



TETRA TECH EM INC.

March 18, 2008

Lynn Nakashima
Project Manager
Department of Toxic Substances Control
700 Heinz Avenue
Berkeley, CA 94710

**Subject: Sampling Results for Surface Soil in the Pampas Grass Area near Building 201,
University of California, Berkeley, Richmond Field Station, Richmond, California**

Dear Ms Nakashima:

Tetra Tech EM Inc. was contracted by the University of California (UC) Berkeley to conduct sampling activities at Richmond Field Station (RFS), in Richmond, California. The objectives of this sampling effort were to characterize surface soil at a pampas grass southwest of Building 201 (currently leased to the U.S. Environmental Protection Agency) for evaluation for worker protection for incidental contact to soil by workers removing the pampas grass, and to determine if any additional characterization is necessary for waste disposal. UC Berkeley is planning on removing this plant as part of the Invasives/Exotic Vegetation Management Program to prevent spread its seeds from spreading into the Western Stege Marsh Restoration Project area.

The attached letter provides the rationale for the selected sampling locations, a summary of field sampling protocols, and sample results. The letter is provided on behalf of UC Berkeley.

If you have any questions or comments regarding this submittal, please call me at (415) 222-8283.

Sincerely,


Jason Brodersen, P.G.
Project Manager

Enclosure: Sampling Results Letter

cc: Greg Haet, Office of Environment, Health & Safety
University of California, Berkeley



March 18, 2008

Greg Haet
EH&S Associate Director, Environmental Protection
Office of Environment, Health & Safety
University of California, Berkeley
University Hall, 3rd Floor #1150
Berkeley, CA 94720

**Subject: Sampling Results for Surface Soil in the Pampas Grass Area near Building 201,
University of California, Berkeley, Richmond Field Station, Richmond, California**

Dear Mr. Haet:

Tetra Tech EM Inc. (Tetra Tech) was contracted by the University of California (UC) Berkeley to conduct sampling activities at Richmond Field Station (RFS), in Richmond, California. The objectives of the sampling effort were to characterize surface soil at a pampas grass area near Building 201 (currently leased to the U.S. Environmental Protection Agency) and to provide information for evaluation of potential incidental contact to soil by workers removing the pampas grass. This letter provides the rationale for the selected sampling locations, a summary of field sampling protocols, and sample results. A figure presenting the sampling locations is presented at the end of this letter. Complete analytical results are presented in Attachment 1.

Sample Locations

Tetra Tech collected a composite sample from surface and near surface soils within the pampas grass area adjacent to Building 201 which is planned to be removed. The pampas grass area is approximately 25 feet by 40 feet and is shown on Figure 1. Surface soil samples were collected near the pampas grass roots from 0 to 1 foot below ground surface at 15 locations. The sample density is sufficient to represent soil exposure given the relative small size of the area.

Field Sampling Protocol

Surface soil samples were collected on January 23, 2008. The samples collected from the 15 locations described above were combined into one composite sample. The composite sample was placed in a clean glass jar provided by Curtis & Tompkins, Ltd. laboratory. The sample jar was properly labeled, packed in cushioning material and placed in a sample cooler. An extra jar was also filled to ensure sufficient quantity was provided to the laboratory for analysis. The sample was maintained at the standard temperature of 4° Celsius or below. The sample cooler was delivered to Curtis and Tompkins, Ltd. in Berkeley, California on January 24, 2008. A copy of the chain-of-custody form is included in Attachment 1.

Sample Results

The soil sample was analyzed for the following:

Analyte	Analytical Method
Metals	EPA 6010B
Mercury	EPA 7471A
Semivolatile organic compounds (SVOC)	EPA 8270C
Total petroleum hydrocarbons (TPH)	EPA 8015B
Pesticides	EPA 8081A
Polychlorinated biphenyls (PCB)	EPA 608

Sample results are presented in the attached tables along with California Human Health Screening Levels (CHHSL). Where CHHSLs are not available, other screening levels are presented, such as the EPA Region 9 Preliminary Remediation Goals (PRG) and the California Regional Water Quality Control Board's Environmental Screening Levels (ESL). The references are provided below.

California Environmental Protection Agency. 2005. "Use of California Human Health Screening Levels (CHHSLs) in Evaluation of Contaminated Properties." January.

California Regional Water Quality Board San Francisco Bay Region. 2007. "Screening For Environmental Concerns at Sites with Contaminated Soil and Groundwater, Interim Final." November.

EPA. 2004. "EPA Region 9 Preliminary Remediation Goals (PRG) Table." December 28.
Available Online at: <http://www.epa.gov/region9/waste/sfund/prg/index.html>

All analytes were reported at concentrations less than the laboratory reporting limits or less than their respective screening levels.

If you have any questions or comments regarding this submittal, please call me at (415) 222-8283.

Sincerely,


Jason Brodersen, P.G.
Project Manager

Enclosure: Figure 1

Attachment 1: Analytical Results

**ANALYTICAL RESULTS FOR TPH, SVOC, PESTICIDES, AND PCB
 REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)**

Sample Location	TPH			SVOCs	Pesticides (2)	PCBs					
	Gasoline	Diesel	Motor Oil	(1)	4,4'-DDT	Aroclor-1016	Aroclor- 1221	Aroclor- 1232	Aroclor- 1242	Aroclor- 1254	Aroclor- 1260
<i>CHHSL Residential</i>	--	--	--	--	1.6	0.089	0.089	0.089	0.089	0.089	0.089
<i>CHHSL Commercial</i>	--	--	--	--	6.3	0.3	0.3	0.3	0.3	0.3	0.3
<i>CRWQCB Residential Non Drinking Water</i>	400	500	500	--	--						
<i>CRWQCB Commercial Non Drinking Water</i>	400	500	1,000	--	--						
<i>EPA Region 9 Residential PRG</i>	--	--	--	--	--						
<i>EPA Region 9 Commercial PRG</i>	--	--	--	--	--						
Pampas Grass/Building 201 Sample	ND (1.2)	24 Y	200	ND (3)	0.018 J	ND (0.015)	ND (0.029)	ND (0.015)	ND (0.015)	0.072	0.029

Notes:

1. No SVOCs were detected
 2. All other pesticides were not detected
 3. See Attachment 1 for all reporting limits
- Screening level not presented if CHHSL is available or the analyte was not detected
 ND Not detected (reporting limit)
 Y Sample exhibits chromatographic pattern which does not resemble standard
 J Estimated Value

