FRONTIER
ANALYTICAL LABORATORY

August 12, 2008

Mr. Bruce Lewis
ERM West
620 Bercut Dr.
Sacramento, CA 95814

Dear Mr. Lewis,

Enclosed are the amended results for Frontier Analytical Laboratory project **2199.** This corresponds to your project number **1120**. On August 7, 2008 I received an email from you requesting that Frontier Analytical Laboratory recalculate the TEQs for these four samples using the 2005 WHO TEFs. The four samples were originally analyzed in 2003 and the TEQs were calculated using the 1998 WHO TEFs. The following report is paginated with the suffix "B" signifying an amended report. The report consists of six pages; the case narrative, the four new data sheets, and a copy of your email request.

Thank you for choosing Frontier Analytical Laboratory for your analytical needs. If you have any questions regarding this project, please feel free to contact me at (916) 934-0900.

Sincerely,

Bradley B. Silverbush
Director of Operations

FRONTIER ANALYTICAL LABORATORY
5172 Hillsdale Circle • El Dorado Hills, CA 95762
Tel (916) 934-0900 • Fax (916) 934-0999
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EPA Method 8290
PCDD/F

FRONTIER ANALYTICAL LABORATORY

FAL ID: 2199-001-SA	Date Extracted: 8/25/03	ICal: PCDDFAL1-6-13	Acquired: 2-SEP-03
Client ID: C4-SNS03	Date Received: 8/20/03	GC Column: db5	
Matrix: Soil	Amount: 10.07 g	Units: pg/g	2005 WHO TEQ: 0.163
Batch No.: 0079	% Solids: 99.2		

Compound	Conc	DL	Qual	2005 WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	0.114		-					
1,2,3,7,8-PeCDD	-	0.215		-					
1,2,3,4,7,8-HxCDD	-	0.288		-					
1,2,3,6,7,8-HxCDD	-	0.560		-	Total Tetra-Dioxins	-	0.139		0
1,2,3,7,8,9-HxCDD	-	0.509		-	Total Penta-Dioxins	-	0.549		0
1,2,3,4,6,7,8-HpCDD	9.71	-		0.0971	Total Hexa-Dioxins	2.13	-	J	2
OCDD	82.1	-		0.0246	Total Hepta-Dioxins	18.3	-		2
2,3,7,8-TCDF	-	0.104		-					
1,2,3,7,8-PeCDF	-	0.201		-					
2,3,4,7,8-PeCDF	-	0.213		-					
1,2,3,4,7,8-HxCDF	-	0.119		-					
1,2,3,6,7,8-HxCDF	-	0.157		-					
2,3,4,6,7,8-HxCDF	-	0.163		-					
1,2,3,7,8,9-HxCDF	-	0.101		-	Total Tetra-Furans	-	0.118		0
1,2,3,4,6,7,8-HpCDF	3.80	-		0.0380	Total Penta-Furans	0.407	-	J	1
1,2,3,4,7,8,9-HpCDF	-	0.330		-	Total Hexa-Furans	2.69	-		3
OCDF	10.9	-		0.00327	Total Hepta-Furans	10.3	-		2

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	116	40.0 - 135	
13C-1,2,3,7,8-PeCDD	121	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	101	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	104	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	111	40.0 - 135	
13C-OCDD	97.5	40.0 - 135	
13C-2,3,7,8-TCDF	112	40.0 - 135	
13C-1,2,3,7,8-PeCDF	116	40.0 - 135	
13C-2,3,4,7,8-PeCDF	111	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	102	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	100	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	103	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	107	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	103	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	133	40.0 - 135	
13C-OCDF	100	40.0 - 135	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	107	40.0 - 135

Analyst: [illegible]

Date: 8/8/08

Reviewed by: GN

Date: 8/8/8

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FAL ID: 2199-002-SA	Date Extracted: 8/25/03	ICal: PCDDFAL1-6-13	Acquired: 2-SEP-03
Client ID: C4-SNS04	Date Received: 8/20/03	GC Column: db5	
Matrix: Soil	Amount: 10.03 g	Units: pg/g	2005 WHO TEQ: 0.0638
Batch No.: 0079	% Solids: 99.1		

