Tetrachlorodibenzothiophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #53 Rev. 1

Laboratory Sample Number	1570769-04	1570769-05	1570769-08	1570769-10
Sample Number	222-0026	222-0028	222-0031	222-0027
Sample Location	GWC-1-0608	DWC-3-0406	DWC-2-0405	GWC-1-0810
Percent Solids	91	76	90	93
	Result RL	Result RL	Result RL	Result RL
	pg/g pg/g	pg/g pg/g	pg/g pg/g	pg/g pg/g
Analyte				
2,4,6,8-TCDT	4.05 0.991	7590 19.6	6110 9.99	11.9 0.982

Table 1.6 (cont) Results of the Analysis of Tetrachlorodibenzothiophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #53 Rev. 1

Laboratory Sample Number	B5I0117-BLK1	1570769-09
Sample Number	Method Blank	222-0032
Sample Location	9/8/2015	DWC-1-0405
Percent Solids		86
	Result RL	Result RL
	pg/g pg/g	pg/g pg/g
Analyte		
2,4,6,8-TCDT	U 25.0	79100 48.5

Table 1.6 (cont) Results of the Analysis of Tetrachlorodibenzothiophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Method Vista SOP #53 Rev. 1

Laboratory Sample Number	B5I0023-BLK1	1570769-06	1570769-07
Sample Number	Method Blank	222-0029	222-0030
Sample Location	9/3/2015	DWC-3-0608	DWC-4-0405
Percent Solids		77	90
	Result RL	Result RL	Result RL
	pg/g pg/g	pg/g pg/g	pg/g pg/g
Analyte			
2,4,6,8-TCDT	U 50.0	30500 947	50400 1010

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.1 Results of the LCS Analysis of Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Sample ID: LCS 08/28/15

Analyte	LCS Spike pg/g	LCS Recovered pg/g	LCS % Recovery	QC Limits % Recovery
2,3,7,8-TCDD	200	207	103	67-158
1,2,3,7,8-PeCDD	1000	1110	111	70-142
1,2,3,4,7,8-HxCDD	1000	1200	120	70-164
1,2,3,6,7,8-HxCDD	1000	1180	118	76-134
1,2,3,7,8,9-HxCDD	1000	1180	118	64-162
1,2,3,4,6,7,8-HpCDD	1000	1120	112	70-140
OCDD	2000	2190	110	78-144
2,3,7,8-TCDF	200	231	115	75-158
1,2,3,7,8-PeCDF	1000	1170	117	80-134
2,3,4,7,8-PeCDF	1000	1190	119	68-160
1,2,3,4,7,8-HxCDF	1000	1160	116	72-134
1,2,3,6,7,8-HxCDF	1000	1180	118	84-130
2,3,4,6,7,8-HxCDF	1000	1160	116	70-156
1,2,3,7,8,9-HxCDF	1000	1150	115	78-130
1,2,3,4,6,7,8-HpCDF	1000	1110	111	82-122
1,2,3,4,7,8,9-HpCDF	1000	1110	111	78-138
OCDF	2000	2320	116	63-170

Sample ID: LCS 09/17/15

Analyte	LCS Spike pg/g	LCS Recovered pg/g	LCS % Recovery	QC Limits % Recovery
2,3,7,8-TCDD	1000	1020	102	67-158
1,2,3,7,8-PeCDD	5000	5200	104	70-142
1,2,3,4,7,8-HxCDD	5000	5200	104	70-164
1,2,3,6,7,8-HxCDD	5000	5360	107	76-134
1,2,3,7,8,9-HxCDD	5000	5140	103	64-162
1,2,3,4,6,7,8-HpCDD	5000	5190	104	70-140
OCDD	10000	10500	105	78-144
2,3,7,8-TCDF	1000	1010	101	75-158
1,2,3,7,8-PeCDF	5000	5260	105	80-134
2,3,4,7,8-PeCDF	5000	5120	102	68-160
1,2,3,4,7,8-HxCDF	5000	5340	107	72-134
1,2,3,6,7,8-HxCDF	5000	5510	110	84-130
2,3,4,6,7,8-HxCDF	5000	5220	104	70-156
1,2,3,7,8,9-HxCDF	5000	5220	104	78-130
1,2,3,4,6,7,8-HpCDF	5000	5260	105	82-122
1,2,3,4,7,8,9-HpCDF	5000	5240	105	78-138
OCDF	10000	10700	107	63-170

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory



Table 2.2 Results of the MS/MSD Analysis of Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Based On Dry Weight

Page 1 of 1

Sample ID 222-0023

Analyte	Sample Result pg/g	MS Spike Added pg/g	MS Result pg/g	MS % Recovery	MSD Spike Added pg/g	MSD Result pg/g	MSD % Recovery	RPD	QC Limits RPD % Recovery	
2,3,7,8-TCDD	1860	200	1950	NC	192	1940	NC	1	≤20	50-150
1,2,3,7,8-PeCDD	285	999	1430	113	959	1440	118	1	≤20	50-150
1,2,3,4,7,8-HxCDD	115	999	1340	123	959	1370	130	2	≤20	50-150
1,2,3,6,7,8-HxCDD	173	999	1340	117	959	1370	125	2	≤20	50-150
1,2,3,7,8,9-HxCDD	141	999	1340	120	959	1360	127	1	≤20	50-150
1,2,3,4,6,7,8-HpCDD	341	999	1460	111	959	1650	136	12	≤20	50-150
OCDD	848	2000	3070	111	1920	3120	118	2	≤20	50-150
2,3,7,8-TCDF	16.6	200	177	80	192	178	84	1	≤20	50-150
1,2,3,7,8-PeCDF	6.68	999	1210	120	959	1170	122	3	≤20	50-150
2,3,4,7,8-PeCDF	16.4	999	1210	119	959	1200	123	1	≤20	50-150
1,2,3,4,7,8-HxCDF	14.9	999	1210	119	959	1180	122	3	≤20	50-150
1,2,3,6,7,8-HxCDF	12.3	999	1210	120	959	1180	122	3	≤20	50-150
2,3,4,6,7,8-HxCDF	150	999	1350	120	959	1320	122	2	≤20	50-150
1,2,3,7,8,9-HxCDF	4.24	999	1210	120	959	1170	121	3	≤20	50-150
1,2,3,4,6,7,8-HpCDF	66.1	999	1220	116	959	1180	117	3	≤20	50-150
1,2,3,4,7,8,9-HpCDF	5.42	999	1180	118	959	1140	118	3	≤20	50-150
OCDF	53.4	2000	2440	119	1920	2190	111	11	≤20	50-150

Sample ID 122-0032

Analyte	Sample Result pg/g	MS Spike Added pg/g	MS Result pg/g	MS % Recovery	MSD Spike Added pg/g	MSD Result pg/g	MSD % Recovery	RPD	QC Limits RPD % Recovery	
2,3,7,8-TCDD	370000	994	401000	NC	938	408000	NC	2	≤20	50-150
1,2,3,7,8-PeCDD	590	4970	5950	108	4690	5630	107	0.93	≤20	50-150
1,2,3,4,7,8-HxCDD	286	4970	5380	102	4690	5060	102	6	≤20	50-150
1,2,3,6,7,8-HxCDD	609	4970	5840	105	4690	5550	105	5	≤20	50-150
1,2,3,7,8,9-HxCDD	274	4970	5430	104	4690	5060	102	7	≤20	50-150
1,2,3,4,6,7,8-HpCDD	4240	4970	10100	117	4690	9770	118	3	≤20	50-150
OCDD	31100	9940	45800	148	9380	41800	113	9	≤20	50-150
2,3,7,8-TCDF	440	994	1320	88.7	938	1430	105	8	≤20	50-150
1,2,3,7,8-PeCDF	1140	4970	6610	110	4690	5900	101	11	≤20	50-150
2,3,4,7,8-PeCDF	7450	4970	14000	131	4690	12600	111	11	≤20	50-150
1,2,3,4,7,8-HxCDF	52500	4970	67800	NC	4690	59300	NC	13	≤20	50-150
1,2,3,6,7,8-HxCDF	9190	4970	16500	147	4690	15000	124	10	≤20	50-150
2,3,4,6,7,8-HxCDF	3430	4970	9240	117	4690	8400	106	10	≤20	50-150
1,2,3,7,8,9-HpCDF	1220	4970	6550	107	4690	6110	104	7	≤20	50-150
1,2,3,4,6,7,8-HpCDF	140000	4970	166000	NC	4690	152000	NC	9	≤20	50-150
1,2,3,4,7,8,9-HpCDF	6050	4970	12500	135	4690	10800	106	15	≤20	50-150
OCDF	275000	9940	315000	NC	9380	297000	NC	6	≤20	50-150