**ANALYTICAL RESULTS FOR METALS
 REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)**

Sample Location	Metals																
	Antimony	Arsenic (I)	Barium	Beryllium	Cadmium	Chromium	Cobalt	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Silver	Thallium	Vanadium	Zinc
<i>CHHSL Residential CHHSL Commercial Background</i>	30 380	16	5,200 63,000	150 1,700	1.7 7.5	100,000 100,000	660 3,200	3,000 38,000	150 3,500	18 180	380 4,800	1,600 16,000	380 4,800	380 4,800	5 63	530 6,700	23,000 100,000
Pampas Grass Building 201	ND	7.8	190	0.49	0.82	45	14	230	54	1.5	0.63	38	ND	0.48	ND	39	200
Laboratory Reporting Limit	0.61	0.30	0.30	0.12	0.30	0.30	0.30	0.30	0.30	0.050	0.30	0.30	0.61	0.30	0.61	0.30	1.2

Notes:

1. Arsenic screening value based on DTSC-approved ambient concentration developed for the adjacent Campus Bay site.

ND Not detected

Attachment 1
Analytical Results

Total Volatile Hydrocarbons

Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Field ID:	RFSEPA001	Diln Fac:	1.000
Lab ID:	200747-001	Batch#:	134344
Matrix:	Soil	Sampled:	01/23/08
Units:	mg/Kg	Received:	01/24/08
Basis:	dry	Analyzed:	01/31/08

Moisture: 18%

Analyte	Result	RL
Gasoline C7-C12	ND	1.2

Surrogate	%REC	Limits
Trifluorotoluene (FID)	96	71-132
Bromofluorobenzene (FID)	97	69-145

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Type:	BLANK	Basis:	as received
Lab ID:	QC426350	Diln Fac:	1.000
Matrix:	Soil	Batch#:	134344
Units:	mg/Kg	Analyzed:	01/31/08

Analyte	Result	RL
Gasoline C7-C12	ND	1.0

Surrogate	%REC	Limits
Trifluorotoluene (FID)	97	71-132
Bromofluorobenzene (FID)	95	69-145

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Type:	LCS	Basis:	as received
Lab ID:	QC426351	Diln Fac:	1.000
Matrix:	Soil	Batch#:	134344
Units:	mg/Kg	Analyzed:	01/31/08

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	5.000	4.839	97	80-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	115	71-132
Bromofluorobenzene (FID)	103	69-145

Batch QC Report

Total Volatile Hydrocarbons			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	50.00
MSS Lab ID:	200833-001	Batch#:	134344
Matrix:	Soil	Sampled:	01/28/08
Units:	mg/Kg	Received:	01/30/08
Basis:	as received	Analyzed:	02/01/08

Type: MS Lab ID: QC426352

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	1,194	500.0	1,921	145 *	43-120

Surrogate	%REC	Limits
Trifluorotoluene (FID)	139 *	71-132
Bromofluorobenzene (FID)	367 *	69-145

Type: MSD Lab ID: QC426353

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	500.0	2,060	173 *	43-120	7	25

Surrogate	%REC	Limits
Trifluorotoluene (FID)	141 *	71-132
Bromofluorobenzene (FID)	448 *	69-145

*= Value outside of QC limits; see narrative

RPD= Relative Percent Difference

Total Extractable Hydrocarbons

Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Field ID:	RFSEPA001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	mg/Kg	Prepared:	01/24/08
Diln Fac:	1.000	Analyzed:	01/25/08
Batch#:	134096		

Type:	SAMPLE	Moisture:	18%
Lab ID:	200747-001	Cleanup Method:	EPA 3630C
Basis:	dry		

Analyte	Result	RL
Diesel C10-C24	24 Y	1.2
Motor Oil C24-C36	200	6.1

Surrogate	%REC	Limits
Hexacosane	136 *	46-128

Type:	BLANK	Basis:	as received
Lab ID:	QC425421	Cleanup Method:	EPA 3630C

Analyte	Result	RL
Diesel C10-C24	ND	1.0
Motor Oil C24-C36	ND	5.0

Surrogate	%REC	Limits
Hexacosane	62	46-128

*= Value outside of QC limits; see narrative

Y= Sample exhibits chromatographic pattern which does not resemble standard

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC425422	Batch#:	134096
Matrix:	Soil	Prepared:	01/24/08
Units:	mg/Kg	Analyzed:	01/25/08
Basis:	as received		

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.98	49.22	98	55-131

Surrogate	%REC	Limits
Hexacosane	100	46-128

Batch QC Report

Total Extractable Hydrocarbons			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	134096
MSS Lab ID:	200682-001	Sampled:	01/22/08
Lab ID:	QC425425	Received:	01/22/08
Matrix:	Miscell.	Prepared:	01/24/08
Units:	mg/Kg	Analyzed:	01/25/08
Basis:	as received		

Analyte	MSS Result	Result	RL	RPD	Lim
Diesel C10-C24	18.25	18.17	0.9994	0	42
Motor Oil C24-C36	87.53	95.22	4.997	8	30

