TETRA TECH, INC.

February 5, 2016

Lynn Nakashima
Berkeley Regional Office
700 Heinz Avenue, Suite 200C
Berkeley, California 94710

Subject: Building 280A and Building 450 Soil Sampling Results
Richmond Field Station Site
Berkeley Global Campus at Richmond Bay, Richmond, California

Dear Ms. Nakashima:

On behalf of the University of California, Berkeley, Tetra Tech, Inc. collected soil samples at two buildings at the Richmond Field Station Site, located at the Berkeley Global Campus at Richmond Bay, in Richmond, California. A summary letter for this sampling event was submitted to California Department of Toxic Substances Control on January 21, 2015. UC Berkeley received the DTSC response comment letter dated February 11, 2015, in which you recommended providing a comparison of the sample results to available site-wide metals concentrations. This revised letter incorporates the recommended comparison and references work regarding ambient metals concentrations conducted since submittal of the original letter.

The soil samples were collected in response to information provided by Maggie Lazar, a UC Berkeley research employee, regarding observations during construction activities at Buildings B280A and B450 in the mid-1990s. Ms. Lazar indicated that soil was excavated as a result of installing measurement sensors during controlled pavement studies. Shallow excavations up to 4 feet deep were dug at several locations inside Building 280A. Ms. Lazar indicated that a worker noted "dark and damp soil that smelled horrible and made his skin tingle and go numb." A second excavation location was also identified south of Building 450.

The purpose of collecting soil samples was to evaluate soil conditions which may have been encountered during the excavation activities. UC Berkeley and Tetra Tech representatives conducted a site walk with Ms. Lazar on December 10, 2013 to discuss the history and identify specific areas to be sampled.

This letter provides the rationale for the selected sampling locations, and a summary of field sampling protocols, and sample results. Figure 1 presents the sampling locations, Tables 1 through 6 present a summary of the data, and Attachment 1 presents complete analytical results.

Sample Locations

Samples were collected at three locations identified during the 2013 site walk as the areas where an odor was observed during the past excavation activities; sampling locations are presented in Figure 1. Ms.

Lazar and the worker who performed the excavations were present on the day when sampling was conducted to confirm the sampling locations.

Location SSB280A1 is just outside of Building 280A near the middle of the length of the building; this location was originally planned to be located inside the building in the same area; however, native soil is no longer present in the area that was previously excavated, so the location was moved to the closest location where native soil was still present. Location SSB280A2 is outside the northeast corner of Building 280A, and a location SSB4501 is south of Building 450 near the side entrance to the building. Soil samples were collected from depths of 0-1, 2-2.5, and 5-5.5 feet below ground surface (bgs) at all locations, and an additional soil sample was collected from a depth of 3.8-4.3 feet bgs at location SSB280A1 where a trace odor was observed during sample collection (analyzed for volatile organic compounds [VOC] only). The origin or source of the odor could not be identified by UC Berkeley or Tetra Tech staff present during the sampling. The odor was extremely faint and several staff did not detect it.

Field Sampling Protocols

A hand auger was used to collect the soil samples at the depth intervals specified above. During sampling, field personnel inspected the soil visually. The hand auger was decontaminated prior to collecting each soil sample. Soil was collected from undisturbed soil using an Encore soil sampler for VOC and total extractable petroleum hydrocarbons (TPH-e). Soil was collected directly and immediately into a 4-ounce jar for semivolatile organic compounds (SVOC) and polycyclic aromatic hydrocarbons (PAH). Soil for analysis of metals, pesticides, polychlorinated biphenyls (PCB), and total purgeable petroleum hydrocarbons (TPH-p) was placed in a steel bowl, thoroughly mixed to homogenize the soil from the depth interval, placed into pre-cleaned glass jars provided by the laboratory, and submitted to the analytical laboratory. The steel bowl was decontaminated between each sampling location using Alconox and de-ionized water.

A triplicate soil sample was collected and analyzed for all analyses from the 0-1 sample interval at location SSB4501 to help evaluate soil heterogeneity and data confidence. The replicate sample locations were placed 2 feet from the initial location and were indicated as replicates by adding an “-R1” and “-R2” to the sample ID. The Encore samples and sample jars were labeled, wrapped with protective bubble wrap material, placed into re-sealable plastic bags, and packed into an insulated cooler with ice. Samples were driven directly from the field to Curtis and Tompkins Laboratory in Berkeley, California.

Analyses Summary and Screening Criteria

Soil samples were analyzed for VOCs, pesticides, PCB, SVOC, TPH, and PAH using the methods listed below.

- Metal analysis by EPA 6020/7471A
- Pesticide analysis by EPA 8081A
- PCB analysis by EPA 8082A

- PAH analysis by EPA 8270 SIM
- TPH-e and TPH-p analysis by EPA 8015B
- VOC analysis by EPA 8060

Sample results are presented in Tables 1 through 5 along with screening criteria for all potential receptors, consistent with the Final Soil Management Plan for the Research and Education Support (RES) portions of RFS, dated June 18, 2014, and the Final Ambient Metals Evaluation, Aluminum, Cobalt, Manganese, and Nickel, Technical Memorandum, dated December 11, 2015. The laboratory report is presented as Attachment 1.

All PAHs, PCBs, TPH, pesticides, VOCs, and metals were either not detected, or detected at concentrations below the Category I criteria presented in the Soil Management Plan or Final Ambient Metals Evaluation Technical Memorandum.

Results of soil sampling do not support that a contaminant source presenting exposure to hazardous substances was in the soils during the historic excavation activities.

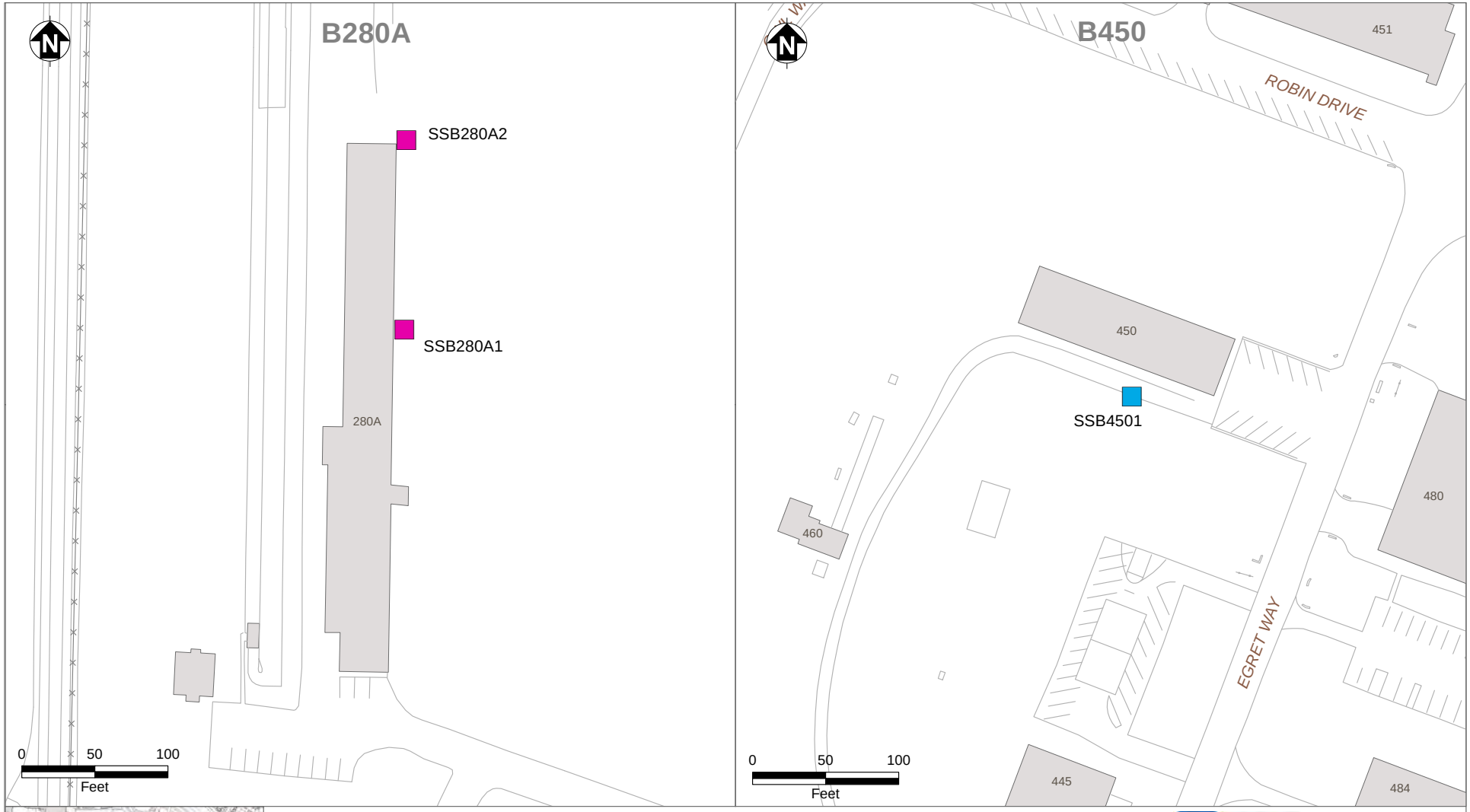
If you have any questions or comments regarding this submittal, please call me at (510) 302-6283.

Sincerely,

Jason Brodersen, P.G.
Project Manager

Enclosure: B280A and B450 Sampling Figure
Tables 1 through 5
Attachment 1 - Laboratory Report

1999 Harrison Street, Suite 500, Oakland, CA 94612
Tel 510.302.6300 Fax 510.433.0830
www.tetratech.com



TETRA TECH

Richmond Field Station Site
University of California, Berkeley

B280A AND B450 SAMPLING

12/5/2014 V:\Misc_GIS\Richmond_Field_Station\Projects\Miscel\B280A_soil\B280A_B450 Sampling.mxd yashekia.evans

TABLE 1.
METALS SOIL SAMPLING RESULTS
REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

	Aluminum	**Antimony**	**Arsenic**	**Barium**	**Beryllium**	**Cadmium**	**Chromium**	**Cobalt**	**Copper**	**Iron**	**Lead**	**Manganese**	**Mercury**	**Molybdenum**	**Nickel**	**Selenium**	**Silver**	**Thallium**	**Vanadium**	**Zinc**
Commercial worker	*100,000*	*367*	*0.224*	*100,000*	*1,760*	*1,000*	*100,000*	*273*	*36,700*	*100,000*	*320*	*2,050*	*275*	*4,590*	*14,900*	*4,590*	*4,590*	*9.17*	*4,590*	*100,000*
Construction worker	*20,300*	*109*	*1.58*	*2,110*	*29.0*	*68.1*	*100,000*	*19.9*	*10,900*	*100,000*	*320*	*212*	*77.0*	*1,360*	*60.6*	*1,340*	*1,360*	*2.72*	*1,360*	*81,600*
Maintenance worker	*100,000*	*2,720*	*1.58*	*52,600*	*128*	*73.0*	*100,000*	*34.1*	*100,000*	*100,000*	*320*	*5,300*	*1,920*	*34,000*	*1,180*	*33,500*	*34,000*	*68.0*	*34,000*	*100,000*
Off-Site Receptors	*6,860,000*	*--*	*745*	*686,000*	*1,330*	*762*	*--*	*356*	*--*	*--*	*--*	*68,600*	*41,200*	*--*	*12,300*	*27,400,000*	*--*	*--*	*--*	*--*
Other	*--(1)*		*16 (2)*					*73 (3)*				*5,900 (3)*			*280 (3)*					
Category I Criteria	*-- (1)*	*109*	*16*	*2,110*	*29.0*	*68.1*	*100,000*	*73 (3)*	*10,900*	*100,000*	*320*	*5,900 (3)*	*77.0*	*1,360*	*280 (3)*	*1,340*	*1,360*	*2.72*	*1,360*	*81,600*
Category II Criteria	*-- (1)*	*1,090*	*16*	*21,100*	*290*	*681*	*100,000*	*199*	*100,000*	*100,000*	*800*	*5,900 (3)*	*275*	*13,600*	*280 (3)*	*13,400*	*13,600*	*27.2*	*13,600*	*100,000*
Disposal Criteria																				
TTLC Criteria	*--*	*500*	*500*	*10,000*	*75*	*100*	*2,500*	*8,000*	*2,500*	*--*	*1,000*	*--*	*20*	*3,500*	*2,000*	*100*	*500*	*700*	*2,400*	*5,000*
Sample Location - (depth in feet)																				
SSB280A1 (0-1)	14,000	0.31	4	130	0.46	0.11 J	40	6	18	15,000	14	360	0.23	0.46	34	0.2 J	0.098 J	0.12 J	32	45
SSB280A1 (2-2.5)	18,000	0.2 J	4.7	110	0.82	0.28 U	52	13	17	21,000	7.2	650	0.035	0.25 J	110	0.28 U	0.12 J	0.1 J	38	32
SSB280A1 (5-5.5)	27,000	0.39	11	210	0.88	0.11 J	80	20	41	42,000	9.7	780	0.11	0.65	110	0.29 U	0.29 U	0.18 J	61	67
SSB280A2 (0-1)	14,000	0.48	8.9	350	0.55	0.35	44	33	24	20,000	38	2,400	1.3	1.5	46	0.21 J	0.17 J	0.12 J	56	100
SSB280A2 (2-2.5)	22,000	0.24 J	6.3	130	0.36	0.28 U	58	9.2	19	26,000	16	500	0.036	0.53	44	0.11 J	0.061 J	0.13 J	46	35
SSB280A2 (5-5.5)	21,000	0.34	10	460	0.6	0.43	59	24	30	25,000	9.3	1,900	0.049	0.53	92	0.3 U	0.034 J	0.31	60	50
SSB4501 (0-1)	26,000	2.00	3.6	180	0.68	0.14 J	64	11	30	23,000	15	590	2	0.39 J	43	0.24 J	0.098 J	0.12 J	39	43
SSB4501-R1 (0-1)	15,000	0.65	4.1	130	0.49	0.36	38	12	42	17,000	29	690	3.4	0.3 J	33	0.16 J	0.08 J	0.083 J	29	87
SSB4501-R2 (0-1)	17,000	0.53	5.3	160	0.49	1.7	57	10	50	21,000	34	560	2.7	0.43 J	49	0.39	0.087 J	0.084 J	35	64
SSB4501 (2-2.5)	27,000	0.68	3.2	130	0.63	0.096 J	76	18	25	23,000	7.8	870	0.27	0.25 J	68	0.21 J	0.099 J	0.12 J	44	44
SSB4501 (5-5.5)	19,000	0.63	11	170	0.55	0.12 J	63	19	27	26,000	8.4	1,200	0.089	0.36 J	100	0.28 U	0.032 J	0.1 J	63	46

Notes:

Bold values indicate that the result exceeded the Category I criterion.

Screening criteria based on the Final Soil Management Plan, Table C-1, July 18, 2014, unless otherwise updated by the Final Ambient Technical Memorandum as ideintified in Note 1 below.

Results for essential nutrients (calcium, magnesium, potassium, sodium) are not reported.

1	All aluminum detections at RFS have been determined to represent ambient conditions, based on the normal distribution presented in the Final Technical Memorandum, Ambient Metals Evalution, Aluminum, Cobalt, Mangangese, Copper, December 11, 2015. Screening levels for aluminum are no longer applicable as it is no longer considered a contaminant of concern at RFS per the referenced technical memorandum.
2	Background concentration
3	Category I criteria to be amended in updated Soil Management Plan, based on Final Technical Memorandum, Ambient Metals Evalution, Aluminum, Cobalt, Mangangese, Copper, December 11, 2015.
--	Not applicable
NA	Not available
J	Estimated value
TTLC	Total Threshold Limits Concentration
U	Not detected

TABLE 2.
PAH SOIL SAMPLING RESULTS
REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

	1-Methylnaphthalene	2-Methylnaphthalene	Acenaphthylene	Anthracene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)kluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Indeno(1,2,3- cd)pyrene	Naphthalene	Phenanthrene	Pyrene	BAP (EQ)
Commercial worker	*36.4*	*1,510*	*22,600*	*100,000*	*0.880*	*0.145*	*0.88*	*11,300*	*0.880*	*8.80*	*0.145*	*15,100*	*0.880*	*18.0*	*15,100*	*11,300*	*0*
Construction worker	*243*	*403*	*6,050*	*30,200*	*5.87*	*0.963*	*5.87*	*3,020*	*5.87*	*58.7*	*0.963*	*4,030*	*5.87*	*450*	*4,030*	*3,020*	*1*
Maintenance worker	*243*	*10,100*	*100,000*	*100,000*	*5.87*	*0.963*	*5.87*	*75,600*	*5.87*	*58.7*	*0.963*	*100,000*	*5.87*	*450*	*100,000*	*75,600*	*1*
Off-Site Receptors	--	--	--	--	*11,500*	*1,150*	*11,500*	--	*11,500*	*115,000*	*2,670*	--	*11,500*	*3.57*	--	--	*1,150*
Other	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	*0.4 (1)*
Category I Criteria	*36.4*	*403*	*6,050*	*30,200*	*0.88*	*0.145*	*0.88*	*3,020*	*0.88*	*8.8*	*0.145*	*4,030*	*0.88*	*3.57*	*4,030*	*3,020*	*0*
Category II Criteria	*364*	*4,030*	*60,500*	*100,000*	*8.8*	*1.45*	*8.8*	*30,200*	*8.8*	*88*	*1.45*	*40,300*	*8.8*	*35.7*	*40,300*	*30,200*	*1*
Sample Location - (depth in feet)																	
SSB280A1 (0-1)	0.0055 U	0.0055 U	0.0016 J	0.0027 J	0.013	0.023	0.036	0.013	0.012	0.02	0.0029 J	0.033	0.012	0.0055 U	0.021	0.036	0.032
SSB280A1 (2-2.5)	0.0014 J	0.003 J	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.0055 U	0.002 J	0.0055 U	0.0055 U	0
SSB280A1 (5-5.5)	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0
SSB280A2 (0-1)	0.0066 J	0.014 J	0.022 U	0.022 U	0.016 J	0.023	0.049	0.014 J	0.015 J	0.027	0.022 U	0.03	0.01 J	0.0087 J	0.016 J	0.033	0.031
SSB280A2 (2-2.5)	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0
SSB280A2 (5-5.5)	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.006 U	0.0021 J	0.006 U	0.006 U	0.0017 J	0.0023 J	0
SSB4501 (0-1)	0.011 U	0.011 U	0.011 U	0.011 U	0.011 U	0.0023 J	0.0044 J	0.0042 J	0.011 U	0.0036 J	0.011 U	0.0036 J	0.011 U	0.011 U	0.0028 J	0.0041 J	0
SSB4501-R1 (0-1)	0.027 U	0.027 U	0.027 U	0.012 J	0.0092 J	0.011 J	0.043	0.018 J	0.01 J	0.032	0.027 U	0.021 J	0.01 J	0.027 U	0.0059 J	0.02 J	0.017
SSB4501-R2 (0-1)	0.0058 U	0.0058 U	0.011	0.021	0.014	0.014	0.11	0.034	0.013	0.038	0.0046 J	0.034	0.015	0.0058 U	0.0078	0.032	0.033
SSB4501 (2-2.5)	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0
SSB4501 (5-5.5)	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0.0057 U	0

Notes:

Bold values indicate that the result exceeded the Category I criterion.

Screening criteria based on the Final Soil Management Plan, Table C-1, July 18, 2014.

Disposal criteria are not available for PAHs.

The following PAHs were non detect in all 11 samples: 1,4-dioxane, acenaphthene, and fluorene.

1	Ambient concentration		
--	Not applicable	PAH	Polycyclic aromatic hydrocarbon
BAP (EQ)	Benzo(a)pyrene equivalency	U	Not detected
J	Estimated value		

TABLE 3.
PCB AND TPH SOIL SAMPLING RESULTS
REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

	PCB		TPH		
Screening Criteria	**Aroclor-1254**	**Aroclor-1260**	**Diesel range organics**	**Gasoline range organics**	**Motor oil range organics**
Commercial worker	*0.528*	*0.528*	--	--	--
Construction worker	*2.02*	*3.50*	--	--	--
Maintenance worker	*3.50*	*3.50*	--	--	--
Off-Site Receptors	*5,620*	*5,620*	--	--	--
Other	*1 (1)*	*1 (1)*	*1,100 (2)*	*500 (2)*	*500 (2)*
Category I Criteria	*1*	*1*	*1,100*	*500*	*500*
Category II Criteria	*1*	*1*	*1,100*	*500*	*500*
Disposal Criteria					
TTLC Criteria	*50*	*50*	--	--	--
Sample Location - (depth in feet)					
SSB280A1 (0-1)	0.01 U	0.01 U	25 Y	0.077 J	220
SSB280A1 (2-2.5)	0.011 U	0.011 U	1.5 Y	0.16 J	6.3
SSB280A1 (5-5.5)	0.014 U	0.014 U	0.38 J	0.2 U	5.7 U
SSB280A2 (0-1)	0.079	0.022	37 Y	0.017 J	270
SSB280A2 (2-2.5)	0.014 U	0.014 U	1.5 Y	0.21 U	7.9
SSB280A2 (5-5.5)	0.012 U	0.012 U	1.2 J	0.21 U	5.7 J
SSB4501 (0-1)	0.013 U	0.013 U	14 Y	0.26 U	36
SSB4501-R1 (0-1)	0.031	0.0075 J	40 Y	NA	97
SSB4501-R2 (0-1)	0.01 J	0.0081 J	34 Y	NA	67
SSB4501 (2-2.5)	0.014 U	0.014 U	2.2 Y	0.24 U	11
SSB4501 (5-5.5)	0.014 U	0.014 U	1.1 U	0.2 U	2.8 J

Notes:

Bold values indicate that the result exceeded the Category I criterion.

Screening criteria based on the Final Soil Management Plan, Table C-1, July 18, 2014.

All other PCBs were non-detect in all samples.

1	Other criteria for PCBs are based on Toxic Substances Control Act (TSCA) criteria for high occupancy areas with no cap.
2	Criteria for TPH constituents are based on the RWQCB ESL (RWQCB 2013).
--	Not applicable
NA	Not available
J	Estimated value
PCB	Polychlorinated biphenyl
TPH	Total petroleum hydrocarbon
U	Not detected
Y	Sample exhibits chromatographic pattern which does not resemble strata

TABLE 4.
PESTICIDE SOIL SAMPLING RESULTS
REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

	4,4'-DDD	4,4'-DDE	4,4'-DDT	Alpha-Chlordane	Dieldrin	Endosulfan I	Endosulfan II	Endosulfan Sulfate	Heptachlor
Commercial worker	*7.59*	*5.36*	*5.36*	*1.40*	*0.114*	*3,910*	*3,910*	*3,910*	*0.405*
Construction worker	*52.8*	*37.3*	*37.3*	*9.76*	*0.792*	*1,100*	*1,100*	*1,100*	*2.82*
Maintenance worker	*52.8*	*37.3*	*37.3*	*9.76*	*0.792*	*27,500*	*27,500*	*27,500*	*2.82*
Off-Site Receptors	*46,400*	*33,000*	*33,000*	*9,420*	*696*	--	--	--	*2,460*
Category I Criteria	*7.59*	*5.36*	*5.36*	*1.40*	*0.114*	*1,100*	*1,100*	*1,100*	*0.405*
Category II Criteria	*75.9*	*53.6*	*53.6*	*14.0*	*1.14*	*11,000*	*11,000*	*11,000*	*4.05*
Disposal Criteria									
TTLC Criteria	*1*	*1*	*1*	*2.50*	*8*	--	--	--	*4.7*
(depth in feet)									
SSB280A1 (0-1)	0.0036 U	0.0023 J	0.0023 J	0.00029 CJ	0.00062 CJ	0.00037 CJ	0.0036 U	0.0036 U	0.0019 U
SSB280A1 (2-2.5)	0.0037 U	0.0037 U	0.0037 U	0.0019 U	0.0019 U	0.0019 U	0.0037 U	0.0037 U	0.0019 U
SSB280A1 (5-5.5)	0.0038 U	0.0038 U	0.0038 U	0.002 U	0.002 U	0.002 U	0.0038 U	0.0038 U	0.002 U
SSB280A2 (0-1)	0.036 U	0.0065 CJ	0.036 U	0.019 U	0.019 U	0.019 U	0.036 U	0.036 U	0.019 U
SSB280A2 (2-2.5)	0.0038 U	0.0038 U	0.0038 U	0.002 U	0.002 U	0.002 U	0.0038 U	0.0038 U	0.002 U
SSB280A2 (5-5.5)	0.004 U	0.004 U	0.004 U	0.0021 U	0.0021 U	0.0021 U	0.004 U	0.004 U	0.0021 U
SSB4501 (0-1)	0.0037 U	0.0019 J	0.0015 CJ	0.0019 U	0.0019 U	0.0019 U	0.00069 CJ	0.0037 U	0.0019 U
SSB4501-R1 (0-1)	0.018 U	0.018 U	0.0054 J	0.0093 U	0.0093 U	0.0093 U	0.018 U	0.018 U	0.0018 J
SSB4501-R2 (0-1)	0.0012 J	0.0028 J	0.0038 U	0.00036 CJ	0.0012 CJ	0.00028 CJ	0.0038 U	0.00062 CJ	0.0004 CJ
SSB4501 (2-2.5)	0.0038 U	0.0038 U	0.0038 U	0.002 U	0.002 U	0.00025 CJ	0.0038 U	0.0038 U	0.002 U
SSB4501 (5-5.5)	0.0037 U	0.0037 U	0.0037 U	0.0019 U	0.0019 U	0.0019 U	0.0037 U	0.0037 U	0.0019 U

Notes:

Bold values indicate that the result exceeded the Category I criterion.

Screening criteria based on the Final Soil Management Plan, Table C-1, July 18, 2014.

All other PAHs were not detected.

--	Not applicable
CJ	Presence confirmed, but RPD between columns exceeds 40%
J	Estimated value
RPD	Relative percent difference
NA	Not available
U	Not detected

TABLE 5.
VOC SOIL SAMPLING RESULTS
REPORTED IN MILLIGRAMS PER KILOGRAM (mg/kg)

Screening Criteria	**Acetone**
Commercial worker	*100,000*
Construction worker	*100,000*
Maintenance worker	*100,000*
Off-Site Receptors	*475,000*
Other	--
Category I Criteria	*100,000*
Category II Criteria	*100,000*
Disposal Criteria	
TTLC Criteria	--
Sample Location - (depth in feet)	
SSB280A1 (0-1)	0.011 U
SSB280A1 (2-2.5)	0.013 U
SSB280A1 (3.8-4.3)	0.00087 J
SSB280A1 (5-5.5)	0.00087 J
SSB280A2 (0-1)	0.013 U
SSB280A2 (2-2.5)	0.011 U
SSB280A2 (5-5.5)	0.0018 J
SSB4501 (0-1)	0.012 U
SSB4501-R1 (0-1)	0.012 U
SSB4501-R2 (0-1)	0.011 U
SSB4501 (2-2.5)	NA
SSB4501 (5-5.5)	NA

Notes:

Bold values indicate that the result exceeded the Category I criterion.

Screening criteria based on the Final Soil Management Plan, Table C-1, July 18, 2014.

All other VOCs were not detected.

--	Not applicable
J	Estimated value
NA	Not available
VOC	Volatile organic compound
U	Not detected


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
TPH-Purgeables and/or BTXE by GC

Tetra Tech EMI	Project : RFS-B280A
1999 Harrison Street	Location : RFS-B280A
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
TPH-PURGEABLES AND/OR BTXE BY GC (EPA 8015B)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):

Matrix spikes were not performed for this analysis in batch 216764 due to insufficient sample amount.

No other analytical problems were encountered.