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.3 Results of the Labeled Standard Recoveries for Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 3

Laboratory Sample Number Sample Number	B5H0169-BLK1 Method Blank	1500771-01 222-0023	1500771-02 222-0024	1500771-03 222-0025	1500771-04 222-0026	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
13C-2,3,7,8-TCDD	89.5	90.0	78.9	77.6	75.7	25-164
13C-1,2,3,7,8-PeCDD	105	98.3	92.1	97.2	98.8	25-181
13C-1,2,3,4,7,8-HxCDD	82.7	79.7	71.1	73.3	75.0	32-141
13C-1,2,3,6,7,8-HxCDD	89.9	83.2	72.6	77.5	79.2	28-130
13C-1,2,3,7,8,9-HxCDD	85.4	80.8	72.1	77.0	78.2	32-141
13C-1,2,3,4,6,7,8-HpCDD	100	102	92.9	97.4	93.7	23-140
13C-OCDD	83.9	83.2	76.2	73.2	76.6	17-157
13C-2,3,7,8-TCDF	85.5	91.0	73.6	75.7	70.0	24-169
13C-1,2,3,7,8-PeCDF	107	99.5	91.5	95.9	97.4	24-185
13C-2,3,4,7,8-PeCDF	104	101	91.3	98.0	98.2	21-178
13C-1,2,3,4,7,8-HxCDF	94.1	89.0	78.1	81.4	85.1	26-152
13C-1,2,3,6,7,8-HxCDF	98.2	92.9	80.1	83.2	89.2	26-123
13C-2,3,4,6,7,8-HxCDF	96.2	90.7	78.3	80.8	86.0	28-136
13C-1,2,3,7,8,9-HxCDF	99.7	95.1	83.2	86.2	89.7	29-147
13C-1,2,3,4,6,7,8-HpCDF	103	109	94.9	98.9	102	28-143
13C-1,2,3,4,7,8,9-HpCDF	114	116	104	110	114	26-138
13C-OCDF	88.4	87.6	80.5	76.5	83.4	17-157
37Cl-2,3,7,8-TCDD	106	109	96.9	108	93.1	35-197

Laboratory Sample Number Sample Number	1500771-05 222-0028	1500771-06 222-0029	1500771-07 222-0030	1500771-08 222-0031	1500771-10 222-0027	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery
13C-2,3,7,8-TCDD	98.5	95.6	94.3	89.4	89.4	25-164
13C-1,2,3,7,8-PeCDD	108	75.6	97.1	94.1	97.4	25-181
13C-1,2,3,4,7,8-HxCDD	78.3	83.5	80.6	73.4	83.5	32-141
13C-1,2,3,6,7,8-HxCDD	85.7	88.8	84.0	82.9	86.0	28-130
13C-1,2,3,7,8,9-HxCDD	80.2	84.2	80.3	77.7	83.3	32-141
13C-1,2,3,4,6,7,8-HpCDD	69.6	105	96.5	84.5	89.6	23-140
13C-OCDD	53.7	58.6	46.8	67.9	65.4	17-157
13C-2,3,7,8-TCDF	72.3	70.3	82.3	77.9	83.4	24-169
13C-1,2,3,7,8-PeCDF	109	69.9	93.9	89.7	94.1	24-185
13C-2,3,4,7,8-PeCDF	85.3	70.1	92.0	89.0	92.0	21-178
13C-1,2,3,4,7,8-HxCDF	86.9	93.9	91.1	84.7	90.7	26-152
13C-1,2,3,6,7,8-HxCDF	91.8	101	95.7	90.1	93.6	26-123
13C-2,3,4,6,7,8-HxCDF	78.5	92.9	89.8	84.1	92.5	28-136
13C-1,2,3,7,8,9-HxCDF	94.4	96.3	92.6	88.2	95.0	29-147
13C-1,2,3,4,6,7,8-HpCDF	97.6	109	83.4	94.4	97.1	28-143
13C-1,2,3,4,7,8,9-HpCDF	84.0	79.7	106	90.9	97.7	26-138
13C-OCDF	68.6	82.4	50.1	69.1	67.2	17-157
37Cl-2,3,7,8-TCDD	337*	344*	258*	130	80.3	35-197

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.3 (cont.) Results of the Labeled Standard Recoveries for Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 2 of 3

Laboratory Sample Number	B5I0103-BLK1	1500771-09		
Sample Number	Method Blank	222-0032		
Analyte	% Recovery	% Recovery	% Recovery	QC Limits % Recovery
13C-2,3,7,8-TCDD	70.5	106		25-164
13C-1,2,3,7,8-PeCDD	67.1	96.0		25-181
13C-1,2,3,4,7,8-HxCDD	57.9	89.0		32-141
13C-1,2,3,6,7,8-HxCDD	58.3	88.6		28-130
13C-1,2,3,7,8,9-HxCDD	55.0	88.7		32-141
13C-1,2,3,4,6,7,8-HpCDD	47.0	85.5		23-140
13C-OCDD	40.6	85.0		17-157
13C-2,3,7,8-TCDF	71.5	95.2		24-169
13C-1,2,3,7,8-PeCDF	69.8	99.1		24-185
13C-2,3,4,7,8-PeCDF	70.3	98.3		21-178
13C-1,2,3,4,7,8-HxCDF	58.7	98.3		26-152
13C-1,2,3,6,7,8-HxCDF	58.4	95.7		26-123
13C-2,3,4,6,7,8-HxCDF	62.6	88.9		28-136
13C-1,2,3,7,8,9-HxCDF	59.8	89.8		29-147
13C-1,2,3,4,6,7,8-HpCDF	46.7	95.4		28-143
13C-1,2,3,4,7,8,9-HpCDF	48.9	87.5		26-138
13C-OCDF	42.4	101		17-157
37Cl-2,3,7,8-TCDD	82.2	175		35-197

Laboratory Sample Number	LCS	LCS	MS	MSD	
Sample Number	8/28/2015	9/17/2015	222-0023	222-0023	
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	QC Limits % Recovery
13C-2,3,7,8-TCDD	88.4	96.1	79.8	88.1	20-175
13C-1,2,3,7,8-PeCDD	102	94.8	94.8	107	21-227
13C-1,2,3,4,7,8-HxCDD	79.7	91.9	75.1	81.1	21-193
13C-1,2,3,6,7,8-HxCDD	85.8	89.5	80.7	87.4	25-163
13C-1,2,3,7,8,9-HxCDD	78.9	92.5	76.2	83.4	21-193
13C-1,2,3,4,6,7,8-HpCDD	95.7	85.8	91.8	100	26-166
13C-OCDD	78.7	77.8	73.4	82.4	13-199
13C-2,3,7,8-TCDF	87.1	94.8	77.3	82.2	22-152
13C-1,2,3,7,8-PeCDF	105	94.6	98.0	110	21-192
13C-2,3,4,7,8-PeCDF	105	96.0	98.6	109	13-328
13C-1,2,3,4,7,8-HxCDF	91.0	90.3	85.3	92.4	19-202
13C-1,2,3,6,7,8-HxCDF	95.3	89.4	87.3	94.5	21-159
13C-2,3,4,6,7,8-HxCDF	92.5	90.2	84.6	91.6	22-176
13C-1,2,3,7,8,9-HxCDF	98.0	90.6	88.7	96.9	17-205
13C-1,2,3,4,6,7,8-HpCDF	101	85.7	94.7	108	21-158
13C-1,2,3,4,7,8,9-HpCDF	108	86.3	99.7	113	20-186
13C-OCDF	80.0	79.3	74.6	90.5	13-199
37Cl-2,3,7,8-TCDD	108	99.0	97.6	109	31-191

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory



Table 2.3 (cont.) Results of the Labeled Standard Recoveries for Dioxins/Furans in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 3 of 3