Surrogate	%REC	Limits
Hexacosane	82	46-128

RL= Reporting Limit

RPD= Relative Percent Difference

Batch QC Report

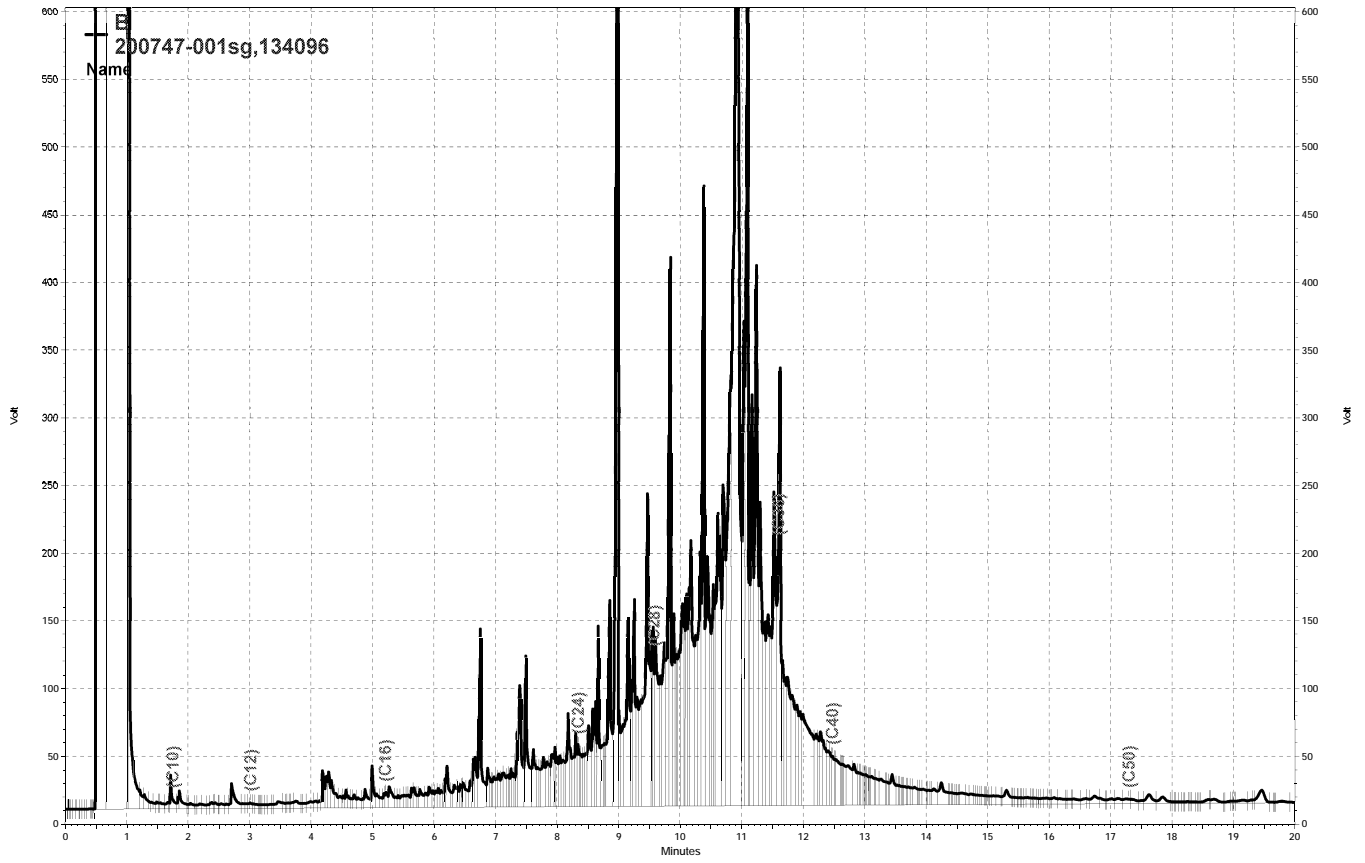
Total Extractable Hydrocarbons			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
Type:	SDUP	Batch#:	134096
MSS Lab ID:	200682-002	Sampled:	01/22/08
Lab ID:	QC425426	Received:	01/22/08
Matrix:	Miscell.	Prepared:	01/24/08
Units:	mg/Kg	Analyzed:	01/25/08
Basis:	as received		

Analyte	MSS Result	Result	RL	RPD	Lim
Diesel C10-C24	22.69	24.47	1.000	8	42
Motor Oil C24-C36	83.64	88.62	5.000	6	30

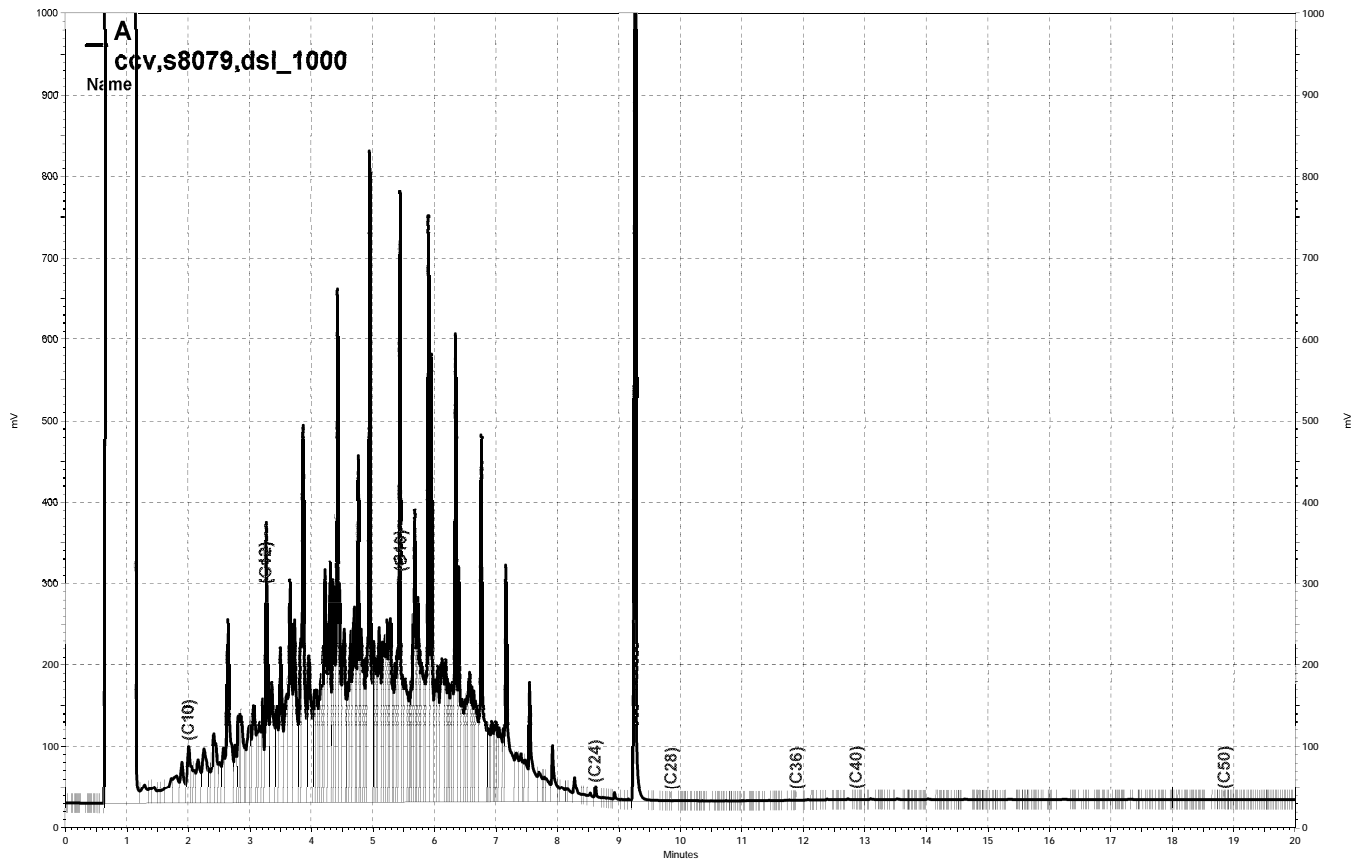
Surrogate	%REC	Limits
Hexacosane	93	46-128