Chain of Custody

261954

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. 6887

Page 1 of 1

Lab PO#: to follow

Lab: C+T

Project name: RFS-B280A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Encores	Plastic	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables*	TPH Extractables	PCB	WS-#44
SOIL 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q3			1330								3			X							
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q3			1410							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech	10/22/14	1705
Received by:	Isabelle Choy	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

4 of 220

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 YES NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0101	Diln Fac:	1.000
Lab ID:	261954-001	Batch#:	216767
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 9%

Analyte	Result	RL	MDL
Gasoline C7-C12	0.077 J	1.2	0.075

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	109	67-137

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0102	Diln Fac:	1.000
Lab ID:	261954-002	Batch#:	216767
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 10%

Analyte	Result	RL	MDL
Gasoline C7-C12	0.16 J	1.1	0.070

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	110	67-137

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0104	Diln Fac:	1.000
Lab ID:	261954-004	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 13%

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.20	0.015

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	122	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0201	Diln Fac:	1.000
Lab ID:	261954-005	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 8%

Analyte	Result	RL	MDL
Gasoline C7-C12	0.017 J	0.21	0.016

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	122	67-137

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0202	Diln Fac:	1.000
Lab ID:	261954-006	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 13%

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.21	0.016

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	118	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0203	Diln Fac:	1.000
Lab ID:	261954-007	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 17%

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.21	0.016

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	114	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	216764
Units:	mg/Kg	Analyzed:	10/24/14
Diln Fac:	1.000		

Type: BS Lab ID: QC763019

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9821	98	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	114	67-137

Type: BSD Lab ID: QC763020

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1.000	0.9837	98	80-120	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	105	67-137

RPD= Relative Percent Difference

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763021	Batch#:	216764
Matrix:	Soil	Analyzed:	10/24/14
Units:	mg/Kg		

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.20	0.015

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	111	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763028	Batch#:	216767
Matrix:	Soil	Analyzed:	10/24/14
Units:	mg/Kg		

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9680	97	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	97	67-137

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8015B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763029	Batch#:	216767
Matrix:	Soil	Analyzed:	10/24/14
Units:	mg/Kg		

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.20	0.013

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	94	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Batch QC Report

Curtis & Tompkins Laboratories Analytical Report

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Diln Fac:	1.000
MSS Lab ID:	261968-001	Batch#:	216767
Matrix:	Soil	Sampled:	10/23/14
Units:	mg/Kg	Received:	10/23/14
Basis:	as received	Analyzed:	10/24/14

Type: MS Lab ID: QC763030

Analyte	MSS Result	Spiked	Result	%REC	Limits
Gasoline C7-C12	0.06126	9.804	8.442	85	42-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	111	67-137

Type: MSD Lab ID: QC763031

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	9.615	7.693	79	42-120	7	44

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	104	67-137

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
TPH-Extractables by GC

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : RFS-B280A
Location : RFS-B280A
Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
TPH-EXTRACTABLES BY GC (EPA 8015B)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Extractables by GC (EPA 8015B):
No analytical problems were encountered.

Chain of Custody

261954

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. 6887

Page 1 of 1

Lab PO#: to follow

Lab: C+T

Project name: RFS-B28@A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Encores	Plastic	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables*	TPH Extractables	PCB	WS-#4
SOIL 1022 B28@A@1@1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X	X
B28@A@1@2			1315							1	3	1		X	X	X	X	X	X	X	X
B28@A@1@3			1330								3			X							
B28@A@1@4			1345							1	3	1		X	X	X	X	X	X	X	X
B28@A@2@1			1405							1	3	1		X	X	X	X	X	X	X	X
B28@A@2@3			1410							1	3	1		X	X	X	X	X	X	X	X
B28@A@2@3			1420							1	3	1		X	X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech	10/22/14	1705
Received by:	Isabelle Choy	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 YES NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Prepared:	10/30/14
Batch#:	216956	Analyzed:	10/30/14

Field ID: 20141022B280A0101 Moisture: 9%
Type: SAMPLE Diln Fac: 10.00
Lab ID: 261954-001

Analyte	Result	RL	MDL
Diesel C10-C24	25 Y	11	3.3
Motor Oil C24-C36	220	55	17

Surrogate	%REC	Limits
o-Terphenyl	DO	64-136

Field ID: 20141022B280A0102 Moisture: 10%
Type: SAMPLE Diln Fac: 1.000
Lab ID: 261954-002

Analyte	Result	RL	MDL
Diesel C10-C24	1.5 Y	1.1	0.34
Motor Oil C24-C36	6.3	5.6	1.7

Surrogate	%REC	Limits
o-Terphenyl	98	64-136

Field ID: 20141022B280A0104 Moisture: 13%
Type: SAMPLE Diln Fac: 1.000
Lab ID: 261954-004

Analyte	Result	RL	MDL
Diesel C10-C24	0.38 J	1.1	0.35
Motor Oil C24-C36	ND	5.7	1.7

Surrogate	%REC	Limits
o-Terphenyl	120	64-136

Field ID: 20141022B280A0201 Moisture: 8%
Type: SAMPLE Diln Fac: 10.00
Lab ID: 261954-005

Analyte	Result	RL	MDL
Diesel C10-C24	37 Y	11	3.3
Motor Oil C24-C36	270	54	16

Surrogate	%REC	Limits
o-Terphenyl	DO	64-136

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Prepared:	10/30/14
Batch#:	216956	Analyzed:	10/30/14

Field ID: 20141022B280A0202
Type: SAMPLE
Lab ID: 261954-006
Moisture: 13%
Diln Fac: 1.000

Analyte	Result	RL	MDL
Diesel C10-C24	1.5 Y	1.2	0.36
Motor Oil C24-C36	7.9	5.8	1.8

Surrogate	%REC	Limits
o-Terphenyl	106	64-136

Field ID: 20141022B280A0203
Type: SAMPLE
Lab ID: 261954-007
Moisture: 17%
Diln Fac: 1.000

Analyte	Result	RL	MDL
Diesel C10-C24	1.2 J	1.2	0.37
Motor Oil C24-C36	5.7 J	6.1	1.8

Surrogate	%REC	Limits
o-Terphenyl	120	64-136

Type: BLANK
Lab ID: QC763754
Diln Fac: 1.000

Analyte	Result	RL	MDL
Diesel C10-C24	ND	1.0	0.31
Motor Oil C24-C36	ND	5.0	1.5

Surrogate	%REC	Limits
o-Terphenyl	120	64-136

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763755	Batch#:	216956
Matrix:	Soil	Prepared:	10/30/14
Units:	mg/Kg	Analyzed:	10/30/14

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	49.86	47.11	94	61-132

Surrogate	%REC	Limits
o-Terphenyl	99	64-136

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8015B
Field ID:	20141022B280A0104	Batch#:	216956
MSS Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	10/30/14
Diln Fac:	1.000		

Type: MS Moisture: 13%
Lab ID: QC763756

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	0.3795	57.88	56.90	98	40-146

Surrogate	%REC	Limits
o-Terphenyl	114	64-136

Type: MSD Moisture: 13%
Lab ID: QC763757

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	57.88	58.68	101	40-146	3	56

Surrogate	%REC	Limits
o-Terphenyl	107	64-136

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
Volatile Organics by GC/MS

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : RFS-B280A
Location : RFS-B280A
Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0103	261954-003
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for seven soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Volatile Organics by GC/MS (EPA 8260B):

Low recoveries were observed for vinyl acetate in the MS/MSD for batch 216806; the parent sample was not a project sample, the LCS was within limits, and the associated RPD was within limits. High recoveries were observed for acetone; the LCS was within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

Acetone was detected between the MDL and the RL in the method blank for batch 216806; this analyte was not detected in samples at or above the RL.

No other analytical problems were encountered.

Chain of Custody

261954

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. 6887

Page 1 of 1

Lab PO#: to follow

Lab: C+T

Project name: RFS-B280A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Encores	Plastic	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables*	TPH Extractables	PCB	WS-#4
SOIL 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q3			1330								3			X							
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q2			1410							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X	X
											5										

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech	10/22/14	1708
Received by:	Isabelle Choy	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 260954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 YES NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0101	Diln Fac:	0.9785
Lab ID:	261954-001	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Moisture: 9%

Analyte	Result	RL	MDL
Freon 12	ND	11	0.69
Chloromethane	ND	11	0.53
Vinyl Chloride	ND	5.4	0.44
Bromomethane	ND	11	0.39
Chloroethane	ND	11	0.43
Trichlorofluoromethane	ND	5.4	0.32
Acetone	ND	11	0.91
Freon 113	ND	5.4	0.56
1,1-Dichloroethene	ND	5.4	0.64
Methylene Chloride	ND	11	1.2
Carbon Disulfide	ND	5.4	0.72
MTBE	ND	5.4	0.52
trans-1,2-Dichloroethene	ND	5.4	0.73
Vinyl Acetate	ND	11	0.56
1,1-Dichloroethane	ND	5.4	0.82
2-Butanone	ND	11	0.72
cis-1,2-Dichloroethene	ND	5.4	0.61
2,2-Dichloropropane	ND	5.4	0.64
Chloroform	ND	5.4	0.74
Bromochloromethane	ND	5.4	0.12
1,1,1-Trichloroethane	ND	5.4	0.70
1,1-Dichloropropene	ND	5.4	0.70
Carbon Tetrachloride	ND	5.4	0.64
1,2-Dichloroethane	ND	5.4	0.67
Benzene	ND	5.4	0.75
Trichloroethene	ND	5.4	0.78
1,2-Dichloropropane	ND	5.4	0.63
Bromodichloromethane	ND	5.4	0.58
Dibromomethane	ND	5.4	0.24
4-Methyl-2-Pentanone	ND	11	0.64
cis-1,3-Dichloropropene	ND	5.4	0.43
Toluene	ND	5.4	0.82
trans-1,3-Dichloropropene	ND	5.4	0.45
1,1,2-Trichloroethane	ND	5.4	0.52
2-Hexanone	ND	11	0.66
1,3-Dichloropropane	ND	5.4	0.54
Tetrachloroethene	ND	5.4	0.69
Dibromochloromethane	ND	5.4	0.53
1,2-Dibromoethane	ND	5.4	0.55
Chlorobenzene	ND	5.4	0.67
1,1,1,2-Tetrachloroethane	ND	5.4	0.57
Ethylbenzene	ND	5.4	0.77
m,p-Xylenes	ND	5.4	1.5
o-Xylene	ND	5.4	0.64
Styrene	ND	5.4	0.55
Bromoform	ND	5.4	0.24
Isopropylbenzene	ND	5.4	0.70
1,1,2,2-Tetrachloroethane	ND	5.4	0.56
1,2,3-Trichloropropane	ND	5.4	0.65
Propylbenzene	ND	5.4	0.71
Bromobenzene	ND	5.4	0.24

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0101	Dil'n Fac:	0.9785
Lab ID:	261954-001	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	5.4	0.70
2-Chlorotoluene	ND	5.4	0.74
4-Chlorotoluene	ND	5.4	0.69
tert-Butylbenzene	ND	5.4	0.76
1,2,4-Trimethylbenzene	ND	5.4	0.67
sec-Butylbenzene	ND	5.4	0.66
para-Isopropyl Toluene	ND	5.4	0.66
1,3-Dichlorobenzene	ND	5.4	0.57
1,4-Dichlorobenzene	ND	5.4	0.51
n-Butylbenzene	ND	5.4	0.64
1,2-Dichlorobenzene	ND	5.4	0.51
1,2-Dibromo-3-Chloropropane	ND	5.4	0.83
1,2,4-Trichlorobenzene	ND	5.4	0.16
Hexachlorobutadiene	ND	5.4	0.69
Naphthalene	ND	5.4	1.1
1,2,3-Trichlorobenzene	ND	5.4	0.17
tert-Butyl Alcohol (TBA)	ND	54	9.3
Isopropyl Ether (DIPE)	ND	5.4	0.61
Ethyl tert-Butyl Ether (ETBE)	ND	5.4	0.61
Methyl tert-Amyl Ether (TAME)	ND	5.4	0.52

Surrogate	%REC	Limits
Dibromofluoromethane	117	76-128
1,2-Dichloroethane-d4	108	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	94	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0102	Diln Fac:	1.139
Lab ID:	261954-002	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Moisture: 10%

Analyte	Result	RL	MDL
Freon 12	ND	13	0.81
Chloromethane	ND	13	0.62
Vinyl Chloride	ND	6.3	0.52
Bromomethane	ND	13	0.46
Chloroethane	ND	13	0.50
Trichlorofluoromethane	ND	6.3	0.38
Acetone	ND	13	1.1
Freon 113	ND	6.3	0.66
1,1-Dichloroethene	ND	6.3	0.76
Methylene Chloride	ND	13	1.4
Carbon Disulfide	ND	6.3	0.84
MTBE	ND	6.3	0.61
trans-1,2-Dichloroethene	ND	6.3	0.86
Vinyl Acetate	ND	13	0.66
1,1-Dichloroethane	ND	6.3	0.97
2-Butanone	ND	13	0.85
cis-1,2-Dichloroethene	ND	6.3	0.72
2,2-Dichloropropane	ND	6.3	0.75
Chloroform	ND	6.3	0.88
Bromochloromethane	ND	6.3	0.14
1,1,1-Trichloroethane	ND	6.3	0.83
1,1-Dichloropropene	ND	6.3	0.82
Carbon Tetrachloride	ND	6.3	0.75
1,2-Dichloroethane	ND	6.3	0.79
Benzene	ND	6.3	0.88
Trichloroethene	ND	6.3	0.92
1,2-Dichloropropane	ND	6.3	0.74
Bromodichloromethane	ND	6.3	0.68
Dibromomethane	ND	6.3	0.28
4-Methyl-2-Pentanone	ND	13	0.75
cis-1,3-Dichloropropene	ND	6.3	0.51
Toluene	ND	6.3	0.97
trans-1,3-Dichloropropene	ND	6.3	0.53
1,1,2-Trichloroethane	ND	6.3	0.61
2-Hexanone	ND	13	0.78
1,3-Dichloropropane	ND	6.3	0.64
Tetrachloroethene	ND	6.3	0.81
Dibromochloromethane	ND	6.3	0.62
1,2-Dibromoethane	ND	6.3	0.65
Chlorobenzene	ND	6.3	0.79
1,1,1,2-Tetrachloroethane	ND	6.3	0.67
Ethylbenzene	ND	6.3	0.90
m,p-Xylenes	ND	6.3	1.7
o-Xylene	ND	6.3	0.75
Styrene	ND	6.3	0.65
Bromoform	ND	6.3	0.29
Isopropylbenzene	ND	6.3	0.82
1,1,2,2-Tetrachloroethane	ND	6.3	0.66
1,2,3-Trichloropropane	ND	6.3	0.77
Propylbenzene	ND	6.3	0.84
Bromobenzene	ND	6.3	0.28

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0102	Dil'n Fac:	1.139
Lab ID:	261954-002	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	6.3	0.82
2-Chlorotoluene	ND	6.3	0.87
4-Chlorotoluene	ND	6.3	0.82
tert-Butylbenzene	ND	6.3	0.89
1,2,4-Trimethylbenzene	ND	6.3	0.79
sec-Butylbenzene	ND	6.3	0.77
para-Isopropyl Toluene	ND	6.3	0.78
1,3-Dichlorobenzene	ND	6.3	0.67
1,4-Dichlorobenzene	ND	6.3	0.60
n-Butylbenzene	ND	6.3	0.75
1,2-Dichlorobenzene	ND	6.3	0.60
1,2-Dibromo-3-Chloropropane	ND	6.3	0.98
1,2,4-Trichlorobenzene	ND	6.3	0.19
Hexachlorobutadiene	ND	6.3	0.81
Naphthalene	ND	6.3	1.2
1,2,3-Trichlorobenzene	ND	6.3	0.20
tert-Butyl Alcohol (TBA)	ND	63	11
Isopropyl Ether (DIPE)	ND	6.3	0.72
Ethyl tert-Butyl Ether (ETBE)	ND	6.3	0.72
Methyl tert-Amyl Ether (TAME)	ND	6.3	0.61

Surrogate	%REC	Limits
Dibromofluoromethane	115	76-128
1,2-Dichloroethane-d4	108	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	93	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0103	Diln Fac:	0.9346
Lab ID:	261954-003	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	as received	Analyzed:	10/27/14

Analyte	Result	RL	MDL
Freon 12	ND	9.3	0.60
Chloromethane	ND	9.3	0.46
Vinyl Chloride	ND	4.7	0.38
Bromomethane	ND	9.3	0.34
Chloroethane	ND	9.3	0.37
Trichlorofluoromethane	ND	4.7	0.28
Acetone	0.87 J	9.3	0.79
Freon 113	ND	4.7	0.49
1,1-Dichloroethene	ND	4.7	0.56
Methylene Chloride	ND	9.3	1.0
Carbon Disulfide	ND	4.7	0.62
MTBE	ND	4.7	0.45
trans-1,2-Dichloroethene	ND	4.7	0.64
Vinyl Acetate	ND	9.3	0.49
1,1-Dichloroethane	ND	4.7	0.71
2-Butanone	ND	9.3	0.63
cis-1,2-Dichloroethene	ND	4.7	0.53
2,2-Dichloropropane	ND	4.7	0.56
Chloroform	ND	4.7	0.65
Bromochloromethane	ND	4.7	0.10
1,1,1-Trichloroethane	ND	4.7	0.61
1,1-Dichloropropene	ND	4.7	0.61
Carbon Tetrachloride	ND	4.7	0.56
1,2-Dichloroethane	ND	4.7	0.58
Benzene	ND	4.7	0.65
Trichloroethene	ND	4.7	0.68
1,2-Dichloropropane	ND	4.7	0.55
Bromodichloromethane	ND	4.7	0.50
Dibromomethane	ND	4.7	0.21
4-Methyl-2-Pentanone	ND	9.3	0.56
cis-1,3-Dichloropropene	ND	4.7	0.38
Toluene	ND	4.7	0.71
trans-1,3-Dichloropropene	ND	4.7	0.39
1,1,2-Trichloroethane	ND	4.7	0.45
2-Hexanone	ND	9.3	0.58
1,3-Dichloropropane	ND	4.7	0.47
Tetrachloroethene	ND	4.7	0.60
Dibromochloromethane	ND	4.7	0.46
1,2-Dibromoethane	ND	4.7	0.48
Chlorobenzene	ND	4.7	0.59
1,1,1,2-Tetrachloroethane	ND	4.7	0.49
Ethylbenzene	ND	4.7	0.67
m,p-Xylenes	ND	4.7	1.3
o-Xylene	ND	4.7	0.56
Styrene	ND	4.7	0.48
Bromoform	ND	4.7	0.21
Isopropylbenzene	ND	4.7	0.61
1,1,2,2-Tetrachloroethane	ND	4.7	0.49
1,2,3-Trichloropropane	ND	4.7	0.57
Propylbenzene	ND	4.7	0.62
Bromobenzene	ND	4.7	0.21
1,3,5-Trimethylbenzene	ND	4.7	0.61

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0103	Dil'n Fac:	0.9346
Lab ID:	261954-003	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	as received	Analyzed:	10/27/14

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	4.7	0.64
4-Chlorotoluene	ND	4.7	0.60
tert-Butylbenzene	ND	4.7	0.66
1,2,4-Trimethylbenzene	ND	4.7	0.58
sec-Butylbenzene	ND	4.7	0.57
para-Isopropyl Toluene	ND	4.7	0.58
1,3-Dichlorobenzene	ND	4.7	0.49
1,4-Dichlorobenzene	ND	4.7	0.44
n-Butylbenzene	ND	4.7	0.55
1,2-Dichlorobenzene	ND	4.7	0.44
1,2-Dibromo-3-Chloropropane	ND	4.7	0.72
1,2,4-Trichlorobenzene	ND	4.7	0.14
Hexachlorobutadiene	ND	4.7	0.60
Naphthalene	ND	4.7	0.92
1,2,3-Trichlorobenzene	ND	4.7	0.15
tert-Butyl Alcohol (TBA)	ND	47	8.1
Isopropyl Ether (DIPE)	ND	4.7	0.53
Ethyl tert-Butyl Ether (ETBE)	ND	4.7	0.53
Methyl tert-Amyl Ether (TAME)	ND	4.7	0.45

Surrogate	%REC	Limits
Dibromofluoromethane	116	76-128
1,2-Dichloroethane-d4	106	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	93	79-128

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0104	Dil'n Fac:	0.8532
Lab ID:	261954-004	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Moisture: 13%

Analyte	Result	RL	MDL
Freon 12	ND	9.8	0.63
Chloromethane	ND	9.8	0.48
Vinyl Chloride	ND	4.9	0.40
Bromomethane	ND	9.8	0.35
Chloroethane	ND	9.8	0.39
Trichlorofluoromethane	ND	4.9	0.29
Acetone	0.87 J	9.8	0.83
Freon 113	ND	4.9	0.51
1,1-Dichloroethene	ND	4.9	0.59
Methylene Chloride	ND	9.8	1.1
Carbon Disulfide	ND	4.9	0.65
MTBE	ND	4.9	0.47
trans-1,2-Dichloroethene	ND	4.9	0.67
Vinyl Acetate	ND	9.8	0.51
1,1-Dichloroethane	ND	4.9	0.75
2-Butanone	ND	9.8	0.66
cis-1,2-Dichloroethene	ND	4.9	0.56
2,2-Dichloropropane	ND	4.9	0.58
Chloroform	ND	4.9	0.68
Bromochloromethane	ND	4.9	0.11
1,1,1-Trichloroethane	ND	4.9	0.64
1,1-Dichloropropene	ND	4.9	0.64
Carbon Tetrachloride	ND	4.9	0.58
1,2-Dichloroethane	ND	4.9	0.61
Benzene	ND	4.9	0.68
Trichloroethene	ND	4.9	0.71
1,2-Dichloropropane	ND	4.9	0.57
Bromodichloromethane	ND	4.9	0.53
Dibromomethane	ND	4.9	0.22
4-Methyl-2-Pentanone	ND	9.8	0.58
cis-1,3-Dichloropropene	ND	4.9	0.40
Toluene	ND	4.9	0.75
trans-1,3-Dichloropropene	ND	4.9	0.41
1,1,2-Trichloroethane	ND	4.9	0.47
2-Hexanone	ND	9.8	0.61
1,3-Dichloropropane	ND	4.9	0.49
Tetrachloroethene	ND	4.9	0.63
Dibromochloromethane	ND	4.9	0.48
1,2-Dibromoethane	ND	4.9	0.50
Chlorobenzene	ND	4.9	0.61
1,1,1,2-Tetrachloroethane	ND	4.9	0.52
Ethylbenzene	ND	4.9	0.70
m,p-Xylenes	ND	4.9	1.4
o-Xylene	ND	4.9	0.58
Styrene	ND	4.9	0.50
Bromoform	ND	4.9	0.22
Isopropylbenzene	ND	4.9	0.64
1,1,2,2-Tetrachloroethane	ND	4.9	0.51
1,2,3-Trichloropropane	ND	4.9	0.60
Propylbenzene	ND	4.9	0.65

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0104	Dil'n Fac:	0.8532
Lab ID:	261954-004	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Analyte	Result	RL	MDL
Bromobenzene	ND	4.9	0.22
1,3,5-Trimethylbenzene	ND	4.9	0.64
2-Chlorotoluene	ND	4.9	0.67
4-Chlorotoluene	ND	4.9	0.63
tert-Butylbenzene	ND	4.9	0.69
1,2,4-Trimethylbenzene	ND	4.9	0.61
sec-Butylbenzene	ND	4.9	0.60
para-Isopropyl Toluene	ND	4.9	0.61
1,3-Dichlorobenzene	ND	4.9	0.52
1,4-Dichlorobenzene	ND	4.9	0.47
n-Butylbenzene	ND	4.9	0.58
1,2-Dichlorobenzene	ND	4.9	0.46
1,2-Dibromo-3-Chloropropane	ND	4.9	0.76
1,2,4-Trichlorobenzene	ND	4.9	0.15
Hexachlorobutadiene	ND	4.9	0.63
Naphthalene	ND	4.9	0.97
1,2,3-Trichlorobenzene	ND	4.9	0.16
tert-Butyl Alcohol (TBA)	ND	49	8.5
Isopropyl Ether (DIPE)	ND	4.9	0.55
Ethyl tert-Butyl Ether (ETBE)	ND	4.9	0.56
Methyl tert-Amyl Ether (TAME)	ND	4.9	0.48

Surrogate	%REC	Limits
Dibromofluoromethane	115	76-128
1,2-Dichloroethane-d4	103	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	94	79-128

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0201	Diln Fac:	1.199
Lab ID:	261954-005	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Moisture: 8%

Analyte	Result	RL	MDL
Freon 12	ND	13	0.84
Chloromethane	ND	13	0.64
Vinyl Chloride	ND	6.5	0.53
Bromomethane	ND	13	0.47
Chloroethane	ND	13	0.52
Trichlorofluoromethane	ND	6.5	0.39
Acetone	ND	13	1.1
Freon 113	ND	6.5	0.68
1,1-Dichloroethene	ND	6.5	0.78
Methylene Chloride	ND	13	1.4
Carbon Disulfide	ND	6.5	0.87
MTBE	ND	6.5	0.63
trans-1,2-Dichloroethene	ND	6.5	0.89
Vinyl Acetate	ND	13	0.68
1,1-Dichloroethane	ND	6.5	1.0
2-Butanone	ND	13	0.88
cis-1,2-Dichloroethene	ND	6.5	0.74
2,2-Dichloropropane	ND	6.5	0.78
Chloroform	ND	6.5	0.90
Bromochloromethane	ND	6.5	0.14
1,1,1-Trichloroethane	ND	6.5	0.85
1,1-Dichloropropene	ND	6.5	0.85
Carbon Tetrachloride	ND	6.5	0.77
1,2-Dichloroethane	ND	6.5	0.81
Benzene	ND	6.5	0.91
Trichloroethene	ND	6.5	0.95
1,2-Dichloropropane	ND	6.5	0.76
Bromodichloromethane	ND	6.5	0.70
Dibromomethane	ND	6.5	0.29
4-Methyl-2-Pentanone	ND	13	0.77
cis-1,3-Dichloropropene	ND	6.5	0.53
Toluene	ND	6.5	1.0
trans-1,3-Dichloropropene	ND	6.5	0.55
1,1,2-Trichloroethane	ND	6.5	0.63
2-Hexanone	ND	13	0.81
1,3-Dichloropropane	ND	6.5	0.65
Tetrachloroethene	ND	6.5	0.83
Dibromochloromethane	ND	6.5	0.64
1,2-Dibromoethane	ND	6.5	0.67
Chlorobenzene	ND	6.5	0.82
1,1,1,2-Tetrachloroethane	ND	6.5	0.69
Ethylbenzene	ND	6.5	0.93
m,p-Xylenes	ND	6.5	1.8
o-Xylene	ND	6.5	0.78
Styrene	ND	6.5	0.67
Bromoform	ND	6.5	0.30
Isopropylbenzene	ND	6.5	0.85
1,1,2,2-Tetrachloroethane	ND	6.5	0.68
1,2,3-Trichloropropane	ND	6.5	0.79
Propylbenzene	ND	6.5	0.86
Bromobenzene	ND	6.5	0.29

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0201	Dil'n Fac:	1.199
Lab ID:	261954-005	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	6.5	0.85
2-Chlorotoluene	ND	6.5	0.89
4-Chlorotoluene	ND	6.5	0.84
tert-Butylbenzene	ND	6.5	0.92
1,2,4-Trimethylbenzene	ND	6.5	0.81
sec-Butylbenzene	ND	6.5	0.80
para-Isopropyl Toluene	ND	6.5	0.80
1,3-Dichlorobenzene	ND	6.5	0.69
1,4-Dichlorobenzene	ND	6.5	0.62
n-Butylbenzene	ND	6.5	0.77
1,2-Dichlorobenzene	ND	6.5	0.62
1,2-Dibromo-3-Chloropropane	ND	6.5	1.0
1,2,4-Trichlorobenzene	ND	6.5	0.20
Hexachlorobutadiene	ND	6.5	0.83
Naphthalene	ND	6.5	1.3
1,2,3-Trichlorobenzene	ND	6.5	0.21
tert-Butyl Alcohol (TBA)	ND	65	11
Isopropyl Ether (DIPE)	ND	6.5	0.74
Ethyl tert-Butyl Ether (ETBE)	ND	6.5	0.74
Methyl tert-Amyl Ether (TAME)	ND	6.5	0.63

Surrogate	%REC	Limits
Dibromofluoromethane	117	76-128
1,2-Dichloroethane-d4	108	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	94	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0202	Dil'n Fac:	0.9191
Lab ID:	261954-006	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Moisture: 13%