Laboratory Sample Number Sample Number	MS 222-0032	MSD 222-0032	QC Limits % Recovery
Analyte	% Recovery	% Recovery	
13C-2,3,7,8-TCDD	115	112	20-175
13C-1,2,3,7,8-PeCDD	98.0	96.0	21-227
13C-1,2,3,4,7,8-HxCDD	92.6	93.5	21-193
13C-1,2,3,6,7,8-HxCDD	92.0	90.2	25-163
13C-1,2,3,7,8,9-HxCDD	91.5	91.3	21-193
13C-1,2,3,4,6,7,8-HpCDD	89.7	94.3	26-166
13C-OCDD	84.8	88.2	13-199
13C-2,3,7,8-TCDF	95.8	95.6	22-152
13C-1,2,3,7,8-PeCDF	99.7	99.1	21-192
13C-2,3,4,7,8-PeCDF	98.7	97.9	13-328
13C-1,2,3,4,7,8-HxCDF	103	102	19-202
13C-1,2,3,6,7,8-HxCDF	99.1	98.0	21-159
13C-2,3,4,6,7,8-HxCDF	92.2	93.1	22-176
13C-1,2,3,7,8,9-HxCDF	91.5	91.9	17-205
13C-1,2,3,4,6,7,8-HpCDF	101	100	21-158
13C-1,2,3,4,7,8,9-HpCDF	87.6	97.6	20-186
13C-OCDF	114	116	13-199
37Cl-2,3,7,8-TCDD	178	181	31-191

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.4 Results of the LCS Analysis of PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 2

Sample ID: LCS 09/01/15

Analyte	LCS Spike Added pg/g	LCS Spike Recovered pg/g	LCS % Recovery	QC Limits % Recovery
PCB-1	3330	2850	85.6	60-135
PCB-3	3330	2970	89.1	60-135
PCB-4/10	6670	6390	95.8	60-135
PCB-15	3330	3280	98.4	60-135
PCB-19	3330	3430	103	60-135
PCB-37	3330	3360	101	60-135
PCB-54	3330	3630	109	60-135
PCB-77	3330	3320	99.5	60-135
PCB-81	3330	3290	98.6	60-135
PCB-104	3330	3320	99.7	60-135
PCB-105	3330	2980	89.5	60-135
PCB-106/118	6670	6640	99.5	60-135
PCB-114	3330	3110	93.4	60-135
PCB-123	3330	3370	101	60-135
PCB-126	3330	3050	91.5	60-135
PCB-155	3330	3390	102	60-135
PCB-156	3330	3330	99.8	60-135
PCB-157	3330	3400	102	60-135
PCB-167	3330	3370	101	60-135
PCB-169	3330	3430	103	60-135
PCB-188	3330	3270	98	60-135
PCB-189	3330	3280	98.3	60-135
PCB-202	3330	3370	101	60-135
PCB-205	3330	3240	97.1	60-135
PCB-206	3330	3400	102	60-135
PCB-208	3330	3330	99.8	60-135
PCB-209	3330	3180	95.3	60-135

Sample ID: LCS 09/02/15

Analyte	LCS Spike Added pg/g	LCS Spike Recovered pg/g	LCS % Recovery	QC Limits % Recovery
PCB-1	3330	2490	74.8	60-135
PCB-3	3330	2550	76.6	60-135
PCB-4/10	6670	6180	92.8	60-135
PCB-15	3330	3180	95.4	60-135
PCB-19	3330	3250	97.6	60-135
PCB-37	3330	3430	103	60-135
PCB-54	3330	3340	100	60-135
PCB-77	3330	3160	94.7	60-135
PCB-81	3330	3060	91.8	60-135
PCB-104	3330	3430	103	60-135
PCB-105	3330	2900	86.9	60-135
PCB-106/118	6670	6660	99.8	60-135
PCB-114	3330	3050	91.4	60-135
PCB-123	3330	3330	99.8	60-135
PCB-126	3330	3090	92.8	60-135
PCB-155	3330	3420	103	60-135
PCB-156	3330	3160	94.8	60-135
PCB-157	3330	3200	96	60-135
PCB-167	3330	3150	94.5	60-135
PCB-169	3330	3230	96.8	60-135
PCB-188	3330	3190	95.8	60-135
PCB-189	3330	3280	98.3	60-135
PCB-202	3330	3350	101	60-135
PCB-205	3330	3240	97.2	60-135
PCB-206	3330	3400	102	60-135
PCB-208	3330	3340	100	60-135
PCB-209	3330	3250	97.4	60-135

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.4 (cont) Results of the LCS Analysis of PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 2 of 2

Sample ID: LCS 09/18/15

Analyte	LCS Spike Added pg/g	LCS Spike Recovered pg/g	LCS % Recovery	QC Limits % Recovery
PCB-1	5000	4050	81	60-135
PCB-3	5000	4140	82.9	60-135
PCB-4/10	10000	8550	85.5	60-135
PCB-15	5000	4520	90.4	60-135
PCB-19	5000	5050	101	60-135
PCB-37	5000	4880	97.5	60-135
PCB-54	5000	5120	102	60-135
PCB-77	5000	4780	95.6	60-135
PCB-81	5000	4790	95.7	60-135
PCB-104	5000	5010	100	60-135
PCB-105	5000	4180	83.6	60-135
PCB-106/118	10000	10200	102	60-135
PCB-114	5000	4400	88.1	60-135
PCB-123	5000	5140	103	60-135
PCB-126	5000	4300	86	60-135
PCB-155	5000	5230	105	60-135
PCB-156	5000	4810	96.2	60-135
PCB-157	5000	5100	102	60-135
PCB-167	5000	4860	97.3	60-135
PCB-169	5000	5030	101	60-135
PCB-188	5000	4960	99.2	60-135
PCB-189	5000	4970	99.5	60-135
PCB-202	5000	5170	103	60-135
PCB-205	5000	4930	98.7	60-135
PCB-206	5000	5040	101	60-135
PCB-208	5000	4980	99.7	60-135
PCB-209	5000	4750	94.9	60-135

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.5 Results of the MS/MSD Analysis for PCB Congeners in Soil
WA # SERAS-222 Passaic Soils RM 10.9 Investigation

Page 1 of 1

Sample ID: SERAS 267-0023

Analyte	Sample Conc pg/g	MS Spike Added pg/g	MS Conc pg/g	MS % Recovery	MSD Spike Added pg/g	MSD Conc pg/g	MSD % Recovery	RPD	QC Limits	
									RPD	% Recovery
PCB-1	29.5	3310	2560	76.6	3310	2680	80	5	≤ 20	60-135
PCB-3	192	3310	2810	79.1	3310	2860	81	2	≤ 20	60-135
PCB-4/10	U	6630	6790	102.0	6630	7120	107	5	≤ 20	60-135
PCB-15	54.3	3310	3220	95.8	3310	3370	100	4	≤ 20	60-135
PCB-19	17.5	3310	3320	99.9	3310	3480	105	5	≤ 20	60-135
PCB-37	113	3310	3500	102.0	3310	3680	108	6	≤ 20	60-135
PCB-54	1.75	3310	3390	102.0	3310	3460	104	2	≤ 20	60-135
PCB-77	93.3	3310	3230	94.6	3310	3330	98	3	≤ 20	60-135
PCB-81	5.49	3310	3130	94.5	3310	3270	99	4	≤ 20	60-135
PCB-104	U	3310	3310	99.9	3310	3470	105	5	≤ 20	60-135
PCB-105	255	3310	3100	85.8	3310	3380	94	10	≤ 20	60-135
PCB-106/118	637	6630	7310	101.0	6630	7820	108	7	≤ 20	60-135
PCB-114	13.6	3310	2970	89.4	3310	3190	96	7	≤ 20	60-135
PCB-123	14.8	3310	3380	102.0	3310	3460	104	2	≤ 20	60-135
PCB-126	8.85	3310	3100	93.5	3310	3230	97	4	≤ 20	60-135
PCB-155	U	3310	3300	99.6	3310	3460	105	5	≤ 20	60-135
PCB-156	78.9	3310	3240	95.6	3310	3420	101	5	≤ 20	60-135
PCB-157	20.2	3310	3140	94.2	3310	3340	100	6	≤ 20	60-135
PCB-167	35.8	3310	3170	94.8	3310	3280	98	3	≤ 20	60-135
PCB-169	U	3310	3280	99.2	3310	3360	102	3	≤ 20	60-135
PCB-188	U	3310	3170	95.8	3310	3350	101	5	≤ 20	60-135
PCB-189	12.9	3310	3350	101.0	3310	3420	103	2	≤ 20	60-135
PCB-202	44.0	3310	3420	102.0	3310	3490	104	2	≤ 20	60-135
PCB-205	12.0	3310	3230	97.1	3310	3420	103	6	≤ 20	60-135
PCB-206	159	3310	3570	103.0	3310	3720	108	5	≤ 20	60-135
PCB-208	59.1	3310	3420	101.0	3310	3580	107	6	≤ 20	60-135
PCB-209	387	3310	3620	98	3310	3840	104	6	≤ 20	60-135