RL= Reporting Limit

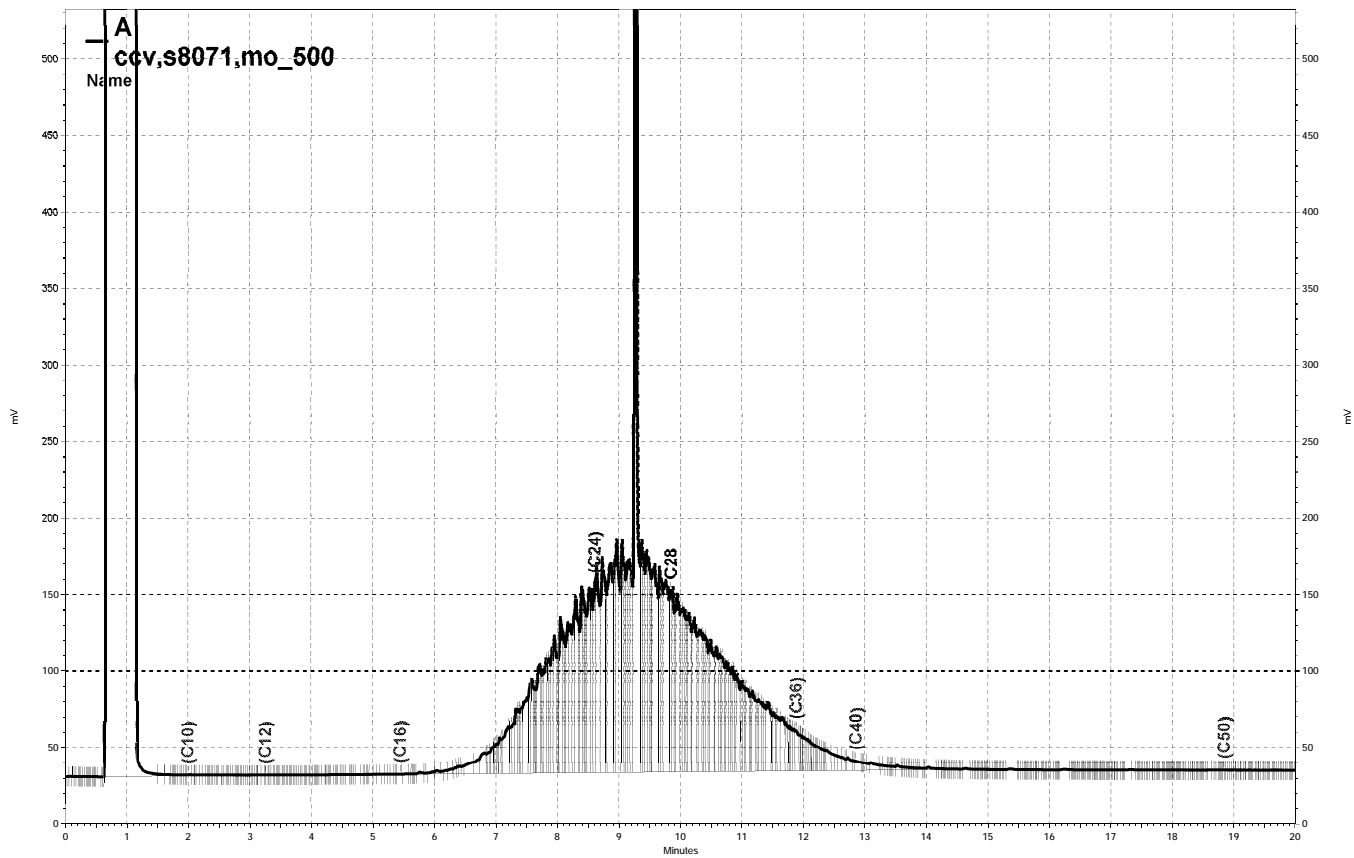
RPD= Relative Percent Difference



\\Lims\gdrive\ezchrom\Projects\GC15B\Data\025b025, B



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\\Lims\gdrive\ezchrom\Projects\GC11A\Data\025a017, A

Semivolatile Organics by GC/MS			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8270C
Field ID:	RFSEPA001	Batch#:	134130
Lab ID:	200747-001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	ug/Kg	Prepared:	01/25/08
Basis:	dry	Analyzed:	01/26/08
Diln Fac:	3.000		

Moisture: 18%

Analyte	Result	RL
N-Nitrosodimethylamine	ND	1,200
Phenol	ND	1,200
bis(2-Chloroethyl)ether	ND	1,200
2-Chlorophenol	ND	1,200
1,3-Dichlorobenzene	ND	1,200
1,4-Dichlorobenzene	ND	1,200
Benzyl alcohol	ND	1,200
1,2-Dichlorobenzene	ND	1,200
2-Methylphenol	ND	1,200
bis(2-Chloroisopropyl) ether	ND	1,200
4-Methylphenol	ND	1,200
N-Nitroso-di-n-propylamine	ND	1,200
Hexachloroethane	ND	1,200
Nitrobenzene	ND	1,200
Isophorone	ND	1,200
2-Nitrophenol	ND	2,400
2,4-Dimethylphenol	ND	1,200
Benzoic acid	ND	6,100
bis(2-Chloroethoxy)methane	ND	1,200
2,4-Dichlorophenol	ND	1,200
1,2,4-Trichlorobenzene	ND	1,200
Naphthalene	ND	240
4-Chloroaniline	ND	1,200
Hexachlorobutadiene	ND	1,200
4-Chloro-3-methylphenol	ND	1,200
2-Methylnaphthalene	ND	240
Hexachlorocyclopentadiene	ND	2,400
2,4,6-Trichlorophenol	ND	1,200
2,4,5-Trichlorophenol	ND	1,200
2-Chloronaphthalene	ND	1,200
2-Nitroaniline	ND	2,400
Dimethylphthalate	ND	1,200
Acenaphthylene	ND	240
2,6-Dinitrotoluene	ND	1,200
3-Nitroaniline	ND	2,400
Acenaphthene	ND	240
2,4-Dinitrophenol	ND	2,400
4-Nitrophenol	ND	2,400
Dibenzofuran	ND	1,200
2,4-Dinitrotoluene	ND	1,200
Diethylphthalate	ND	1,200
Fluorene	ND	240
4-Chlorophenyl-phenylether	ND	1,200
4-Nitroaniline	ND	2,400
4,6-Dinitro-2-methylphenol	ND	2,400
N-Nitrosodiphenylamine	ND	1,200
Azobenzene	ND	1,200
4-Bromophenyl-phenylether	ND	1,200
Hexachlorobenzene	ND	1,200
Pentachlorophenol	ND	2,400