Analyte	Result	RL	MDL
Freon 12	ND	11	0.68
Chloromethane	ND	11	0.52
Vinyl Chloride	ND	5.3	0.43
Bromomethane	ND	11	0.38
Chloroethane	ND	11	0.42
Trichlorofluoromethane	ND	5.3	0.32
Acetone	ND	11	0.89
Freon 113	ND	5.3	0.55
1,1-Dichloroethene	ND	5.3	0.63
Methylene Chloride	ND	11	1.1
Carbon Disulfide	ND	5.3	0.70
MTBE	ND	5.3	0.51
trans-1,2-Dichloroethene	ND	5.3	0.72
Vinyl Acetate	ND	11	0.55
1,1-Dichloroethane	ND	5.3	0.81
2-Butanone	ND	11	0.71
cis-1,2-Dichloroethene	ND	5.3	0.60
2,2-Dichloropropane	ND	5.3	0.63
Chloroform	ND	5.3	0.73
Bromochloromethane	ND	5.3	0.12
1,1,1-Trichloroethane	ND	5.3	0.69
1,1-Dichloropropene	ND	5.3	0.69
Carbon Tetrachloride	ND	5.3	0.63
1,2-Dichloroethane	ND	5.3	0.66
Benzene	ND	5.3	0.74
Trichloroethene	ND	5.3	0.77
1,2-Dichloropropane	ND	5.3	0.62
Bromodichloromethane	ND	5.3	0.57
Dibromomethane	ND	5.3	0.24
4-Methyl-2-Pentanone	ND	11	0.63
cis-1,3-Dichloropropene	ND	5.3	0.43
Toluene	ND	5.3	0.81
trans-1,3-Dichloropropene	ND	5.3	0.44
1,1,2-Trichloroethane	ND	5.3	0.51
2-Hexanone	ND	11	0.65
1,3-Dichloropropane	ND	5.3	0.53
Tetrachloroethene	ND	5.3	0.67
Dibromochloromethane	ND	5.3	0.52
1,2-Dibromoethane	ND	5.3	0.54
Chlorobenzene	ND	5.3	0.66
1,1,1,2-Tetrachloroethane	ND	5.3	0.56
Ethylbenzene	ND	5.3	0.75
m,p-Xylenes	ND	5.3	1.5
o-Xylene	ND	5.3	0.63
Styrene	ND	5.3	0.54
Bromoform	ND	5.3	0.24
Isopropylbenzene	ND	5.3	0.69
1,1,2,2-Tetrachloroethane	ND	5.3	0.55
1,2,3-Trichloropropane	ND	5.3	0.64
Propylbenzene	ND	5.3	0.70
Bromobenzene	ND	5.3	0.24

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0202	Dil'n Fac:	0.9191
Lab ID:	261954-006	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	5.3	0.69
2-Chlorotoluene	ND	5.3	0.73
4-Chlorotoluene	ND	5.3	0.68
tert-Butylbenzene	ND	5.3	0.74
1,2,4-Trimethylbenzene	ND	5.3	0.66
sec-Butylbenzene	ND	5.3	0.65
para-Isopropyl Toluene	ND	5.3	0.65
1,3-Dichlorobenzene	ND	5.3	0.56
1,4-Dichlorobenzene	ND	5.3	0.50
n-Butylbenzene	ND	5.3	0.62
1,2-Dichlorobenzene	ND	5.3	0.50
1,2-Dibromo-3-Chloropropane	ND	5.3	0.82
1,2,4-Trichlorobenzene	ND	5.3	0.16
Hexachlorobutadiene	ND	5.3	0.68
Naphthalene	ND	5.3	1.0
1,2,3-Trichlorobenzene	ND	5.3	0.17
tert-Butyl Alcohol (TBA)	ND	53	9.1
Isopropyl Ether (DIPE)	ND	5.3	0.60
Ethyl tert-Butyl Ether (ETBE)	ND	5.3	0.60
Methyl tert-Amyl Ether (TAME)	ND	5.3	0.51

Surrogate	%REC	Limits
Dibromofluoromethane	119	76-128
1,2-Dichloroethane-d4	109	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	94	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0203	Diln Fac:	0.8503
Lab ID:	261954-007	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Moisture: 17%

Analyte	Result	RL	MDL
Freon 12	ND	10	0.66
Chloromethane	ND	10	0.50
Vinyl Chloride	ND	5.1	0.42
Bromomethane	ND	10	0.37
Chloroethane	ND	10	0.41
Trichlorofluoromethane	ND	5.1	0.31
Acetone	1.8 J	10	0.87
Freon 113	ND	5.1	0.53
1,1-Dichloroethene	ND	5.1	0.61
Methylene Chloride	ND	10	1.1
Carbon Disulfide	ND	5.1	0.68
MTBE	ND	5.1	0.50
trans-1,2-Dichloroethene	ND	5.1	0.70
Vinyl Acetate	ND	10	0.54
1,1-Dichloroethane	ND	5.1	0.78
2-Butanone	ND	10	0.69
cis-1,2-Dichloroethene	ND	5.1	0.58
2,2-Dichloropropane	ND	5.1	0.61
Chloroform	ND	5.1	0.71
Bromochloromethane	ND	5.1	0.11
1,1,1-Trichloroethane	ND	5.1	0.67
1,1-Dichloropropene	ND	5.1	0.67
Carbon Tetrachloride	ND	5.1	0.61
1,2-Dichloroethane	ND	5.1	0.64
Benzene	ND	5.1	0.71
Trichloroethene	ND	5.1	0.74
1,2-Dichloropropane	ND	5.1	0.60
Bromodichloromethane	ND	5.1	0.55
Dibromomethane	ND	5.1	0.23
4-Methyl-2-Pentanone	ND	10	0.61
cis-1,3-Dichloropropene	ND	5.1	0.41
Toluene	ND	5.1	0.78
trans-1,3-Dichloropropene	ND	5.1	0.43
1,1,2-Trichloroethane	ND	5.1	0.49
2-Hexanone	ND	10	0.63
1,3-Dichloropropane	ND	5.1	0.51
Tetrachloroethene	ND	5.1	0.65
Dibromochloromethane	ND	5.1	0.50
1,2-Dibromoethane	ND	5.1	0.53
Chlorobenzene	ND	5.1	0.64
1,1,1,2-Tetrachloroethane	ND	5.1	0.54
Ethylbenzene	ND	5.1	0.73
m,p-Xylenes	ND	5.1	1.4
o-Xylene	ND	5.1	0.61
Styrene	ND	5.1	0.53
Bromoform	ND	5.1	0.23
Isopropylbenzene	ND	5.1	0.66
1,1,2,2-Tetrachloroethane	ND	5.1	0.53
1,2,3-Trichloropropane	ND	5.1	0.62
Propylbenzene	ND	5.1	0.68

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	20141022B280A0203	Dil'n Fac:	0.8503
Lab ID:	261954-007	Batch#:	216806
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/27/14

Analyte	Result	RL	MDL
Bromobenzene	ND	5.1	0.23
1,3,5-Trimethylbenzene	ND	5.1	0.66
2-Chlorotoluene	ND	5.1	0.70
4-Chlorotoluene	ND	5.1	0.66
tert-Butylbenzene	ND	5.1	0.72
1,2,4-Trimethylbenzene	ND	5.1	0.64
sec-Butylbenzene	ND	5.1	0.63
para-Isopropyl Toluene	ND	5.1	0.63
1,3-Dichlorobenzene	ND	5.1	0.54
1,4-Dichlorobenzene	ND	5.1	0.49
n-Butylbenzene	ND	5.1	0.61
1,2-Dichlorobenzene	ND	5.1	0.48
1,2-Dibromo-3-Chloropropane	ND	5.1	0.79
1,2,4-Trichlorobenzene	ND	5.1	0.16
Hexachlorobutadiene	ND	5.1	0.66
Naphthalene	ND	5.1	1.0
1,2,3-Trichlorobenzene	ND	5.1	0.17
tert-Butyl Alcohol (TBA)	ND	51	8.9
Isopropyl Ether (DIPE)	ND	5.1	0.58
Ethyl tert-Butyl Ether (ETBE)	ND	5.1	0.58
Methyl tert-Amyl Ether (TAME)	ND	5.1	0.50

Surrogate	%REC	Limits
Dibromofluoromethane	116	76-128
1,2-Dichloroethane-d4	106	80-137
Toluene-d8	96	80-120
Bromofluorobenzene	92	79-128

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC763174	Batch#:	216806
Matrix:	Soil	Analyzed:	10/27/14
Units:	ug/Kg		

Analyte	Result	RL	MDL
Freon 12	ND	10	0.64
Chloromethane	ND	10	0.49
Vinyl Chloride	ND	5.0	0.41
Bromomethane	ND	10	0.36
Chloroethane	ND	10	0.40
Trichlorofluoromethane	ND	5.0	0.30
Acetone	1.2 J	10	0.85
Freon 113	ND	5.0	0.52
1,1-Dichloroethene	ND	5.0	0.60
Methylene Chloride	ND	10	1.1
Carbon Disulfide	ND	5.0	0.67
MTBE	ND	5.0	0.48
trans-1,2-Dichloroethene	ND	5.0	0.68
Vinyl Acetate	ND	10	0.52
1,1-Dichloroethane	ND	5.0	0.76
2-Butanone	ND	10	0.67
cis-1,2-Dichloroethene	ND	5.0	0.57
2,2-Dichloropropane	ND	5.0	0.59
Chloroform	ND	5.0	0.69
Bromochloromethane	ND	5.0	0.11
1,1,1-Trichloroethane	ND	5.0	0.66
1,1-Dichloropropene	ND	5.0	0.65
Carbon Tetrachloride	ND	5.0	0.59
1,2-Dichloroethane	ND	5.0	0.62
Benzene	ND	5.0	0.70
Trichloroethene	ND	5.0	0.73
1,2-Dichloropropane	ND	5.0	0.59
Bromodichloromethane	ND	5.0	0.54
Dibromomethane	ND	5.0	0.22
4-Methyl-2-Pentanone	ND	10	0.59
cis-1,3-Dichloropropene	ND	5.0	0.40
Toluene	ND	5.0	0.76
trans-1,3-Dichloropropene	ND	5.0	0.42
1,1,2-Trichloroethane	ND	5.0	0.48
2-Hexanone	ND	10	0.62
1,3-Dichloropropane	ND	5.0	0.50
Tetrachloroethene	ND	5.0	0.64
Dibromochloromethane	ND	5.0	0.49
1,2-Dibromoethane	ND	5.0	0.51
Chlorobenzene	ND	5.0	0.63
1,1,1,2-Tetrachloroethane	ND	5.0	0.53
Ethylbenzene	ND	5.0	0.71
m,p-Xylenes	ND	5.0	1.4
o-Xylene	ND	5.0	0.60
Styrene	ND	5.0	0.51
Bromoform	ND	5.0	0.23
Isopropylbenzene	ND	5.0	0.65
1,1,2,2-Tetrachloroethane	ND	5.0	0.52
1,2,3-Trichloropropane	ND	5.0	0.61
Propylbenzene	ND	5.0	0.66
Bromobenzene	ND	5.0	0.22
1,3,5-Trimethylbenzene	ND	5.0	0.65

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763174	Batch#:	216806
Matrix:	Soil	Analyzed:	10/27/14
Units:	ug/Kg		

Analyte	Result	RL	MDL
2-Chlorotoluene	ND	5.0	0.69
4-Chlorotoluene	ND	5.0	0.65
tert-Butylbenzene	ND	5.0	0.70
1,2,4-Trimethylbenzene	ND	5.0	0.62
sec-Butylbenzene	ND	5.0	0.61
para-Isopropyl Toluene	ND	5.0	0.62
1,3-Dichlorobenzene	ND	5.0	0.53
1,4-Dichlorobenzene	ND	5.0	0.48
n-Butylbenzene	ND	5.0	0.59
1,2-Dichlorobenzene	ND	5.0	0.47
1,2-Dibromo-3-Chloropropane	ND	5.0	0.77
1,2,4-Trichlorobenzene	ND	5.0	0.15
Hexachlorobutadiene	ND	5.0	0.64
Naphthalene	ND	5.0	0.98
1,2,3-Trichlorobenzene	ND	5.0	0.16
tert-Butyl Alcohol (TBA)	ND	50	8.7
Isopropyl Ether (DIPE)	ND	5.0	0.57
Ethyl tert-Butyl Ether (ETBE)	ND	5.0	0.57
Methyl tert-Amyl Ether (TAME)	ND	5.0	0.49

Surrogate	%REC	Limits
Dibromofluoromethane	109	76-128
1,2-Dichloroethane-d4	102	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	94	79-128

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Type:	LCS	Dil'n Fac:	1.000
Lab ID:	QC763187	Batch#:	216806
Matrix:	Soil	Analyzed:	10/27/14
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	18.74	94	49-139
Chloromethane	20.00	20.94	105	52-135
Vinyl Chloride	20.00	20.64	103	67-134
Bromomethane	20.00	24.28	121	60-180
Chloroethane	20.00	19.89	99	66-132
Trichlorofluoromethane	20.00	18.74	94	66-140
Acetone	25.00	30.42	122	62-188
Freon 113	25.00	25.33	101	65-137
1,1-Dichloroethene	25.00	28.21	113	68-135
Methylene Chloride	25.00	27.06	108	70-136
Carbon Disulfide	25.00	30.65	123	63-142
MTBE	25.00	20.28	81	64-126
trans-1,2-Dichloroethene	25.00	27.65	111	74-135
Vinyl Acetate	25.00	25.61	102	59-194
1,1-Dichloroethane	25.00	24.94	100	72-129
2-Butanone	25.00	23.44	94	60-150
cis-1,2-Dichloroethene	25.00	26.16	105	77-129
2,2-Dichloropropane	25.00	25.98	104	73-140
Chloroform	25.00	25.67	103	76-130
Bromochloromethane	25.00	26.90	108	80-130
1,1,1-Trichloroethane	25.00	26.70	107	75-138
1,1-Dichloropropene	25.00	27.03	108	76-136
Carbon Tetrachloride	25.00	27.13	109	69-148
1,2-Dichloroethane	25.00	24.67	99	73-139
Benzene	25.00	26.81	107	80-127
Trichloroethene	25.00	26.59	106	77-129
1,2-Dichloropropane	25.00	24.34	97	74-123
Bromodichloromethane	25.00	25.20	101	75-128
Dibromomethane	25.00	26.11	104	78-128
4-Methyl-2-Pentanone	25.00	22.13	89	64-133
cis-1,3-Dichloropropene	25.00	26.76	107	80-131
Toluene	25.00	25.19	101	79-125
trans-1,3-Dichloropropene	25.00	22.60	90	71-121
1,1,2-Trichloroethane	25.00	23.88	96	78-125
2-Hexanone	25.00	21.68	87	62-139
1,3-Dichloropropane	25.00	23.33	93	79-124
Tetrachloroethene	25.00	27.53	110	76-137
Dibromochloromethane	25.00	24.65	99	74-124
1,2-Dibromoethane	25.00	23.97	96	77-122
Chlorobenzene	25.00	26.89	108	78-120
1,1,1,2-Tetrachloroethane	25.00	24.90	100	78-126
Ethylbenzene	25.00	25.84	103	80-127
m,p-Xylenes	50.00	54.53	109	78-126
o-Xylene	25.00	26.10	104	73-120
Styrene	25.00	25.33	101	80-124
Bromoform	25.00	25.99	104	76-135
Isopropylbenzene	25.00	25.31	101	68-120
1,1,2,2-Tetrachloroethane	25.00	24.08	96	77-128
1,2,3-Trichloropropane	25.00	22.74	91	75-124
Propylbenzene	25.00	26.12	104	72-123
Bromobenzene	25.00	25.81	103	80-123
1,3,5-Trimethylbenzene	25.00	25.93	104	79-132
2-Chlorotoluene	25.00	26.46	106	77-124
4-Chlorotoluene	25.00	25.91	104	75-120
tert-Butylbenzene	25.00	25.58	102	72-121

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B280A	Analysis:	EPA 8260B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763187	Batch#:	216806
Matrix:	Soil	Analyzed:	10/27/14
Units:	ug/Kg		

Analyte	Spiked	Result	%REC	Limits
1,2,4-Trimethylbenzene	25.00	25.15	101	80-129
sec-Butylbenzene	25.00	26.37	105	73-124
para-Isopropyl Toluene	25.00	25.54	102	73-122
1,3-Dichlorobenzene	25.00	27.83	111	78-120
1,4-Dichlorobenzene	25.00	27.14	109	80-125
n-Butylbenzene	25.00	26.06	104	77-139
1,2-Dichlorobenzene	25.00	27.07	108	79-120
1,2-Dibromo-3-Chloropropane	25.00	21.30	85	64-129
1,2,4-Trichlorobenzene	25.00	25.83	103	80-137
Hexachlorobutadiene	25.00	27.04	108	73-145
Naphthalene	25.00	21.53	86	72-128
1,2,3-Trichlorobenzene	25.00	24.43	98	79-132
tert-Butyl Alcohol (TBA)	125.0	87.73	70	46-146
Isopropyl Ether (DIPE)	25.00	20.54	82	61-126
Ethyl tert-Butyl Ether (ETBE)	25.00	19.82	79	66-123
Methyl tert-Amyl Ether (TAME)	25.00	20.95	84	69-120

Surrogate	%REC	Limits
Dibromofluoromethane	104	76-128
1,2-Dichloroethane-d4	100	80-137
Toluene-d8	96	80-120
Bromofluorobenzene	93	79-128

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	216806
MSS Lab ID:	261929-006	Sampled:	10/17/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Analyzed:	10/27/14
Basis:	as received		

Type: MS
Lab ID: QC763226

Diln Fac: 0.9634

Analyte	MSS Result	Spiked	Result	%REC	Limits
Freon 12	<0.6309	38.54	28.54	74	39-142
Chloromethane	<0.4806	38.54	30.72	80	40-128
Vinyl Chloride	<0.4032	38.54	31.88	83	49-137
Bromomethane	<0.3540	38.54	29.92	78	38-151
Chloroethane	<0.3889	38.54	31.14	81	44-132
Trichlorofluoromethane	<0.2931	38.54	29.27	76	47-140
Acetone	<0.8301	48.17	131.5	273 *	23-196
Freon 113	<0.5128	48.17	42.18	88	40-139
1,1-Dichloroethene	<0.5881	48.17	45.78	95	46-138
Methylene Chloride	<1.058	48.17	41.36	86	46-130
Carbon Disulfide	<0.6538	48.17	47.13	98	36-137
MTBE	<0.4755	48.17	33.19	69	47-123
trans-1,2-Dichloroethene	<0.6688	48.17	41.92	87	48-132
Vinyl Acetate	<0.5148	48.17	0.03237	0 *	1-151
1,1-Dichloroethane	<0.7508	48.17	38.51	80	48-124
2-Butanone	<0.6620	48.17	27.86	58	37-131
cis-1,2-Dichloroethene	<0.5579	48.17	38.58	80	51-124
2,2-Dichloropropane	<0.5844	48.17	40.42	84	47-138
Chloroform	<0.6795	48.17	38.69	80	49-126
Bromochloromethane	<0.1088	48.17	41.55	86	54-125
1,1,1-Trichloroethane	<0.6436	48.17	42.04	87	50-135
1,1-Dichloropropene	<0.6390	48.17	40.87	85	50-134
Carbon Tetrachloride	<0.5841	48.17	43.94	91	44-144
1,2-Dichloroethane	<0.6135	48.17	36.84	76	48-129
Benzene	<0.6852	48.17	39.98	83	51-125
Trichloroethene	<0.7136	48.17	37.84	79	41-146
1,2-Dichloropropane	<0.5752	48.17	35.94	75	49-120
Bromodichloromethane	<0.5275	48.17	35.57	74	45-124
Dibromomethane	<0.2191	48.17	38.35	80	50-121
4-Methyl-2-Pentanone	<0.5835	48.17	29.52	61	44-125
cis-1,3-Dichloropropene	<0.3957	48.17	27.84	58	44-129
Toluene	<0.7505	48.17	35.45	74	45-123
trans-1,3-Dichloropropene	<0.4132	48.17	26.20	54	39-120
1,1,2-Trichloroethane	<0.4727	48.17	33.72	70	45-122
2-Hexanone	<0.6074	48.17	19.03	40	38-124
1,3-Dichloropropane	<0.4932	48.17	33.00	69	49-121
Tetrachloroethene	<0.6269	48.17	38.07	79	40-130
Dibromochloromethane	<0.4803	48.17	32.83	68	43-120
1,2-Dibromoethane	<0.5040	48.17	32.13	67	47-120
Chlorobenzene	<0.6152	48.17	33.11	69	39-120
1,1,1,2-Tetrachloroethane	<0.5189	48.17	32.90	68	43-123
Ethylbenzene	<0.7009	48.17	33.31	69	40-124
m,p-Xylenes	<1.355	96.34	69.14	72	37-122
o-Xylene	<0.5847	48.17	32.35	67	37-120
Styrene	<0.5043	48.17	29.13	60	36-120
Bromoform	<0.2224	48.17	31.27	65	42-128
Isopropylbenzene	<0.6375	48.17	33.57	70	29-120
1,1,2,2-Tetrachloroethane	<0.5106	48.17	30.15	63	23-130

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	216806
MSS Lab ID:	261929-006	Sampled:	10/17/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Analyzed:	10/27/14
Basis:	as received		

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,2,3-Trichloropropane	<0.5964	48.17	34.03	71	41-120
Propylbenzene	<0.6516	48.17	31.36	65	27-120
Bromobenzene	<0.2189	48.17	30.03	62	35-120
1,3,5-Trimethylbenzene	<0.6371	48.17	30.37	63	30-127
2-Chlorotoluene	<0.6745	48.17	30.51	63	31-120
4-Chlorotoluene	<0.6349	48.17	27.35	57	28-120
tert-Butylbenzene	<0.6900	48.17	32.00	66	27-120
1,2,4-Trimethylbenzene	<0.6115	48.17	27.42	57	29-124
sec-Butylbenzene	<0.6000	48.17	31.35	65	22-120
para-Isopropyl Toluene	<0.6064	48.17	27.74	58	23-120
1,3-Dichlorobenzene	<0.5174	48.17	26.65	55	25-120
1,4-Dichlorobenzene	<0.4669	48.17	25.04	52	26-120
n-Butylbenzene	<0.5801	48.17	24.09	50	20-128
1,2-Dichlorobenzene	<0.4635	48.17	25.00	52	26-120
1,2-Dibromo-3-Chloropropane	<0.7588	48.17	24.26	50	31-120
1,2,4-Trichlorobenzene	<0.1490	48.17	14.26	30	9-120
Hexachlorobutadiene	<0.6282	48.17	20.32	42	7-124
Naphthalene	<0.9669	48.17	14.82	31	15-120
1,2,3-Trichlorobenzene	<0.1591	48.17	13.61	28	8-120
tert-Butyl Alcohol (TBA)	<8.507	240.8	167.6	70	38-134
Isopropyl Ether (DIPE)	<0.5552	48.17	31.11	65	44-123
Ethyl tert-Butyl Ether (ETBE)	<0.5590	48.17	30.72	64	47-122
Methyl tert-Amyl Ether (TAME)	<0.4769	48.17	32.88	68	50-120

Surrogate	%REC	Limits
Dibromofluoromethane	109	76-128
1,2-Dichloroethane-d4	108	80-137
Toluene-d8	97	80-120
Bromofluorobenzene	95	79-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	216806
MSS Lab ID:	261929-006	Sampled:	10/17/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Analyzed:	10/27/14
Basis:	as received		

Type: MSD
Lab ID: QC763227

Diln Fac: 0.9328

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	37.31	31.16	84	39-142	12	57
Chloromethane	37.31	34.07	91	40-128	14	46
Vinyl Chloride	37.31	35.71	96	49-137	15	45
Bromomethane	37.31	29.98	80	38-151	3	44
Chloroethane	37.31	33.31	89	44-132	10	48
Trichlorofluoromethane	37.31	30.68	82	47-140	8	50
Acetone	46.64	145.6	312 *	23-196	13	52
Freon 113	46.64	41.02	88	40-139	0	57
1,1-Dichloroethene	46.64	45.42	97	46-138	2	51
Methylene Chloride	46.64	42.47	91	46-130	6	47
Carbon Disulfide	46.64	46.18	99	36-137	1	53
MTBE	46.64	35.08	75	47-123	9	46
trans-1,2-Dichloroethene	46.64	41.53	89	48-132	2	52
Vinyl Acetate	46.64	0.04254	0 *	1-151	30	104
1,1-Dichloroethane	46.64	38.87	83	48-124	4	45
2-Butanone	46.64	28.89	62	37-131	7	50
cis-1,2-Dichloroethene	46.64	38.62	83	51-124	3	47
2,2-Dichloropropane	46.64	40.01	86	47-138	2	54
Chloroform	46.64	39.14	84	49-126	4	46
Bromochloromethane	46.64	41.79	90	54-125	4	45
1,1,1-Trichloroethane	46.64	41.77	90	50-135	3	50
1,1-Dichloropropene	46.64	40.65	87	50-134	3	53
Carbon Tetrachloride	46.64	43.77	94	44-144	3	54
1,2-Dichloroethane	46.64	38.18	82	48-129	7	43
Benzene	46.64	40.50	87	51-125	5	46
Trichloroethene	46.64	38.31	82	41-146	4	55
1,2-Dichloropropane	46.64	36.64	79	49-120	5	47
Bromodichloromethane	46.64	36.96	79	45-124	7	49
Dibromomethane	46.64	40.88	88	50-121	10	45
4-Methyl-2-Pentanone	46.64	31.81	68	44-125	11	52
cis-1,3-Dichloropropene	46.64	34.15	73	44-129	24	52
Toluene	46.64	35.32	76	45-123	3	59
trans-1,3-Dichloropropene	46.64	28.22	61	39-120	11	49
1,1,2-Trichloroethane	46.64	34.56	74	45-122	6	47
2-Hexanone	46.64	22.45	48	38-124	20	54
1,3-Dichloropropane	46.64	34.30	74	49-121	7	47
Tetrachloroethene	46.64	36.84	79	40-130	0	57
Dibromochloromethane	46.64	34.41	74	43-120	8	49
1,2-Dibromoethane	46.64	33.39	72	47-120	7	47
Chlorobenzene	46.64	33.42	72	39-120	4	54
1,1,1,2-Tetrachloroethane	46.64	33.71	72	43-123	6	54
Ethylbenzene	46.64	33.15	71	40-124	3	54
m,p-Xylenes	93.28	68.84	74	37-122	3	54
o-Xylene	46.64	32.46	70	37-120	4	52
Styrene	46.64	29.27	63	36-120	4	55
Bromoform	46.64	32.65	70	42-128	8	55
Isopropylbenzene	46.64	33.08	71	29-120	2	55
1,1,2,2-Tetrachloroethane	46.64	31.64	68	23-130	8	61

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 5030B
Project#:	RFS-B280A	Analysis:	EPA 8260B
Field ID:	ZZZZZZZZZZ	Batch#:	216806
MSS Lab ID:	261929-006	Sampled:	10/17/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Analyzed:	10/27/14
Basis:	as received		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,2,3-Trichloropropane	46.64	35.25	76	41-120	7	51
Propylbenzene	46.64	30.86	66	27-120	2	56
Bromobenzene	46.64	30.66	66	35-120	5	51
1,3,5-Trimethylbenzene	46.64	29.72	64	30-127	1	54
2-Chlorotoluene	46.64	30.32	65	31-120	3	59
4-Chlorotoluene	46.64	27.05	58	28-120	2	58
tert-Butylbenzene	46.64	31.95	69	27-120	3	58
1,2,4-Trimethylbenzene	46.64	27.13	58	29-124	2	56
sec-Butylbenzene	46.64	30.95	66	22-120	2	59
para-Isopropyl Toluene	46.64	27.28	58	23-120	2	60
1,3-Dichlorobenzene	46.64	26.29	56	25-120	2	58
1,4-Dichlorobenzene	46.64	24.85	53	26-120	2	56
n-Butylbenzene	46.64	23.60	51	20-128	1	63
1,2-Dichlorobenzene	46.64	25.04	54	26-120	3	57
1,2-Dibromo-3-Chloropropane	46.64	26.22	56	31-120	11	58
1,2,4-Trichlorobenzene	46.64	13.83	30	9-120	0	65
Hexachlorobutadiene	46.64	19.74	42	7-124	0	68
Naphthalene	46.64	14.93	32	15-120	4	60
1,2,3-Trichlorobenzene	46.64	13.28	28	8-120	1	61
tert-Butyl Alcohol (TBA)	233.2	180.7	77	38-134	11	55
Isopropyl Ether (DIPE)	46.64	32.78	70	44-123	8	45
Ethyl tert-Butyl Ether (ETBE)	46.64	32.58	70	47-122	9	46
Methyl tert-Amyl Ether (TAME)	46.64	35.15	75	50-120	10	45

Surrogate	%REC	Limits
Dibromofluoromethane	108	76-128
1,2-Dichloroethane-d4	107	80-137
Toluene-d8	96	80-120
Bromofluorobenzene	95	79-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
Semivolatile Organics by GC/MS

Tetra Tech EMI	Project : RFS-B280A
1999 Harrison Street	Location : RFS-B280A
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
SEMIVOLATILE ORGANICS BY GC/MS (EPA 8270C)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Semivolatile Organics by GC/MS (EPA 8270C):

Matrix spikes QC763331,QC763332 (batch 216843) were not reported because the parent sample required a dilution that would have diluted out the spikes.