Sample ID: SERAS 222-0032

Analyte	Sample Conc pg/g	MS Spike Added pg/g	MS Conc pg/g	MS % Recovery		MSD Spike Added pg/g	MSD Conc pg/g	MSD % Recovery	RPD	QC Limits	
										RPD	% Recovery
PCB-1	18300	4970	30000	235	*	4690	23400	109	25	* ≤ 20	60-135
PCB-3	8300	4970	16240	160	*	4690	12940	99	23	* ≤ 20	60-135
PCB-4/10	13700	9940	24200	106		9380	22200	91	9	≤ 20	60-135
PCB-15	24100	4970	31400	147		4690	30400	134	3	≤ 20	60-135
PCB-19	5460	4970	10180	95		4690	10740	113	-5	≤ 20	60-135
PCB-37	22600	4970	31000	169	*	4690	31400	188	* -1	≤ 20	60-135
PCB-54	R	4970	5540	111		4690	5260	112	5	≤ 20	60-135
PCB-77	4080	4970	7980	78		4690	8040	84	-1	≤ 20	60-135
PCB-81	356	4970	7000	134		4690	7200	146	-3	≤ 20	60-135
PCB-104	U	4970	5280	106		4690	5000	107	5	≤ 20	60-135
PCB-105	22000	4970	30200	165	*	4690	31800	209	* -5	≤ 20	60-135
PCB-106/118	87800	9940	110200	225	*	9380	109600	232	* 1	≤ 20	60-135
PCB-114	5170	4970	10980	117		4690	10580	115	4	≤ 20	60-135
PCB-123	1740	4970	6980	105		4690	7000	112	0	≤ 20	60-135
PCB-126	676	4970	5260	92		4690	5180	96	2	≤ 20	60-135
PCB-155	240	4970	5880	113		4690	5220	106	12	≤ 20	60-135
PCB-156	22000	4970	30800	177	*	4690	27800	124	10	≤ 20	60-135
PCB-157	3130	4970	8780	114		4690	8560	116	3	≤ 20	60-135
PCB-167	9450	4970	15480	121		4690	13980	97	10	≤ 20	60-135
PCB-169	U	4970	5080	102		4690	4860	104	4	≤ 20	60-135
PCB-188	117	4970	5280	104		4690	4840	101	9	≤ 20	60-135
PCB-189	5380	4970	10980	113		4690	9940	97	10	≤ 20	60-135
PCB-202	8570	4970	14340	116		4690	13360	102	7	≤ 20	60-135
PCB-205	R	4970	10040	NC		4690	9780	NC	3	≤ 20	60-135
PCB-206	25700	4970	32400	135		4690	31200	117	4	≤ 20	60-135
PCB-208	4710	4970	10120	109		4690	10220	117	-1	≤ 20	60-135
PCB-209	540000	4970	726000	NC		4690	614000	NC	17	≤ 20	60-135

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.6 Results of the Internal and Cleanup Recovery Standards Recoveries for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 5

Laboratory Sample Number	1500770-08	1500770-07	1500770-04	1500770-01	1500770-02
Sample Number	DWC-2-0405	DWC-4-0405	GWC-1-0608	GWC-2-0407	GWC-2-0710
Sample Location	222-0031	222-0030	22-0026	222-0023	222-0024
Sublocation	90	90	91	91	90

Analyte	Result Type	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	QC Limits
							% Recovery
13C-PCB-1	IS	94.7	70.2	61.6	59.1	58.6	5-145
13C-PCB-3	IS	94.7	70.4	71.5	64.9	61.1	5-145
13C-PCB-4	IS	81.6	69.9	74.4	66.0	58.6	5-145
13C-PCB-11	IS	103	76.3	80.8	76.8	77.7	5-145
13C-PCB-9	IS	86.7	72.6	76.5	72.3	66.00	5-145
13C-PCB-19	IS	89.5	73.3	73.8	70.3	67.5	5-145
13C-PCB-28	IS	106	77.7	83.5	86.4	75.3	5-145
13C-PCB-32	IS	89.3	70.1	75.1	74.0	72.4	5-145
13C-PCB-37	IS	115	86.7	91.6	99.7	89.8	5-145
13C-PCB-47	IS	92.5	81.7	83.5	83.8	83.0	5-145
13C-PCB-52	IS	96.8	81.9	85.9	87.0	84.6	5-145
13C-PCB-54	IS	79.3	69.7	71.1	69.6	67.6	5-145
13C-PCB-70	IS	95.6	86.0	82.5	87.3	84.1	5-145
13C-PCB-77	IS	101	67.4	83.1	92.3	86.0	10-145
13C-PCB-80	IS	93.0	86.3	82.3	88.7	84.0	10-145
13C-PCB-81	IS	96.1	88.6	82.8	90.3	84.8	10-145
13C-PCB-95	IS	95.3	84.7	84.5	87.1	86.7	10-145
13C-PCB-97	IS	101	90.9	87.7	91.6	87.4	10-145
13C-PCB-101	IS	97.6	84.7	84.9	88.8	87.3	10-145
13C-PCB-104	IS	92.6	82.1	82.2	83.3	83.9	10-145
13C-PCB-105	IS	115	110	106	112	103	10-145
13C-PCB-114	IS	109	106	103	108	98.1	10-145
13C-PCB-118	IS	101	89.2	87.3	90.1	88.9	10-145
13C-PCB-123	IS	102	91.5	90.4	94.7	92.6	10-145
13C-PCB-126	IS	117	105	108	117	107	10-145
13C-PCB-127	IS	113	109	105	112	103	10-145
13C-PCB-138	IS	95.8	82.2	85.5	89.8	86.6	10-145
13C-PCB-141	IS	94.6	85.0	85.8	90.1	85.4	10-145
13C-PCB-153	IS	90.7	83.3	83.9	87.8	84.5	10-145
13C-PCB-155	IS	82.1	60.4	65.2	66.2	60.7	10-145
13C-PCB-156	IS	90.7	86.8	81.8	88.8	84.8	10-145
13C-PCB-157	IS	87.3	89.5	80.1	88.2	83.1	10-145
13C-PCB-159	IS	93.8	88.0	83.2	89.5	85.4	10-145
13C-PCB-167	IS	90.7	86.0	82.0	88.5	85.5	10-145
13C-PCB-169	IS	85.2	85.0	76.3	88.9	83.0	10-145
13C-PCB-170	IS	77.0	72.9	64.8	76.6	69.7	10-145
13C-PCB-180	IS	78.8	72.3	66.5	75.7	70.3	10-145
13C-PCB-188	IS	78.8	68.4	72.3	72.7	69.7	10-145
13C-PCB-189	IS	70.8	67.4	59.0	70.3	67.5	10-145
13C-PCB-194	IS	97.4	92.4	86.7	88.8	89.0	10-145
13C-PCB-202	IS	68.1	53.3	56.4	59.7	56.4	10-145
13C-PCB-206	IS	84.1	75.6	73.7	79.9	59.3	10-145
13C-PCB-208	IS	86.5	65.5	72.2	73.6	72.5	10-145
13C-PCB-209	IS	78.3	72.7	68.4	72.3	72.0	10-145
13C-PCB-79	RS	95.8	103	83.8	88.7	86.7	10-145
13C-PCB-178	RS	86.3	84.5	71.7	74.00	72.6	10-145