J= Estimated value
 ND= Not Detected
 RL= Reporting Limit

Semivolatile Organics by GC/MS			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8270C
Field ID:	RFSEPA001	Batch#:	134130
Lab ID:	200747-001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	ug/Kg	Prepared:	01/25/08
Basis:	dry	Analyzed:	01/26/08
Diln Fac:	3.000		

Analyte	Result	RL
Phenanthrene	ND	240
Anthracene	ND	240
Di-n-butylphthalate	ND	1,200
Fluoranthene	ND	240
Pyrene	ND	240
Butylbenzylphthalate	ND	1,200
3,3'-Dichlorobenzidine	ND	2,400
Benzo(a)anthracene	ND	240
Chrysene	ND	240
bis(2-Ethylhexyl)phthalate	ND	1,200
Di-n-octylphthalate	ND	1,200
Benzo(b)fluoranthene	ND	240
Benzo(k)fluoranthene	ND	240
Benzo(a)pyrene	ND	240
Indeno(1,2,3-cd)pyrene	ND	240
Dibenz(a,h)anthracene	ND	240
Benzo(g,h,i)perylene	ND	240

Tentatively Identified Compounds	Result
2-Pentanone, 4-hydroxy-4-methyl-	12000 J
Eicosane	520 J
Ergost-25-ene-3,5,6,12-tetrol, (3.beta.,5.alpha.,6.beta.,12.beta.)-	510 J
Ergost-7-en-3-ol, (3.beta.)-	2100 J
Nonadecane	530 J
Unknown 1	5200 J
Unknown 2	2400 J

Surrogate	%REC	Limits
2-Fluorophenol	77	33-120
Phenol-d5	78	35-120
2,4,6-Tribromophenol	70	25-120
Nitrobenzene-d5	74	38-120
2-Fluorobiphenyl	76	44-120
Terphenyl-d14	71	40-120

J= Estimated value
 ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Semivolatile Organics by GC/MS			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC425540	Batch#:	134130
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	01/26/08
Basis:	as received		

Analyte	Result	RL
N-Nitrosodimethylamine	ND	340
Phenol	ND	340
bis(2-Chloroethyl)ether	ND	340
2-Chlorophenol	ND	340
1,3-Dichlorobenzene	ND	340
1,4-Dichlorobenzene	ND	340
Benzyl alcohol	ND	340
1,2-Dichlorobenzene	ND	340
2-Methylphenol	ND	340
bis(2-Chloroisopropyl) ether	ND	340
4-Methylphenol	ND	340
N-Nitroso-di-n-propylamine	ND	340
Hexachloroethane	ND	340
Nitrobenzene	ND	340
Isophorone	ND	340
2-Nitrophenol	ND	670
2,4-Dimethylphenol	ND	340
Benzoic acid	ND	1,700
bis(2-Chloroethoxy)methane	ND	340
2,4-Dichlorophenol	ND	340
1,2,4-Trichlorobenzene	ND	340
Naphthalene	ND	67
4-Chloroaniline	ND	340
Hexachlorobutadiene	ND	340
4-Chloro-3-methylphenol	ND	340
2-Methylnaphthalene	ND	67
Hexachlorocyclopentadiene	ND	670
2,4,6-Trichlorophenol	ND	340
2,4,5-Trichlorophenol	ND	340
2-Chloronaphthalene	ND	340
2-Nitroaniline	ND	670
Dimethylphthalate	ND	340
Acenaphthylene	ND	67
2,6-Dinitrotoluene	ND	340
3-Nitroaniline	ND	670
Acenaphthene	ND	67
2,4-Dinitrophenol	ND	670
4-Nitrophenol	ND	670
Dibenzofuran	ND	340
2,4-Dinitrotoluene	ND	340
Diethylphthalate	ND	340
Fluorene	ND	67
4-Chlorophenyl-phenylether	ND	340
4-Nitroaniline	ND	670
4,6-Dinitro-2-methylphenol	ND	670
N-Nitrosodiphenylamine	ND	340
Azobenzene	ND	340
4-Bromophenyl-phenylether	ND	340
Hexachlorobenzene	ND	340
Pentachlorophenol	ND	670
Phenanthrene	ND	67
Anthracene	ND	67

J= Estimated value
 ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Semivolatile Organics by GC/MS			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC425540	Batch#:	134130
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	01/26/08
Basis:	as received		

Analyte	Result	RL
Di-n-butylphthalate	ND	340
Fluoranthene	ND	67
Pyrene	ND	67
Butylbenzylphthalate	ND	340
3,3'-Dichlorobenzidine	ND	670
Benzo(a)anthracene	ND	67
Chrysene	ND	67
bis(2-Ethylhexyl)phthalate	ND	340
Di-n-octylphthalate	ND	340
Benzo(b)fluoranthene	ND	67
Benzo(k)fluoranthene	ND	67
Benzo(a)pyrene	ND	67
Indeno(1,2,3-cd)pyrene	ND	67
Dibenz(a,h)anthracene	ND	67
Benzo(g,h,i)perylene	ND	67

Tentatively Identified Compounds	Result
2-Pentanone, 4-hydroxy-4-methyl-	5900 J
Toluene	280 J

Surrogate	%REC	Limits
2-Fluorophenol	70	33-120
Phenol-d5	66	35-120
2,4,6-Tribromophenol	47	25-120
Nitrobenzene-d5	67	38-120
2-Fluorobiphenyl	74	44-120
Terphenyl-d14	71	40-120

J= Estimated value
 ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Semivolatile Organics by GC/MS			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC425541	Batch#:	134130
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	01/26/08
Basis:	as received		