20141022B280A0101 (lab # 261954-001) and 20141022B280A0201 (lab # 261954-005) were diluted due to the dark and viscous nature of the sample extracts.

No other analytical problems were encountered.

Chain of Custody

261954

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. 6887

Page 1 of 1

Lab PO#: to follow

Lab: C+T

Project name: RFS-B280A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Encores	Plastic	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables*	TPH Extractables	PCB 1668 - WS #4
SOIL 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X
B280AQ1Q3			1330							1	3			X						
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X
B280AQ2Q2			1410							1	3	1		X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Choy		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 (YES) NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0101	Batch#:	216732
Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/24/14
Diln Fac:	5.000		

Moisture: 9%

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	1,800	120
Phenol	ND	1,800	83
bis(2-Chloroethyl)ether	ND	1,800	88
2-Chlorophenol	ND	1,800	77
1,3-Dichlorobenzene	ND	1,800	72
1,4-Dichlorobenzene	ND	1,800	40
Benzyl alcohol	ND	1,800	90
1,2-Dichlorobenzene	ND	1,800	57
2-Methylphenol	ND	1,800	79
bis(2-Chloroisopropyl) ether	ND	1,800	88
4-Methylphenol	ND	1,800	87
N-Nitroso-di-n-propylamine	ND	1,800	84
Hexachloroethane	ND	1,800	58
Nitrobenzene	ND	1,800	49
Isophorone	ND	1,800	56
2-Nitrophenol	ND	3,700	210
2,4-Dimethylphenol	ND	1,800	100
Benzoic acid	ND	9,200	2,100
bis(2-Chloroethoxy)methane	ND	1,800	57
2,4-Dichlorophenol	ND	1,800	51
1,2,4-Trichlorobenzene	ND	1,800	47
4-Chloroaniline	ND	1,800	69
Hexachlorobutadiene	ND	1,800	46
4-Chloro-3-methylphenol	ND	1,800	48
Hexachlorocyclopentadiene	ND	3,700	420
2,4,6-Trichlorophenol	ND	1,800	61
2,4,5-Trichlorophenol	ND	1,800	50
2-Chloronaphthalene	ND	1,800	43
2-Nitroaniline	ND	3,700	190
Dimethylphthalate	ND	1,800	40
2,6-Dinitrotoluene	ND	1,800	190
3-Nitroaniline	ND	3,700	40
2,4-Dinitrophenol	ND	3,700	270

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0101	Batch#:	216732
Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/24/14
Diln Fac:	5.000		

Analyte	Result	RL	MDL
4-Nitrophenol	ND	3,700	39
Dibenzofuran	ND	1,800	46
2,4-Dinitrotoluene	ND	1,800	46
Diethylphthalate	ND	1,800	46
4-Chlorophenyl-phenylether	ND	1,800	46
4-Nitroaniline	ND	3,700	58
4,6-Dinitro-2-methylphenol	ND	3,700	190
N-Nitrosodiphenylamine	ND	1,800	43
Azobenzene	ND	1,800	38
4-Bromophenyl-phenylether	ND	1,800	44
Hexachlorobenzene	ND	1,800	38
Pentachlorophenol	ND	3,700	560
Carbazole	ND	1,800	56
Di-n-butylphthalate	ND	1,800	53
Butylbenzylphthalate	ND	1,800	53
3,3'-Dichlorobenzidine	ND	3,700	440
bis(2-Ethylhexyl)phthalate	ND	1,800	47
Di-n-octylphthalate	ND	1,800	190
2,3,4,6-Tetrachlorophenol	ND	1,800	45

Surrogate	%REC	Limits
2-Fluorophenol	63	33-120
Phenol-d5	68	39-120
2,4,6-Tribromophenol	93	33-120
Nitrobenzene-d5	60	46-120
2-Fluorobiphenyl	69	51-120
Terphenyl-d14	60	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0102	Batch#:	216843
Lab ID:	261954-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/27/14
Basis:	dry	Analyzed:	10/28/14
Diln Fac:	1.000		

Moisture: 10%

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	380	79
Phenol	ND	380	53
bis(2-Chloroethyl)ether	ND	380	61
2-Chlorophenol	ND	380	62
1,3-Dichlorobenzene	ND	380	42
1,4-Dichlorobenzene	ND	380	17
Benzyl alcohol	ND	380	57
1,2-Dichlorobenzene	ND	380	38
2-Methylphenol	ND	380	70
bis(2-Chloroisopropyl) ether	ND	380	94
4-Methylphenol	ND	380	58
N-Nitroso-di-n-propylamine	ND	380	56
Hexachloroethane	ND	380	29
Nitrobenzene	ND	380	16
Isophorone	ND	380	11
2-Nitrophenol	ND	750	12
2,4-Dimethylphenol	ND	380	16
Benzoic acid	ND	1,900	280
bis(2-Chloroethoxy)methane	ND	380	13
2,4-Dichlorophenol	ND	380	14
1,2,4-Trichlorobenzene	ND	380	15
4-Chloroaniline	ND	380	18
Hexachlorobutadiene	ND	380	15
4-Chloro-3-methylphenol	ND	380	16
Hexachlorocyclopentadiene	ND	750	14
2,4,6-Trichlorophenol	ND	380	16
2,4,5-Trichlorophenol	ND	380	15
2-Chloronaphthalene	ND	380	12
2-Nitroaniline	ND	750	12
Dimethylphthalate	ND	380	14
2,6-Dinitrotoluene	ND	380	14
3-Nitroaniline	ND	750	9.1
2,4-Dinitrophenol	ND	750	110

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0102	Batch#:	216843
Lab ID:	261954-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/27/14
Basis:	dry	Analyzed:	10/28/14
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Nitrophenol	ND	750	59
Dibenzofuran	ND	380	16
2,4-Dinitrotoluene	ND	380	11
Diethylphthalate	ND	380	15
4-Chlorophenyl-phenylether	ND	380	14
4-Nitroaniline	ND	750	11
4,6-Dinitro-2-methylphenol	ND	750	78
N-Nitrosodiphenylamine	ND	380	15
Azobenzene	ND	380	16
4-Bromophenyl-phenylether	ND	380	14
Hexachlorobenzene	ND	380	15
Pentachlorophenol	ND	750	70
Carbazole	ND	380	17
Di-n-butylphthalate	ND	380	16
Butylbenzylphthalate	ND	380	12
3,3'-Dichlorobenzidine	ND	750	12
bis(2-Ethylhexyl)phthalate	ND	380	17
Di-n-octylphthalate	ND	380	19
2,3,4,6-Tetrachlorophenol	ND	380	17

Surrogate	%REC	Limits
2-Fluorophenol	56	33-120
Phenol-d5	66	39-120
2,4,6-Tribromophenol	54	33-120
Nitrobenzene-d5	74	46-120
2-Fluorobiphenyl	72	51-120
Terphenyl-d14	71	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0104	Batch#:	216732
Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	380	81
Phenol	ND	380	53
bis(2-Chloroethyl)ether	ND	380	62
2-Chlorophenol	ND	380	63
1,3-Dichlorobenzene	ND	380	43
1,4-Dichlorobenzene	ND	380	17
Benzyl alcohol	ND	380	58
1,2-Dichlorobenzene	ND	380	38
2-Methylphenol	ND	380	71
bis(2-Chloroisopropyl) ether	ND	380	95
4-Methylphenol	ND	380	59
N-Nitroso-di-n-propylamine	ND	380	57
Hexachloroethane	ND	380	30
Nitrobenzene	ND	380	17
Isophorone	ND	380	11
2-Nitrophenol	ND	760	12
2,4-Dimethylphenol	ND	380	16
Benzoic acid	ND	1,900	280
bis(2-Chloroethoxy)methane	ND	380	13
2,4-Dichlorophenol	ND	380	14
1,2,4-Trichlorobenzene	ND	380	15
4-Chloroaniline	ND	380	19
Hexachlorobutadiene	ND	380	16
4-Chloro-3-methylphenol	ND	380	16
Hexachlorocyclopentadiene	ND	760	14
2,4,6-Trichlorophenol	ND	380	16
2,4,5-Trichlorophenol	ND	380	15
2-Chloronaphthalene	ND	380	12
2-Nitroaniline	ND	760	12
Dimethylphthalate	ND	380	14
2,6-Dinitrotoluene	ND	380	14
3-Nitroaniline	ND	760	9.3
2,4-Dinitrophenol	ND	760	110

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0104	Batch#:	216732
Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Nitrophenol	ND	760	60
Dibenzofuran	ND	380	16
2,4-Dinitrotoluene	ND	380	11
Diethylphthalate	ND	380	15
4-Chlorophenyl-phenylether	ND	380	14
4-Nitroaniline	ND	760	11
4,6-Dinitro-2-methylphenol	ND	760	79
N-Nitrosodiphenylamine	ND	380	15
Azobenzene	ND	380	16
4-Bromophenyl-phenylether	ND	380	14
Hexachlorobenzene	ND	380	16
Pentachlorophenol	ND	760	71
Carbazole	ND	380	17
Di-n-butylphthalate	ND	380	17
Butylbenzylphthalate	ND	380	12
3,3'-Dichlorobenzidine	ND	760	13
bis(2-Ethylhexyl)phthalate	ND	380	17
Di-n-octylphthalate	ND	380	20
2,3,4,6-Tetrachlorophenol	ND	380	18

Surrogate	%REC	Limits
2-Fluorophenol	40	33-120
Phenol-d5	48	39-120
2,4,6-Tribromophenol	39	33-120
Nitrobenzene-d5	50	46-120
2-Fluorobiphenyl	53	51-120
Terphenyl-d14	60	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0201	Batch#:	216732
Lab ID:	261954-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	2.000		

Moisture: 8%

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	710	150
Phenol	ND	710	100
bis(2-Chloroethyl)ether	ND	710	120
2-Chlorophenol	ND	710	120
1,3-Dichlorobenzene	ND	710	80
1,4-Dichlorobenzene	ND	710	32
Benzyl alcohol	ND	710	110
1,2-Dichlorobenzene	ND	710	71
2-Methylphenol	ND	710	130
bis(2-Chloroisopropyl) ether	ND	710	180
4-Methylphenol	ND	710	110
N-Nitroso-di-n-propylamine	ND	710	110
Hexachloroethane	ND	710	55
Nitrobenzene	ND	710	31
Isophorone	ND	710	21
2-Nitrophenol	ND	1,400	22
2,4-Dimethylphenol	ND	710	30
Benzoic acid	ND	3,600	530
bis(2-Chloroethoxy)methane	ND	710	24
2,4-Dichlorophenol	ND	710	27
1,2,4-Trichlorobenzene	ND	710	28
4-Chloroaniline	ND	710	35
Hexachlorobutadiene	ND	710	29
4-Chloro-3-methylphenol	ND	710	30
Hexachlorocyclopentadiene	ND	1,400	26
2,4,6-Trichlorophenol	ND	710	30
2,4,5-Trichlorophenol	ND	710	29
2-Chloronaphthalene	ND	710	22
2-Nitroaniline	ND	1,400	23
Dimethylphthalate	ND	710	27
2,6-Dinitrotoluene	ND	710	27
3-Nitroaniline	ND	1,400	17

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0201	Batch#:	216732
Lab ID:	261954-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	2.000		

Analyte	Result	RL	MDL
2,4-Dinitrophenol	ND	1,400	200
4-Nitrophenol	ND	1,400	110
Dibenzofuran	ND	710	31
2,4-Dinitrotoluene	ND	710	21
Diethylphthalate	ND	710	29
4-Chlorophenyl-phenylether	ND	710	27
4-Nitroaniline	ND	1,400	20
4,6-Dinitro-2-methylphenol	ND	1,400	150
N-Nitrosodiphenylamine	ND	710	29
Azobenzene	ND	710	30
4-Bromophenyl-phenylether	ND	710	27
Hexachlorobenzene	ND	710	29
Pentachlorophenol	ND	1,400	130
Carbazole	ND	710	31
Di-n-butylphthalate	ND	710	31
Butylbenzylphthalate	24 J	710	23
3,3'-Dichlorobenzidine	ND	1,400	24
bis(2-Ethylhexyl)phthalate	110 J	710	31
Di-n-octylphthalate	ND	710	37
2,3,4,6-Tetrachlorophenol	ND	710	33

Surrogate	%REC	Limits
2-Fluorophenol	49	33-120
Phenol-d5	58	39-120
2,4,6-Tribromophenol	65	33-120
Nitrobenzene-d5	65	46-120
2-Fluorobiphenyl	80	51-120
Terphenyl-d14	67	50-120

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0202	Batch#:	216732
Lab ID:	261954-006	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	380	80
Phenol	ND	380	53
bis(2-Chloroethyl)ether	ND	380	62
2-Chlorophenol	ND	380	63
1,3-Dichlorobenzene	ND	380	43
1,4-Dichlorobenzene	ND	380	17
Benzyl alcohol	ND	380	58
1,2-Dichlorobenzene	ND	380	38
2-Methylphenol	ND	380	71
bis(2-Chloroisopropyl) ether	ND	380	95
4-Methylphenol	ND	380	59
N-Nitroso-di-n-propylamine	ND	380	57
Hexachloroethane	ND	380	29
Nitrobenzene	ND	380	17
Isophorone	ND	380	11
2-Nitrophenol	ND	760	12
2,4-Dimethylphenol	ND	380	16
Benzoic acid	ND	1,900	280
bis(2-Chloroethoxy)methane	ND	380	13
2,4-Dichlorophenol	ND	380	14
1,2,4-Trichlorobenzene	ND	380	15
4-Chloroaniline	ND	380	19
Hexachlorobutadiene	ND	380	16
4-Chloro-3-methylphenol	ND	380	16
Hexachlorocyclopentadiene	ND	760	14
2,4,6-Trichlorophenol	ND	380	16
2,4,5-Trichlorophenol	ND	380	15
2-Chloronaphthalene	ND	380	12
2-Nitroaniline	ND	760	12
Dimethylphthalate	ND	380	14
2,6-Dinitrotoluene	ND	380	14
3-Nitroaniline	ND	760	9.3
2,4-Dinitrophenol	ND	760	110

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0202	Batch#:	216732
Lab ID:	261954-006	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Nitrophenol	ND	760	60
Dibenzofuran	ND	380	16
2,4-Dinitrotoluene	ND	380	11
Diethylphthalate	ND	380	15
4-Chlorophenyl-phenylether	ND	380	14
4-Nitroaniline	ND	760	11
4,6-Dinitro-2-methylphenol	ND	760	79
N-Nitrosodiphenylamine	ND	380	15
Azobenzene	ND	380	16
4-Bromophenyl-phenylether	ND	380	14
Hexachlorobenzene	ND	380	16
Pentachlorophenol	ND	760	71
Carbazole	ND	380	17
Di-n-butylphthalate	ND	380	17
Butylbenzylphthalate	ND	380	12
3,3'-Dichlorobenzidine	ND	760	13
bis(2-Ethylhexyl)phthalate	ND	380	17
Di-n-octylphthalate	ND	380	20
2,3,4,6-Tetrachlorophenol	ND	380	18

Surrogate	%REC	Limits
2-Fluorophenol	40	33-120
Phenol-d5	50	39-120
2,4,6-Tribromophenol	45	33-120
Nitrobenzene-d5	54	46-120
2-Fluorobiphenyl	60	51-120
Terphenyl-d14	58	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0203	Batch#:	216732
Lab ID:	261954-007	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Moisture: 17%

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	400	85
Phenol	ND	400	56
bis(2-Chloroethyl)ether	ND	400	65
2-Chlorophenol	ND	400	66
1,3-Dichlorobenzene	ND	400	45
1,4-Dichlorobenzene	ND	400	18
Benzyl alcohol	ND	400	61
1,2-Dichlorobenzene	ND	400	40
2-Methylphenol	ND	400	75
bis(2-Chloroisopropyl) ether	ND	400	100
4-Methylphenol	ND	400	62
N-Nitroso-di-n-propylamine	ND	400	60
Hexachloroethane	ND	400	31
Nitrobenzene	ND	400	18
Isophorone	ND	400	12
2-Nitrophenol	ND	800	12
2,4-Dimethylphenol	ND	400	17
Benzoic acid	ND	2,000	300
bis(2-Chloroethoxy)methane	ND	400	13
2,4-Dichlorophenol	ND	400	15
1,2,4-Trichlorobenzene	ND	400	16
4-Chloroaniline	ND	400	20
Hexachlorobutadiene	ND	400	16
4-Chloro-3-methylphenol	ND	400	17
Hexachlorocyclopentadiene	ND	800	15
2,4,6-Trichlorophenol	ND	400	17
2,4,5-Trichlorophenol	ND	400	16
2-Chloronaphthalene	ND	400	12
2-Nitroaniline	ND	800	13
Dimethylphthalate	ND	400	15
2,6-Dinitrotoluene	ND	400	15
3-Nitroaniline	ND	800	9.8
2,4-Dinitrophenol	ND	800	110

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	20141022B280A0203	Batch#:	216732
Lab ID:	261954-007	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Analyte	Result	RL	MDL
4-Nitrophenol	ND	800	63
Dibenzofuran	ND	400	17
2,4-Dinitrotoluene	ND	400	12
Diethylphthalate	ND	400	16
4-Chlorophenyl-phenylether	ND	400	15
4-Nitroaniline	ND	800	11
4,6-Dinitro-2-methylphenol	ND	800	84
N-Nitrosodiphenylamine	ND	400	16
Azobenzene	ND	400	17
4-Bromophenyl-phenylether	ND	400	15
Hexachlorobenzene	ND	400	17
Pentachlorophenol	ND	800	75
Carbazole	ND	400	18
Di-n-butylphthalate	ND	400	18
Butylbenzylphthalate	ND	400	13
3,3'-Dichlorobenzidine	ND	800	13
bis(2-Ethylhexyl)phthalate	ND	400	18
Di-n-octylphthalate	ND	400	21
2,3,4,6-Tetrachlorophenol	ND	400	19

Surrogate	%REC	Limits
2-Fluorophenol	42	33-120
Phenol-d5	51	39-120
2,4,6-Tribromophenol	42	33-120
Nitrobenzene-d5	57	46-120
2-Fluorobiphenyl	66	51-120
Terphenyl-d14	60	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC762887	Batch#:	216732
Matrix:	Soil	Prepared:	10/23/14
Units:	ug/Kg	Analyzed:	10/24/14

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	330	22
Phenol	ND	330	15
bis(2-Chloroethyl)ether	ND	330	16
2-Chlorophenol	ND	330	14
1,3-Dichlorobenzene	ND	330	13
1,4-Dichlorobenzene	ND	330	7.3
Benzyl alcohol	ND	330	16
1,2-Dichlorobenzene	ND	330	10
2-Methylphenol	ND	330	14
bis(2-Chloroisopropyl) ether	ND	330	16
4-Methylphenol	ND	330	16
N-Nitroso-di-n-propylamine	ND	330	15
Hexachloroethane	ND	330	10
Nitrobenzene	ND	330	8.9
Isophorone	ND	330	10
2-Nitrophenol	ND	660	39
2,4-Dimethylphenol	ND	330	18
Benzoic acid	ND	1,700	380
bis(2-Chloroethoxy)methane	ND	330	10
2,4-Dichlorophenol	ND	330	9.3
1,2,4-Trichlorobenzene	ND	330	8.4
4-Chloroaniline	ND	330	13
Hexachlorobutadiene	ND	330	8.3
4-Chloro-3-methylphenol	ND	330	8.6
Hexachlorocyclopentadiene	ND	660	75
2,4,6-Trichlorophenol	ND	330	11
2,4,5-Trichlorophenol	ND	330	9.1
2-Chloronaphthalene	ND	330	7.7
2-Nitroaniline	ND	660	34
Dimethylphthalate	ND	330	7.2
2,6-Dinitrotoluene	ND	330	33
3-Nitroaniline	ND	660	7.2
2,4-Dinitrophenol	ND	660	49
4-Nitrophenol	ND	660	7.0
Dibenzofuran	ND	330	8.3
2,4-Dinitrotoluene	ND	330	8.3

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC762887	Batch#:	216732
Matrix:	Soil	Prepared:	10/23/14
Units:	ug/Kg	Analyzed:	10/24/14

Analyte	Result	RL	MDL
Diethylphthalate	ND	330	8.3
4-Chlorophenyl-phenylether	ND	330	8.4
4-Nitroaniline	ND	660	10
4,6-Dinitro-2-methylphenol	ND	660	35
N-Nitrosodiphenylamine	ND	330	7.8
Azobenzene	ND	330	6.9
4-Bromophenyl-phenylether	ND	330	8.0
Hexachlorobenzene	ND	330	6.8
Pentachlorophenol	ND	660	100
Carbazole	ND	330	10
Di-n-butylphthalate	ND	330	9.5
Butylbenzylphthalate	ND	330	9.5
3,3'-Dichlorobenzidine	ND	660	79
bis(2-Ethylhexyl)phthalate	ND	330	8.5
Di-n-octylphthalate	ND	330	34
2,3,4,6-Tetrachlorophenol	ND	330	8.1

Surrogate	%REC	Limits
2-Fluorophenol	70	33-120
Phenol-d5	72	39-120
2,4,6-Tribromophenol	49	33-120
Nitrobenzene-d5	68	46-120
2-Fluorobiphenyl	60	51-120
Terphenyl-d14	64	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	2.000
Lab ID:	QC762888	Batch#:	216732
Matrix:	Soil	Prepared:	10/23/14
Units:	ug/Kg	Analyzed:	10/24/14

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	2,656	1,535	58	40-120
Phenol	2,656	1,722	65	43-120
bis(2-Chloroethyl)ether	2,656	1,777	67	48-120
2-Chlorophenol	2,656	1,858	70	50-120
1,3-Dichlorobenzene	2,656	1,856	70	51-120
1,4-Dichlorobenzene	2,656	1,946	73	52-120
Benzyl alcohol	2,656	1,798	68	47-120
1,2-Dichlorobenzene	2,656	1,872	70	52-120
2-Methylphenol	2,656	1,911	72	49-120
bis(2-Chloroisopropyl) ether	2,656	1,660	62	33-125
4-Methylphenol	2,656	1,689	64	46-120
N-Nitroso-di-n-propylamine	2,656	1,838	69	30-121
Hexachloroethane	2,656	1,938	73	50-120
Nitrobenzene	2,656	1,845	69	44-120
Isophorone	2,656	1,628	61	44-120
2-Nitrophenol	2,656	1,918	72	54-120
2,4-Dimethylphenol	2,656	1,839	69	49-120
Benzoic acid	3,984	2,050	51	1-120
bis(2-Chloroethoxy)methane	996.0	715.5	72	49-120
2,4-Dichlorophenol	2,656	1,877	71	55-120
1,2,4-Trichlorobenzene	2,656	1,906	72	53-120
4-Chloroaniline	2,656	569.5	21	7-120
Hexachlorobutadiene	2,656	1,986	75	50-120
4-Chloro-3-methylphenol	2,656	1,998	75	58-120
Hexachlorocyclopentadiene	2,656	1,786	67	26-120
2,4,6-Trichlorophenol	2,656	1,877	71	57-120
2,4,5-Trichlorophenol	2,656	1,947	73	57-120
2-Chloronaphthalene	996.0	673.0	68	55-120
2-Nitroaniline	2,656	1,806	68	47-120
Dimethylphthalate	2,656	1,886	71	58-120
2,6-Dinitrotoluene	2,656	1,837	69	59-120
3-Nitroaniline	2,656	888.9	33	14-120
2,4-Dinitrophenol	2,656	561.0	21	6-120
4-Nitrophenol	2,656	1,765	66	46-120
Dibenzofuran	996.0	733.2	74	55-120
2,4-Dinitrotoluene	2,656	1,849	70	57-120
Diethylphthalate	996.0	713.0	72	59-120
4-Chlorophenyl-phenylether	996.0	729.6	73	60-120

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	2.000
Lab ID:	QC762888	Batch#:	216732
Matrix:	Soil	Prepared:	10/23/14
Units:	ug/Kg	Analyzed:	10/24/14

Analyte	Spiked	Result	%REC	Limits
4-Nitroaniline	2,656	1,495	56	48-120
4,6-Dinitro-2-methylphenol	2,656	1,101	41	1-120
N-Nitrosodiphenylamine	996.0	753.9	76	58-120
Azobenzene	996.0	765.4	77	48-120
4-Bromophenyl-phenylether	996.0	728.6	73	59-120
Hexachlorobenzene	2,656	1,821	69	56-120
Pentachlorophenol	2,656	1,575	59	31-120
Carbazole	2,656	1,999	75	56-120
Di-n-butylphthalate	996.0	772.1	78	58-120
Butylbenzylphthalate	996.0	673.2	68	55-120
3,3'-Dichlorobenzidine	2,656	1,032	39	27-120
bis(2-Ethylhexyl)phthalate	996.0	809.4	81	54-120
Di-n-octylphthalate	996.0	710.4	71	50-122
2,3,4,6-Tetrachlorophenol	2,656	1,883	71	57-120

Surrogate	%REC	Limits
2-Fluorophenol	55	33-120
Phenol-d5	63	39-120
2,4,6-Tribromophenol	62	33-120
Nitrobenzene-d5	65	46-120
2-Fluorobiphenyl	66	51-120
Terphenyl-d14	66	50-120

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	216732
MSS Lab ID:	261906-005	Sampled:	10/21/14
Matrix:	Soil	Received:	10/21/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Type: MS Moisture: 6%
Lab ID: QC762889

Analyte	MSS Result	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	<22.90	2,838	1,941	68	45-120
Phenol	<15.80	2,838	1,827	64	50-120
bis(2-Chloroethyl)ether	<16.76	2,838	1,905	67	55-120
2-Chlorophenol	<14.68	2,838	1,949	69	50-120
1,3-Dichlorobenzene	<13.84	2,838	1,978	70	55-120
1,4-Dichlorobenzene	<7.708	2,838	2,079	73	55-120
Benzyl alcohol	<17.15	2,838	2,015	71	50-120
1,2-Dichlorobenzene	<10.93	2,838	1,970	69	56-120
2-Methylphenol	<15.18	2,838	1,978	70	54-120
bis(2-Chloroisopropyl) ether	<16.81	2,838	1,618	57	42-120
4-Methylphenol	<16.73	2,838	1,605	57	51-120
N-Nitroso-di-n-propylamine	<15.98	2,838	2,144	76	43-120
Hexachloroethane	<11.11	2,838	2,044	72	35-120
Nitrobenzene	<9.409	2,838	1,947	69	54-120
Isophorone	<10.73	2,838	1,974	70	55-120
2-Nitrophenol	<40.83	2,838	2,078	73	43-120
2,4-Dimethylphenol	<19.59	2,838	1,809	64	55-120
Benzoic acid	<397.6	4,257	2,141	50	5-120
bis(2-Chloroethoxy)methane	<10.83	1,064	753.7	71	57-120
2,4-Dichlorophenol	<9.813	2,838	1,995	70	53-120
1,2,4-Trichlorobenzene	<8.926	2,838	2,023	71	58-120
4-Chloroaniline	<13.26	2,838	1,133	40	15-120
Hexachlorobutadiene	<8.787	2,838	2,140	75	55-120
4-Chloro-3-methylphenol	<9.122	2,838	2,113	74	60-120
Hexachlorocyclopentadiene	<79.99	2,838	2,068	73	1-120
2,4,6-Trichlorophenol	<11.61	2,838	2,108	74	56-120
2,4,5-Trichlorophenol	<9.653	2,838	2,157	76	57-120
2-Chloronaphthalene	<8.174	1,064	782.7	74	61-120
2-Nitroaniline	<35.57	2,838	2,002	71	54-120
Dimethylphthalate	<7.578	2,838	2,093	74	62-120
2,6-Dinitrotoluene	<35.39	2,838	2,076	73	62-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	216732
MSS Lab ID:	261906-005	Sampled:	10/21/14
Matrix:	Soil	Received:	10/21/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Analyte	MSS Result	Spiked	Result	%REC	Limits
3-Nitroaniline	<7.599	2,838	1,144	40	18-120
2,4-Dinitrophenol	<51.63	2,838	1,070	38	3-120
4-Nitrophenol	<7.457	2,838	2,047	72	45-120
Dibenzofuran	<8.840	1,064	771.7	73	61-120
2,4-Dinitrotoluene	<8.772	2,838	2,047	72	59-120
Diethylphthalate	<8.827	1,064	809.4	76	64-120
4-Chlorophenyl-phenylether	<8.881	1,064	826.1	78	65-120
4-Nitroaniline	<11.10	2,838	1,821	64	46-120
4,6-Dinitro-2-methylphenol	<36.73	2,838	1,682	59	1-120
N-Nitrosodiphenylamine	<8.267	1,064	822.4	77	64-120
Azobenzene	<7.355	1,064	842.6	79	55-120
4-Bromophenyl-phenylether	<8.497	1,064	831.8	78	62-120
Hexachlorobenzene	<7.203	2,838	2,048	72	60-120
Pentachlorophenol	<108.0	2,838	1,666	59	17-120
Carbazole	<10.65	2,838	2,144	76	60-120
Di-n-butylphthalate	<10.04	1,064	839.8	79	62-120
Butylbenzylphthalate	<10.11	1,064	826.6	78	52-122
3,3'-Dichlorobenzidine	<83.42	2,838	929.8	33	27-120
bis(2-Ethylhexyl)phthalate	<9.004	1,064	1,023	96	53-129
Di-n-octylphthalate	<35.92	1,064	989.2	93	51-151
2,3,4,6-Tetrachlorophenol	<8.610	2,838	2,063	73	46-120