RS=Recovery Standard

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.6 Results of the Internal and Cleanup Recovery Standards Recoveries for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 2 of 5

Laboratory Sample Number	1500770-03	1500770-05	1500770-06	1500770-10	1500770-09
Sample Number	GWC-DUP	DWC-3-0406	DWC-3-0608	GWC-1-0810	DWC-1-0405
Sample Location	222-0025	222-0028	222-0029	222-0027	222-0032
Sublocation	91	76	77	93	86

Analyte	Result Type	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	QC Limits
							% Recovery
13C-PCB-1	IS	70.6	113	119	81.2	94.2	5-145
13C-PCB-3	IS	69.2	115	114	73.9	89.6	5-145
13C-PCB-4	IS	66.3	90.1	93.1	66.6	85.2	5-145
13C-PCB-11	IS	84.1	103	105	88.3	90.9	5-145
13C-PCB-9	IS	73.5	98.1	94.8	73.2	88.8	5-145
13C-PCB-19	IS	72.0	103	100	74.6	80.2	5-145
13C-PCB-28	IS	78.9	101	93.9	80.6	84.1	5-145
13C-PCB-32	IS	76.1	97.5	96.0	79.9	80.1	5-145
13C-PCB-37	IS	93.9	119	100	97.5	95.1	5-145
13C-PCB-47	IS	84.5	101	88.8	94.5	88.3	5-145
13C-PCB-52	IS	87.1	107	89.8	96.5	94.6	5-145
13C-PCB-54	IS	71.6	87.0	80.7	77.7	79.3	5-145
13C-PCB-70	IS	84.8	102	89.2	92.3	91.4	5-145
13C-PCB-77	IS	88.5	112	78.6	95.3	63.2	10-145
13C-PCB-80	IS	85.5	97.3	89.8	91.7	93.3	10-145
13C-PCB-81	IS	87.0	102	86.5	93.5	93.3	10-145
13C-PCB-95	IS	86.5	100	99.8	93.8	89.4	10-145
13C-PCB-97	IS	92.5	108	104	94.1	94.9	10-145
13C-PCB-101	IS	90.0	108	107	93.3	95.1	10-145
13C-PCB-104	IS	86.1	103	90.1	93.4	89.3	10-145
13C-PCB-105	IS	104	117	109	105	118	10-145
13C-PCB-114	IS	98.7	120	121	99.9	107	10-145
13C-PCB-118	IS	90.7	110	105	97.7	96.9	10-145
13C-PCB-123	IS	95.2	120	101	103	96.5	10-145
13C-PCB-126	IS	110	141	120	109	124	10-145
13C-PCB-127	IS	104	119	120	105	119	10-145
13C-PCB-138	IS	87.1	117	117	94.0	92.7	10-145
13C-PCB-141	IS	87.8	95.7	91.9	90.1	97.5	10-145
13C-PCB-153	IS	85.2	91.2	95.7	90.2	96.5	10-145
13C-PCB-155	IS	62.5	76.7	81.2	76.5	64.4	10-145
13C-PCB-156	IS	87.0	98.2	96.7	93.8	102	10-145
13C-PCB-157	IS	85.9	98.2	92.2	92.3	96.9	10-145
13C-PCB-159	IS	87.3	97.9	104	94.1	96.4	10-145
13C-PCB-167	IS	86.6	103	103	93.1	100	10-145
13C-PCB-169	IS	85.6	106	97.4	91.2	102	10-145
13C-PCB-170	IS	73.6	88.3	86.4	84.1	83.0	10-145
13C-PCB-180	IS	71.2	81.8	76.8	83.4	81.3	10-145
13C-PCB-188	IS	71.7	86.3	87.1	80.0	73.7	10-145
13C-PCB-189	IS	68.9	86.0	74.2	80.6	78.7	10-145
13C-PCB-194	IS	91.7	109	99.7	93.8	91.9	10-145
13C-PCB-202	IS	56.3	63.8	71.1	70.0	60.0	10-145
13C-PCB-206	IS	58.3	94.8	91.0	90.6	83.4	10-145
13C-PCB-208	IS	76.2	96.3	94.4	83.1	79.5	10-145
13C-PCB-209	IS	75.8	108	105	86.0	77.4	10-145
13C-PCB-79	RS	90.1	114	97.2	91.7	95.8	10-145
13C-PCB-178	RS	75.9	96.4	106	84.5	76.0	10-145

RS=Recovery Standard

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.6 (cont) Results of the Internal and Cleanup Recovery Standards Recoveries for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 3 of 5

Laboratory Sample Number Sample Number Sample Location Percent Solids	B5H0184-BLK1 Method Blank 9/1/2015	B5I0008-BLK1 Method Blank 9/2/2015	B5I0116-BLK1 Method Blank 9/18/2015	222-0032 MS	222-0032 MSD	QC Limits % Recovery
Analyte	Result Type	% Recovery	% Recovery	% Recovery		
13C-PCB-1	IS	77.1	78.6	36.4	85.3	80.3
13C-PCB-3	IS	79.2	80.2	46.6	82.4	77.0
13C-PCB-4	IS	68.1	75.8	49.4	94.4	90.2
13C-PCB-11	IS	70.4	76.7	55.9	102	96.8
13C-PCB-9	IS	77.3	82.5	71.8	98.2	94.8
13C-PCB-19	IS	66.9	81.4	61.3	85.1	78.5
13C-PCB-28	IS	69.8	95.3	79.7	117	82.1
13C-PCB-32	IS	67.4	83.1	69.5	83.9	82.4
13C-PCB-37	IS	78.6	106	94.3	123	95.5
13C-PCB-47	IS	85.4	88.8	82.9	93.2	93.0
13C-PCB-52	IS	88.5	92.1	84.9	92.9	95.1
13C-PCB-54	IS	78.6	78.2	66.8	83.5	82.6
13C-PCB-70	IS	86.6	90.7	91.0	98.8	94.9
13C-PCB-77	IS	91.0	90.7	99.7	70.7	71.8
13C-PCB-80	IS	86.2	91.2	90.7	98.7	96.8
13C-PCB-81	IS	88.8	89.5	96.0	101	98.1
13C-PCB-95	IS	86.9	93.4	90.5	97.3	95.7
13C-PCB-97	IS	91.6	95.0	96.6	100	98.9
13C-PCB-101	IS	89.7	96.4	94.5	96.7	96.8
13C-PCB-104	IS	83.5	92.2	83.7	91.0	92.9
13C-PCB-105	IS	115	111	120	148	137
13C-PCB-114	IS	112	106	115	133	122
13C-PCB-118	IS	92.6	94.7	99.9	102	103
13C-PCB-123	IS	95.6	98.4	104	109	107
13C-PCB-126	IS	122	114	127	143	132
13C-PCB-127	IS	117	111	123	146	135
13C-PCB-138	IS	94.5	93.0	94.8	98.7	95.1
13C-PCB-141	IS	94.9	96.1	95.4	98.8	98.3
13C-PCB-153	IS	92.2	92.6	94.0	107	104
13C-PCB-155	IS	62.9	78.3	67.9	55.0	59.6
13C-PCB-156	IS	94.7	92.3	101	105	106
13C-PCB-157	IS	91.9	92.2	97.9	101	99.0
13C-PCB-159	IS	93.2	90.8	98.1	109	103
13C-PCB-167	IS	94.9	92.7	99.4	108	107
13C-PCB-169	IS	96.5	96.1	106	109	106
13C-PCB-170	IS	79.7	82.2	83.6	84.8	79.6
13C-PCB-180	IS	78.1	82.3	80.5	79.4	76.1
13C-PCB-188	IS	77.4	81.6	77.4	77.1	77.0
13C-PCB-189	IS	81.8	82.5	87.1	84.5	79.8
13C-PCB-194	IS	92.0	92.5	91.2	105	98.8
13C-PCB-202	IS	66.5	71.2	63.5	55.4	54.8
13C-PCB-206	IS	83.7	84.8	87.9	94.3	92.9
13C-PCB-208	IS	77.4	77.5	76.4	86.9	82.5
13C-PCB-209	IS	72.2	77.9	80.5	81.5	78.1
13C-PCB-79	RS	90.4	90.8	94.8	100	103
13C-PCB-178	RS	80.2	82.0	80.9	76.5	75.8