Analyte	Spiked	Result	%REC	Limits
Phenol	2,667	1,877	70	38-120
2-Chlorophenol	2,667	1,866	70	41-120
1,4-Dichlorobenzene	1,333	911.6	68	47-120
N-Nitroso-di-n-propylamine	1,333	889.9	67	29-120
1,2,4-Trichlorobenzene	1,333	862.6	65	46-120
4-Chloro-3-methylphenol	2,667	1,844	69	44-120
Acenaphthene	1,333	948.2	71	43-120
4-Nitrophenol	2,667	1,961	74	31-120
2,4-Dinitrotoluene	1,333	931.4	70	44-120
Pentachlorophenol	2,667	1,393	52	21-120
Pyrene	1,333	963.7	72	42-120

Surrogate	%REC	Limits
2-Fluorophenol	77	33-120
Phenol-d5	76	35-120
2,4,6-Tribromophenol	70	25-120
Nitrobenzene-d5	74	38-120
2-Fluorobiphenyl	77	44-120
Terphenyl-d14	75	40-120

Batch QC Report

Semivolatile Organics by GC/MS			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	134130
MSS Lab ID:	200765-005	Sampled:	01/25/08
Matrix:	Soil	Received:	01/25/08
Units:	ug/Kg	Prepared:	01/25/08
Basis:	as received	Analyzed:	01/26/08
Diln Fac:	1.000		

Type: MS Lab ID: QC425542

Analyte	MSS Result	Spiked	Result	%REC	Limits
Phenol	<68.32	2,653	1,726	65	41-120
2-Chlorophenol	<71.12	2,653	1,709	64	42-120
1,4-Dichlorobenzene	<16.99	1,326	822.9	62	50-120
N-Nitroso-di-n-propylamine	<14.05	1,326	817.0	62	38-120
1,2,4-Trichlorobenzene	<15.17	1,326	800.2	60	50-120
4-Chloro-3-methylphenol	<70.38	2,653	1,689	64	48-120
Acenaphthene	<14.97	1,326	901.8	68	50-120
4-Nitrophenol	<84.39	2,653	1,758	66	36-120
2,4-Dinitrotoluene	<15.31	1,326	854.0	64	46-120
Pentachlorophenol	<66.96	2,653	1,221	46	19-120
Pyrene	<14.96	1,326	873.2	66	44-120

Surrogate	%REC	Limits
2-Fluorophenol	72	33-120
Phenol-d5	71	35-120
2,4,6-Tribromophenol	67	25-120
Nitrobenzene-d5	70	38-120
2-Fluorobiphenyl	72	44-120
Terphenyl-d14	71	40-120

Type: MSD Lab ID: QC425543

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Phenol	2,639	1,540	58	41-120	11	28
2-Chlorophenol	2,639	1,501	57	42-120	12	28
1,4-Dichlorobenzene	1,319	721.1	55	50-120	13	28
N-Nitroso-di-n-propylamine	1,319	722.7	55	38-120	12	30
1,2,4-Trichlorobenzene	1,319	695.5	53	50-120	13	28
4-Chloro-3-methylphenol	2,639	1,451	55	48-120	15	28
Acenaphthene	1,319	821.4	62	50-120	9	27
4-Nitrophenol	2,639	1,542	58	36-120	13	36
2,4-Dinitrotoluene	1,319	750.9	57	46-120	12	29
Pentachlorophenol	2,639	1,114	42	19-120	9	56
Pyrene	1,319	775.0	59	44-120	11	31

Surrogate	%REC	Limits
2-Fluorophenol	64	33-120
Phenol-d5	65	35-120
2,4,6-Tribromophenol	61	25-120
Nitrobenzene-d5	64	38-120
2-Fluorobiphenyl	67	44-120
Terphenyl-d14	64	40-120

RPD= Relative Percent Difference

Organochlorine Pesticides

Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8081A
Field ID:	RFSEPA001	Batch#:	134104
Lab ID:	200747-001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	ug/Kg	Prepared:	01/25/08
Basis:	dry	Analyzed:	02/01/08
Diln Fac:	5.000		

Moisture: 18%

Cleanup Method: EPA 3620B

Analyte	Result	RL
alpha-BHC	ND	10
beta-BHC	ND	10
gamma-BHC	ND	10
delta-BHC	ND	10
Heptachlor	ND	10
Aldrin	ND	10
Heptachlor epoxide	ND	10
Endosulfan I	ND	10
Dieldrin	ND	20
4,4'-DDE	ND	20
Endrin	ND	20
Endosulfan II	ND	20
Endosulfan sulfate	ND	20
4,4'-DDD	ND	20
Endrin aldehyde	ND	20
4,4'-DDT	18 J	20
alpha-Chlordane	ND	10
gamma-Chlordane	ND	10
Methoxychlor	ND	100
Toxaphene	ND	370

Surrogate	%REC	Limits
TCMX	113	54-120
Decachlorobiphenyl	97	49-142

J= Estimated value

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Organochlorine Pesticides			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8081A
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC425448	Batch#:	134104
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	02/01/08
Basis:	as received		

Cleanup Method: EPA 3620B

Analyte	Result	RL
alpha-BHC	ND	1.7
beta-BHC	ND	1.7
gamma-BHC	ND	1.7
delta-BHC	ND	1.7
Heptachlor	ND	1.7
Aldrin	ND	1.7
Heptachlor epoxide	ND	1.7
Endosulfan I	ND	1.7
Dieldrin	ND	3.3
4,4'-DDE	ND	3.3
Endrin	ND	3.3
Endosulfan II	ND	3.3
Endosulfan sulfate	ND	3.3
4,4'-DDD	ND	3.3
Endrin aldehyde	ND	3.3
4,4'-DDT	ND	3.3
alpha-Chlordane	ND	1.7
gamma-Chlordane	ND	1.7
Methoxychlor	ND	17
Toxaphene	ND	60

Surrogate	%REC	Limits
TCMX	86	54-120
Decachlorobiphenyl	90	49-142

ND= Not Detected

RL= Reporting Limit

Batch QC Report

Organochlorine Pesticides			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8081A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC425449	Batch#:	134104
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	02/01/08
Basis:	as received		

Cleanup Method: EPA 3620B

Analyte	Spiked	Result	%REC	Limits
gamma-BHC	13.32	11.80	89	44-120
Heptachlor	13.32	12.41	93	44-120
Aldrin	13.32	11.59	87	47-120
Dieldrin	26.65	23.65	89	50-120
Endrin	26.65	24.99	94	27-128
4,4'-DDT	26.65	24.40	92	42-128