Surrogate	%REC	Limits
2-Fluorophenol	59	33-120
Phenol-d5	69	39-120
2,4,6-Tribromophenol	69	33-120
Nitrobenzene-d5	71	46-120
2-Fluorobiphenyl	71	51-120
Terphenyl-d14	80	50-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	216732
MSS Lab ID:	261906-005	Sampled:	10/21/14
Matrix:	Soil	Received:	10/21/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Type: MSD Moisture: 6%
Lab ID: QC762890

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
N-Nitrosodimethylamine	2,876	1,679	58	45-120	16	47
Phenol	2,876	1,715	60	50-120	8	35
bis(2-Chloroethyl)ether	2,876	1,695	59	55-120	13	43
2-Chlorophenol	2,876	1,806	63	50-120	9	38
1,3-Dichlorobenzene	2,876	1,693	59	55-120	17	39
1,4-Dichlorobenzene	2,876	1,804	63	55-120	15	39
Benzyl alcohol	2,876	1,864	65	50-120	9	40
1,2-Dichlorobenzene	2,876	1,740	61	56-120	14	38
2-Methylphenol	2,876	1,897	66	54-120	6	32
bis(2-Chloroisopropyl) ether	2,876	1,496	52	42-120	9	40
4-Methylphenol	2,876	1,511	53	51-120	7	32
N-Nitroso-di-n-propylamine	2,876	1,965	68	43-120	10	38
Hexachloroethane	2,876	1,766	61	35-120	16	41
Nitrobenzene	2,876	1,778	62	54-120	10	36
Isophorone	2,876	1,833	64	55-120	9	37
2-Nitrophenol	2,876	1,906	66	43-120	10	44
2,4-Dimethylphenol	2,876	1,719	60	55-120	6	33
Benzoic acid	4,314	1,827	42	5-120	17	80
bis(2-Chloroethoxy)methane	1,079	716.4	66	57-120	6	34
2,4-Dichlorophenol	2,876	1,885	66	53-120	7	33
1,2,4-Trichlorobenzene	2,876	1,808	63	58-120	13	34
4-Chloroaniline	2,876	1,171	41	15-120	2	67
Hexachlorobutadiene	2,876	1,886	66	55-120	14	36
4-Chloro-3-methylphenol	2,876	2,008	70	60-120	6	32
Hexachlorocyclopentadiene	2,876	1,766	61	1-120	17	98
2,4,6-Trichlorophenol	2,876	2,014	70	56-120	6	32
2,4,5-Trichlorophenol	2,876	2,089	73	57-120	5	31
2-Chloronaphthalene	1,079	729.0	68	61-120	8	33
2-Nitroaniline	2,876	1,925	67	54-120	5	37
Dimethylphthalate	2,876	1,990	69	62-120	6	28
2,6-Dinitrotoluene	2,876	1,977	69	62-120	6	29

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Field ID:	ZZZZZZZZZZ	Batch#:	216732
MSS Lab ID:	261906-005	Sampled:	10/21/14
Matrix:	Soil	Received:	10/21/14
Units:	ug/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/27/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
3-Nitroaniline	2,876	1,107	38	18-120	5	49
2,4-Dinitrophenol	2,876	1,038	36	3-120	4	51
4-Nitrophenol	2,876	1,932	67	45-120	7	40
Dibenzofuran	1,079	737.9	68	61-120	6	33
2,4-Dinitrotoluene	2,876	1,950	68	59-120	6	29
Diethylphthalate	1,079	766.2	71	64-120	7	30
4-Chlorophenyl-phenylether	1,079	783.0	73	65-120	7	29
4-Nitroaniline	2,876	1,716	60	46-120	7	35
4,6-Dinitro-2-methylphenol	2,876	1,716	60	1-120	1	78
N-Nitrosodiphenylamine	1,079	793.0	74	64-120	5	30
Azobenzene	1,079	807.1	75	55-120	6	34
4-Bromophenyl-phenylether	1,079	787.4	73	62-120	7	29
Hexachlorobenzene	2,876	1,988	69	60-120	4	29
Pentachlorophenol	2,876	1,829	64	17-120	8	51
Carbazole	2,876	2,096	73	60-120	4	28
Di-n-butylphthalate	1,079	808.0	75	62-120	5	30
Butylbenzylphthalate	1,079	802.7	74	52-122	4	34
3,3'-Dichlorobenzidine	2,876	928.6	32	27-120	1	49
bis(2-Ethylhexyl)phthalate	1,079	957.1	89	53-129	8	38
Di-n-octylphthalate	1,079	943.8	88	51-151	6	41
2,3,4,6-Tetrachlorophenol	2,876	2,035	71	46-120	3	40

Surrogate	%REC	Limits
2-Fluorophenol	51	33-120
Phenol-d5	61	39-120
2,4,6-Tribromophenol	61	33-120
Nitrobenzene-d5	60	46-120
2-Fluorobiphenyl	62	51-120
Terphenyl-d14	72	50-120

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763329	Batch#:	216843
Matrix:	Soil	Prepared:	10/27/14
Units:	ug/Kg	Analyzed:	10/28/14

Analyte	Result	RL	MDL
N-Nitrosodimethylamine	ND	340	71
Phenol	ND	340	47
bis(2-Chloroethyl)ether	ND	340	54
2-Chlorophenol	ND	340	55
1,3-Dichlorobenzene	ND	340	38
1,4-Dichlorobenzene	ND	340	15
Benzyl alcohol	ND	340	51
1,2-Dichlorobenzene	ND	340	34
2-Methylphenol	ND	340	63
bis(2-Chloroisopropyl) ether	ND	340	84
4-Methylphenol	ND	340	52
N-Nitroso-di-n-propylamine	ND	340	50
Hexachloroethane	ND	340	26
Nitrobenzene	ND	340	15
Isophorone	ND	340	9.8
2-Nitrophenol	ND	670	10
2,4-Dimethylphenol	ND	340	14
Benzoic acid	ND	1,700	250
bis(2-Chloroethoxy)methane	ND	340	11
2,4-Dichlorophenol	ND	340	13
1,2,4-Trichlorobenzene	ND	340	13
4-Chloroaniline	ND	340	17
Hexachlorobutadiene	ND	340	14
4-Chloro-3-methylphenol	ND	340	14
Hexachlorocyclopentadiene	ND	670	12
2,4,6-Trichlorophenol	ND	340	14
2,4,5-Trichlorophenol	ND	340	13
2-Chloronaphthalene	ND	340	10
2-Nitroaniline	ND	670	11
Dimethylphthalate	ND	340	13
2,6-Dinitrotoluene	ND	340	13
3-Nitroaniline	ND	670	8.2
2,4-Dinitrophenol	ND	670	94
4-Nitrophenol	ND	670	52
Dibenzofuran	ND	340	14
2,4-Dinitrotoluene	ND	340	9.9

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763329	Batch#:	216843
Matrix:	Soil	Prepared:	10/27/14
Units:	ug/Kg	Analyzed:	10/28/14

Analyte	Result	RL	MDL
Diethylphthalate	ND	340	14
4-Chlorophenyl-phenylether	ND	340	13
4-Nitroaniline	ND	670	9.6
4,6-Dinitro-2-methylphenol	ND	670	70
N-Nitrosodiphenylamine	ND	340	14
Azobenzene	ND	340	14
4-Bromophenyl-phenylether	ND	340	13
Hexachlorobenzene	ND	340	14
Pentachlorophenol	ND	670	62
Carbazole	ND	340	15
Di-n-butylphthalate	ND	340	15
Butylbenzylphthalate	ND	340	11
3,3'-Dichlorobenzidine	ND	670	11
bis(2-Ethylhexyl)phthalate	ND	340	15
Di-n-octylphthalate	ND	340	17
2,3,4,6-Tetrachlorophenol	ND	340	16

Surrogate	%REC	Limits
2-Fluorophenol	43	33-120
Phenol-d5	52	39-120
2,4,6-Tribromophenol	58	33-120
Nitrobenzene-d5	58	46-120
2-Fluorobiphenyl	61	51-120
Terphenyl-d14	73	50-120

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	2.000
Lab ID:	QC763330	Batch#:	216843
Matrix:	Soil	Prepared:	10/27/14
Units:	ug/Kg	Analyzed:	10/28/14

Analyte	Spiked	Result	%REC	Limits
N-Nitrosodimethylamine	2,703	2,083	77	40-120
Phenol	2,703	2,179	81	43-120
bis(2-Chloroethyl)ether	2,703	2,134	79	48-120
2-Chlorophenol	2,703	2,283	84	50-120
1,3-Dichlorobenzene	2,703	2,270	84	51-120
1,4-Dichlorobenzene	2,703	2,428	90	52-120
Benzyl alcohol	2,703	2,277	84	47-120
1,2-Dichlorobenzene	2,703	2,278	84	52-120
2-Methylphenol	2,703	2,422	90	49-120
bis(2-Chloroisopropyl) ether	2,703	2,048	76	33-125
4-Methylphenol	2,703	2,112	78	46-120
N-Nitroso-di-n-propylamine	2,703	2,276	84	30-121
Hexachloroethane	2,703	2,351	87	50-120
Nitrobenzene	2,703	2,278	84	44-120
Isophorone	2,703	2,066	76	44-120
2-Nitrophenol	2,703	2,305	85	54-120
2,4-Dimethylphenol	2,703	2,330	86	49-120
Benzoic acid	4,054	1,248	31	1-120
bis(2-Chloroethoxy)methane	1,014	853.2	84	49-120
2,4-Dichlorophenol	2,703	2,385	88	55-120
1,2,4-Trichlorobenzene	2,703	2,301	85	53-120
4-Chloroaniline	2,703	1,323	49	7-120
Hexachlorobutadiene	2,703	2,382	88	50-120
4-Chloro-3-methylphenol	2,703	2,477	92	58-120
Hexachlorocyclopentadiene	2,703	2,230	83	26-120
2,4,6-Trichlorophenol	2,703	2,339	87	57-120
2,4,5-Trichlorophenol	2,703	2,482	92	57-120
2-Chloronaphthalene	1,014	840.4	83	55-120
2-Nitroaniline	2,703	2,370	88	47-120
Dimethylphthalate	2,703	2,408	89	58-120
2,6-Dinitrotoluene	2,703	2,326	86	59-120
3-Nitroaniline	2,703	1,477	55	14-120
2,4-Dinitrophenol	2,703	198.4	7	6-120
4-Nitrophenol	2,703	2,477	92	46-120
Dibenzofuran	1,014	909.2	90	55-120
2,4-Dinitrotoluene	2,703	2,354	87	57-120
Diethylphthalate	1,014	912.8	90	59-120
4-Chlorophenyl-phenylether	1,014	925.2	91	60-120

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C
Type:	LCS	Diln Fac:	2.000
Lab ID:	QC763330	Batch#:	216843
Matrix:	Soil	Prepared:	10/27/14
Units:	ug/Kg	Analyzed:	10/28/14

Analyte	Spiked	Result	%REC	Limits
4-Nitroaniline	2,703	2,118	78	48-120
4,6-Dinitro-2-methylphenol	2,703	452.1	17	1-120
N-Nitrosodiphenylamine	1,014	920.9	91	58-120
Azobenzene	1,014	946.6	93	48-120
4-Bromophenyl-phenylether	1,014	866.6	86	59-120
Hexachlorobenzene	2,703	2,181	81	56-120
Pentachlorophenol	2,703	1,153	43	31-120
Carbazole	2,703	2,517	93	56-120
Di-n-butylphthalate	1,014	942.3	93	58-120
Butylbenzylphthalate	1,014	836.2	83	55-120
3,3'-Dichlorobenzidine	2,703	1,637	61	27-120
bis(2-Ethylhexyl)phthalate	1,014	998.6	99	54-120
Di-n-octylphthalate	1,014	930.3	92	50-122
2,3,4,6-Tetrachlorophenol	2,703	2,284	84	57-120

Surrogate	%REC	Limits
2-Fluorophenol	64	33-120
Phenol-d5	76	39-120
2,4,6-Tribromophenol	70	33-120
Nitrobenzene-d5	78	46-120
2-Fluorobiphenyl	78	51-120
Terphenyl-d14	78	50-120

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
Semivolatile Organics by GC/MS SIM

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : RFS-B280A
Location : RFS-B280A
Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
SEMIVOLATILE ORGANICS BY GC/MS SIM (EPA 8270C-SIM)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):

20141022B280A0201 (lab # 261954-005) was diluted due to the dark and viscous nature of the sample extract.

No other analytical problems were encountered.

Chain of Custody

Tetra Tech EM Inc.
San Francisco Office
135 Main St. Suite 1800
San Francisco. CA 94105
415-543-4880
Fax 415-543-5480

261954

Chain of Custody Record No. 6887

Lab PO#: to follow

Lab: C+T

Project name: RFS-B280A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	SYCORES	PLASTIC	Preservative Added: None	VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables *	TPH Extractables	PCB	WS-1441
SOIL 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q3			1330								3			X							
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q2			1410							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech	10/22/14	1705
Received by:	Isabelle Choy	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 260954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 (YES) NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	20141022B280A0101	Batch#:	217039
Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Moisture: 9%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	36	4.6
Naphthalene	ND	5.5	1.1
1-Methylnaphthalene	ND	5.5	1.1
2-Methylnaphthalene	ND	5.5	1.1
Acenaphthylene	1.6 J	5.5	1.1
Acenaphthene	ND	5.5	1.1
Fluorene	ND	5.5	1.1
Phenanthrene	21	5.5	1.1
Anthracene	2.7 J	5.5	1.1
Fluoranthene	33	5.5	1.1
Pyrene	36	5.5	1.1
Benzo(a)anthracene	13	5.5	1.1
Chrysene	20	5.5	1.1
Benzo(b)fluoranthene	36	5.5	1.1
Benzo(k)fluoranthene	12	5.5	1.1
Benzo(a)pyrene	23	5.5	1.1
Indeno(1,2,3-cd)pyrene	12	5.5	1.1
Dibenz(a,h)anthracene	2.9 J	5.5	1.1
Benzo(g,h,i)perylene	13	5.5	1.3

Surrogate	%REC	Limits
Nitrobenzene-d5	95	46-120
2-Fluorobiphenyl	101	52-120
Terphenyl-d14	93	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	20141022B280A0102	Batch#:	217039
Lab ID:	261954-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 10%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	37	4.7
Naphthalene	2.0 J	5.5	1.1
1-Methylnaphthalene	1.4 J	5.5	1.1
2-Methylnaphthalene	3.0 J	5.5	1.1
Acenaphthylene	ND	5.5	1.1
Acenaphthene	ND	5.5	1.1
Fluorene	ND	5.5	1.1
Phenanthrene	ND	5.5	1.1
Anthracene	ND	5.5	1.1
Fluoranthene	ND	5.5	1.1
Pyrene	ND	5.5	1.1
Benzo(a)anthracene	ND	5.5	1.1
Chrysene	ND	5.5	1.1
Benzo(b)fluoranthene	ND	5.5	1.1
Benzo(k)fluoranthene	ND	5.5	1.1
Benzo(a)pyrene	ND	5.5	1.1
Indeno(1,2,3-cd)pyrene	ND	5.5	1.1
Dibenz(a,h)anthracene	ND	5.5	1.1
Benzo(g,h,i)perylene	ND	5.5	1.4

Surrogate	%REC	Limits
Nitrobenzene-d5	75	46-120
2-Fluorobiphenyl	87	52-120
Terphenyl-d14	97	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	20141022B280A0104	Batch#:	217039
Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	38	4.8
Naphthalene	ND	5.7	1.1
1-Methylnaphthalene	ND	5.7	1.1
2-Methylnaphthalene	ND	5.7	1.1
Acenaphthylene	ND	5.7	1.1
Acenaphthene	ND	5.7	1.1
Fluorene	ND	5.7	1.1
Phenanthrene	ND	5.7	1.1
Anthracene	ND	5.7	1.1
Fluoranthene	ND	5.7	1.1
Pyrene	ND	5.7	1.1
Benzo(a)anthracene	ND	5.7	1.1
Chrysene	ND	5.7	1.1
Benzo(b)fluoranthene	ND	5.7	1.1
Benzo(k)fluoranthene	ND	5.7	1.1
Benzo(a)pyrene	ND	5.7	1.1
Indeno(1,2,3-cd)pyrene	ND	5.7	1.1
Dibenz(a,h)anthracene	ND	5.7	1.1
Benzo(g,h,i)perylene	ND	5.7	1.4

Surrogate	%REC	Limits
Nitrobenzene-d5	74	46-120
2-Fluorobiphenyl	86	52-120
Terphenyl-d14	101	54-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	20141022B280A0201	Batch#:	217039
Lab ID:	261954-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	2.000		

Moisture: 8%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	140	18
Naphthalene	8.7 J	22	4.3
1-Methylnaphthalene	6.6 J	22	4.3
2-Methylnaphthalene	14 J	22	4.3
Acenaphthylene	ND	22	4.3
Acenaphthene	ND	22	4.3
Fluorene	ND	22	4.3
Phenanthrene	16 J	22	4.3
Anthracene	ND	22	4.3
Fluoranthene	30	22	4.3
Pyrene	33	22	4.3
Benzo(a)anthracene	16 J	22	4.3
Chrysene	27	22	4.3
Benzo(b)fluoranthene	49	22	4.3
Benzo(k)fluoranthene	15 J	22	4.3
Benzo(a)pyrene	23	22	4.3
Indeno(1,2,3-cd)pyrene	10 J	22	4.4
Dibenz(a,h)anthracene	ND	22	4.4
Benzo(g,h,i)perylene	14 J	22	5.3

Surrogate	%REC	Limits
Nitrobenzene-d5	89	46-120
2-Fluorobiphenyl	108	52-120
Terphenyl-d14	101	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	20141022B280A0202	Batch#:	217039
Lab ID:	261954-006	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	38	4.9
Naphthalene	ND	5.7	1.1
1-Methylnaphthalene	ND	5.7	1.1
2-Methylnaphthalene	ND	5.7	1.1
Acenaphthylene	ND	5.7	1.1
Acenaphthene	ND	5.7	1.1
Fluorene	ND	5.7	1.1
Phenanthrene	ND	5.7	1.1
Anthracene	ND	5.7	1.1
Fluoranthene	ND	5.7	1.1
Pyrene	ND	5.7	1.1
Benzo(a)anthracene	ND	5.7	1.1
Chrysene	ND	5.7	1.1
Benzo(b)fluoranthene	ND	5.7	1.1
Benzo(k)fluoranthene	ND	5.7	1.1
Benzo(a)pyrene	ND	5.7	1.1
Indeno(1,2,3-cd)pyrene	ND	5.7	1.2
Dibenz(a,h)anthracene	ND	5.7	1.2
Benzo(g,h,i)perylene	ND	5.7	1.4

Surrogate	%REC	Limits
Nitrobenzene-d5	79	46-120
2-Fluorobiphenyl	94	52-120
Terphenyl-d14	108	54-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	20141022B280A0203	Batch#:	217039
Lab ID:	261954-007	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 17%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	40	5.1
Naphthalene	ND	6.0	1.2
1-Methylnaphthalene	ND	6.0	1.2
2-Methylnaphthalene	ND	6.0	1.2
Acenaphthylene	ND	6.0	1.2
Acenaphthene	ND	6.0	1.2
Fluorene	ND	6.0	1.2
Phenanthrene	1.7 J	6.0	1.2
Anthracene	ND	6.0	1.2
Fluoranthene	2.1 J	6.0	1.2
Pyrene	2.3 J	6.0	1.2
Benzo(a)anthracene	ND	6.0	1.2
Chrysene	ND	6.0	1.2
Benzo(b)fluoranthene	ND	6.0	1.2
Benzo(k)fluoranthene	ND	6.0	1.2
Benzo(a)pyrene	ND	6.0	1.2
Indeno(1,2,3-cd)pyrene	ND	6.0	1.2
Dibenz(a,h)anthracene	ND	6.0	1.2
Benzo(g,h,i)perylene	ND	6.0	1.5

Surrogate	%REC	Limits
Nitrobenzene-d5	79	46-120
2-Fluorobiphenyl	92	52-120
Terphenyl-d14	93	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC764058	Batch#:	217039
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/03/14

Analyte	Result	RL	MDL
1,4-Dioxane	ND	33	4.2
Naphthalene	ND	5.0	1.0
1-Methylnaphthalene	ND	5.0	1.0
2-Methylnaphthalene	ND	5.0	1.0
Acenaphthylene	ND	5.0	1.0
Acenaphthene	ND	5.0	1.0
Fluorene	ND	5.0	1.0
Phenanthrene	ND	5.0	1.0
Anthracene	ND	5.0	1.0
Fluoranthene	ND	5.0	1.0
Pyrene	ND	5.0	1.0
Benzo(a)anthracene	ND	5.0	1.0
Chrysene	ND	5.0	1.0
Benzo(b)fluoranthene	ND	5.0	1.0
Benzo(k)fluoranthene	ND	5.0	1.0
Benzo(a)pyrene	ND	5.0	1.0
Indeno(1,2,3-cd)pyrene	ND	5.0	1.0
Dibenz(a,h)anthracene	ND	5.0	1.0
Benzo(g,h,i)perylene	ND	5.0	1.2

Surrogate	%REC	Limits
Nitrobenzene-d5	76	46-120
2-Fluorobiphenyl	93	52-120
Terphenyl-d14	96	54-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC764059	Batch#:	217039
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/03/14

Analyte	Spiked	Result	%REC	Limits
1,4-Dioxane	99.83	43.87	44	12-120
Naphthalene	33.28	27.88	84	52-120
1-Methylnaphthalene	33.28	27.42	82	49-120
2-Methylnaphthalene	33.28	28.97	87	52-120
Acenaphthylene	33.28	27.84	84	39-120
Acenaphthene	33.28	28.29	85	43-120
Fluorene	33.28	30.30	91	46-120
Phenanthrene	33.28	27.84	84	42-120
Anthracene	33.28	27.66	83	37-120
Fluoranthene	33.28	30.19	91	38-120
Pyrene	33.28	28.13	85	39-120
Benzo(a)anthracene	33.28	28.84	87	36-120
Chrysene	33.28	28.04	84	35-120
Benzo(b)fluoranthene	33.28	28.45	85	39-120
Benzo(k)fluoranthene	33.28	29.52	89	36-120
Benzo(a)pyrene	33.28	28.85	87	38-120
Indeno(1,2,3-cd)pyrene	33.28	29.74	89	35-120
Dibenz(a,h)anthracene	33.28	27.75	83	31-120
Benzo(g,h,i)perylene	33.28	29.53	89	39-120

Surrogate	%REC	Limits
Nitrobenzene-d5	82	46-120
2-Fluorobiphenyl	96	52-120
Terphenyl-d14	107	54-132

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	217039
MSS Lab ID:	262099-015	Sampled:	10/28/14
Matrix:	Soil	Received:	10/29/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	as received	Analyzed:	11/03/14
Diln Fac:	1.000		

Type: MS Lab ID: QC764060

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,4-Dioxane	<4.221	99.50	42.63	43	12-120
Naphthalene	<0.9934	33.17	28.41	86	51-120
1-Methylnaphthalene	<0.9934	33.17	27.81	84	51-120
2-Methylnaphthalene	<0.9934	33.17	29.39	89	50-121
Acenaphthylene	7.980	33.17	36.60	86	46-120
Acenaphthene	<0.9934	33.17	28.47	86	47-120
Fluorene	<0.9934	33.17	30.29	91	43-120
Phenanthrene	6.570	33.17	34.47	84	27-139
Anthracene	16.31	33.17	47.09	93	34-130
Fluoranthene	17.34	33.17	45.32	84	18-141
Pyrene	18.49	33.17	45.56	82	21-143
Benzo(a)anthracene	9.265	33.17	36.15	81	18-128
Chrysene	18.58	33.17	45.20	80	16-126
Benzo(b)fluoranthene	36.86	33.17	61.47	74	18-134
Benzo(k)fluoranthene	9.649	33.17	38.58	87	15-135
Benzo(a)pyrene	19.09	33.17	48.90	90	21-135
Indeno(1,2,3-cd)pyrene	12.07	33.17	29.40	52	3-121
Dibenz(a,h)anthracene	3.235	33.17	19.22	48	6-120
Benzo(g,h,i)perylene	13.05	33.17	26.95	42	1-120

Surrogate	%REC	Limits
Nitrobenzene-d5	81	46-120
2-Fluorobiphenyl	95	52-120
Terphenyl-d14	95	54-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	217039
MSS Lab ID:	262099-015	Sampled:	10/28/14
Matrix:	Soil	Received:	10/29/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	as received	Analyzed:	11/03/14
Diln Fac:	1.000		

Type: MSD Lab ID: QC764061

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,4-Dioxane	99.83	48.23	48	12-120	12	59
Naphthalene	33.28	30.05	90	51-120	5	50
1-Methylnaphthalene	33.28	30.00	90	51-120	7	42
2-Methylnaphthalene	33.28	31.42	94	50-121	6	43
Acenaphthylene	33.28	38.69	92	46-120	5	35
Acenaphthene	33.28	30.41	91	47-120	6	54
Fluorene	33.28	32.68	98	43-120	7	42
Phenanthrene	33.28	36.88	91	27-139	6	78
Anthracene	33.28	48.42	96	34-130	3	74
Fluoranthene	33.28	47.78	91	18-141	5	63
Pyrene	33.28	44.99	80	21-143	1	67
Benzo(a)anthracene	33.28	37.26	84	18-128	3	55
Chrysene	33.28	46.17	83	16-126	2	58
Benzo(b)fluoranthene	33.28	60.46	71	18-134	2	75
Benzo(k)fluoranthene	33.28	39.67	90	15-135	3	52
Benzo(a)pyrene	33.28	47.83	86	21-135	2	61
Indeno(1,2,3-cd)pyrene	33.28	28.40	49	3-121	4	56
Dibenz(a,h)anthracene	33.28	19.34	48	6-120	0	58
Benzo(g,h,i)perylene	33.28	26.21	40	1-120	3	64

Surrogate	%REC	Limits
Nitrobenzene-d5	87	46-120
2-Fluorobiphenyl	102	52-120
Terphenyl-d14	109	54-132

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
Pesticides

Tetra Tech EMI	Project : RFS-B280A
1999 Harrison Street	Location : RFS-B280A
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
PESTICIDES (EPA 8081A)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Pesticides (EPA 8081A):

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

All samples underwent florisil cleanup using EPA Method 3620C.

Low response was observed for 4,4'-DDT in the ICV analyzed 10/17/14 00:01; average ICV drift met method requirements.

High response was observed for 4,4'-DDE in the CCV analyzed 11/04/14 13:26; average CCV drift met method requirements, and this analyte was not detected at or above the RL in the associated sample.

High response was observed for 4,4'-DDE in the CCV analyzed 11/04/14 17:10; this analyte was not detected at or above the RL in the associated sample.

High response was observed for 4,4'-DDT in the CCV analyzed 11/04/14 17:10; this analyte was not detected at or above the RL in the associated sample.

High response was observed for methoxychlor in the CCV analyzed 11/04/14 17:10; average CCV drift met method requirements, and this analyte was not detected at or above the RL in the associated samples.

High response was observed for methoxychlor in the CCV analyzed 11/04/14 09:08; average CCV drift met method requirements.

Low responses were observed for endrin, endrin aldehyde, and methoxychlor in the CCV analyzed 11/04/14 09:06; average CCV drift met method requirements.

High recoveries were observed for endrin in the MS/MSD for batch 217056; the parent sample was not a project sample, the LCS was within limits, the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

20141022B280A0201 (lab # 261954-005) was diluted due to the color of the sample extract.