Compound	Conc	DL	Qual	2005 WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	0.139		-					
1,2,3,7,8-PeCDD	-	0.205		-					
1,2,3,4,7,8-HxCDD	-	0.375		-					
1,2,3,6,7,8-HxCDD	-	0.413		-	Total Tetra-Dioxins	-	0.139		0
1,2,3,7,8,9-HxCDD	-	0.374		-	Total Penta-Dioxins	-	0.589		0
1,2,3,4,6,7,8-HpCDD	3.60	-		0.0360	Total Hexa-Dioxins	-	0.594		0
OCDD	23.3	-		0.00699	Total Hepta-Dioxins	6.83	-		2
2,3,7,8-TCDF	-	0.127		-					
1,2,3,7,8-PeCDF	-	0.241		-					
2,3,4,7,8-PeCDF	-	0.252		-					
1,2,3,4,7,8-HxCDF	-	0.0960		-					
1,2,3,6,7,8-HxCDF	-	0.126		-					
2,3,4,6,7,8-HxCDF	-	0.142		-					
1,2,3,7,8,9-HxCDF	-	0.173		-	Total Tetra-Furans	-	0.127		0
1,2,3,4,6,7,8-HpCDF	1.94	-	J	0.0194	Total Penta-Furans	-	0.405		0
1,2,3,4,7,8,9-HpCDF	-	0.154		-	Total Hexa-Furans	0.855	-	J	2
OCDF	4.69	-	J	0.00141	Total Hepta-Furans	4.61	-		2

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	112	40.0 - 135	
13C-1,2,3,7,8-PeCDD	123	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	98.1	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	102	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	107	40.0 - 135	
13C-OCDD	95.9	40.0 - 135	
13C-2,3,7,8-TCDF	111	40.0 - 135	
13C-1,2,3,7,8-PeCDF	111	40.0 - 135	
13C-2,3,4,7,8-PeCDF	109	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	98.1	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	103	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	101	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	112	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	104	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	131	40.0 - 135	
13C-OCDF	98.5	40.0 - 135	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	100	40.0 - 135

Analyst: K

Date: 8/8/08

Reviewed by: GN

Date: 8/8/8

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FAL ID: 2199-003-SA	Date Extracted: 8/25/03	ICal: PCDDFAL1-6-13	Acquired: 2-SEP-03
Client ID: C4-SNS05	Date Received: 8/20/03	GC Column: db5	
Matrix: Soil	Amount: 10.02 g	Units: pg/g	2005 WHO TEQ: 0.248
Batch No.: 0079	% Solids: 96.0		

Compound	Conc	DL	Qual	2005 WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	0.149		-					
1,2,3,7,8-PeCDD	-	0.265		-					
1,2,3,4,7,8-HxCDD	-	0.287		-					
1,2,3,6,7,8-HxCDD	0.646	-	J	0.0646	Total Tetra-Dioxins	-	0.149		0
1,2,3,7,8,9-HxCDD	-	0.356		-	Total Penta-Dioxins	-	0.614		0
1,2,3,4,6,7,8-HpCDD	10.8	-		0.108	Total Hexa-Dioxins	3.38	-		3
OCDD	58.9	-		0.0177	Total Hepta-Dioxins	18.6	-		2
2,3,7,8-TCDF	-	0.165		-					
1,2,3,7,8-PeCDF	-	0.391		-					
2,3,4,7,8-PeCDF	-	0.394		-					
1,2,3,4,7,8-HxCDF	-	0.201	*	-					
1,2,3,6,7,8-HxCDF	-	0.255	*	-					
2,3,4,6,7,8-HxCDF	0.447	-	J	0.0447					
1,2,3,7,8,9-HxCDF	-	0.122		-	Total Tetra-Furans	1.13	-		3
1,2,3,4,6,7,8-HpCDF	1.24	-	J	0.0124	Total Penta-Furans	2.22	-	J	3
1,2,3,4,7,8,9-HpCDF	-	0.0991		-	Total Hexa-Furans	4.40	-	*	3
OCDF	1.33	-	J	0.000399	Total Hepta-Furans	2.44	-	J	2

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	118	40.0 - 135	
13C-1,2,3,7,8-PeCDD	129	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	89.7	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	99.4	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	103	40.0 - 135	
13C-OCDD	92.4	40.0 - 135	
13C-2,3,7,8-TCDF	118	40.0 - 135	
13C-1,2,3,7,8-PeCDF	121	40.0 - 135	
13C-2,3,4,7,8-PeCDF	120	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	117	40.0 - 135	*
13C-1,2,3,6,7,8-HxCDF	120	40.0 - 135	*
13C-2,3,4,6,7,8-HxCDF	89.7	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	108	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	94.1	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	134	40.0 - 135	
13C-OCDF	99.5	40.0 - 135	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	107	40.0 - 135

Analyst: [illegible]

Date: 8/8/08

Reviewed by: GN

Date: 8/8/8

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FRONTIER ANALYTICAL LABORATORY

FAL ID: 2199-004-SA	Date Extracted: 8/25/03	ICal: PCDDFAL1-6-13	Acquired: 2-SEP-03
Client ID: C4-SNS06	Date Received: 8/20/03	GC Column: db5	
Matrix: Soil	Amount: 10.06 g	Units: pg/g	2005 WHO TEQ: 0.490
Batch No.: 0079	% Solids: 98.9		

Compound	Conc	DL	Qual	2005 WHO Tox	Compound	Conc	DL	Qual	#Hom
2,3,7,8-TCDD	-	0.154		-					
1,2,3,7,8-PeCDD	-	0.359		-					
1,2,3,4,7,8-HxCDD	-	0.377		-					
1,2,3,6,7,8-HxCDD	0.893	-	J	0.0893	Total Tetra-Dioxins	-	0.154		0
1,2,3,7,8,9-HxCDD	0.641	-	J	0.0641	Total Penta-Dioxins	-	0.828		0
1,2,3,4,6,7,8-HpCDD	17.4	-		0.174	Total Hexa-Dioxins	5.70	-		4
OCDD	142	-		0.0426	Total Hepta-Dioxins	35.7	-		2
2,3,7,8-TCDF	-	0.165		-					
1,2,3,7,8-PeCDF	-	0.254		-					
2,3,4,7,8-PeCDF	-	0.356		-					
1,2,3,4,7,8-HxCDF	-	0.162		-					
1,2,3,6,7,8-HxCDF	-	0.180		-					
2,3,4,6,7,8-HxCDF	0.558	-	J	0.0558					
1,2,3,7,8,9-HxCDF	-	0.263		-	Total Tetra-Furans	1.75	-		3
1,2,3,4,6,7,8-HpCDF	5.89	-		0.0589	Total Penta-Furans	4.22	-		4
1,2,3,4,7,8,9-HpCDF	-	0.213		-	Total Hexa-Furans	6.87	-		4
OCDF	18.9	-		0.00567	Total Hepta-Furans	16.1	-		2

Internal Standards	% Rec	QC Limits	Qual
13C-2,3,7,8-TCDD	109	40.0 - 135	
13C-1,2,3,7,8-PeCDD	118	40.0 - 135	
13C-1,2,3,4,7,8-HxCDD	95.6	40.0 - 135	
13C-1,2,3,6,7,8-HxCDD	99.5	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDD	107	40.0 - 135	
13C-OCDD	102	40.0 - 135	
13C-2,3,7,8-TCDF	112	40.0 - 135	
13C-1,2,3,7,8-PeCDF	109	40.0 - 135	
13C-2,3,4,7,8-PeCDF	113	40.0 - 135	
13C-1,2,3,4,7,8-HxCDF	98.0	40.0 - 135	
13C-1,2,3,6,7,8-HxCDF	101	40.0 - 135	
13C-2,3,4,6,7,8-HxCDF	103	40.0 - 135	
13C-1,2,3,7,8,9-HxCDF	108	40.0 - 135	
13C-1,2,3,4,6,7,8-HpCDF	106	40.0 - 135	
13C-1,2,3,4,7,8,9-HpCDF	135	40.0 - 135	
13C-OCDF	106	40.0 - 135	

Cleanup Surrogate		
37Cl-2,3,7,8-TCDD	100.0	40.0 - 135

Analyst: [illegible]

Date: 8/8/06

Reviewed by: GN

Date: 8/8/8

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Brad Silverbush

From: Bruce Lewis [Bruce.Lewis@erm.com]
Sent: Monday, August 11, 2008 1:03 PM
To: Brad Silverbush
Subject: Request for Revision of TEQs
Attachments: 2143A Final Report - D&F.pdf; 2199 Final Report D&F.pdf

Hi Brad. We had some TEQ data for Aerojet work that we did in 2003 and the TEQ's were calculated using 1998 TEF values. Please recalculate the TEQ's for the six samples in the attached pdfs using the 2005 TEF values.

Thanks,Thanks,

Bruce A. Lewis, P.G.
Program Director

ERM-West, Inc.
2525 Natomas Park Drive, Suite 350
Sacramento, CA 95833

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