Surrogate	%REC	Limits
TCMX	94	54-120
Decachlorobiphenyl	64	49-142

Polychlorinated Biphenyls (PCBs)

Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 608
Field ID:	RFSEPA001	Batch#:	134104
Lab ID:	200747-001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	ug/Kg	Prepared:	01/25/08
Basis:	dry	Analyzed:	01/25/08
Diln Fac:	1.000		

Moisture: 18%

Cleanup Method: EPA 3620B

Analyte	Result	RL
Aroclor-1016	ND	15
Aroclor-1221	ND	29
Aroclor-1232	ND	15
Aroclor-1242	ND	15
Aroclor-1248	ND	15
Aroclor-1254	72	15
Aroclor-1260	29	15

Surrogate	%REC	Limits
TCMX	100	66-140
Decachlorobiphenyl	86	51-152

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Polychlorinated Biphenyls (PCBs)			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC425448	Batch#:	134104
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	01/25/08
Basis:	as received		

Cleanup Method: EPA 3665A

Analyte	Result	RL
Aroclor-1016	ND	12
Aroclor-1221	ND	24
Aroclor-1232	ND	12
Aroclor-1242	ND	12
Aroclor-1248	ND	12
Aroclor-1254	ND	12
Aroclor-1260	ND	12

Surrogate	%REC	Limits
TCMX	130	66-140
Decachlorobiphenyl	137	51-152

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

Polychlorinated Biphenyls (PCBs)			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	S1518.014.01	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC425452	Batch#:	134104
Matrix:	Soil	Prepared:	01/25/08
Units:	ug/Kg	Analyzed:	01/25/08
Basis:	as received		

Cleanup Method: EPA 3665A

Analyte	Spiked	Result	%REC	Limits
Aroclor-1221	332.4	296.3	89	67-122

Surrogate	%REC	Limits
TCMX	114	66-140
Decachlorobiphenyl	125	51-152

California Title 26 Metals

Lab #:	200747	Project#:	S1518.014.01
Client:	Tetra Tech EMI	Location:	RFS EPA Pampas
Field ID:	RFSEPA001	Basis:	dry
Lab ID:	200747-001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	mg/Kg	Prepared:	01/25/08

Moisture: 18%

Analyte	Result	RL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Antimony	ND	0.61	1.000	134134	01/26/08	EPA 3050B	EPA 6010B
Arsenic	7.8	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Barium	190	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Beryllium	0.49	0.12	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Cadmium	0.82	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Chromium	45	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Cobalt	14	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Copper	230	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Lead	54	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Mercury	1.5	0.050	2.000	134119	01/25/08	METHOD	EPA 7471A
Molybdenum	0.63	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Nickel	38	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Selenium	ND	0.61	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Silver	0.48	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Thallium	ND	0.61	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Vanadium	39	0.30	1.000	134134	01/25/08	EPA 3050B	EPA 6010B
Zinc	200	1.2	1.000	134134	01/25/08	EPA 3050B	EPA 6010B

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	S1518.014.01	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	as received
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC425501	Batch#:	134119
Matrix:	Soil	Prepared:	01/25/08
Units:	mg/Kg	Analyzed:	01/25/08

Result	RL
ND	0.020

ND= Not Detected
 RL= Reporting Limit

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	S1518.014.01	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Matrix:	Soil	Batch#:	134119
Units:	mg/Kg	Prepared:	01/25/08
Basis:	as received	Analyzed:	01/25/08

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC425502	0.5000	0.5190	104	80-120		
BSD	QC425503	0.5000	0.5000	100	80-120	4	20

RPD= Relative Percent Difference

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	S1518.014.01	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	ZZZZZZZZZZ	Diln Fac:	100.0
Type:	Serial Dilution	Batch#:	134119
MSS Lab ID:	200751-001	Sampled:	01/23/08
Lab ID:	QC425504	Received:	01/24/08
Matrix:	Soil	Analyzed:	01/25/08
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
18.82	0.4960	17.49	2.480	16%	7	10

RL= Reporting Limit

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	S1518.014.01	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	20.00
Field ID:	ZZZZZZZZZZ	Batch#:	134119
MSS Lab ID:	200751-001	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	mg/Kg	Prepared:	01/25/08
Basis:	dry	Analyzed:	01/25/08

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC425505	18.82	0.5411	14.91	-723 NM	70-143	16%		
MSD	QC425506		0.5952	16.62	-371 NM	70-143	16%	11	22

NM= Not Meaningful: Sample concentration > 4X spike concentration
 RPD= Relative Percent Difference

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	S1518.014.01	Analysis:	EPA 6010B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC425555	Batch#:	134134
Matrix:	Soil	Prepared:	01/25/08
Units:	mg/Kg	Analyzed:	01/25/08
Basis:	as received		

Analyte	Result	RL
Antimony	ND	0.50
Arsenic	ND	0.25
Barium	ND	0.25
Beryllium	ND	0.10
Cadmium	ND	0.25
Chromium	ND	0.25
Cobalt	ND	0.25
Copper	ND	0.25
Lead	ND	0.25
Molybdenum	ND	0.25
Nickel	ND	0.25
Selenium	ND	0.50
Silver	ND	0.25
Thallium	ND	0.50
Vanadium	ND	0.25
Zinc	ND	1.0

ND= Not Detected

RL= Reporting Limit

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	S1518.014.01	Analysis:	EPA 6010B
Matrix:	Soil	Batch#:	134134
Units:	mg/Kg	Prepared:	01/25/08
Basis:	as received	Analyzed:	01/25/08
Diln Fac:	1.000		

Type: BS Lab ID: QC425556

Analyte	Spiked	Result	%REC	Limits
Antimony	100.0	92.07	92	80-120
Arsenic	50.00	50.30	101	80-120
Barium	100.0	95.59	96	80-120
Beryllium	2.500	2.465	99	80-120
Cadmium	10.00	10.28	103	80-120
Chromium	100.0	92.74	93	80-120
Cobalt	25.00	23.09	92	80-120
Copper	12.50	11.75	94	80-120
Lead	100.0	94.86	95	80-120
Molybdenum	20.00	19.59	98	80-120
Nickel	25.00	23.50	94	80-120
Selenium	50.00	48.56	97	80-120
Silver	10.00	8.942	89	80-120
Thallium	50.00	45.45	91	80-120
Vanadium	25.00	23.40	94	80-120
Zinc	25.00	24.05	96	80-120