Curtis & Tompkins, Ltd.

CASE NARRATIVE
PESTICIDES (EPA 8081A)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

Pesticides (EPA 8081A):

No other analytical problems were encountered.

Chain of Custody

261954

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. 6887

Page 1 of 1

Lab PO#: to follow

Lab: C+T

Project name: RFS-B280A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	SYCORES	PLASTIC	Preservative Added: None	VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables *	TPH Extractables	PCB	WS-#4
2014 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X	X
B280AQ1Q3			1330								3			X							
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q3			1410							1	3	1		X	X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech	10/22/14	1705
Received by:	Isabelle Choy	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 260954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 YES NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	20141022B280A0101	Batch#:	217056
Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Moisture: 9%

Analyte	Result	RL	MDL
alpha-BHC	ND	1.9	0.22
beta-BHC	ND	1.9	0.45
gamma-BHC	ND	1.9	0.24
delta-BHC	ND	1.9	0.30
Heptachlor	ND	1.9	0.21
Aldrin	ND	1.9	0.22
Heptachlor epoxide	ND	1.9	0.24
Endosulfan I	0.37 C J	1.9	0.19
Dieldrin	0.62 C J	1.9	0.43
4,4'-DDE	2.3 J	3.6	0.33
Endrin	ND	3.6	0.61
Endosulfan II	ND	3.6	0.55
Endosulfan sulfate	ND	3.6	0.56
4,4'-DDD	ND	3.6	0.79
Endrin aldehyde	ND	3.6	0.37
4,4'-DDT	2.3 J	3.6	0.77
alpha-Chlordane	0.29 C J	1.9	0.23
gamma-Chlordane	ND	1.9	0.27
Methoxychlor	ND	19	3.4
Toxaphene	ND	66	10

Surrogate	%REC	Limits
TCMX	99	42-134
Decachlorobiphenyl	88	29-122

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	20141022B280A0102	Batch#:	217056
Lab ID:	261954-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Moisture: 10%

Analyte	Result	RL	MDL
alpha-BHC	ND	1.9	0.22
beta-BHC	ND	1.9	0.46
gamma-BHC	ND	1.9	0.24
delta-BHC	ND	1.9	0.31
Heptachlor	ND	1.9	0.21
Aldrin	ND	1.9	0.23
Heptachlor epoxide	ND	1.9	0.25
Endosulfan I	ND	1.9	0.20
Dieldrin	ND	1.9	0.44
4,4'-DDE	ND	3.7	0.66
Endrin	ND	3.7	0.63
Endosulfan II	ND	3.7	0.56
Endosulfan sulfate	ND	3.7	0.58
4,4'-DDD	ND	3.7	0.81
Endrin aldehyde	ND	3.7	0.38
4,4'-DDT	ND	3.7	0.53
alpha-Chlordane	ND	1.9	0.23
gamma-Chlordane	ND	1.9	0.27
Methoxychlor	ND	19	3.5
Toxaphene	ND	67	10

Surrogate	%REC	Limits
TCMX	88	42-134
Decachlorobiphenyl	78	29-122

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	20141022B280A0104	Batch#:	217078
Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
alpha-BHC	ND	2.0	0.23
beta-BHC	ND	2.0	0.48
gamma-BHC	ND	2.0	0.25
delta-BHC	ND	2.0	0.32
Heptachlor	ND	2.0	0.22
Aldrin	ND	2.0	0.24
Heptachlor epoxide	ND	2.0	0.26
Endosulfan I	ND	2.0	0.20
Dieldrin	ND	2.0	0.46
4,4'-DDE	ND	3.8	0.68
Endrin	ND	3.8	0.65
Endosulfan II	ND	3.8	0.58
Endosulfan sulfate	ND	3.8	0.60
4,4'-DDD	ND	3.8	0.85
Endrin aldehyde	ND	3.8	0.39
4,4'-DDT	ND	3.8	0.55
alpha-Chlordane	ND	2.0	0.24
gamma-Chlordane	ND	2.0	0.29
Methoxychlor	ND	20	3.7
Toxaphene	ND	70	11

Surrogate	%REC	Limits
TCMX	69	42-134
Decachlorobiphenyl	75	29-122

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	20141022B280A0201	Batch#:	217078
Lab ID:	261954-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	10.00		

Moisture: 8%

Analyte	Result	RL	MDL
alpha-BHC	ND	19	2.2
beta-BHC	ND	19	4.5
gamma-BHC	ND	19	2.4
delta-BHC	ND	19	3.0
Heptachlor	ND	19	2.1
Aldrin	ND	19	2.2
Heptachlor epoxide	ND	19	2.4
Endosulfan I	ND	19	1.9
Dieldrin	ND	19	4.3
4,4'-DDE	6.5 C J	36	6.4
Endrin	ND	36	6.1
Endosulfan II	ND	36	5.5
Endosulfan sulfate	ND	36	5.6
4,4'-DDD	ND	36	8.0
Endrin aldehyde	ND	36	3.7
4,4'-DDT	ND	36	5.2
alpha-Chlordane	ND	19	2.3
gamma-Chlordane	ND	19	2.7
Methoxychlor	ND	190	34
Toxaphene	ND	660	100

Surrogate	%REC	Limits
TCMX	DO	42-134
Decachlorobiphenyl	DO	29-122

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
DO= Diluted Out
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	20141022B280A0202	Batch#:	217078
Lab ID:	261954-006	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
alpha-BHC	ND	2.0	0.23
beta-BHC	ND	2.0	0.48
gamma-BHC	ND	2.0	0.25
delta-BHC	ND	2.0	0.32
Heptachlor	ND	2.0	0.22
Aldrin	ND	2.0	0.24
Heptachlor epoxide	ND	2.0	0.26
Endosulfan I	ND	2.0	0.20
Dieldrin	ND	2.0	0.46
4,4'-DDE	ND	3.8	0.68
Endrin	ND	3.8	0.65
Endosulfan II	ND	3.8	0.58
Endosulfan sulfate	ND	3.8	0.60
4,4'-DDD	ND	3.8	0.85
Endrin aldehyde	ND	3.8	0.39
4,4'-DDT	ND	3.8	0.55
alpha-Chlordane	ND	2.0	0.24
gamma-Chlordane	ND	2.0	0.29
Methoxychlor	ND	20	3.7
Toxaphene	ND	70	11

Surrogate	%REC	Limits
TCMX	86	42-134
Decachlorobiphenyl	78	29-122

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	20141022B280A0203	Batch#:	217056
Lab ID:	261954-007	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Moisture: 17%

Analyte	Result	RL	MDL
alpha-BHC	ND	2.1	0.24
beta-BHC	ND	2.1	0.50
gamma-BHC	ND	2.1	0.26
delta-BHC	ND	2.1	0.34
Heptachlor	ND	2.1	0.23
Aldrin	ND	2.1	0.25
Heptachlor epoxide	ND	2.1	0.27
Endosulfan I	ND	2.1	0.21
Dieldrin	ND	2.1	0.48
4,4'-DDE	ND	4.0	0.72
Endrin	ND	4.0	0.68
Endosulfan II	ND	4.0	0.61
Endosulfan sulfate	ND	4.0	0.63
4,4'-DDD	ND	4.0	0.89
Endrin aldehyde	ND	4.0	0.41
4,4'-DDT	ND	4.0	0.58
alpha-Chlordane	ND	2.1	0.25
gamma-Chlordane	ND	2.1	0.30
Methoxychlor	ND	21	3.8
Toxaphene	ND	73	11

Surrogate	%REC	Limits
TCMX	92	42-134
Decachlorobiphenyl	80	29-122

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC764131	Batch#:	217056
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/04/14

Analyte	Result	RL	MDL
alpha-BHC	ND	1.7	0.20
beta-BHC	ND	1.7	0.41
gamma-BHC	ND	1.7	0.21
delta-BHC	ND	1.7	0.28
Heptachlor	ND	1.7	0.19
Aldrin	ND	1.7	0.20
Heptachlor epoxide	ND	1.7	0.22
Endosulfan I	ND	1.7	0.17
Dieldrin	ND	1.7	0.39
4,4'-DDE	ND	3.3	0.58
Endrin	ND	3.3	0.55
Endosulfan II	ND	3.3	0.50
Endosulfan sulfate	ND	3.3	0.51
4,4'-DDD	ND	3.3	0.72
Endrin aldehyde	ND	3.3	0.33
4,4'-DDT	ND	3.3	0.47
alpha-Chlordane	ND	1.7	0.20
gamma-Chlordane	ND	1.7	0.24
Methoxychlor	ND	17	3.1
Toxaphene	ND	60	9.1

Surrogate	%REC	Limits
TCMX	87	42-134
Decachlorobiphenyl	83	29-122

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC764135	Batch#:	217056
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/04/14

Analyte	Spiked	Result	%REC	Limits
alpha-BHC	13.24	10.25	77	47-120
beta-BHC	13.24	10.30	78	51-127
gamma-BHC	13.24	10.41	79	46-120
delta-BHC	13.24	10.78	81	43-134
Heptachlor	13.24	10.59	80	41-124
Aldrin	13.24	10.17	77	48-122
Heptachlor epoxide	13.24	10.33	78	47-125
Endosulfan I	13.24	10.05	76	47-127
Dieldrin	13.24	10.77	81	39-142
4,4'-DDE	13.24	10.90	82	46-135
Endrin	13.24	10.69	81	45-138
Endosulfan II	13.24	10.22	77	39-135
Endosulfan sulfate	13.24	10.46	79	37-132
4,4'-DDD	13.24	10.41	79	42-138
Endrin aldehyde	13.24	6.909	52	18-120
4,4'-DDT	13.24	10.42	79	32-145
alpha-Chlordane	13.24	10.37	78	49-125
gamma-Chlordane	13.24	10.37	78	49-127
Methoxychlor	145.6	140.0 #	96	33-146
Toxaphene		NA		

Surrogate	%REC	Limits
TCMX	90	42-134
Decachlorobiphenyl	64	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	ZZZZZZZZZZ	Batch#:	217056
MSS Lab ID:	261950-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Type: MS Moisture: 10%
Lab ID: QC764136

Analyte	MSS Result	Spiked	Result	%REC	Limits
alpha-BHC	0.4676	14.94	13.76	89	49-132
beta-BHC	1.010	14.94	12.60	78	45-145
gamma-BHC	0.4425	14.94	13.05	84	42-136
delta-BHC	<0.3108	14.94	13.67	91	48-144
Heptachlor	1.582	14.94	14.44	86	40-144
Aldrin	0.7687	14.94	12.81	81	45-143
Heptachlor epoxide	<0.2463	14.94	17.41	116	47-145
Endosulfan I	1.205	14.94	14.56	89	50-139
Dieldrin	<0.4451	14.94	14.04	94	47-145
4,4'-DDE	14.43	14.94	31.57	115	43-148
Endrin	<0.6267	14.94	22.73	152 *	46-150
Endosulfan II	<0.5609	14.94	18.33	123	38-134
Endosulfan sulfate	2.027	14.94	19.59	117	40-141
4,4'-DDD	1.033	14.94	19.13	121	45-151
Endrin aldehyde	0.4845	14.94	12.97	84	30-125
4,4'-DDT	6.840	14.94	25.64	126	30-157
alpha-Chlordane	<0.2312	14.94	13.68	92	46-143
gamma-Chlordane	0.6356	14.94	13.76	88	44-148
Methoxychlor	<3.522	164.4	232.0 #	141	39-153
Toxaphene			NA		

Surrogate	%REC	Limits
TCMX	91	42-134
Decachlorobiphenyl	81	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
*= Value outside of QC limits; see narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	ZZZZZZZZZZ	Batch#:	217056
MSS Lab ID:	261950-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Type: MSD Moisture: 10%
Lab ID: QC764137

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
alpha-BHC	15.09	14.60	94	49-132	5	36
beta-BHC	15.09	14.18	87	45-145	11	39
gamma-BHC	15.09	14.09	90	42-136	7	40
delta-BHC	15.09	14.94	99	48-144	8	47
Heptachlor	15.09	16.86	101	40-144	15	46
Aldrin	15.09	13.79	86	45-143	6	41
Heptachlor epoxide	15.09	17.59	117	47-145	0	38
Endosulfan I	15.09	16.00	98	50-139	9	39
Dieldrin	15.09	15.16	100	47-145	7	36
4,4'-DDE	15.09	33.94	129	43-148	7	36
Endrin	15.09	26.67	177 *	46-150	15	41
Endosulfan II	15.09	19.62	130	38-134	6	43
Endosulfan sulfate	15.09	20.66	123	40-141	4	50
4,4'-DDD	15.09	20.07	126	45-151	4	40
Endrin aldehyde	15.09	14.35	92	30-125	9	47
4,4'-DDT	15.09	28.45	143	30-157	10	52
alpha-Chlordane	15.09	15.10	100	46-143	9	43
gamma-Chlordane	15.09	15.74	100	44-148	13	36
Methoxychlor	166.0	249.1 #	150	39-153	6	44
Toxaphene		NA				

Surrogate	%REC	Limits
TCMX	92	42-134
Decachlorobiphenyl	88	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
*= Value outside of QC limits; see narrative
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC764220	Batch#:	217078
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/04/14

Analyte	Result	RL	MDL
alpha-BHC	ND	1.7	0.15
beta-BHC	ND	1.7	0.28
gamma-BHC	ND	1.7	0.21
delta-BHC	ND	1.7	0.31
Heptachlor	ND	1.7	0.25
Aldrin	ND	1.7	0.22
Heptachlor epoxide	ND	1.7	0.28
Endosulfan I	ND	1.7	0.20
Dieldrin	ND	1.7	0.26
4,4'-DDE	ND	3.3	0.24
Endrin	ND #	3.3	0.27
Endosulfan II	ND	3.3	0.27
Endosulfan sulfate	ND	3.3	0.30
4,4'-DDD	ND	3.3	0.42
Endrin aldehyde	ND #	3.3	0.31
4,4'-DDT	ND	3.3	0.14
alpha-Chlordane	ND	1.7	0.22
gamma-Chlordane	ND	1.7	0.23
Methoxychlor	ND #	17	4.5
Toxaphene	ND	60	17

Surrogate	%REC	Limits
TCMX	65	42-134
Decachlorobiphenyl	44	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC764221	Batch#:	217078
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/04/14

Analyte	Spiked	Result	%REC	Limits
alpha-BHC	13.29	8.205	62	47-120
beta-BHC	13.29	8.517	64	51-127
gamma-BHC	13.29	8.069	61	46-120
delta-BHC	13.29	7.937	60	43-134
Heptachlor	13.29	7.984	60	41-124
Aldrin	13.29	7.895	59	48-122
Heptachlor epoxide	13.29	8.292	62	47-125
Endosulfan I	13.29	8.236	62	47-127
Dieldrin	13.29	8.036	60	39-142
4,4'-DDE	13.29	8.452	64	46-135
Endrin	13.29	7.374 #	55	45-138
Endosulfan II	13.29	8.103	61	39-135
Endosulfan sulfate	13.29	8.623	65	37-132
4,4'-DDD	13.29	7.642	58	42-138
Endrin aldehyde	13.29	6.076 #	46	18-120
4,4'-DDT	13.29	8.744	66	32-145
alpha-Chlordane	13.29	8.201	62	49-125
gamma-Chlordane	13.29	8.229	62	49-127
Methoxychlor	146.2	92.54 #	63	33-146
Toxaphene		NA		

Surrogate	%REC	Limits
TCMX	69	42-134
Decachlorobiphenyl	52	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	ZZZZZZZZZZ	Batch#:	217078
MSS Lab ID:	262184-017	Sampled:	10/29/14
Matrix:	Soil	Received:	10/30/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	as received	Analyzed:	11/04/14
Diln Fac:	5.000		

Type: MS Lab ID: QC764222

Analyte	MSS Result	Spiked	Result	%REC	Limits
alpha-BHC	1.207	13.40	11.61	78	49-132
beta-BHC	<1.377	13.40	14.07	105	45-145
gamma-BHC	<1.066	13.40	10.21	76	42-136
delta-BHC	1.720	13.40	11.36	72	48-144
Heptachlor	<1.239	13.40	9.952	74	40-144
Aldrin	<1.114	13.40	8.980	67	45-143
Heptachlor epoxide	<1.401	13.40	9.463	71	47-145
Endosulfan I	<1.008	13.40	8.532	64	50-139
Dieldrin	<1.283	13.40	11.57	86	47-145
4,4'-DDE	26.19	13.40	34.33	121	43-148
Endrin	<1.315	13.40	10.24 #	76	46-150
Endosulfan II	<1.340	13.40	6.848	51	38-134
Endosulfan sulfate	<1.498	13.40	10.79	80	40-141
4,4'-DDD	<2.071	13.40	12.73	95	45-151
Endrin aldehyde	<1.529	13.40	8.771 #	65	30-125
4,4'-DDT	<0.6797	13.40	24.64	136	30-157
alpha-Chlordane	<1.085	13.40	9.885	74	46-143
gamma-Chlordane	<1.160	13.40	8.489	63	44-148
Methoxychlor	<22.20	147.4	114.3 #	78	39-153
Toxaphene			NA		

Surrogate	%REC	Limits
TCMX	131	42-134
Decachlorobiphenyl	84	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8081A
Field ID:	ZZZZZZZZZZ	Batch#:	217078
MSS Lab ID:	262184-017	Sampled:	10/29/14
Matrix:	Soil	Received:	10/30/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	as received	Analyzed:	11/04/14
Diln Fac:	5.000		

Type: MSD Lab ID: QC764223

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
alpha-BHC	13.32	9.223	60	49-132	22	36
beta-BHC	13.32	9.689	73	45-145	36	39
gamma-BHC	13.32	8.139	61	42-136	22	40
delta-BHC	13.32	9.215	56	48-144	20	47
Heptachlor	13.32	8.701	65	40-144	13	46
Aldrin	13.32	7.841	59	45-143	13	41
Heptachlor epoxide	13.32	8.125	61	47-145	15	38
Endosulfan I	13.32	8.265	62	50-139	3	39
Dieldrin	13.32	10.10	76	47-145	13	36
4,4'-DDE	13.32	28.19	75	43-148	19	36
Endrin	13.32	8.462 #	64	46-150	18	41
Endosulfan II	13.32	7.901	59	38-134	15	43
Endosulfan sulfate	13.32	8.890	67	40-141	19	50
4,4'-DDD	13.32	9.235	69	45-151	31	40
Endrin aldehyde	13.32	5.958 #	45	30-125	38	47
4,4'-DDT	13.32	23.12	126	30-157	6	52
alpha-Chlordane	13.32	9.090	68	46-143	8	43
gamma-Chlordane	13.32	8.578	64	44-148	2	36
Methoxychlor	146.6	91.97 #	63	39-153	21	44
Toxaphene		NA				

Surrogate	%REC	Limits
TCMX	66	42-134
Decachlorobiphenyl	72	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
PCBs

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : RFS-B280A
Location : RFS-B280A
Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
PCBS (EPA 8082)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

PCBs (EPA 8082):

All samples underwent sulfuric acid cleanup using EPA Method 3665A.

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

High response was observed for Aroclor-1260 in the CCV analyzed 11/06/14 22:01; this analyte was not detected at or above the RL in the associated samples.

No other analytical problems were encountered.

Chain of Custody

261954

Chain of Custody Record No. 6887

Page 1 of 1

Tetra Tech EM Inc.
San Francisco Office
135 Main St. Suite 1800
San Francisco. CA 94105
415-543-4880
Fax 415-543-5480

Lab PO#: to follow	Lab: C+T
Project name: RFS-B280A	TtEMI technical contact: Sara Woolley
Project (CTO) number:	TtEMI project manager: Jason Brookson
	Field samplers: Dayna Aragon, Sara Woolley
	Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Encores	Plastic	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables*	TPH Extractables	PCB 1668 - WS-#44
SDG# 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X
B280AQ1Q3			1330								3			X						
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X
B280AQ2Q2			1410							1	3	1		X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Choy		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

4 of 358

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO (N/A)
3. Were custody papers dry and intact when received? (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form) (YES) NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1023 (YES) NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? (YES) NO
10. Are there any missing / extra samples? YES (NO)
11. Are samples in the appropriate containers for indicated tests? (YES) NO
12. Are sample labels present, in good condition and complete? (YES) NO
13. Do the sample labels agree with custody papers? (YES) NO
14. Was sufficient amount of sample sent for tests requested? (YES) NO
15. Are the samples appropriately preserved? YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? YES NO (N/A)
17. Did you document your preservative check? YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? YES NO (N/A)
21. Was the client contacted concerning this sample delivery? YES (NO)
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	20141022B280A0101	Batch#:	217056
Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/06/14
Diln Fac:	1.000		

Moisture: 9%

Analyte	Result	RL	MDL
Aroclor-1016	ND	10	2.6
Aroclor-1221	ND	21	7.0
Aroclor-1232	ND	10	3.4
Aroclor-1242	ND	10	3.1
Aroclor-1248	ND	10	3.3
Aroclor-1254	ND	10	2.7
Aroclor-1260	ND	10	1.7

Surrogate	%REC	Limits
TCMX	98	60-140
Decachlorobiphenyl	88	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	20141022B280A0102	Batch#:	217056
Lab ID:	261954-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/07/14
Diln Fac:	1.000		

Moisture: 10%

Analyte	Result	RL	MDL
Aroclor-1016	ND	11	2.6
Aroclor-1221	ND	21	7.1
Aroclor-1232	ND	11	3.5
Aroclor-1242	ND	11	3.2
Aroclor-1248	ND	11	3.4
Aroclor-1254	ND	11	2.7
Aroclor-1260	ND	11	1.7

Surrogate	%REC	Limits
TCMX	83	60-140
Decachlorobiphenyl	73	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	20141022B280A0104	Batch#:	217136
Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/05/14
Basis:	dry	Analyzed:	11/07/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
Aroclor-1016	ND	14	3.4
Aroclor-1221	ND	28	9.2
Aroclor-1232	ND	14	4.5
Aroclor-1242	ND	14	4.2
Aroclor-1248	ND	14	4.4
Aroclor-1254	ND	14	3.5
Aroclor-1260	ND	14	2.2

Surrogate	%REC	Limits
TCMX	78	60-140
Decachlorobiphenyl	79	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	20141022B280A0201	Batch#:	217136
Lab ID:	261954-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/05/14
Basis:	dry	Analyzed:	11/07/14
Diln Fac:	1.000		

Moisture: 8%

Analyte	Result	RL	MDL
Aroclor-1016	ND	13	3.2
Aroclor-1221	ND	26	8.7
Aroclor-1232	ND	13	4.3
Aroclor-1242	ND	13	3.9
Aroclor-1248	ND	13	4.2
Aroclor-1254	79	13	3.3
Aroclor-1260	22	13	2.1

Surrogate	%REC	Limits
TCMX	94	60-140
Decachlorobiphenyl	97	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	20141022B280A0202	Batch#:	217136
Lab ID:	261954-006	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/05/14
Basis:	dry	Analyzed:	11/07/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
Aroclor-1016	ND	14	3.4
Aroclor-1221	ND	27	9.1
Aroclor-1232	ND	14	4.4
Aroclor-1242	ND	14	4.1
Aroclor-1248	ND	14	4.3
Aroclor-1254	ND	14	3.5
Aroclor-1260	ND	14	2.2

Surrogate	%REC	Limits
TCMX	79	60-140
Decachlorobiphenyl	88	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	20141022B280A0203	Batch#:	217056
Lab ID:	261954-007	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/07/14
Diln Fac:	1.000		

Moisture: 17%

Analyte	Result	RL	MDL
Aroclor-1016	ND	12	2.9
Aroclor-1221	ND	23	7.8
Aroclor-1232	ND	12	3.8
Aroclor-1242	ND	12	3.5
Aroclor-1248	ND	12	3.7
Aroclor-1254	ND	12	3.0
Aroclor-1260	ND	12	1.9

Surrogate	%REC	Limits
TCMX	107	60-140
Decachlorobiphenyl	108	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC764131	Batch#:	217056
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/04/14

Analyte	Result	RL	MDL
Aroclor-1016	ND	9.5	2.3
Aroclor-1221	ND	19	6.3
Aroclor-1232	ND	9.5	3.1
Aroclor-1242	ND	9.5	2.8
Aroclor-1248	ND	9.5	3.0
Aroclor-1254	ND	9.5	2.4
Aroclor-1260	ND	9.5	1.5

Surrogate	%REC	Limits
TCMX	100	60-140
Decachlorobiphenyl	76	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC764132	Batch#:	217056
Matrix:	Soil	Prepared:	11/03/14
Units:	ug/Kg	Analyzed:	11/04/14

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	169.3	195.5	115	58-144
Aroclor-1260	169.3	174.7	103	55-146

Surrogate	%REC	Limits
TCMX	102	60-140
Decachlorobiphenyl	83	36-133

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	217056
MSS Lab ID:	261950-027	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	11/03/14
Basis:	dry	Analyzed:	11/04/14
Diln Fac:	1.000		

Type: MS Moisture: 8%
Lab ID: QC764133

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.607	180.5	194.9	108	51-155
Aroclor-1260	6.713	180.5	170.9	91	38-155

Surrogate	%REC	Limits
TCMX	96	60-140
Decachlorobiphenyl	72	36-133

Type: MSD Moisture: 8%
Lab ID: QC764134

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	179.4	197.7	110	51-155	2	38
Aroclor-1260	179.4	173.5	93	38-155	2	55

Surrogate	%REC	Limits
TCMX	99	60-140
Decachlorobiphenyl	73	36-133

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC764452	Batch#:	217136
Matrix:	Soil	Prepared:	11/05/14
Units:	ug/Kg	Analyzed:	11/06/14

Analyte	Result	RL	MDL
Aroclor-1016	ND	12	3.0
Aroclor-1221	ND	24	8.1
Aroclor-1232	ND	12	3.9
Aroclor-1242	ND	12	3.6
Aroclor-1248	ND	12	3.9
Aroclor-1254	ND	12	3.1
Aroclor-1260	ND	12	2.0

Surrogate	%REC	Limits
TCMX	80	60-140
Decachlorobiphenyl	81	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC764453	Batch#:	217136
Matrix:	Soil	Prepared:	11/05/14
Units:	ug/Kg	Analyzed:	11/06/14

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	167.7	175.7	105	58-144
Aroclor-1260	167.7	187.7	112	55-146

Surrogate	%REC	Limits
TCMX	94	60-140
Decachlorobiphenyl	86	36-133

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B280A	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	217136
MSS Lab ID:	262223-001	Sampled:	10/29/14
Matrix:	Soil	Received:	10/31/14
Units:	ug/Kg	Prepared:	11/05/14
Basis:	as received	Analyzed:	11/06/14
Diln Fac:	1.000		

Type: MS Lab ID: QC764454

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.941	168.2	182.4	108	51-155
Aroclor-1260	<1.923	168.2	197.8	118	38-155

Surrogate	%REC	Limits
TCMX	100	60-140
Decachlorobiphenyl	88	36-133

Type: MSD Lab ID: QC764455

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	166.6	159.9	96	51-155	12	38
Aroclor-1260	166.6	172.8	104	38-155	13	55

Surrogate	%REC	Limits
TCMX	90	60-140
Decachlorobiphenyl	77	36-133

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261954
ANALYTICAL REPORT
Metals

Tetra Tech EMI	Project : RFS-B280A
1999 Harrison Street	Location : RFS-B280A
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B280A0101	261954-001
20141022B280A0102	261954-002
20141022B280A0104	261954-004
20141022B280A0201	261954-005
20141022B280A0202	261954-006
20141022B280A0203	261954-007

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/12/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6020 AND EPA 7471A)

Laboratory number:	**261954**
Client:	**Tetra Tech EMI**
Project:	**RFS-B280A**
Location:	**RFS-B280A**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for six soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6020 and EPA 7471A):

High recoveries were observed for many analytes in the MS/MSD of 20141022B280A0101 (lab # 261954-001); the BS/BSD were within limits. High RPD was observed for a number of analytes; the RPD was acceptable in the BS/BSD.

Responses exceeding the instrument's linear range were observed for barium, iron, and manganese in the MS/MSD of 20141022B280A0101 (lab # 261954-001).

High % differences were observed for many analytes in the serial dilution for batch 216944 and the serial dilution of 20141022B280A0101 (lab # 261954-001).

Iron and molybdenum were detected between the MDL and the RL in the method blank for batch 216825.

No other analytical problems were encountered.