RS=Recovery Standard

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.6 (cont) Results of the Internal and Cleanup Recovery Standards Recoveries for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 4 of 5

Laboratory Sample Number
Sample Number
Sample Location
Sublocation

222-0023 MS 222-0023 MSD LCS 09/01/15 LCS 09/02/15 LCS 09/18/15

Analyte	Result Type	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	QC Limits
							% Recovery
13C-PCB-1	IS	70	69.1	65.1	85.8	40.9	15-145
13C-PCB-3	IS	72.5	73.5	68.2	85.3	47.3	15-145
13C-PCB-4	IS	67	69.4	59.8	78.6	49.7	15-145
13C-PCB-11	IS	69.6	71.6	64.5	79.9	55.8	15-145
13C-PCB-9	IS	73.7	75.3	72.4	84.2	69.8	15-145
13C-PCB-19	IS	70.7	72	61.7	84	59.8	15-145
13C-PCB-28	IS	72.2	76	68	94.1	78.1	15-145
13C-PCB-32	IS	74.7	74.9	65.2	83.4	69.4	15-145
13C-PCB-37	IS	81.8	82.8	84.4	100	103	15-145
13C-PCB-47	IS	80	79.3	82.5	89	81	15-145
13C-PCB-52	IS	81.3	84.3	85.6	90.7	83.5	15-145
13C-PCB-54	IS	66.8	71.7	72.3	78.1	66.3	15-145
13C-PCB-70	IS	78.7	82.5	86.4	91.2	92.8	15-145
13C-PCB-77	IS	82.4	86.6	87.4	94.3	101	40-145
13C-PCB-80	IS	78.7	82	85.6	90.3	93.5	40-145
13C-PCB-81	IS	79.8	82.5	86.4	93.2	97.3	40-145
13C-PCB-95	IS	81.3	81.5	87.1	91.3	90.4	40-145
13C-PCB-97	IS	82.1	86.2	88.7	94	97.4	40-145
13C-PCB-101	IS	80.1	85.1	89.4	92	94.8	40-145
13C-PCB-104	IS	78.7	80.1	86.3	85.3	81.1	40-145
13C-PCB-105	IS	97.8	97.3	116	113	124	40-145
13C-PCB-114	IS	91.6	92.7	112	106	116	40-145
13C-PCB-118	IS	82	84.1	91.3	95.4	101	40-145
13C-PCB-123	IS	86.7	87	90.9	98.2	105	40-145
13C-PCB-126	IS	98.3	103	120	115	130	40-145
13C-PCB-127	IS	95.6	100	117	113	124	40-145
13C-PCB-138	IS	82.4	84.2	90.6	96.1	100	40-145
13C-PCB-141	IS	80.8	83.3	92.7	95.2	101	40-145
13C-PCB-153	IS	80	81.2	91.6	93.5	97.7	40-145
13C-PCB-155	IS	69.3	69.3	68.1	74.6	67.1	40-145
13C-PCB-156	IS	81.7	82.6	91.1	94.6	104	40-145
13C-PCB-157	IS	82.2	83.4	88.7	93.9	101	40-145
13C-PCB-159	IS	83.9	81.5	91.5	93.9	102	40-145
13C-PCB-167	IS	82.3	85.7	92.5	94.9	103	40-145
13C-PCB-169	IS	82.8	85.5	95.3	95.5	106	40-145
13C-PCB-170	IS	74.8	76.6	73.4	82.7	84.4	40-145
13C-PCB-180	IS	72.8	74.3	74.6	83	83.9	40-145
13C-PCB-188	IS	70.3	71.1	75.5	83.4	80.3	40-145
13C-PCB-189	IS	73.9	77.4	80.7	90.6	84.6	40-145
13C-PCB-194	IS	81.8	83.6	91.2	93.7	93.3	40-145
13C-PCB-202	IS	61.3	63.1	64.3	72.6	65.7	40-145
13C-PCB-206	IS	75.3	77.1	82.6	86	92.4	40-145
13C-PCB-208	IS	64.7	68.4	77.2	77.3	80.3	40-145
13C-PCB-209	IS	67.2	67.6	75.1	82.4	87.1	40-145
13C-PCB-79	RS	80.7	82.9	87.5	91.9	96.4	10-145
13C-PCB-178	RS	69.9	73.8	74.6	83.5	84.2	10-145

RS=Recovery Standard

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.6 (cont) Results of the Internal and Cleanup Recovery Standards Recoveries for PCB Congeners in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 5 of 5

Laboratory Sample Number
Sample Number
Sample Location 222-0032 MS 222-0032 MSD
Sublocation

Analyte	Result Type	% Recovery	% Recovery	QC Limits
				% Recovery
13C-PCB-1	IS	85.3	80.3	15-145
13C-PCB-3	IS	82.4	77	15-145
13C-PCB-4	IS	94.4	90.2	15-145
13C-PCB-11	IS	98.2	94.8	15-145
13C-PCB-9	IS	102	96.8	15-145
13C-PCB-19	IS	85.1	78.5	15-145
13C-PCB-28	IS	117	82.1	15-145
13C-PCB-32	IS	83.9	82.4	15-145
13C-PCB-37	IS	123	95.5	15-145
13C-PCB-47	IS	93.2	93	15-145
13C-PCB-52	IS	92.9	95.1	15-145
13C-PCB-54	IS	83.5	82.6	15-145
13C-PCB-70	IS	98.8	94.9	15-145
13C-PCB-77	IS	70.7	71.8	40-145
13C-PCB-80	IS	98.7	96.8	40-145
13C-PCB-81	IS	101	98.1	40-145
13C-PCB-95	IS	97.3	95.7	40-145
13C-PCB-97	IS	100	98.9	40-145
13C-PCB-101	IS	96.7	96.8	40-145
13C-PCB-104	IS	91	92.9	40-145
13C-PCB-105	IS	148	137	40-145
13C-PCB-114	IS	133	122	40-145
13C-PCB-118	IS	102	103	40-145
13C-PCB-123	IS	109	107	40-145
13C-PCB-126	IS	143	132	40-145
13C-PCB-127	IS	146	135	40-145
13C-PCB-138	IS	98.7	95.1	40-145
13C-PCB-141	IS	98.8	98.3	40-145
13C-PCB-153	IS	107	104	40-145
13C-PCB-155	IS	55	59.6	40-145
13C-PCB-156	IS	105	106	40-145
13C-PCB-157	IS	101	99	40-145
13C-PCB-159	IS	109	103	40-145
13C-PCB-167	IS	108	107	40-145
13C-PCB-169	IS	109	106	40-145
13C-PCB-170	IS	84.8	79.6	40-145
13C-PCB-180	IS	79.4	76.1	40-145
13C-PCB-188	IS	77.1	77	40-145
13C-PCB-189	IS	84.5	79.8	40-145
13C-PCB-194	IS	105	98.8	40-145
13C-PCB-202	IS	55.4	54.8	40-145
13C-PCB-206	IS	94.3	92.9	40-145
13C-PCB-208	IS	86.9	82.5	40-145
13C-PCB-209	IS	81.5	78.1	40-145
13C-PCB-79	RS	100	103	10-145
13C-PCB-178	RS	76.5	75.8	10-145

RS=Recovery Standard

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.7 Results of the LCS Analysis of Hexachloroxanthene in Soil
 WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Sample ID: LCS 08/27/15

Analyte	LCS Spike pg/g	LCS Recovered pg/g	LCS % Recovery	QC Limits % Recovery
1,2,4,5,7,8-HCX	800	565	71	50-150

Sample ID: LCS 09/17/15

Analyte	LCS Spike pg/g	LCS Recovered pg/g	LCS % Recovery	QC Limits % Recovery
1,2,4,5,7,8-HCX	400	318	80	50-150

REPORT OF LABORATORY ANALYSIS
 This report shall not be reproduced, except in full,
 without the written consent of the ERT/SERAS Laboratory



Table 2.8 Results of the MS/MSD Analysis of Hexachloroxanthene in Soil
 WA # SERAS-222 Diamond Alkali - Dioxin Investigation
 Results Based on Dry Weight