Type: BSD Lab ID: QC425557

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Antimony	100.0	93.97	94	80-120	2	20
Arsenic	50.00	49.92	100	80-120	1	20
Barium	100.0	95.11	95	80-120	1	20
Beryllium	2.500	2.443	98	80-120	1	20
Cadmium	10.00	10.29	103	80-120	0	20
Chromium	100.0	91.84	92	80-120	1	20
Cobalt	25.00	23.00	92	80-120	0	20
Copper	12.50	11.70	94	80-120	0	20
Lead	100.0	94.89	95	80-120	0	20
Molybdenum	20.00	19.56	98	80-120	0	20
Nickel	25.00	23.43	94	80-120	0	20
Selenium	50.00	48.41	97	80-120	0	20
Silver	10.00	8.845	88	80-120	1	20
Thallium	50.00	45.22	90	80-120	1	20
Vanadium	25.00	23.21	93	80-120	1	20
Zinc	25.00	23.89	96	80-120	1	20

RPD= Relative Percent Difference

Batch QC Report

California Title 26 Metals			
Lab #:	200747	Location:	RFS EPA Pampas
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	S1518.014.01	Analysis:	EPA 6010B
Field ID:	RFSEPA001	Basis:	dry
Type:	Serial Dilution	Diln Fac:	5.000
MSS Lab ID:	200747-001	Batch#:	134134
Lab ID:	QC425560	Sampled:	01/23/08
Matrix:	Soil	Received:	01/24/08
Units:	mg/Kg		

Moisture: 18%

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim	Analyzed
Antimony	ND	0.6098	ND	1.438	NC	10	01/28/08
Arsenic	7.801	0.3049	7.573	1.438	3	10	01/25/08
Barium	189.4	0.3049	192.1	1.438	1	10	01/25/08
Beryllium	0.4914	0.1220	0.5175 J	0.5752	5	10	01/25/08
Cadmium	0.8198	0.3049	0.8357 J	1.438	2	10	01/25/08
Chromium	45.37	0.3049	45.56	1.438	0	10	01/25/08
Cobalt	13.73	0.3049	14.05	1.438	2	10	01/25/08
Copper	233.1	0.3049	231.4	1.438	1	10	01/25/08
Lead	54.06	0.3049	56.14	1.319	4	10	01/25/08
Molybdenum	0.6308	0.3049	0.6468 J	1.438	NC	10	01/25/08
Nickel	38.13	0.3049	38.80	1.438	2	10	01/25/08
Selenium	ND	0.6098	ND	1.438	NC	10	01/25/08
Silver	0.4755	0.3049	0.5344 J	1.438	NC	10	01/25/08
Thallium	ND	0.6098	ND	1.438	NC	10	01/25/08
Vanadium	39.43	0.3049	39.67	1.438	1	10	01/25/08
Zinc	196.5	1.220	200.4	5.752	2	10	01/25/08

J= Estimated value

NC= Not Calculated

ND= Not Detected

RL= Reporting Limit



Tetra Tech EM Inc.
San Francisco Office

135 Main St. Suite 1800
San Francisco, CA 94105
415-543-4880
Fax 415-543-5480

Chain of Custody Record No. 6645

200747

Lab PO#: To Elbow	Lab: CJT	No./Container Types	Analysis Required
TIEMI technical contact: Sara Woolley	Field samplers: Aileen M. Berra	40 ml VOA	VOA
TIEMI project manager: Jason Broderick	Field samplers' signatures: Sara Woolley	1 liter Amber	Metals *
Sample Location (Pt. ID):	Date: 1/24/08	500 ml Poly	TPH Purgeables
Sample ID: RPS EAPD1	Time: 1300	Glass Jar	TPH Extractables
	Matrix: soil		

Relinquished by: Sara Woolley	Name (print): Sara Woolley	Company Name: CEMT	Date: 1/24/08	Time: 15:45
Received by: [Signature]	Ling Wu	CJT	1/24/08	15:45
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: *** CAM 17 metals including mercury on ice, intact, 15 days**

SOP Volume: Client Services
Section: 1.1.2
Page: 1 of 1
Effective Date: 08-Aug-07
Revision: 3 Number 1 of 3
Filename: F:\QC\Forms\QC\Cooler.wpd



COOLER RECEIPT CHECKLIST

Login#: 200747 Date Received: 1/24/08 Number of Coolers: 1
Client: TETRA TECH Project: RFS EPA Pampas

A. Preliminary Examination Phase

Date Opened: 1/24/08 By (print): M. VILLANUEVA (sign)

1. Did cooler come with a shipping slip (airbill, etc.)?..... YES NO
- If YES, enter carrier name and airbill number: _____
2. Were custody seals on outside of cooler?..... YES NO
- How many and where? _____ Seal date: _____ Seal name: _____
3. Were custody seals unbroken and intact at the date and time of arrival?..... YES NO N/A
4. Were custody papers dry and intact when received?..... YES NO
5. Were custody papers filled out properly (ink, signed, etc.)?..... YES NO
6. Did you sign the custody papers in the appropriate place?..... YES NO
7. Was project identifiable from custody papers?..... YES NO
- If YES, enter project name at the top of this form.
8. Describe type of packing in cooler: ZIP LOC
9. If required, was sufficient ice used? Samples should be ≤ 6 degrees C. YES NO
- Type of ice: BLUE Temperature: NO TRAP BLANK
10. Were Encore sampling devices present in the cooler?..... YES NO
- If YES, enter time they were transferred to the freezer _____

B. Login Phase

Date Logged In: 1/24/08 By (print): K Wellbrock (sign)

1. Did all bottles arrive unbroken?..... YES NO
2. Were labels in good condition and complete (ID, date, time, signature, etc.)?..... YES NO
3. Did bottle labels agree with custody papers?..... YES NO
4. Were appropriate containers used for the tests indicated?..... YES NO
5. Were correct preservatives added to samples?..... YES NO N/A
6. Was sufficient amount of sample sent for tests indicated?..... YES NO
7. Were bubbles absent in VOA samples? If NO, list sample IDs below..... YES NO N/A
8. Was the client contacted concerning this sample delivery?..... YES NO

If YES, give details below.

Who was called? _____ By whom? _____ Date: _____

Additional Comments:

