Vista
Analytical Laboratory

January 04, 2013

Vista Project I.D.: 2110012

Mr. David Bessingpas
ARCADIS
6602 Excelsior Road
Baxter, MN 56425

Dear Mr. Bessingpas,

Enclosed are the results for the one aqueous and five soil samples received at Vista Analytical Laboratory on November 29, 2012. These samples were analyzed on a standard turn-around time, under your Project Name: Carbondale. These samples were extracted and analyzed using EPA Method 8290.

Vista Analytical Laboratory is committed to serving you effectively. If you require additional information, please contact me at 916-673-1520 or by email at calvin@vista-analytical.com.

Thank you for choosing Vista as part of your analytical support team.

Sincerely,

Matthe Maier (for)

Calvin Tanaka
Senior Scientist

ACCREDITED IN ACCORDANCE WITH nelac

Vista Analytical Laboratory certifies that the report herein meets all the requirements set forth by NELAC for those applicable test methods. Results relate only to the samples as received by the laboratory. This report should not be reproduced except in full without the written approval of Vista.

Vista Project No. 2110012
Case Narrative

Sample Condition on Receipt:

One aqueous and nine soil samples were received in good condition and within the method temperature requirements. The samples were received and stored securely in accordance with Vista standard operating procedures and EPA methodology. The samples were placed on HOLD as requested on the Chain of Custody form.

Samples A1-64, A1-65, A1-66, A1-67, DUP-2 and EB112812 were requested to be released from HOLD and analyzed on December 18, 2012.

Analytical Notes:

EPA Method 8290

These samples were extracted and analyzed for tetra- through octa-chlorinated dioxins and furans by EPA Method 8290 using a ZB-5 GC column. The extracts were analyzed using an DB-225 GC column to confirm concentrations greater than the lower calibration limit for 2,3,7,8-TCDF.

The concentrations of 2,3,4,7,8-PeCDF for all soil samples may be biased high and should be considered as estimated due to a possible co-eluting furan isomer that could not be resolved using the ZB-5 GC column. The concentrations of 1,2,3,7,8,9-HxCDF for samples A1-64 (Vista Analytical: 2110012-03), A1-67 (Vista Analytical: 2110012-08), and A1-66 (Vista Analytical: 2110012-09) may be biased high and should be considered as estimated due to a possible co-eluting furan isomer that could not be resolved using the ZB-5 GC column.

Holding Times

The method holding time criteria were met for these samples.

Quality Control

The Initial Calibration and Continuing Calibration Verifications met the method acceptance criteria.

A Method Blank and Ongoing Precision and Recovery (OPR) sample were extracted and analyzed with each preparation batch. No analytes were detected in the Method Blank associated with batch B2L0077. OCDD was detected in the Method Blank associated with batch B2L0072. The OPR recoveries were within the method acceptance criteria.

Labeled standard recoveries for all QC samples were within method acceptance criteria.

The internal standard recovery for 13C-OCDD all soil samples and 13-OCDF for sample A1-67 (Vista Analytical: 2110012-08) are above the method acceptance limits. This is most likely the result of the contribution from the high concentration of OCDD in the samples and OCDF in sample A1-67. By using the isotope dilution technique, internal standard recoveries outside of QC limits do not have an adverse

effect on data quality.

A matrix spike/matrix spike duplicate was performed on sample A1-67 (Vista Analytical: 2110012-08). The RPD for 1,2,3,6,7,8-HxCDD, the recoveries for OCDD and the recoveries and RPD for 1,2,3,4,6,7,8-HpCDD, 1,2,3,4,6,7,8-HpCDF, and OCDF are outside of the control limits due to sample non-homogeneity, matrix effects, and/or the high native concentrations in the unspiked sample.

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Sample Inventory Report

Vista Sample ID	Client Sample ID	Sampled	Received	Components/Containers
2110012-01	DUP 2	27-Nov-12 00:00	29-Nov-12 10:23	Glass Jar, 120mL
2110012-02	A1-65 (0-0.5)	27-Nov-12 14:30	29-Nov-12 10:23	Glass Jar, 120mL
2110012-03	A1-64 (0-0.5)	27-Nov-12 15:00	29-Nov-12 10:23	Glass Jar, 120mL
2110012-04	A1-79 (0-0.5)	28-Nov-12 09:00	29-Nov-12 10:23	Glass Jar, 120mL
2110012-05	A1-78 (0-0.5)	28-Nov-12 09:25	29-Nov-12 10:23	Glass Jar, 120mL
2110012-06	A1-77 (0-0.5)	28-Nov-12 09:50	29-Nov-12 10:23	Glass Jar, 120mL
2110012-07	A1-76 (0-0.5)	28-Nov-12 10:20	29-Nov-12 10:23	Glass Jar, 120mL
2110012-08	A1-67 (0-0.5)	28-Nov-12 11:15	29-Nov-12 10:23	Glass Jar, 120mL
2110012-09	A1-66 (0-0.5)	28-Nov-12 11:50	29-Nov-12 10:23	Glass Jar, 120mL
2110012-10	EB 112812	28-Nov-12 14:00	29-Nov-12 10:23	Amber Glass NM Bottle, 1000mL
		28-Nov-12 14:00	29-Nov-12 10:23	Amber Glass NM Bottle, 1000mL

ANALYTICAL RESULTS

Sample ID: Method Blank **EPA Method 8290**

Matrix:	Solid	QC Batch:	B2L0072	Lab Sample:	B2L0072-BLK1
Sample Size:	10.0 g	Date Extracted:	19-Dec-2012 14:30	Date Analyzed:	29-Dec-12 15:02 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	0.0824			IS	13C-2,3,7,8-TCDD	81.3	40 - 135	
1,2,3,7,8-PeCDD	ND	0.190				13C-1,2,3,7,8-PeCDD	91.6	40 - 135	
1,2,3,4,7,8-HxCDD	ND	0.106				13C-1,2,3,4,7,8-HxCDD	80.2	40 - 135	
1,2,3,6,7,8-HxCDD	ND	0.123				13C-1,2,3,6,7,8-HxCDD	75.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	0.121				13C-1,2,3,7,8,9-HxCDD	77.6	40 - 135	
1,2,3,4,6,7,8-HpCDD	ND	0.372				13C-1,2,3,4,6,7,8-HpCDD	73.6	40 - 135	
OCDD	1.30			J		13C-OCDD	93.3	40 - 135	
2,3,7,8-TCDF	ND	0.135				13C-2,3,7,8-TCDF	70.5	40 - 135	
1,2,3,7,8-PeCDF	ND	0.0851				13C-1,2,3,7,8-PeCDF	77.5	40 - 135	
2,3,4,7,8-PeCDF	ND	0.0833				13C-2,3,4,7,8-PeCDF	84.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.0644				13C-1,2,3,4,7,8-HxCDF	90.3	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.0743				13C-1,2,3,6,7,8-HxCDF	83.7	40 - 135	
2,3,4,6,7,8-HxCDF	ND	0.0771				13C-2,3,4,6,7,8-HxCDF	84.3	40 - 135	
1,2,3,7,8,9-HxCDF	ND	0.100				13C-1,2,3,7,8,9-HxCDF	87.0	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND		0.234			13C-1,2,3,4,6,7,8-HpCDF	78.9	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	0.131				13C-1,2,3,4,7,8,9-HpCDF	90.0	40 - 135	
OCDF	ND		0.231			13C-OCDF	88.6	40 - 135	
					CRS	37Cl-2,3,7,8-TCDD	80.1	40 - 135	
						Toxic Equivalent Quotient (TEQ) Data			
						TEQMinWHO2005Dioxin	0.000390		
TOTALS									
Total TCDD	ND	0.0824							
Total PeCDD	ND	0.190							
Total HxCDD	ND	0.244							
Total HpCDD	ND	0.552							
Total TCDF	ND	0.135							
Total PeCDF	ND	0.151							
Total HxCDF	ND	0.130							
Total HpCDF	ND		0.234						

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

The results are reported in dry weight.

The sample size is reported in wet weight.

Sample ID: OPR **EPA Method 8290**

Matrix: Solid	QC Batch: B2L0072	Lab Sample: B2L0072-BS1
Sample Size: 10.0 g	Date Extracted: 19-Dec-2012 14:30	Date Analyzed: 29-Dec-12 12:37 Column: ZB-5 Analyst: MAS

Analyte	%R	Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	99.3	70 - 130	IS	13C-2,3,7,8-TCDD	77.6	40 - 135
1,2,3,7,8-PeCDD	111	70 - 130		13C-1,2,3,7,8-PeCDD	80.1	40 - 135
1,2,3,4,7,8-HxCDD	97.6	70 - 130		13C-1,2,3,4,7,8-HxCDD	87.3	40 - 135
1,2,3,6,7,8-HxCDD	101	70 - 130		13C-1,2,3,6,7,8-HxCDD	84.8	40 - 135
1,2,3,7,8,9-HxCDD	100	70 - 130		13C-1,2,3,7,8,9-HxCDD	86.4	40 - 135
1,2,3,4,6,7,8-HpCDD	109	70 - 130		13C-1,2,3,4,6,7,8-HpCDD	79.1	40 - 135
OCDD	104	70 - 130		13C-OCDD	104	40 - 135
2,3,7,8-TCDF	113	70 - 130		13C-2,3,7,8-TCDF	71.2	40 - 135
1,2,3,7,8-PeCDF	127	70 - 130		13C-1,2,3,7,8-PeCDF	84.9	40 - 135
2,3,4,7,8-PeCDF	127	70 - 130		13C-2,3,4,7,8-PeCDF	86.6	40 - 135
1,2,3,4,7,8-HxCDF	114	70 - 130		13C-1,2,3,4,7,8-HxCDF	90.7	40 - 135
1,2,3,6,7,8-HxCDF	117	70 - 130		13C-1,2,3,6,7,8-HxCDF	84.1	40 - 135
2,3,4,6,7,8-HxCDF	118	70 - 130		13C-2,3,4,6,7,8-HxCDF	84.4	40 - 135
1,2,3,7,8,9-HxCDF	116	70 - 130		13C-1,2,3,7,8,9-HxCDF	88.7	40 - 135
1,2,3,4,6,7,8-HpCDF	116	70 - 130		13C-1,2,3,4,6,7,8-HpCDF	84.6	40 - 135
1,2,3,4,7,8,9-HpCDF	113	70 - 130		13C-1,2,3,4,7,8,9-HpCDF	98.8	40 - 135
OCDF	118	70 - 130		13C-OCDF	100	40 - 135
			CRS	37Cl-2,3,7,8-TCDD	68.2	40 - 135

LCL-UCL - Lower control limit - upper control limit

Approved By: William Luksemburg 04-Jan-2013 8:59

Sample ID: DUP 2

EPA Method 8290

Client Data
Name: ARCADIS
Project: Carbondale
Date Collected: 27-Nov-2012 0:00

Sample Data
Matrix: Soil
Sample Size: 13.3 g
% Solids: 76.6

Laboratory Data
Lab Sample: 2110012-01 Date Received: 29-Nov-2012 10:23
QC Batch: B2L0072 Date Extracted: 19-Dec-2012 14:30
Date Analyzed : 02-Jan-13 17:57 Column: DB-225 Analyst: MAS
29-Dec-12 17:26 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	0.579			
1,2,3,7,8-PeCDD	6.47			
1,2,3,4,7,8-HxCDD	12.4			
1,2,3,6,7,8-HxCDD	30.8			
1,2,3,7,8,9-HxCDD	29.5			
1,2,3,4,6,7,8-HpCDD	1160			
OCDD	26800			B, E
2,3,7,8-TCDF	0.769			
1,2,3,7,8-PeCDF	1.11			J
2,3,4,7,8-PeCDF	1.54			J
1,2,3,4,7,8-HxCDF	6.94			
1,2,3,6,7,8-HxCDF	7.50			
2,3,4,6,7,8-HxCDF	10.7			
1,2,3,7,8,9-HxCDF	1.59			J
1,2,3,4,6,7,8-HpCDF	186			
1,2,3,4,7,8,9-HpCDF	14.6			
OCDF	871			
TOTALS				
Total TCDD	9.10		10.2	
Total PeCDD	47.1			
Total HxCDD	274			
Total HpCDD	2150			
Total TCDF	20.7		23.7	
Total PeCDF	58.5			
Total HxCDF	205			
Total HpCDF	633			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	82.3	40 - 135	
	13C-1,2,3,7,8-PeCDD	81.7	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	80.3	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	79.9	40 - 135	
	13C-1,2,3,7,8,9-HxCDD	79.2	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDD	84.3	40 - 135	
	13C-OCDD	209	40 - 135	H
	13C-2,3,7,8-TCDF	79.2	40 - 135	
	13C-1,2,3,7,8-PeCDF	79.0	40 - 135	
	13C-2,3,4,7,8-PeCDF	85.0	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	89.1	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	82.3	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	78.6	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	80.3	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	81.9	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	92.4	40 - 135	
	13C-OCDF	107	40 - 135	
CRS	37Cl-2,3,7,8-TCDD	72.3	40 - 135	

Toxic Equivalent Quotient (TEQ) Data

TEQMinWHO2005Dioxin	39.5

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.

Approved By: William Luksemburg 04-Jan-2013 8:19

Sample ID: A1-65 (0-0.5)

EPA Method 8290

Client Data
Name: ARCADIS
Project: Carbondale
Date Collected: 27-Nov-2012 14:30

Sample Data
Matrix: Soil
Sample Size: 12.9 g
% Solids: 78.4

Laboratory Data
Lab Sample: 2110012-02 Date Received: 29-Nov-2012 10:23
QC Batch: B2L0072 Date Extracted: 19-Dec-2012 14:30
Date Analyzed : 29-Dec-12 18:14 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND		0.269	
1,2,3,7,8-PeCDD	2.04			J
1,2,3,4,7,8-HxCDD	3.52			
1,2,3,6,7,8-HxCDD	10.1			
1,2,3,7,8,9-HxCDD	8.17			
1,2,3,4,6,7,8-HpCDD	358			
OCDD	12700			B, E
2,3,7,8-TCDF	0.408			J
1,2,3,7,8-PeCDF	0.336			J
2,3,4,7,8-PeCDF	0.778			J
1,2,3,4,7,8-HxCDF	1.93			J
1,2,3,6,7,8-HxCDF	1.42			J
2,3,4,6,7,8-HxCDF	2.32			J
1,2,3,7,8,9-HxCDF	0.193			J
1,2,3,4,6,7,8-HpCDF	41.3			
1,2,3,4,7,8,9-HpCDF	3.13			
OCDF	169			
TOTALS				
Total TCDD	5.82		6.85	
Total PeCDD	17.9			
Total HxCDD	89.8			
Total HpCDD	832			
Total TCDF	8.38		9.37	
Total PeCDF	14.8			
Total HxCDF	47.4			
Total HpCDF	138			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	86.8	40 - 135	
	13C-1,2,3,7,8-PeCDD	85.9	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	79.2	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	73.6	40 - 135	
	13C-1,2,3,7,8,9-HxCDD	74.5	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDD	77.2	40 - 135	
	13C-OCDD	176	40 - 135	H
	13C-2,3,7,8-TCDF	79.1	40 - 135	
	13C-1,2,3,7,8-PeCDF	80.4	40 - 135	
	13C-2,3,4,7,8-PeCDF	82.9	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	88.1	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	81.7	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	79.8	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	83.2	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	83.7	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	90.5	40 - 135	
	13C-OCDF	97.7	40 - 135	
CRS	37Cl-2,3,7,8-TCDD	85.0	40 - 135	

Toxic Equivalent Quotient (TEQ) Data

TEQMinWHO2005Dioxin	13.0

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.

Approved By: William Luksemburg 04-Jan-2013 8:19

Sample ID: A1-64 (0-0.5)

EPA Method 8290

Client Data
Name: ARCADIS
Project: Carbondale
Date Collected: 27-Nov-2012 15:00

Sample Data
Matrix: Soil
Sample Size: 12.7 g
% Solids: 79.4

Laboratory Data
Lab Sample: 2110012-03 Date Received: 29-Nov-2012 10:23
QC Batch: B2L0072 Date Extracted: 19-Dec-2012 14:30
Date Analyzed : 02-Jan-13 18:29 Column: DB-225 Analyst: MAS
29-Dec-12 19:03 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	0.301			J
1,2,3,7,8-PeCDD	1.64			J
1,2,3,4,7,8-HxCDD	2.88			
1,2,3,6,7,8-HxCDD	7.22			
1,2,3,7,8,9-HxCDD	6.96			
1,2,3,4,6,7,8-HpCDD	344			
OCDD	17700			B, E
2,3,7,8-TCDF	0.652			
1,2,3,7,8-PeCDF	0.419			J
2,3,4,7,8-PeCDF	0.524			J
1,2,3,4,7,8-HxCDF	1.48			J
1,2,3,6,7,8-HxCDF	1.09			J
2,3,4,6,7,8-HxCDF	1.76			J
1,2,3,7,8,9-HxCDF	0.139			J
1,2,3,4,6,7,8-HpCDF	25.8			
1,2,3,4,7,8,9-HpCDF	1.88			J
OCDF	112			
TOTALS				
Total TCDD	9.13		10.5	
Total PeCDD	18.4			
Total HxCDD	75.2			
Total HpCDD	759			
Total TCDF	9.56		11.8	
Total PeCDF	13.3			
Total HxCDF	31.5			
Total HpCDF	88.7			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	79.5	40 - 135	
	13C-1,2,3,7,8-PeCDD	83.1	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	87.0	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	80.9	40 - 135	
	13C-1,2,3,7,8,9-HxCDD	80.4	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDD	81.6	40 - 135	
	13C-OCDD	201	40 - 135	H
	13C-2,3,7,8-TCDF	75.6	40 - 135	
	13C-1,2,3,7,8-PeCDF	81.6	40 - 135	
	13C-2,3,4,7,8-PeCDF	86.5	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	90.7	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	80.5	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	79.9	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	82.6	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	84.0	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	96.4	40 - 135	
	13C-OCDF	105	40 - 135	
CRS	37Cl-2,3,7,8-TCDD	69.4	40 - 135	

Toxic Equivalent Quotient (TEQ) Data

TEQMinWHO2005Dioxin	13.4

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.

Approved By: William Luksemburg 04-Jan-2013 8:19

Sample ID: A1-67 (0-0.5)

EPA Method 8290

Client Data
Name: ARCADIS
Project: Carbondale
Date Collected: 28-Nov-2012 11:15

Sample Data
Matrix: Soil
Sample Size: 12.3 g
% Solids: 81.7

Laboratory Data
Lab Sample: 2110012-08 Date Received: 29-Nov-2012 10:23
QC Batch: B2L0072 Date Extracted: 19-Dec-2012 14:30
Date Analyzed : 29-Dec-12 20:39 Column: ZB-5 Analyst: MAS
29-Dec-12 21:27 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	0.782			
1,2,3,7,8-PeCDD	10.5			
1,2,3,4,7,8-HxCDD	31.4			
1,2,3,6,7,8-HxCDD	95.0			
1,2,3,7,8,9-HxCDD	79.3			
1,2,3,4,6,7,8-HpCDD	5010			E
OCDD	170000			D, B, E
2,3,7,8-TCDF	0.479			J
1,2,3,7,8-PeCDF	0.807			J
2,3,4,7,8-PeCDF	1.58			J
1,2,3,4,7,8-HxCDF	7.87			
1,2,3,6,7,8-HxCDF	5.54			
2,3,4,6,7,8-HxCDF	11.1			
1,2,3,7,8,9-HxCDF	0.737			J
1,2,3,4,6,7,8-HpCDF	468			
1,2,3,4,7,8,9-HpCDF	29.3			
OCDF	3970			
TOTALS				
Total TCDD	4.51		5.46	
Total PeCDD	52.5			
Total HxCDD	601			
Total HpCDD	8240			
Total TCDF	9.56		10.2	
Total PeCDF	34.4		38.6	
Total HxCDF	327			
Total HpCDF	2250			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	85.5	40 - 135	
	13C-1,2,3,7,8-PeCDD	93.8	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	84.2	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	80.3	40 - 135	
	13C-1,2,3,7,8,9-HxCDD	81.7	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDD	123	40 - 135	
	13C-OCDD	302	40 - 135	D, H
	13C-2,3,7,8-TCDF	72.4	40 - 135	
	13C-1,2,3,7,8-PeCDF	84.4	40 - 135	
	13C-2,3,4,7,8-PeCDF	83.9	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	98.5	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	89.1	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	87.3	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	90.9	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	93.6	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	98.6	40 - 135	
	13C-OCDF	170	40 - 135	H
CRS	37Cl-2,3,7,8-TCDD	79.1	40 - 135	

Toxic Equivalent Quotient (TEQ) Data

TEQMinWHO2005Dioxin	142

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.

Approved By: William Luksemburg 04-Jan-2013 8:19

Sample ID: Matrix Spike **EPA Method 8290**

Source Client ID:	A1-67 (0-0.5)	QC Batch:	B2L0072	Lab Sample:	B2L0072-MS1/B2L0072-MSD1
Source LabNumber:	2110012-08	Date Extracted:	19-Dec-2012 14:30	Date Analyzed:	29-Dec-12 22:15 Column: ZB-5 Analyst: MAS
Matrix:	Solid				30-Dec-12 02:31 Column: ZB-5 Analyst: MAS
Sample Size:	12.2/12.2 g				

Analyte	Spike-MS pg/g	MS %R	Spike-MSD pg/g	MSD %R	RPD		Labeled Standard	MS - %R	MSD - %R
2,3,7,8-TCDD	20.0	98.6	20.0	94.1	4.66	IS	13C-2,3,7,8-TCDD	87.8	74.2
1,2,3,7,8-PeCDD	100	107	100	116	8.16		13C-1,2,3,7,8-PeCDD	91.6	82.7
1,2,3,4,7,8-HxCDD	100	90.7	100	100	10.1		13C-1,2,3,4,7,8-HxCDD	89.0	79.4
1,2,3,6,7,8-HxCDD	100	82.4	100	114	32.0		13C-1,2,3,6,7,8-HxCDD	86.6	77.2
1,2,3,7,8,9-HxCDD	100	115	100	109	5.40		13C-1,2,3,7,8,9-HxCDD	77.2	76.4
1,2,3,4,6,7,8-HpCDD	100	*	100	70.8	*		13C-1,2,3,4,6,7,8-HpCDD	102	91.3
OCDD	200	*	200	*	*		13C-OCDD	260	251
2,3,7,8-TCDF	20.0	118	20.0	101	15.3		13C-2,3,7,8-TCDF	84.7	57.6
1,2,3,7,8-PeCDF	100	129	100	126	2.26		13C-1,2,3,7,8-PeCDF	92.0	73.7
2,3,4,7,8-PeCDF	100	119	100	118	0.587		13C-2,3,4,7,8-PeCDF	103	83.0
1,2,3,4,7,8-HxCDF	100	118	100	117	1.14		13C-1,2,3,4,7,8-HxCDF	88.0	81.6
1,2,3,6,7,8-HxCDF	100	120	100	110	8.81		13C-1,2,3,6,7,8-HxCDF	83.2	79.1
2,3,4,6,7,8-HxCDF	100	121	100	115	5.34		13C-2,3,4,6,7,8-HxCDF	82.2	82.0
1,2,3,7,8,9-HxCDF	100	119	100	117	1.25		13C-1,2,3,7,8,9-HxCDF	88.7	88.1
1,2,3,4,6,7,8-HpCDF	100	19.1	100	111	141		13C-1,2,3,4,6,7,8-HpCDF	93.2	84.6
1,2,3,4,7,8,9-HpCDF	100	112	100	120	7.28		13C-1,2,3,4,7,8,9-HpCDF	111	99.4
OCDF	200	*	200	121	*		13C-OCDF	112	106
						CRS	37Cl-2,3,7,8-TCDD	78.1	72.0

Approved By: William Luksemburg 04-Jan-2013 8:59

Sample ID: A1-66 (0-0.5)

EPA Method 8290

Client Data
Name: ARCADIS
Project: Carbondale
Date Collected: 28-Nov-2012 11:50

Sample Data
Matrix: Soil
Sample Size: 13.1 g
% Solids: 77.5

Laboratory Data
Lab Sample: 2110012-09 Date Received: 29-Nov-2012 10:23
QC Batch: B2L0072 Date Extracted: 19-Dec-2012 14:30
Date Analyzed : 02-Jan-13 19:01 Column: DB-225 Analyst: MAS
29-Dec-12 19:51 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/g)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	0.870			
1,2,3,7,8-PeCDD	4.85			
1,2,3,4,7,8-HxCDD	11.5			
1,2,3,6,7,8-HxCDD	44.5			
1,2,3,7,8,9-HxCDD	27.1			
1,2,3,4,6,7,8-HpCDD	1530			
OCDD	30900			B, E
2,3,7,8-TCDF	1.65			
1,2,3,7,8-PeCDF	2.29			J
2,3,4,7,8-PeCDF	3.86			
1,2,3,4,7,8-HxCDF	7.81			
1,2,3,6,7,8-HxCDF	5.86			
2,3,4,6,7,8-HxCDF	9.08			
1,2,3,7,8,9-HxCDF	0.745			J
1,2,3,4,6,7,8-HpCDF	189			
1,2,3,4,7,8,9-HpCDF	13.1			
OCDF	718			
TOTALS				
Total TCDD	7.00		7.30	
Total PeCDD	36.3			
Total HxCDD	257			
Total HpCDD	2610			
Total TCDF	30.5			
Total PeCDF	52.9			
Total HxCDF	170			
Total HpCDF	639			

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	75.2	40 - 135	
	13C-1,2,3,7,8-PeCDD	85.6	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	67.6	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	64.3	40 - 135	
	13C-1,2,3,7,8,9-HxCDD	64.8	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDD	72.8	40 - 135	
	13C-OCDD	198	40 - 135	H
	13C-2,3,7,8-TCDF	66.3	40 - 135	
	13C-1,2,3,7,8-PeCDF	76.8	40 - 135	
	13C-2,3,4,7,8-PeCDF	79.7	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	82.5	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	74.1	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	71.6	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	74.6	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	75.5	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	80.0	40 - 135	
	13C-OCDF	95.0	40 - 135	
CRS	37Cl-2,3,7,8-TCDD	76.1	40 - 135	

Toxic Equivalent Quotient (TEQ) Data

TEQMinWHO2005Dioxin	44.6

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration

LCL-UCL- Lower control limit - upper control limit
The results are reported in dry weight.
The sample size is reported in wet weight.

Approved By: William Luksemburg 04-Jan-2013 8:19

Sample ID: **Method Blank** **EPA Method 8290**

Matrix:	Aqueous	QC Batch:	B2L0077	Lab Sample:	B2L0077-BLK1
Sample Size:	1.00 L	Date Extracted:	20-Dec-2012 8:01	Date Analyzed:	27-Dec-12 12:29 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers		Labeled Standard	%R	LCL-UCL	Qualifiers
2,3,7,8-TCDD	ND	1.36			IS	13C-2,3,7,8-TCDD	78.4	40 - 135	
1,2,3,7,8-PeCDD	ND	1.26				13C-1,2,3,7,8-PeCDD	82.8	40 - 135	
1,2,3,4,7,8-HxCDD	ND	1.57				13C-1,2,3,4,7,8-HxCDD	75.7	40 - 135	
1,2,3,6,7,8-HxCDD	ND	1.65				13C-1,2,3,6,7,8-HxCDD	71.7	40 - 135	
1,2,3,7,8,9-HxCDD	ND	1.82				13C-1,2,3,7,8,9-HxCDD	73.1	32 - 141	
1,2,3,4,6,7,8-HpCDD	ND	3.36				13C-1,2,3,4,6,7,8-HpCDD	71.3	40 - 135	
OCDD	ND	3.43				13C-OCDD	83.8	40 - 135	
2,3,7,8-TCDF	ND	0.936				13C-2,3,7,8-TCDF	72.8	40 - 135	
1,2,3,7,8-PeCDF	ND	1.40				13C-1,2,3,7,8-PeCDF	77.8	40 - 135	
2,3,4,7,8-PeCDF	ND	1.44				13C-2,3,4,7,8-PeCDF	77.5	40 - 135	
1,2,3,4,7,8-HxCDF	ND	0.846				13C-1,2,3,4,7,8-HxCDF	78.5	40 - 135	
1,2,3,6,7,8-HxCDF	ND	0.918				13C-1,2,3,6,7,8-HxCDF	76.0	40 - 135	
2,3,4,6,7,8-HxCDF	ND	1.05				13C-2,3,4,6,7,8-HxCDF	76.7	40 - 135	
1,2,3,7,8,9-HxCDF	ND	1.22				13C-1,2,3,7,8,9-HxCDF	81.4	40 - 135	
1,2,3,4,6,7,8-HpCDF	ND	1.11				13C-1,2,3,4,6,7,8-HpCDF	71.4	40 - 135	
1,2,3,4,7,8,9-HpCDF	ND	1.34				13C-1,2,3,4,7,8,9-HpCDF	82.1	40 - 135	
OCDF	ND	2.10				13C-OCDF	81.9	40 - 135	
					CRS	37Cl-2,3,7,8-TCDD	83.2	40 - 135	
						Toxic Equivalent Quotient (TEQ) Data			
						TEQMinWHO2005Dioxin	0.00		
TOTALS									
Total TCDD	ND	1.36							
Total PeCDD	ND	1.26							
Total HxCDD	ND	1.68							
Total HpCDD	ND	3.36							
Total TCDF	ND	0.936							
Total PeCDF	ND	1.42							
Total HxCDF	ND	1.00							
Total HpCDF	ND	1.20							

DL - Sample specifc estimated detection limit

EMPC - Estimated maximum possible concentration

LCL-UCL - Lower control limit - upper control limit

Sample ID: OPR **EPA Method 8290**

Matrix:	Aqueous	QC Batch:	B2L0077	Lab Sample:	B2L0077-BS1
Sample Size:	1.00 L	Date Extracted:	20-Dec-2012 8:01	Date Analyzed:	27-Dec-12 10:04 Column: ZB-5 Analyst: MAS

Analyte	%R	Limits		Labeled Standard	%R	LCL-UCL
2,3,7,8-TCDD	105	70 - 130	IS	13C-2,3,7,8-TCDD	82.7	40 - 135
1,2,3,7,8-PeCDD	113	70 - 130		13C-1,2,3,7,8-PeCDD	70.9	40 - 135
1,2,3,4,7,8-HxCDD	102	70 - 130		13C-1,2,3,4,7,8-HxCDD	66.8	40 - 135
1,2,3,6,7,8-HxCDD	108	70 - 130		13C-1,2,3,6,7,8-HxCDD	64.8	40 - 135
1,2,3,7,8,9-HxCDD	107	70 - 130		13C-1,2,3,7,8,9-HxCDD	61.9	21 - 193
1,2,3,4,6,7,8-HpCDD	107	70 - 130		13C-1,2,3,4,6,7,8-HpCDD	50.8	40 - 135
OCDD	103	70 - 130		13C-OCDD	52.8	40 - 135
2,3,7,8-TCDF	98.7	70 - 130		13C-2,3,7,8-TCDF	78.1	40 - 135
1,2,3,7,8-PeCDF	120	70 - 130		13C-1,2,3,7,8-PeCDF	69.2	40 - 135
2,3,4,7,8-PeCDF	122	70 - 130		13C-2,3,4,7,8-PeCDF	72.6	40 - 135
1,2,3,4,7,8-HxCDF	112	70 - 130		13C-1,2,3,4,7,8-HxCDF	73.7	40 - 135
1,2,3,6,7,8-HxCDF	116	70 - 130		13C-1,2,3,6,7,8-HxCDF	68.3	40 - 135
2,3,4,6,7,8-HxCDF	113	70 - 130		13C-2,3,4,6,7,8-HxCDF	70.3	40 - 135
1,2,3,7,8,9-HxCDF	113	70 - 130		13C-1,2,3,7,8,9-HxCDF	67.3	40 - 135
1,2,3,4,6,7,8-HpCDF	114	70 - 130		13C-1,2,3,4,6,7,8-HpCDF	56.0	40 - 135
1,2,3,4,7,8,9-HpCDF	115	70 - 130		13C-1,2,3,4,7,8,9-HpCDF	58.8	40 - 135
OCDF	111	70 - 130		13C-OCDF	53.4	40 - 135
			CRS	37Cl-2,3,7,8-TCDD	91.2	40 - 135

LCL-UCL - Lower control limit - upper control limit

Approved By: William Luksemburg 04-Jan-2013 8:59

Sample ID: EB 112812

EPA Method 8290

Client Data
Name: ARCADIS
Project: Carbondale
Date Collected: 28-Nov-2012 14:00

Sample Data
Matrix: Aqueous
Sample Size: 0.996 L

Laboratory Data
Lab Sample: 2110012-10 Date Received: 29-Nov-2012 10:23
QC Batch: B2L0077 Date Extracted: 20-Dec-2012 8:01
Date Analyzed : 27-Dec-12 14:05 Column: ZB-5 Analyst: MAS

Analyte	Conc. (pg/L)	DL	EMPC	Qualifiers
2,3,7,8-TCDD	ND	1.70		
1,2,3,7,8-PeCDD	ND	1.41		
1,2,3,4,7,8-HxCDD	ND	2.03		
1,2,3,6,7,8-HxCDD	ND	2.39		
1,2,3,7,8,9-HxCDD	ND	2.37		
1,2,3,4,6,7,8-HpCDD	ND	2.18		
OCDD	ND	3.11		
2,3,7,8-TCDF	ND	0.616		
1,2,3,7,8-PeCDF	ND	1.41		
2,3,4,7,8-PeCDF	ND	1.39		
1,2,3,4,7,8-HxCDF	ND	1.20		
1,2,3,6,7,8-HxCDF	ND	1.33		
2,3,4,6,7,8-HxCDF	ND	1.52		
1,2,3,7,8,9-HxCDF	ND	1.83		
1,2,3,4,6,7,8-HpCDF	ND	1.26		
1,2,3,4,7,8,9-HpCDF	ND	1.47		
OCDF	ND	2.89		
TOTALS				
Total TCDD	ND	3.01		
Total PeCDD	ND	1.41		
Total HxCDD	ND	3.23		
Total HpCDD	ND	2.18		
Total TCDF	ND	0.616		
Total PeCDF	ND	1.77		
Total HxCDF	ND	2.60		
Total HpCDF	ND	1.12		

	Labeled Standard	%R	LCL-UCL	Qualifiers
IS	13C-2,3,7,8-TCDD	88.2	40 - 135	
	13C-1,2,3,7,8-PeCDD	105	40 - 135	
	13C-1,2,3,4,7,8-HxCDD	81.5	40 - 135	
	13C-1,2,3,6,7,8-HxCDD	81.4	40 - 135	
	13C-1,2,3,7,8,9-HxCDD	80.6	32 - 141	
	13C-1,2,3,4,6,7,8-HpCDD	80.0	40 - 135	
	13C-OCDD	99.5	40 - 135	
	13C-2,3,7,8-TCDF	86.2	40 - 135	
	13C-1,2,3,7,8-PeCDF	86.0	40 - 135	
	13C-2,3,4,7,8-PeCDF	86.6	40 - 135	
	13C-1,2,3,4,7,8-HxCDF	87.7	40 - 135	
	13C-1,2,3,6,7,8-HxCDF	82.4	40 - 135	
	13C-2,3,4,6,7,8-HxCDF	84.2	40 - 135	
	13C-1,2,3,7,8,9-HxCDF	89.7	40 - 135	
	13C-1,2,3,4,6,7,8-HpCDF	77.5	40 - 135	
	13C-1,2,3,4,7,8,9-HpCDF	90.5	40 - 135	
	13C-OCDF	92.7	40 - 135	
CRS	37Cl-2,3,7,8-TCDD	86.3	40 - 135	

Toxic Equivalent Quotient (TEQ) Data

TEQMinWHO2005Dioxin	0.00

DL - Sample specifc estimated detection limit
EMPC - Estimated maximum possible concentration
LCL-UCL- Lower control limit - upper control limit

Approved By: William Luksemburg 04-Jan-2013 8:19

DATA QUALIFIERS & ABBREVIATIONS

B	**This compound was also detected in the method blank.**
D	**Dilution**
E	**The amount detected is above the High Calibration Limit.**
P	**The amount reported is the maximum possible concentration due to possible chlorinated diphenylether interference.**
H	**Recovery was outside laboratory acceptance limits.**
I	**Chemical Interference**
J	**The amount detected is below the Low Calibration Limit.**
*****	**See Cover Letter**
Conc.	**Concentration**
DL	**Sample-specific estimated detection limit**
MDL	**The minimum concentration of a substance that can be measured and reported with 99% confidence that the analyte concentration is greater than zero in the matrix tested.**
EMPC	**Estimated Maximum Possible Concentration**
NA	**Not applicable**
RL	**Reporting Limit – concentrations that correspond to low calibration point**
ND	**Not Detected**
TEQ	**Toxic Equivalency**

Unless otherwise noted, solid sample results are reported in dry weight. Tissue samples are reported in wet weight.

CERTIFICATIONS

Accrediting Authority	Certificate Number
Alaska Department of Environmental Conservation	CA00413
Alabama Dept of Environmental Management	41610
Arizona Department Of Health Services	AZ0639
Arkansas Dept of Environmental Quality	11-035-0
California Dept of Health – NELAP	02102CA
Colorado Dept of Public Health & Environment	N/A
Connecticut Dept of Public Health	PH-0182
DoD ELAP - A2LA Accredited - ISO/IEC 17025:2005	3091.01
Florida Dept of Health	E87777
Indiana Department of Health	N/A
Louisiana Department of Environmental Quality	01977
Louisiana Department of Health and Hospitals	LA110017
Maine Department of Health	2010021
Michigan Department of Natural Resources	9932
Mississippi Department of Health	N/A
Nevada Division of Environmental Protection	CA004132011-1
New Jersey Dept of Environmental Protection	CA003
New York Department of Health	11411
North Carolina Dept of Health & Human Services	06700
North Dakota Dept of Health	R-078
Oklahoma Dept of Environmental Quality	2011-120
Oregon Laboratory Accreditation Program	CA200001
Pennsylvania Dept of Environmental Protection	68-00490
South Carolina Dept of Health	87002001
Tennessee Dept of Environment and Conservation	TN02996
Texas Commission on Environmental Quality	T104704189-11-2
Utah Dept of Health	CA16400
Virginia Dept of General Services	00013
Washington Department of Ecology	C584
Wisconsin Dept of Natural Resources	998036160

Vista

CHAIN OF CUSTODY

1 OF 3

FOR LABORATORY USE ONLY

Laboratory Project ID: 2110012

Storage ID: WR-2

Storage Secured: Yes ☑ No ☐

Temp 0.8 °°C

TAT: (Check One):
Standard: ⊗ 21 Days
Rush (surcharge may apply):
○ 14 days ○ 7 days Specify:___

Project I.D.:_____ P.O.# B0039275.0000.00002 Sampler: I. STEWART & R. STEVENSON (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax#
DAVID BESSINGPAS	ARCADIS	6602 EXCELSIOR RD.	BAXTER	MN	56425	218-829-4607	

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
RAY STEVENSON	11/28/12	1445	Bethna B. Benedict	11/29/12	1039
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN:_____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCB's	EPA1668 209 CONGENERS	EPA1668 PBDE	EPA1614 PAH	CARB429 WHO-29	
* A1-68 (0-0.5')	11/27/12	0855		1	G	So								X								
* DUP-1	11/27/12	—		1	G	So								X								
* A1-75 (0-0.5')	11/27/12	0940		1	G	So								X								
* A1-69 (0-0.5')	11/27/12	1010		1	G	So								X								
* A1-69 (0-0.5') MS	11/27/12	1010		1	G	So								X								
* A1-69 (0-0.5') MSD	11/27/12	1010		1	G	So								X								
* A1-74 (0-0.5')	11/27/12	1100		1	G	So								X								
* A1-70 (0-0.5')	11/27/12	1135		1	G	So								X								
* A1-73 (0-0.5')	11/27/12	1210		1	G	So								X								
DUP-2	11/27/12	—		1	G	So								X								* HOLD *

Special Instructions/Comments:
* Samples logged into Workorder 2110011

SEND DOCUMENTATION AND RESULTS TO:

Name: DAVID BESSINGPAS
Company: ARCADIS
Address: 6602 EXCELSIOR RD.
City: BAXTER State: MN Zip: 56425
Phone: 218-829-4607 Fax:
Email: DAVID.BESSINGPAS@ARCADIS-US.COM

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O= Other_____

*Bottle Preservative Type: T = Thiosulfate,
O = Other_____

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum
AQ = Aqueous, O = Other_____

WHITE - ORIGINAL YELLOW - ARCHIVE PINK - COPY

Vista

CHAIN OF CUSTODY

2 OF 3

FOR LABORATORY USE ONLY
Laboratory Project ID: 2110012
Storage ID: WR-2
Storage Secured: Yes ☑ No ☐
Temp: 0.8 °°C

TAT: (Check One):
Standard: ○ 21 Days
Rush (surcharge may apply):
○ 14 days ○ 7 days Specify:___

Project I.D.:_____ P.O.# B0039275.0000.00002 Sampler: I. STEWART & R. STEVENSON (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax#
DAVID BESSINGPAS	ARCADIS	6602 EXCELSIOR RD.	BAXTER	MN	56425	218-829-4607	

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
RAY STEVENSON	11/28/12	1445	Joshua Bonadurt / B Bonadurt	11/29/12	1040
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN:_____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

*	Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	EPA1613 2378-TCDD/TCDF	EPA1613 PCDD/PCDF	EPA8290 2378-TCDD	EPA8290 2378-TCDD/TCDF	EPA8290 PCDD/PCDF	EPA8280 2378-TCDD	EPA8280 2378-TCDD/TCDF	EPA8280 PCDD/PCDF	EPA1668 TOTALS	EPA1668 COPLANAR PCB's	EPA1668 209 CONGENERS	EPA1668 PBDE	EPA1614 PAH	CARB429 WHO-29	
*	A1-71 (0-0.5')	11/27/12	1330		1	G	So						X										
*	A1-72 (0-0.5')	11/27/12	1400		1	G	So						X										
	A1-65 (0-0.5')	11/27/12	1430		1	G	So						X										* HOLD *
	A1-64 (0-0.5')	11/27/12	1500		1	G	So						X										* HOLD *
*	EB 112712	11/27/12	1540		2	A	AQ						X										
	A1-79 (0-0.5')	11/28/12	0900		1	G	So						X										* HOLD *
	A1-78 (0-0.5')	11/28/12	0925		1	G	So						X										* HOLD *
	A1-77 (0-0.5')	11/28/12	0950		1	G	So						X										* HOLD *
	A1-76 (0-0.5')	11/28/12	1020		1	G	So						X										* HOLD *
	A1-67 (0-0.5')	11/28/12	1115		1	G	So						X										* HOLD *

Special Instructions/Comments:
* Sample logged in to Work Order 2110011

SEND DOCUMENTATION AND RESULTS TO:

Name: DAVID BESSINGPAS
Company: ARCADIS
Address: 6602 EXCELSIOR RD.
City: BAXTER State: MN Zip: 56425
Phone: 218-829-4607 Fax:_____
Email: DAVID.BESSINGPAS@ARCADIS-US.COM

Container Types: A = 1 Liter Amber, G = Glass Jar
P = PUF, T = MM5 Train, O= Other_____

*Bottle Preservative Type: T = Thiosulfate,
O = Other_____

Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum
AQ = Aqueous, O = Other_____

WHITE - ORIGINAL YELLOW - ARCHIVE PINK - COPY

Vista

CHAIN OF CUSTODY

3 OF 3

FOR LABORATORY USE ONLY

Laboratory Project ID: 2110012

Storage ID: WR-2

Storage Secured: Yes ☐ No ☐

Temp: 0.8 °°C

TAT: (Check One):

Standard: ⊙ 21 Days

Rush (surcharge may apply):

○ 14 days ○ 7 days Specify:___

Project I.D.:_____ P.O.# B0039275.0000.00002 Sampler: I. STEWART / R. STEVENSON (Name)

Invoice to: Name	Company	Address	City	State	Zip	Ph#	Fax#
DAVID BESSINGPAS	ARCADIS	6602 EXCELSIOR RD.	BAXTER	MN	56425	218-829-4607	

Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:
RAY STEVENSON	11/28/12	1445	R. Benedict	11/29/12	1040
Relinquished by: (Signature and Printed Name)	Date:	Time:	Received by: (Signature and Printed Name)	Date:	Time:

See "Sample Log-in Checklist" for additional sample information

SHIP TO: Vista Analytical Laboratory
1104 Windfield Way
El Dorado Hills, CA 95762
(916) 673-1520 • Fax (916) 673-0106

ATTN:_____

Method of Shipment: _____

Tracking No.: _____

Add Analysis(es) Requested

Sample ID	Date	Time	Location/Sample Description	Container(s) Quantity	Type	Matrix	EPA1613 2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	EPA8290 2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	EPA8280 2378-TCDD	2378-TCDD/TCDF	PCDD/PCDF	EPA1668 TOTALS	COPLANAR PCB'S	209 CONGENERS	PBDE	EPA1614 PAH	CARB429 WHO-29	
A1-66 (0-0.5')	11/28/12	1150		1	G	So						X										*HOLD*
* EB 112812	11/28/12	1400		2	A	Aq						X										

Special Instructions/Comments:
* Sample logged in to $WorkOrder 2110011
11/30/12 moved "EB112812" to 2110012 as per Bill

SEND DOCUMENTATION AND RESULTS TO:

Name: DAVID BESSINGPAS
Company: ARCADIS
Address: 6602 EXCELSIOR RD.
City: BAXTER State: MN Zip: 56425
Phone: 218-829-4607 Fax:
Email: DAVID.BESSINGPAS@ARCADIS-US.COM

Container Types: A = 1 Liter Amber, G = Glass Jar
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Matrix Types: DW = Drinking Water, EF = Effluent, PP = Pulp/Paper,
SD = Sediment, SL = Sludge, SO = Soil, WW = Wastewater, B = Blood/Serum
AQ = Aqueous, O = Other_____

WHITE - ORIGINAL YELLOW - ARCHIVE PINK - COPY

SAMPLE LOG-IN CHECKLIST

Vista Analytical Laboratory

Vista Project #: 2110012 TAT Std

Samples Arrival:	**Date/Time** 11/29/12 1023	**Initials:** BJB	**Location:** WR-2 **Shelf/Rack:** N/A
Logged In:	**Date/Time** 11/29/12 1522 ~~1327~~ BJB 11/29/12	**Initials:** BJB	**Location:** WR-2 **Shelf/Rack:** D5

Delivered By:	FedEx	UPS	On Trac	DHL	Hand Delivered	Other
Preservation:	Ice	Blue Ice	Dry Ice	None		
Temp °C 0.8°C	**Time:** 1038	**Thermometer ID:** IR-1				

	YES	NO	NA
Adequate Sample Volume Received?	✓		
Holding Time Acceptable?	✓		
Shipping Container(s) Intact?	✓		
Shipping Custody Seals Intact?	✓		
Shipping Documentation Present?	✓		
Airbill Trk # 7955 4788 2231	✓		
Sample Container Intact?	✓		
Sample Custody Seals Intact?			✓
Chain of Custody / Sample Documentation Present?	✓		
COC Anomaly/Sample Acceptance Form completed?		✓	
If Chlorinated or Drinking Water Samples, Acceptable Preservation?			✓

$Na_2S_2O_3$ Preservation Documented?	COC	Sample Container	None		
Shipping Container	Vista	Client	Retain	Return	Dispose

Comments:

Sample Login 3/2007 rmh