Page 1 of 1

Sample ID: 222-0032

Analyte	Sample Result pg/g	MS Spike Added pg/g	MS Result pg/g	MS % Recovery	MSD Spike Added pg/g	MSD Result pg/g	MSD % Recovery	RPD	QC Limits	
									RPD	% Recovery
1,2,4,5,7,8-HCX	71.7	398	620	138	392	541	120	14	20	50-150

Sample ID: 222-0023

Analyte	Sample Result pg/g	MS Spike Added pg/g	MS Result pg/g	MS % Recovery		MSD Spike Added pg/g	MSD Result pg/g	MSD % Recovery		RPD		QC Limits	
												RPD	% Recovery
1,2,4,5,7,8-HCX	26200	7860	41000	190	*	7440	27300	15	*	40	*	20	50-150

REPORT OF LABORATORY ANALYSIS
 This report shall not be reproduced, except in full,
 without the written consent of the ERT/SERAS Laboratory





Table 2.9 Results of the Labeled Standard Recoveries for Hexachloroxanthene in Soil
 WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Laboratory Sample Number Sample Number	B5H0163-BLK1 Method Blank	1500768-01 222-0023	1500768-02 222-0024	1500768-03 222-0025	1500768-04 222-0026	1500768-05 222-0028	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
13C-1,2,3,7,8,9-HxCDF	118	126	116	104	127	116	25-150
13C-1,2,3,7,8,9-HxCDD	98.5	103	89.3	99.3	106	87.0	25-150

Laboratory Sample Number Sample Number	1500768-06 222-0029	1500768-07 222-0030	1500768-08 222-0031	1500768-10 222-0027	B5I0104-BLK1 Method Blank	1500768-09 222-0032	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
13C-1,2,3,7,8,9-HxCDF	107	109	114	123	95.2	105	25-150
13C-1,2,3,7,8,9-HxCDD	81.8	112	104	105	92.2	88.8	25-150

Laboratory Sample Number Sample Number Sample Location Percent Solids	LCS 8/27/2015	LCS 9/17/2015	MS 222-0032	MSD 222-0032	MS 222-0023	MSD 222-0023	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
13C-1,2,3,7,8,9-HxCDF	115	83.0	97.6	97.0	129	136	30-140
13C-1,2,3,7,8,9-HxCDD	102	116	86.6	96.5	107	104	30-140

REPORT OF LABORATORY ANALYSIS
 This report shall not be reproduced, except in full,
 without the written consent of the ERT/SERAS Laboratory





Table 2.10 Results of the LCS Analysis of Hexachlorophene in Soil
 WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Sample ID: LCS 09/04/15

Analyte	LCS Spike Added ng/g	LCS Spike Recovered ng/g	LCS % Recovery	QC Limits % Recovery
Hexachlorophene	100	98	98	50 - 120

Sample ID: LCS 09/22/15

Analyte	LCS Spike Added ng/g	LCS Spike Recovered ng/g	LCS % Recovery	QC Limits % Recovery
Hexachlorophene	100	97.5	97.5	50 - 120

REPORT OF LABORATORY ANALYSIS
 This report shall not be reproduced, except in full,
 without the written consent of the ERT/SERAS Laboratory



Table 2.11 Results of the MS/MSD Analysis of Hexachlorophene in Soil
 WA # SERAS-222 Diamond Alkali - Dioxin Investigation
 Results Based on Dry Weight

Page 1 of 1

Sample ID: SERAS 222-0023

Analyte	Sample Result ng/g	MS Spike Added ng/g	MS Result ng/g	MS % Recovery	MSD Spike Added ng/g	MSD Result ng/g	MSD % Recovery	RPD	QC Limits	
									RPD	% Recovery
HCP	134000	99.4	85900	NC	99.4	124000	NC	36	≤ 50	50-150

Sample ID: SERAS 222-0032

Analyte	Sample Result ng/g	MS Spike Added ng/g	MS Result ng/g	MS % Recovery	MSD Spike Added ng/g	MSD Result ng/g	MSD % Recovery	RPD	QC Limits	
									RPD	% Recovery
HCP	64.5	94.6	176	118	97.8	193	131	3	≤ 50	50-150

REPORT OF LABORATORY ANALYSIS
 This report shall not be reproduced, except in full,
 without the written consent of the ERT/SERAS Laboratory





Table 2.12 Results of the Labeled Standard Recoveries for Hexachlorophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Method : VISTA SOP #50

Laboratory Sample Number	B5I0027-BLK1	1500767-01	1500767-02	1500767-03	1500767-04	
Sample Number	Method Blank	222-0023	222-0024	222-0025	222-0026	
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	QC Limits % Recovery
13C-Hexachlorophene	77.6	15.4	31.5	16.2	48.4	5-153

Laboratory Sample Number	1500767-05	1500767-06	1500767-07	1500767-08	1500767-10	
Sample Number	222-0028	222-0029	222-0030	222-0031	222-0027	
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	QC Limits % Recovery
13C-Hexachlorophene	67.9	71.1	14.1	54.1	21.3	5-153

Laboratory Sample Number	B5I0135-BLK1	1500767-09				
Sample Number	Method Blank	222-0032				
Analyte	% Recovery	% Recovery				QC Limits % Recovery
13C-Hexachlorophene	74.2	46.7				5-153

Laboratory Sample Number	LCS	LCS	MS	MSD		
Sample Number	9/4/2015	9/22/2015	222-0023	222-0023		
Sample Location						
Analyte	% Recovery	% Recovery	% Recovery	% Recovery		QC Limits % Recovery
13C-Hexachlorophene	63.3	49.3	19.6	32.5		5-168

Laboratory Sample Number	MS	MSD				
Sample Number	222-0032	222-0032				
Sample Location						
Analyte	% Recovery	% Recovery				QC Limits % Recovery
13C-Hexachlorophene	42.5	43.1				5-168

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.13 Results of the LCS Analysis of Tetrachlorodibenzothiophene in Soil
 WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Sample ID: LCS 08/31/15

Analyte	LCS Spike Added pg/g	LCS Spike Recovered pg/g	LCS % Recovery	QC Limits % Recovery
2,4,6,8-TCDD	80.0	67.3	84.2	67-158

Sample ID: LCS 09/03/15

Analyte	LCS Spike Added pg/g	LCS Spike Recovered pg/g	LCS % Recovery	QC Limits % Recovery
2,4,6,8-TCDD	1000	972	97.2	67-158

Sample ID LCS 09/18/15

Analyte	LCS Spike Added pg/g	LCS Spike Recovered pg/g	LCS % Recovery	QC Limits % Recovery
2,4,6,8-TCDD	1000	806	80.6	67-158

REPORT OF LABORATORY ANALYSIS
 This report shall not be reproduced, except in full,
 without the written consent of the ERT/SERAS Laboratory



Table 2.14 Results of the MS/MSD Analysis of Tetrachlorodibenzothiophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation
Results Based on Dry Weight

Page 1 of 1

Sample ID: 222-0023

Analyte	Sample Result pg/g	MS Spike Added pg/g	MS Result pg/g	MS % Recovery	MSD Spike Added pg/g	MSD Result pg/g	MSD % Recovery	RPD	QC Limits	
									RPD	% Recovery
TCDT	2.25	78.5	69.1	85.3	79.1	70.2	86.2	2.0	20	50-150

Sample ID: 222-0032

Analyte	Sample Result pg/g	MS Spike Added pg/g	MS Result pg/g	MS % Recovery	MSD Spike Added pg/g	MSD Result pg/g	MSD % Recovery	RPD	QC Limits	
									RPD	% Recovery
TCDT	79100	969	77000	NC	938	75100	NC	2	20	50-150

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory





Table 2.15 Results of the Labeled Standard Recoveries for Tetrachlorodibenzothiophene in Soil
WA # SERAS-222 Diamond Alkali - Dioxin Investigation

Page 1 of 1

Laboratory Sample Number Sample Number	B5H0185-BLK1 Method Blank	1570769-01 222-0023	1570769-02 222-0024	1570769-03 222-0025	1570769-04 22-0026	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
13C-2,4,6,8-TCDD	108	117	112	94.8	115	25-164
37Cl-2,3,7,8-TCDD	92.4	101	118	129	103	35-197

Laboratory Sample Number Sample Number	1570769-05 222-0028	1570769-08 222-0031	1570769-10 222-0027	B5I0117-BLK1 Method Blank	1570769-09 222-0030	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	% Recovery	
13C-2,4,6,8-TCDD	64.4	106	117	97.1	103	25-164
37Cl-2,3,7,8-TCDD	341*	141	92.6	90.7	147	35-197

Laboratory Sample Number Sample Number	B5I0023-BLK1 Method Blank	1570769-06 222-0029	1570769-07 DWC-4-0405	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	
13C-2,4,6,8-TCDD	103	106	96.3	25-164
37Cl-2,3,7,8-TCDD	101	148	272*	35-197

Sample Number Sample Location	LCS 8/31/2015	LCS 9/3/2015	LCS 9/18/2015	QC Limits % Recovery
Analyte				
13C-2,4,6,8-TCDD	96.4	99.6	96.2	20-175
37Cl-2,3,7,8-TCDD	88.7	97.5	89.3	31-191

Sample Number Sample Location	222-0023 MS	222-0023 MSD	222-0032 MS	222-0032 MSD	QC Limits % Recovery
Analyte	% Recovery	% Recovery	% Recovery	% Recovery	
13C-2,4,6,8-TCDD	106	102	87.1	93.7	20-175
37Cl-2,3,7,8-TCDD	101	97.6	100	132	31-191

REPORT OF LABORATORY ANALYSIS
This report shall not be reproduced, except in full,
without the written consent of the ERT/SERAS Laboratory



LOCKHEED MARTIN

Lockheed Martin Information Systems & Global Solutions (U.S. - Civil)
Environmental Services SERAS
2890 Woodbridge Avenue, Building 607 Annex
Edison, NJ 08837-3679
Telephone: 732-321-4200, Facsimile: 732-321-4031

Vista Analytical Laboratory, Inc.
1104 Windfield Way
El Dorado Hills, CA 95762
916-673-1520 phone
Jennifer Miller
jmillier@vista-analytical.com

July 30, 2015

As per Lockheed Martin purchase order #1000000000, please analyze the following:

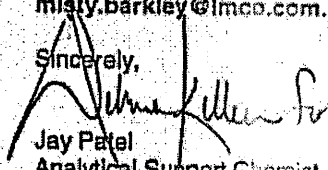
Analysis Requested	Matrix	# of samples	
17 Dioxin/Furans, homologs and TEQ by EPA 1631 with Non-2378 Dioxin/Furans	Sediment	13	
209 PCB Congeners by method 1631	Sediment	13	
Hexachlorophene	Sediment	13	
2,4,6,8-Tetrachlorodibenzothiophene	Sediment	13	
Hexachloroxanthene	Sediment	13	

The samples were sent to your lab on or about July 21st, 2015. Preliminary sample and QC result tables plus a signed copy of our Chain of Custody must be emailed to MISTY as outlined in the attached schedule. All applicable QA/QC (eg: MS/MSD) analysis as per method, will be performed on our sample matrix. The complete data package must include all items on the deliverables checklist.

All sample and QC results must be summarized in a .pdf file.

Please submit all technical questions and reports concerning this project to Misty Barkley at (732) 321-4205 or misty.barkley@lmco.com.

Sincerely,


Jay Patel
Analytical Support Chemist
Lockheed Martin / SERAS Project

cc: S. Blaze
J. Patel
D. Killen
C. Gussman

055

SERAS-222-DARR1-020316

Analysis/Method	Media	TAT for preliminary data in BD from sample receipt	TAT for final data level four including EDD from sample receipt	
17 Dioxin/Furans, homologs and TEQ by EPA 1613 with non-2378 Dioxins/Furans	Sediment	25	25	
Hexachlorophene (HCP)	Sediment	20	20	
209 PCB Congeners by method 1668	Sediment	25	25	
Hexachloroxanthene (HCOX)	Sediment	20	20	
2,4,6,8-Tetrachlorodibenzothiophene (TCDT)	Sediment	20	20	

Page 1 of 2

USEPA

Date Shipped: 8/20/2015

Carrier Name: FedEx

Airbill No:

CHAIN OF CUSTODY RECORD

Site #: 222

Contact Name: Christopher Gussman

Contact Phone: 732-321-4200

150767
25°C

No: 2-081915-061338-0006

Lab: Vista Analytical Lab

Lab Contact: Martha Maier

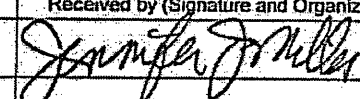
Lab Phone: 916-673-1520

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	222-0023	GWC-2-0407	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/13/2015	16:45	3	9oz Amber	<-10C, light protect	Y
	222-0023	GWC-2-0407	HCX	Soil	8/13/2015	16:45	2	4oz Amber	light protect, OC	Y
	222-0024	GWC-2-0710	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/13/2015	17:22	1	9oz Amber	<-10C, light protect	
	222-0024	GWC-2-0710	HCX	Soil	8/13/2015	17:22	1	4oz Amber	light protect, OC	
	222-0025	GWC-DUP	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/13/2015	17:22	1	9oz Amber	<-10C, light protect	
	222-0025	GWC-DUP	HCX	Soil	8/13/2015	17:22	1	4oz Amber	light protect, OC	
	222-0026	GWC-1-0608	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/13/2015	17:57	1	9oz Amber	<-10C, light protect	
	222-0026	GWC-1-0608	HCX	Soil	8/13/2015	17:57	1	4oz Amber	light protect, OC	
	222-0028	DWC-3-0406	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/18/2015	11:50	1	9oz Amber	<-10C, light protect	
	222-0028	DWC-3-0406	HCX	Soil	8/18/2015	11:50	1	4oz Amber	light protect, OC	

Special Instructions: Analyses as before including all 209 PCBs 

SAMPLES TRANSFERRED FROM

CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALI/Analysis	 EM/SEDA	8/21/15 7:35	 Jennifer Miller	8/21/15 8:35	7:40 AM

057

Page 2 of 2

USEPA

Date Shipped: 8/20/2015

Carrier Name: FedEx

Airbill No:

CHAIN OF CUSTODY RECORD

Site #: 222

Contact Name: Christopher Gussman

Contact Phone: 732-321-4200

1500767
258

No: 2-081915-061338-0006

Lab: Vista Analytical Lab

Lab Contact: Martha Maier

Lab Phone: 916-673-1520

Lab #	Sample #	Location	Analyses	Matrix	Collected	Sample Time	Numb Cont	Container	Preservative	Lab QC
	222-0029	DWC-3-0608	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/18/2015	12:00	1	9oz Amber	<-10C, light protect	
	222-0029	DWC-3-0608	HCX	Soil	8/18/2015	12:00	1	4oz Amber	light protect, 0C	
	222-0030	DWC-4-0405	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/18/2015	12:15	1	9oz Amber	<-10C, light protect	
	222-0030	DWC-4-0405	HCX	Soil	8/18/2015	12:15	1	4oz Amber	light protect, 0C	
	222-0031	DWC-2-0405	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/18/2015	13:15	1	9oz Amber	<-10C, light protect	
	222-0031	DWC-2-0405	HCX	Soil	8/18/2015	13:15	1	4oz Amber	light protect, 0C	
	222-0032	DWC-1-0405	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/18/2015	13:30	2	9oz Amber	<-10C, light protect	Y
	222-0032	DWC-1-0405	HCX	Soil	8/18/2015	13:30	2	4oz Amber	light protect, 0C	Y
	222-0027	GWC-1-0810	PCDDs/PCDFs,TCDF, PCBs,HCP	Soil	8/13/2015	18:08	1	9oz Amber	<-10C, light protect	
	222-0027	GWC-1-0810	HCX	Soil	8/13/2015	18:08	1	4oz Amber	light protect, 0C	

Special Instructions: Analyses as before including all 209 PCB congeners

SAMPLES TRANSFERRED FROM
CHAIN OF CUSTODY #

Items/Reason	Relinquished by (Signature and Organization)	Date/Time	Received by (Signature and Organization)	Date/Time	Sample Condition Upon Receipt
ALL Analyses	Christopher Gussman C-7/SERAS	8/21/15 7:35	Martha Maier	8/21/15 7:40	

058