Chain of Custody

261954

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. 6887

Page 1 of 1

Lab PO#: to follow

Lab: C+T

Project name: RFS-B280A

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Brookson

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Encores	Plastic	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables*	TPH Extractables	PCB 1668 - WS-#44
SOIL 1022 B280AQ1Q1		10/22/14	1300	soil						1	3	1		X	X	X	X	X	X	X
B280AQ1Q2			1315							1	3	1		X	X	X	X	X	X	X
B280AQ1Q3			1330								3			X						
B280AQ1Q4			1345							1	3	1		X	X	X	X	X	X	X
B280AQ2Q1			1405							1	3	1		X	X	X	X	X	X	X
B280AQ2Q2			1410							1	3	1		X	X	X	X	X	X	X
B280AQ2Q3			1420							1	3	1		X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Choy		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks: * if sufficient volume

Fed Ex #:

4 of 397

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261954 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - B280A

Date Opened 10/22 By (print) SC (sign)
Date Logged in 10/22 By (print) (sign)

1. Did cooler come with a shipping slip (airbill, etc) YES (NO)
Shipping info

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many Name Date
2B. Were custody seals intact upon arrival? YES NO N/A
3. Were custody papers dry and intact when received? YES NO
4. Were custody papers filled out properly (ink, signed, etc)? YES NO
5. Is the project identifiable from custody papers? (If so fill out top of form) YES NO
6. Indicate the packing in cooler: (if other, describe)

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9, 6.3

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? F1 1 2 3 YES NO
If YES, what time were they transferred to freezer? 1455
9. Did all bottles arrive unbroken/unopened? YES NO
10. Are there any missing / extra samples? YES NO
11. Are samples in the appropriate containers for indicated tests? YES NO
12. Are sample labels present, in good condition and complete? YES NO
13. Do the sample labels agree with custody papers? YES NO
14. Was sufficient amount of sample sent for tests requested? YES NO
15. Are the samples appropriately preserved? YES NO N/A
16. Did you check preservatives for all bottles for each sample? YES NO N/A
17. Did you document your preservative check? YES NO N/A
18. Did you change the hold time in LIMS for unpreserved VOAs? YES NO N/A
19. Did you change the hold time in LIMS for preserved terracores? YES NO N/A
20. Are bubbles > 6mm absent in VOA samples? YES NO N/A
21. Was the client contacted concerning this sample delivery? YES NO
If YES, Who was called? By Date:

COMMENTS

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261954	Project#:	RFS-B280A
Client:	Tetra Tech EMI	Location:	RFS-B280A
Field ID:	20141022B280A0101	Basis:	dry
Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg		

Moisture: 9%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Analyzed	Prep	Analysis
Aluminum	14,000	14	4.2	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Antimony	0.31	0.27	0.085	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Arsenic	4.0	0.27	0.079	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Barium	130	0.27	0.058	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Beryllium	0.46	0.27	0.054	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Cadmium	0.11 J	0.27	0.032	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Calcium	3,400	29	9.7	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Chromium	40	0.27	0.083	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Cobalt	6.0	0.27	0.052	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Copper	18	0.27	0.054	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Iron	15,000	14	3.6	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Lead	14	0.27	0.076	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Magnesium	2,600	27	3.3	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Manganese	360	23	7.1	2,500	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Mercury	0.23	0.017	0.00094	1.000	216944	10/30/14	10/30/14	METHOD	EPA 7471A
Molybdenum	0.46	0.27	0.053	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Nickel	34	0.44	0.15	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Potassium	690	27	7.1	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Selenium	0.20 J	0.27	0.080	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Silver	0.098 J	0.27	0.032	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Sodium	110	30	9.9	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Thallium	0.12 J	0.27	0.014	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Vanadium	32	0.27	0.054	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020
Zinc	45	1.1	0.28	25.00	216825	10/27/14	10/28/14	EPA 3050B	EPA 6020

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261954	Project#:	RFS-B280A
Client:	Tetra Tech EMI	Location:	RFS-B280A
Field ID:	20141022B280A0102	Basis:	dry
Lab ID:	261954-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Analyzed:	10/30/14

Moisture: 10%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Prep	Analysis
Aluminum	18,000	41	14	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Antimony	0.20 J	0.28	0.056	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Arsenic	4.7	0.28	0.094	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Barium	110	0.28	0.077	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Beryllium	0.82	0.28	0.041	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cadmium	ND	0.28	0.062	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Calcium	3,900	28	3.1	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Chromium	52	0.28	0.084	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cobalt	13	0.28	0.068	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Copper	17	0.32	0.11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Iron	21,000	14	3.7	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Lead	7.2	0.28	0.041	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Magnesium	4,800	28	4.0	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Manganese	650	27	9.2	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Mercury	0.035	0.018	0.0010	1.000	216944	10/30/14	METHOD	EPA 7471A
Molybdenum	0.25 J	0.28	0.054	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Nickel	110	0.45	0.15	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Potassium	720	28	7.6	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Selenium	ND	0.28	0.092	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Silver	0.12 J	0.28	0.029	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Sodium	310	31	10	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Thallium	0.10 J	0.28	0.023	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Vanadium	38	0.50	0.17	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Zinc	32	1.1	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261954	Project#:	RFS-B280A
Client:	Tetra Tech EMI	Location:	RFS-B280A
Field ID:	20141022B280A0104	Basis:	dry
Lab ID:	261954-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Analyzed:	10/30/14

Moisture: 13%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Prep	Analysis
Aluminum	27,000	43	14	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Antimony	0.39	0.29	0.058	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Arsenic	11	0.30	0.099	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Barium	210	0.29	0.080	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Beryllium	0.88	0.29	0.042	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cadmium	0.11 J	0.29	0.065	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Calcium	6,400	29	3.2	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Chromium	80	0.29	0.088	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cobalt	20	0.29	0.071	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Copper	41	0.33	0.11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Iron	42,000	1,500	390	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Lead	9.7	0.29	0.043	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Magnesium	13,000	29	4.1	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Manganese	780	29	9.6	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Mercury	0.11	0.021	0.0012	1.000	216944	10/30/14	METHOD	EPA 7471A
Molybdenum	0.65	0.49	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Nickel	110	0.47	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Potassium	1,400	29	7.9	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Selenium	ND	0.29	0.097	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Silver	ND	0.29	0.030	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Sodium	1,100	32	11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Thallium	0.18 J	0.29	0.024	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Vanadium	61	0.53	0.18	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Zinc	67	1.1	0.17	25.00	216825	10/27/14	EPA 3050B	EPA 6020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261954	Project#:	RFS-B280A
Client:	Tetra Tech EMI	Location:	RFS-B280A
Field ID:	20141022B280A0201	Basis:	dry
Lab ID:	261954-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Analyzed:	10/30/14

Moisture: 8%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Prep	Analysis
Aluminum	14,000	42	14	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Antimony	0.48	0.27	0.057	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Arsenic	8.9	0.29	0.096	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Barium	350	23	7.8	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Beryllium	0.55	0.27	0.041	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cadmium	0.35	0.27	0.064	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Calcium	4,600	27	3.1	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Chromium	44	0.27	0.086	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cobalt	33	0.27	0.069	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Copper	24	0.32	0.11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Iron	20,000	15	3.8	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Lead	38	0.27	0.042	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Magnesium	2,900	27	4.0	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Manganese	2,400	28	9.3	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Mercury	1.3	0.094	0.0052	5.000	216944	10/30/14	METHOD	EPA 7471A
Molybdenum	1.5	0.47	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Nickel	46	0.45	0.15	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Potassium	1,100	27	7.7	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Selenium	0.21 J	0.28	0.094	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Silver	0.17 J	0.27	0.030	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Sodium	ND	32	11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Thallium	0.12 J	0.27	0.023	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Vanadium	56	0.52	0.17	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Zinc	100	1.1	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261954	Project#:	RFS-B280A
Client:	Tetra Tech EMI	Location:	RFS-B280A
Field ID:	20141022B280A0202	Basis:	dry
Lab ID:	261954-006	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Analyzed:	10/30/14

Moisture: 13%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Prep	Analysis
Aluminum	22,000	40	13	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Antimony	0.24 J	0.28	0.055	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Arsenic	6.3	0.28	0.093	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Barium	130	0.28	0.075	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Beryllium	0.36	0.28	0.040	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cadmium	ND	0.28	0.061	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Calcium	4,200	28	3.0	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Chromium	58	0.28	0.083	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cobalt	9.2	0.28	0.067	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Copper	19	0.31	0.10	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Iron	26,000	1,400	370	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Lead	16	0.28	0.040	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Magnesium	5,000	28	3.9	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Manganese	500	27	9.0	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Mercury	0.036	0.017	0.00097	1.000	216944	10/30/14	METHOD	EPA 7471A
Molybdenum	0.53	0.46	0.15	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Nickel	44	0.44	0.15	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Potassium	700	28	7.5	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Selenium	0.11 J	0.28	0.091	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Silver	0.061 J	0.28	0.028	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Sodium	180	31	10	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Thallium	0.13 J	0.28	0.022	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Vanadium	46	0.50	0.17	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Zinc	35	1.1	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261954	Project#:	RFS-B280A
Client:	Tetra Tech EMI	Location:	RFS-B280A
Field ID:	20141022B280A0203	Basis:	dry
Lab ID:	261954-007	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Analyzed:	10/30/14

Moisture: 17%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Prepared	Prep	Analysis
Aluminum	21,000	43	14	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Antimony	0.34	0.30	0.058	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Arsenic	10	0.30	0.098	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Barium	460	24	8.0	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Beryllium	0.60	0.30	0.042	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cadmium	0.43	0.30	0.065	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Calcium	100,000	1,500	320	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Chromium	59	0.30	0.088	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Cobalt	24	0.30	0.071	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Copper	30	0.33	0.11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Iron	25,000	15	3.9	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Lead	9.3	0.30	0.043	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Magnesium	11,000	30	4.1	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Manganese	1,900	29	9.5	2,500	216825	10/27/14	EPA 3050B	EPA 6020
Mercury	0.049	0.020	0.0011	1.000	216944	10/30/14	METHOD	EPA 7471A
Molybdenum	0.53	0.48	0.16	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Nickel	92	0.46	0.15	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Potassium	1,500	30	7.9	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Selenium	ND	0.30	0.096	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Silver	0.034 J	0.30	0.030	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Sodium	300	32	11	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Thallium	0.31	0.30	0.024	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Vanadium	60	0.53	0.18	25.00	216825	10/27/14	EPA 3050B	EPA 6020
Zinc	50	1.2	0.17	25.00	216825	10/27/14	EPA 3050B	EPA 6020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B280A	Analysis:	EPA 6020
Type:	BLANK	Diln Fac:	25.00
Lab ID:	QC763253	Batch#:	216825
Matrix:	Soil	Prepared:	10/27/14
Units:	mg/Kg	Analyzed:	10/28/14

Analyte	Result	RL	MDL
Aluminum	ND	13	3.7
Antimony	ND	0.25	0.075
Arsenic	ND	0.25	0.069
Barium	ND	0.25	0.051
Beryllium	ND	0.25	0.047
Cadmium	ND	0.25	0.028
Calcium	ND	26	8.5
Chromium	ND	0.25	0.073
Cobalt	ND	0.25	0.046
Copper	ND	0.25	0.047
Iron	3.7 J	13	3.1
Lead	ND	0.25	0.067
Magnesium	ND	25	2.9
Manganese	ND	0.25	0.062
Molybdenum	0.12 J	0.25	0.047
Nickel	ND	0.39	0.13
Potassium	ND	25	6.2
Selenium	ND	0.25	0.070
Silver	ND	0.25	0.028
Sodium	ND	26	8.6
Thallium	ND	0.25	0.012
Vanadium	ND	0.25	0.047
Zinc	ND	1.0	0.24

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B280A	Analysis:	EPA 6020
Matrix:	Soil	Batch#:	216825
Units:	mg/Kg	Prepared:	10/27/14
Diln Fac:	25.00	Analyzed:	10/28/14

Type: BS Lab ID: QC763254

Analyte	Spiked	Result	%REC	Limits
Aluminum	25.00	31.50	126	57-164
Antimony	25.00	23.08	92	79-120
Arsenic	25.00	25.51	102	80-120
Barium	25.00	26.05	104	80-120
Beryllium	25.00	24.48	98	64-120
Cadmium	25.00	24.83	99	80-120
Calcium	2,500	2,489	100	72-120
Chromium	25.00	25.91	104	80-120
Cobalt	25.00	26.41	106	80-120
Copper	25.00	27.28	109	80-125
Iron	2,500	2,518	101	80-124
Lead	25.00	25.35	101	80-120
Magnesium	2,500	2,670	107	69-132
Manganese	25.00	26.08	104	80-120
Molybdenum	25.00	24.29	97	80-120
Nickel	25.00	28.98	116	80-122
Potassium	2,500	2,691	108	77-132
Selenium	25.00	24.89	100	80-122
Silver	25.00	24.95	100	80-127
Sodium	2,500	2,630	105	71-138
Thallium	25.00	22.44	90	77-120
Vanadium	25.00	24.95	100	80-120
Zinc	25.00	25.59	102	80-133

Type: BSD Lab ID: QC763255

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	25.00	29.10	116	57-164	8	42
Antimony	25.00	22.16	89	79-120	4	20
Arsenic	25.00	24.43	98	80-120	4	20
Barium	25.00	25.39	102	80-120	3	22
Beryllium	25.00	23.71	95	64-120	3	30
Cadmium	25.00	24.25	97	80-120	2	23
Calcium	2,500	2,373	95	72-120	5	22
Chromium	25.00	25.24	101	80-120	3	20
Cobalt	25.00	25.44	102	80-120	4	20
Copper	25.00	26.21	105	80-125	4	20
Iron	2,500	2,595	104	80-124	3	32
Lead	25.00	24.51	98	80-120	3	20
Magnesium	2,500	2,475	99	69-132	8	23
Manganese	25.00	25.26	101	80-120	3	20
Molybdenum	25.00	23.69	95	80-120	3	20
Nickel	25.00	27.13	109	80-122	7	20
Potassium	2,500	2,530	101	77-132	6	22
Selenium	25.00	25.89	104	80-122	4	23
Silver	25.00	24.10	96	80-127	3	20
Sodium	2,500	2,481	99	71-138	6	21
Thallium	25.00	21.93	88	77-120	2	21
Vanadium	25.00	24.04	96	80-120	4	20
Zinc	25.00	25.16	101	80-133	2	33

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B280A	Analysis:	EPA 6020
Field ID:	20141022B280A0101	Batch#:	216825
MSS Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/27/14
Basis:	dry	Analyzed:	10/28/14
Diln Fac:	25.00		

Type: MS Moisture: 9%
Lab ID: QC763256

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aluminum	13,970	25.68	16,550	10058 NM	50-151
Antimony	0.3125	25.68	11.17	42	25-120
Arsenic	3.988	25.68	29.37	99	75-120
Barium	133.1	25.68	295.4 >LR	632 NM	47-145
Beryllium	0.4567	25.68	25.64	98	68-120
Cadmium	0.1092	25.68	25.06	97	76-120
Calcium	3,367	2,568	8,800	212 *	55-132
Chromium	39.72	25.68	66.99	106	60-133
Cobalt	6.047	25.68	54.88	190 *	71-122
Copper	18.39	25.68	42.31	93	64-131
Iron	14,710	2,568	26,330 >LR	453 NM	49-139
Lead	13.71	25.68	44.79	121	68-127
Magnesium	2,624	2,568	7,953	208 *	48-146
Manganese	363.6	25.68	1,515 >LR	4484 NM	52-134
Molybdenum	0.4633	25.68	21.46	82	70-120
Nickel	34.44	25.68	71.34	144 *	58-138
Potassium	693.0	2,568	5,451	185 *	62-129
Selenium	0.2029	25.68	24.55	95	68-121
Silver	0.09801	25.68	24.53	95	80-125
Sodium	105.1	2,568	4,886	186 *	58-126
Thallium	0.1239	25.68	22.81	88	76-120
Vanadium	31.66	25.68	67.82	141 *	58-132
Zinc	45.49	25.68	72.29	104	41-147

*= Value outside of QC limits; see narrative
NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B280A	Analysis:	EPA 6020
Field ID:	20141022B280A0101	Batch#:	216825
MSS Lab ID:	261954-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/27/14
Basis:	dry	Analyzed:	10/28/14
Diln Fac:	25.00		

Type: MSD Moisture: 9%
Lab ID: QC763257

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	27.47	18,800	17617 NM	50-151	13	56
Antimony	27.47	14.30	51	25-120	18	24
Arsenic	27.47	37.80	123 *	75-120	19	27
Barium	27.47	442.3 >LR	1125 NM	47-145	NC	20
Beryllium	27.47	31.99	115	68-120	15	34
Cadmium	27.47	30.85	112	76-120	14	31
Calcium	2,747	7,731	159 *	55-132	16	20
Chromium	27.47	83.87	161 *	60-133	20	20
Cobalt	27.47	74.30	248 *	71-122	25 *	23
Copper	27.47	57.55	143 *	64-131	27	52
Iron	2,747	26,410	426 NM	49-139	NC	31
Lead	27.47	58.54	163 *	68-127	22	29
Magnesium	2,747	6,128	128	48-146	29	39
Manganese	27.47	2,970 >LR	9487 NM	52-134	NC	38
Molybdenum	27.47	26.96	96	70-120	16	22
Nickel	27.47	92.27	210 *	58-138	23	32
Potassium	2,747	3,952	119	62-129	37	47
Selenium	27.47	29.53	107	68-121	12	31
Silver	27.47	30.44	110	80-125	15	27
Sodium	2,747	3,349	118	58-126	44 *	20
Thallium	27.47	28.10	102	76-120	14	29
Vanadium	27.47	88.38	206 *	58-132	23 *	20
Zinc	27.47	124.8	289 *	41-147	51 *	40

*= Value outside of QC limits; see narrative
NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B280A	Analysis:	EPA 6020
Field ID:	20141022B280A0101	Basis:	dry
Type:	Serial Dilution	Batch#:	216825
MSS Lab ID:	261954-001	Sampled:	10/22/14
Lab ID:	QC763258	Received:	10/22/14
Matrix:	Soil	Analyzed:	10/28/14
Units:	mg/Kg		

Moisture: 9%

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim	Diln Fac
Aluminum	13,970	14.31	15,030	71.54	8	10	125.0
Antimony	0.3125	0.2747	ND	1.280	NC	10	125.0
Arsenic	3.988	0.2747	3.994	1.181	0	10	125.0
Barium	133.1	0.2747	146.6	0.8727	10	10	125.0
Beryllium	0.4567	0.2747	0.5495 J	0.8153	NC	10	125.0
Cadmium	0.1092	0.2747	0.2361 J	0.7154	NC	10	125.0
Calcium	3,367	29.20	3,690	146.0	10	10	125.0
Chromium	39.72	0.2747	42.81	1.246	8	10	125.0
Cobalt	6.047	0.2747	7.197	0.7832	19 *	10	125.0
Copper	18.39	0.2747	18.97	0.8154	3	10	125.0
Iron	14,710	14.31	16,360	71.54	11 *	10	125.0
Lead	13.71	0.2747	14.06	1.146	3	10	125.0
Magnesium	2,624	27.47	2,894	71.54	10	10	125.0
Manganese	363.6	22.89	422.8	114.5	16 *	10	12,500
Molybdenum	0.4633	0.2747	1.228	1.145	NC	10	125.0
Nickel	34.44	0.4450	33.58	2.225	2	10	125.0
Potassium	693.0	27.47	778.4	114.5	12 *	10	125.0
Selenium	0.2029	0.2747	0.5130 J	1.202	NC	10	125.0
Silver	0.09801	0.2747	0.1631 J	0.7154	NC	10	125.0
Sodium	105.1	29.60	87.93 J	148.0	NC	10	125.0
Thallium	0.1239	0.2747	0.3076 J	0.3577	NC	10	125.0
Vanadium	31.66	0.2747	33.81	0.8088	7	10	125.0
Zinc	45.49	1.099	53.11	4.194	17 *	10	125.0

*= Value outside of QC limits; see narrative
J= Estimated value
NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B280A	Analysis:	EPA 6020
Field ID:	20141022B280A0101	Basis:	dry
Type:	Post Digest Spike	Batch#:	216825
MSS Lab ID:	261954-001	Sampled:	10/22/14
Lab ID:	QC763259	Received:	10/22/14
Matrix:	Soil	Analyzed:	10/28/14
Units:	mg/Kg		

Moisture: 9%

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
Aluminum	13,970	7,154	20,500	91	75-125	25.00
Antimony	0.3125	71.54	58.18	81	75-125	25.00
Arsenic	3.988	71.54	69.30	91	75-125	25.00
Barium	133.1	71.54	203.3	98	75-125	25.00
Beryllium	0.4567	71.54	69.54	97	75-125	25.00
Cadmium	0.1092	71.54	69.23	97	75-125	25.00
Calcium	3,367	7,154	10,740	103	75-125	25.00
Chromium	39.72	71.54	105.9	93	75-125	25.00
Cobalt	6.047	71.54	74.25	95	75-125	25.00
Copper	18.39	71.54	87.50	97	75-125	25.00
Iron	14,710	7,154	21,290	92	75-125	25.00
Lead	13.71	71.54	81.29	94	75-125	25.00
Magnesium	2,624	7,154	9,378	94	75-125	25.00
Manganese	363.6	7,154	7,475	99	75-125	2,500
Molybdenum	0.4633	71.54	64.66	90	75-125	25.00
Nickel	34.44	71.54	103.3	96	75-125	25.00
Potassium	693.0	7,154	7,692	98	75-125	25.00
Selenium	0.2029	71.54	69.84	97	75-125	25.00
Silver	0.09801	71.54	60.85	85	75-125	25.00
Sodium	105.1	7,154	7,084	98	75-125	25.00
Thallium	0.1239	35.77	32.60	91	75-125	25.00
Vanadium	31.66	71.54	96.35	90	75-125	25.00
Zinc	45.49	71.54	108.7	88	75-125	25.00

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals			
Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B280A	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	216944
Lab ID:	QC763708	Prepared:	10/30/14
Matrix:	Soil	Analyzed:	10/30/14
Units:	mg/Kg		

Result	RL	MDL
ND	0.017	0.00093

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B280A	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	216944
Matrix:	Soil	Prepared:	10/30/14
Units:	mg/Kg	Analyzed:	10/30/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC763709	0.2083	0.2109	101	80-120		
BSD	QC763710	0.2083	0.2115	102	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B280A	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	216944
MSS Lab ID:	262012-001	Sampled:	10/24/14
Matrix:	Soil	Received:	10/24/14
Units:	mg/Kg	Prepared:	10/30/14
Basis:	as received	Analyzed:	10/30/14

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	RPD	Lim
MS	QC763711	0.06956	0.2193	0.3018	106	69-136		
MSD	QC763712		0.2119	0.2994	108	69-136	2	35

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261954	Location:	RFS-B280A
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B280A	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	as received
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	216944
MSS Lab ID:	262012-001	Sampled:	10/24/14
Lab ID:	QC763713	Received:	10/24/14
Matrix:	Soil	Analyzed:	10/30/14
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	% Diff	Lim
0.06956	0.01563	0.06205 J	0.07813	11 *	10

*= Value outside of QC limits; see narrative
J= Estimated value
RL= Reporting Limit


Curtis & Tompkins, Ltd.
Analytical Laboratories, Since 1878

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
TPH-Purgeables and/or BTXE by GC

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
TPH-PURGEABLES AND/OR BTXE BY GC (EPA 8015B)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for three soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Purgeables and/or BTXE by GC (EPA 8015B):

Matrix spikes were not performed for this analysis in batch 216764 due to insufficient sample amount.

No other analytical problems were encountered.

Chain of Custody

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. 261949 6886

Page 1 of 1

Project name: RFS-B45Q	**Lab PO#:** TO Sellaw	**Lab:** C+T	
Project (CTO) number:	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Dayna Aragon, Sara Woolley	
	TtEMI project manager: Jason Bodensen	**Field samplers' signatures:**	

Preservative Added ← None →

No./Container Types / **Analysis Required**

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	VOA	SVOA	Pest/PCBs Pest	Metals	TPH Purgeables	TPH Extractables	PCB PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5 5 5	X	X	X	X	X	X	X
B45Q02		↓	↓	↓						1	1		X	X	X	X	X	X	X
B45Q03										1	1		X	X	X	X	X	X	X
B45Q01-R1										1	1			X	X	X	X	X	X
45Q01-R2										1	1			X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Ohorg		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8015B
Field ID:	20141022B45001	Diln Fac:	1.000
Lab ID:	261949-001	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 11%

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.26	0.020

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	108	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8015B
Field ID:	20141022B45002	Diln Fac:	1.000
Lab ID:	261949-002	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 13%

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.24	0.018

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	116	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Gasoline by GC/FID (5035 Prep)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8015B
Field ID:	20141022B45003	Diln Fac:	1.000
Lab ID:	261949-003	Batch#:	216764
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/24/14

Moisture: 12%

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.20	0.015

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	120	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8015B
Matrix:	Soil	Batch#:	216764
Units:	mg/Kg	Analyzed:	10/24/14
Diln Fac:	1.000		

Type: BS Lab ID: QC763019

Analyte	Spiked	Result	%REC	Limits
Gasoline C7-C12	1.000	0.9821	98	80-120

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	114	67-137

Type: BSD Lab ID: QC763020

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Gasoline C7-C12	1.000	0.9837	98	80-120	0	20

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	105	67-137

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Gasoline by GC/FID (5035 Prep)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8015B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763021	Batch#:	216764
Matrix:	Soil	Analyzed:	10/24/14
Units:	mg/Kg		

Analyte	Result	RL	MDL
Gasoline C7-C12	ND	0.20	0.015

Surrogate	%REC	Limits
Bromofluorobenzene (FID)	111	67-137

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
TPH-Extractables by GC

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003
20141022B45001-R1	261949-004
20141022B45001-R2	261949-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
TPH-EXTRACTABLES BY GC (EPA 8015B)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for five soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

TPH-Extractables by GC (EPA 8015B):

Diesel C10-C24 was detected between the MDL and the RL in the method blank for batch 216932.

No other analytical problems were encountered.

Chain of Custody

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. 261949 6886

Lab PO#: TO Solicited
Lab: C+T
Project name: RFS-B45Q
TtEMI technical contact: Sara Woolley
Field samplers: Dayna Aragon, Sara Woolley
Project (CTO) number:
TtEMI project manager: Jason Bodensen
Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables	TPH Extractables	PCB	PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5	X	X	X	X	X	X	X	X
B45Q02		↓	↓	↓						1	1	5	X	X	X	X	X	X	X	X
B45Q03										1	1	5	X	X	X	X	X	X	X	X
B45Q01-R1										1	1			X	X	X	X	X	X	X
45Q01-R2										1	1			X	X	X	X	X	X	X

Preservative Added: ← None →

No./Container Types

Analysis Required

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Dayna Aragon	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present?_____ 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened?_____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Prepared:	10/29/14
Diln Fac:	1.000	Analyzed:	10/30/14
Batch#:	216932		

Field ID: 20141022B45001 Lab ID: 261949-001
Type: SAMPLE Moisture: 11%

Analyte	Result	RL	MDL
Diesel C10-C24	14 Y	1.1	0.34
Motor Oil C24-C36	36	5.6	1.7

Surrogate	%REC	Limits
o-Terphenyl	118	64-136

Field ID: 20141022B45002 Lab ID: 261949-002
Type: SAMPLE Moisture: 13%

Analyte	Result	RL	MDL
Diesel C10-C24	2.2 Y	1.2	0.35
Motor Oil C24-C36	11	5.8	1.8

Surrogate	%REC	Limits
o-Terphenyl	114	64-136

Field ID: 20141022B45003 Lab ID: 261949-003
Type: SAMPLE Moisture: 12%

Analyte	Result	RL	MDL
Diesel C10-C24	ND	1.1	0.35
Motor Oil C24-C36	2.8 J	5.7	1.7

Surrogate	%REC	Limits
o-Terphenyl	114	64-136

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Total Extractable Hydrocarbons

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8015B
Matrix:	Soil	Sampled:	10/22/14
Units:	mg/Kg	Received:	10/22/14
Basis:	dry	Prepared:	10/29/14
Diln Fac:	1.000	Analyzed:	10/30/14
Batch#:	216932		

Field ID: 20141022B45001-R1 Lab ID: 261949-004
Type: SAMPLE Moisture: 9%

Analyte	Result	RL	MDL
Diesel C10-C24	40 Y	1.1	0.34
Motor Oil C24-C36	97	5.5	1.7

Surrogate	%REC	Limits
o-Terphenyl	106	64-136

Field ID: 20141022B45001-R2 Lab ID: 261949-005
Type: SAMPLE Moisture: 14%

Analyte	Result	RL	MDL
Diesel C10-C24	34 Y	1.2	0.36
Motor Oil C24-C36	67	5.8	1.8

Surrogate	%REC	Limits
o-Terphenyl	112	64-136

Type: BLANK Lab ID: QC763668

Analyte	Result	RL	MDL
Diesel C10-C24	0.37 J	0.99	0.30
Motor Oil C24-C36	ND	5.0	1.5

Surrogate	%REC	Limits
o-Terphenyl	131	64-136

J= Estimated value
Y= Sample exhibits chromatographic pattern which does not resemble standard
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8015B
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763669	Batch#:	216932
Matrix:	Soil	Prepared:	10/29/14
Units:	mg/Kg	Analyzed:	10/30/14

Cleanup Method: EPA 3630C

Analyte	Spiked	Result	%REC	Limits
Diesel C10-C24	50.10	51.10	102	61-132

Surrogate	%REC	Limits
o-Terphenyl	116	64-136

Curtis & Tompkins, Ltd.

Batch QC Report

Total Extractable Hydrocarbons

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8015B
Field ID:	ZZZZZZZZZZ	Batch#:	216932
MSS Lab ID:	262012-004	Sampled:	10/24/14
Matrix:	Soil	Received:	10/24/14
Units:	mg/Kg	Prepared:	10/29/14
Basis:	as received	Analyzed:	10/30/14
Diln Fac:	1.000		

Type: MS Cleanup Method: EPA 3630C
Lab ID: QC763670

Analyte	MSS Result	Spiked	Result	%REC	Limits
Diesel C10-C24	12.31	50.48	51.76	78	40-146

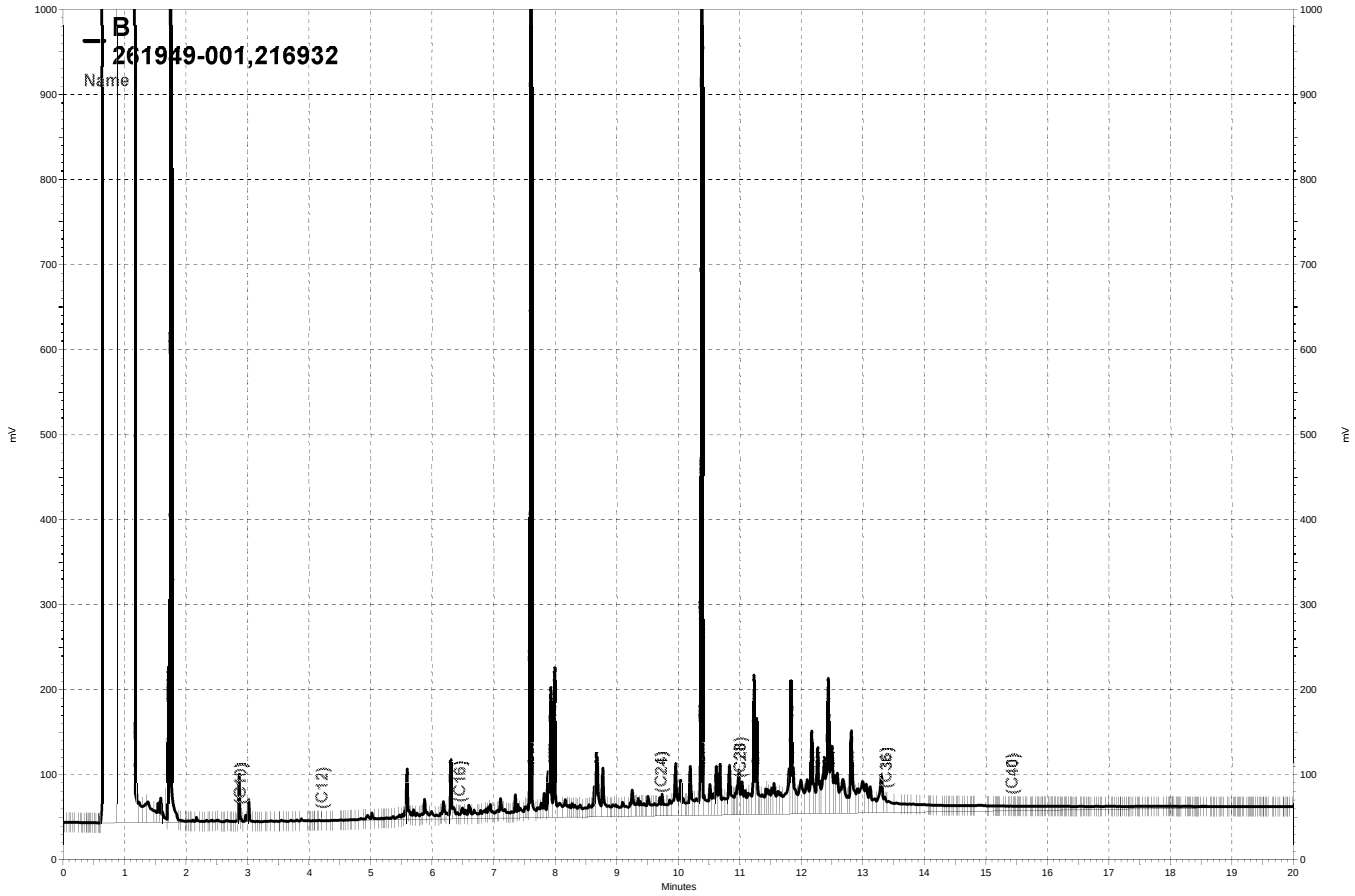
Surrogate	%REC	Limits
o-Terphenyl	115	64-136

Type: MSD Cleanup Method: EPA 3630C
Lab ID: QC763671

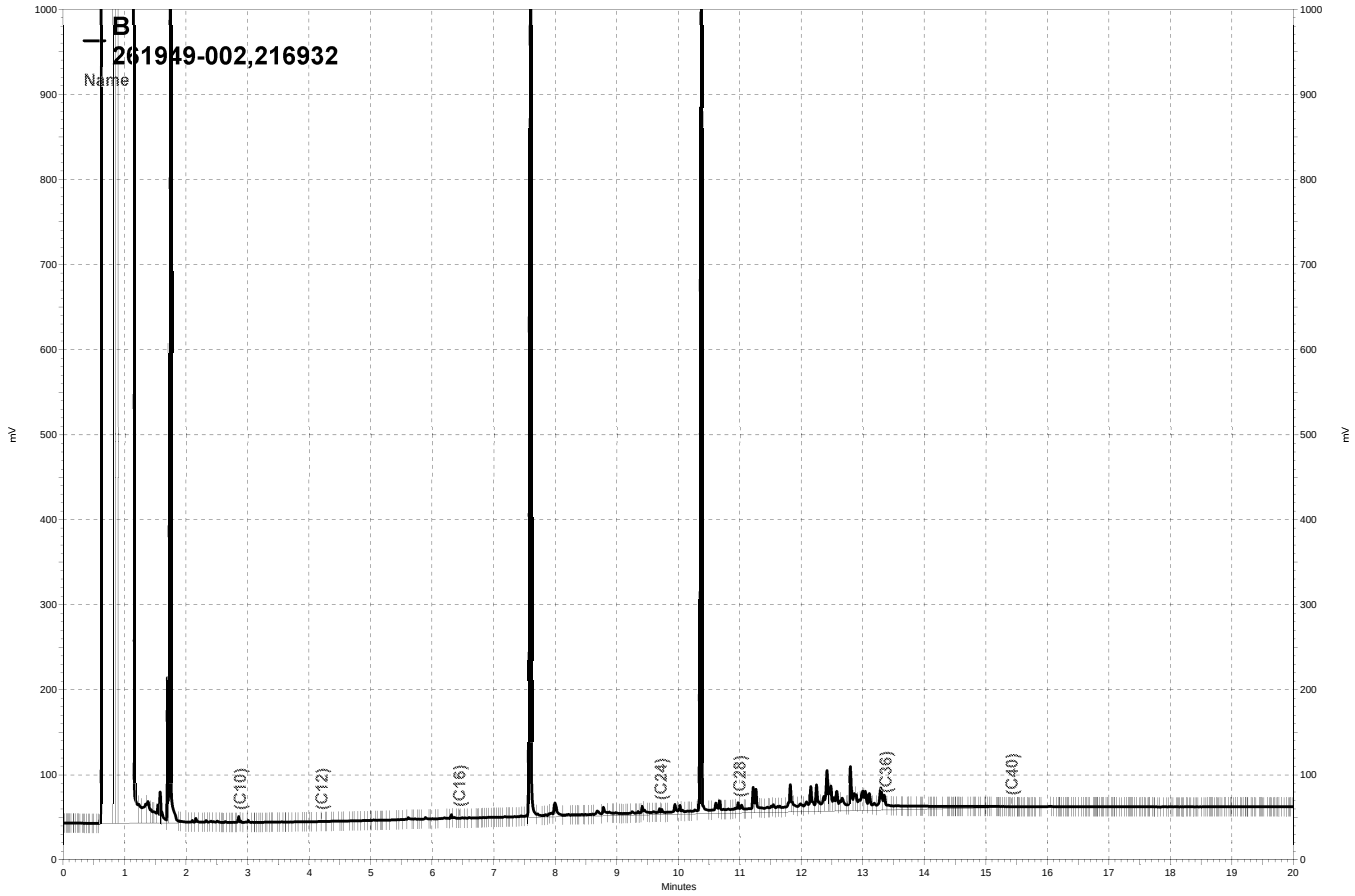
Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Diesel C10-C24	49.70	56.97	90	40-146	11	56

Surrogate	%REC	Limits
o-Terphenyl	123	64-136

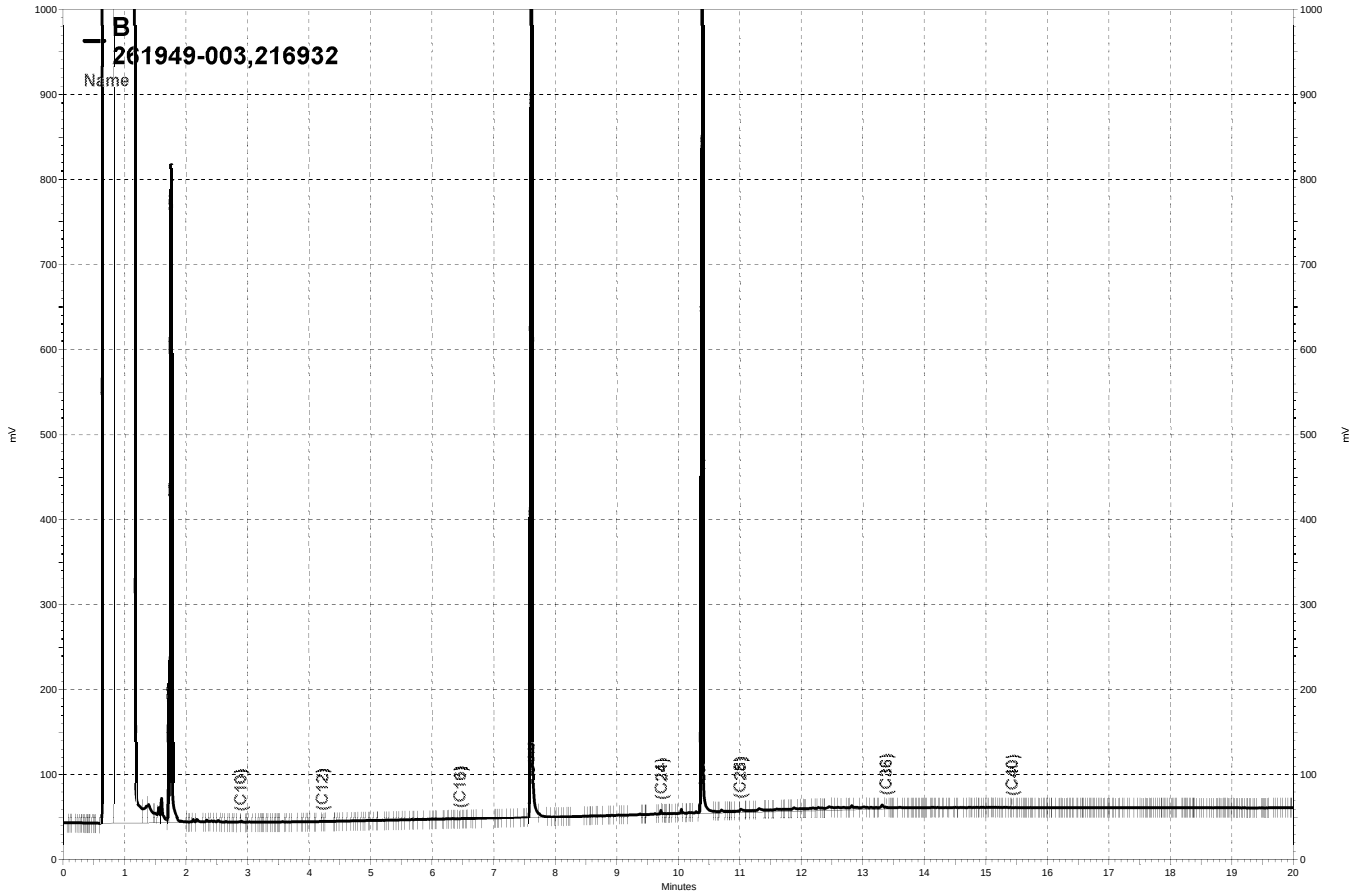
RPD= Relative Percent Difference



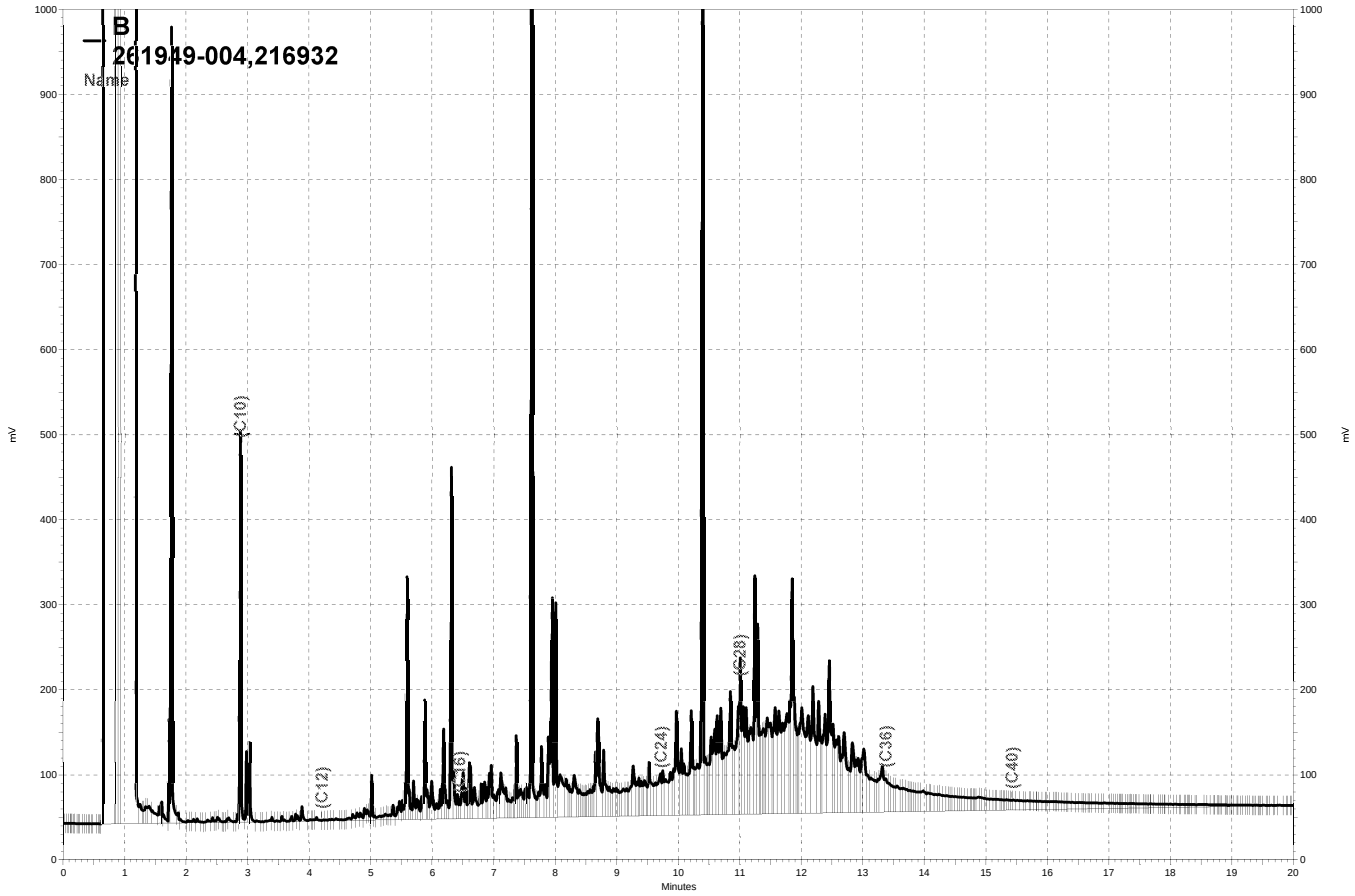
\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b008, B



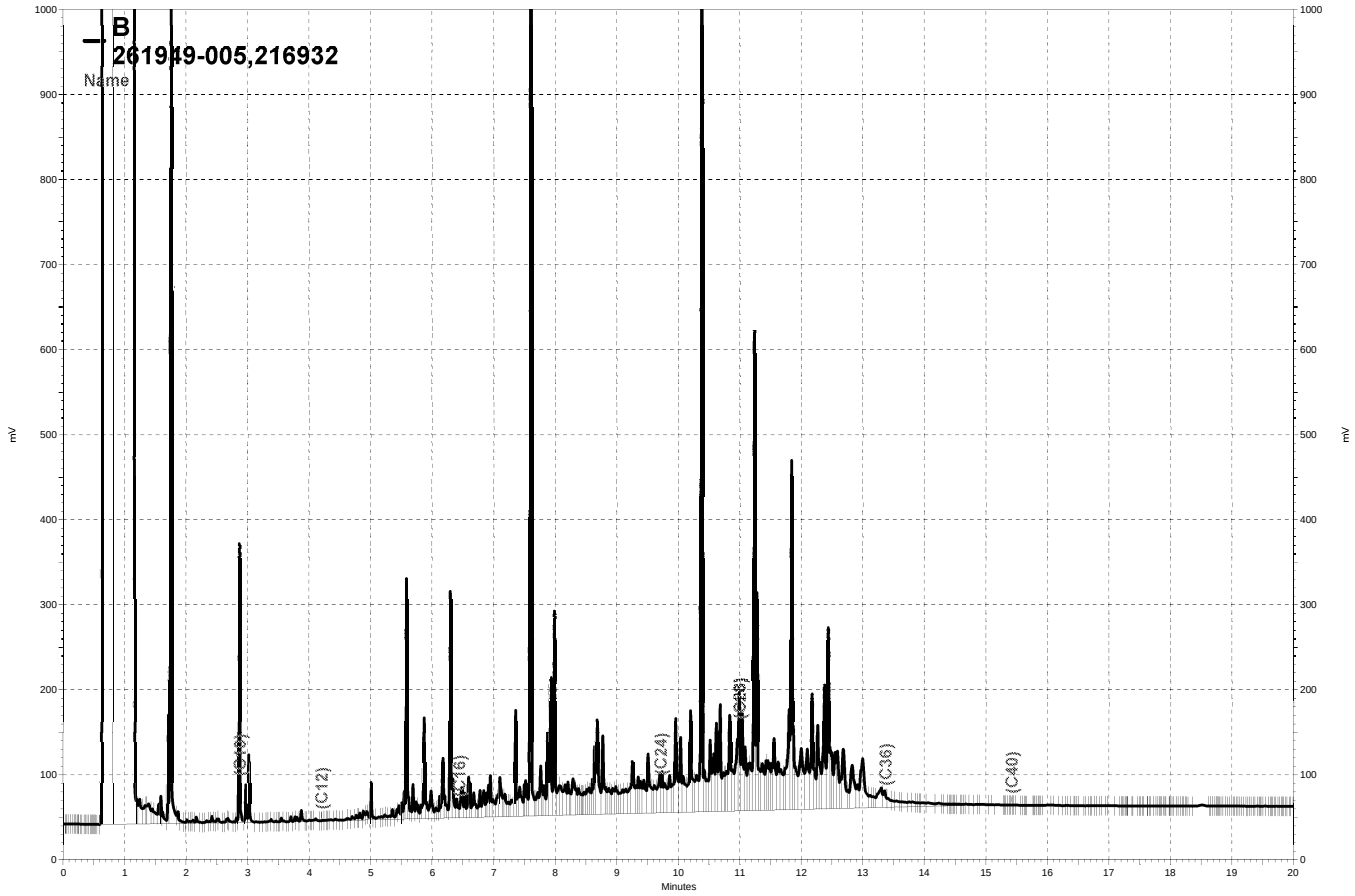
\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b009, B



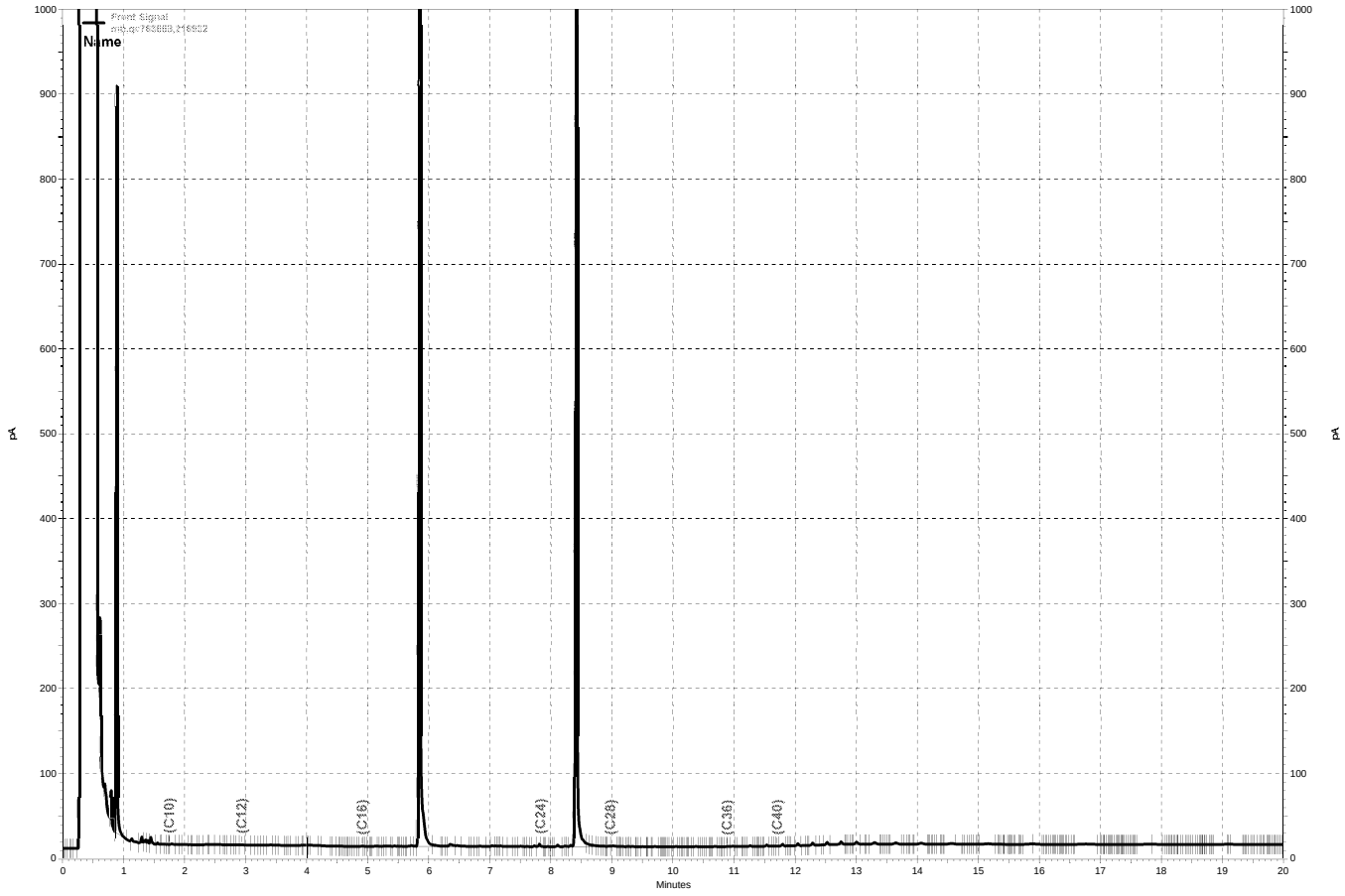
\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b010, B



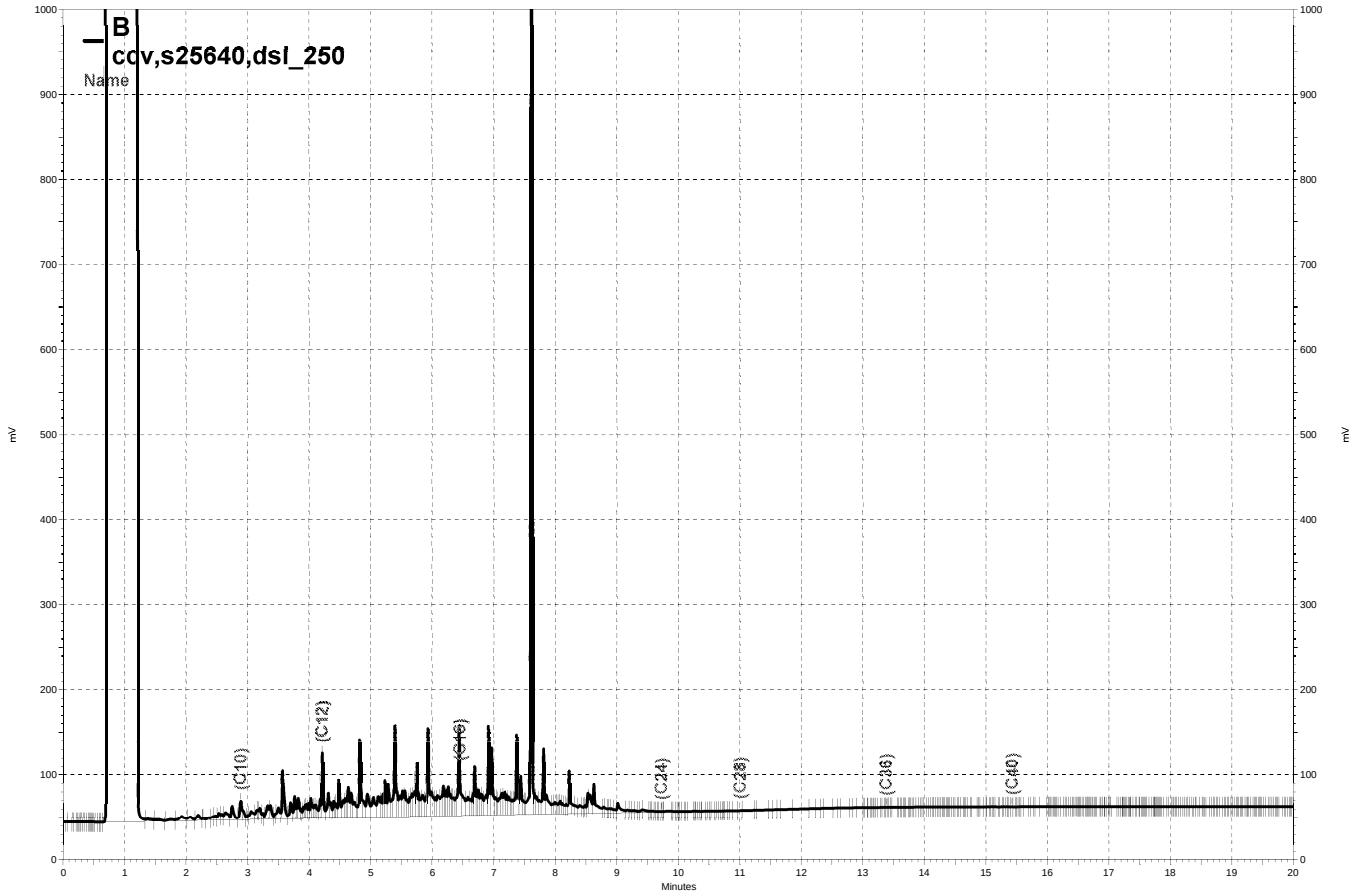
\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b011, B



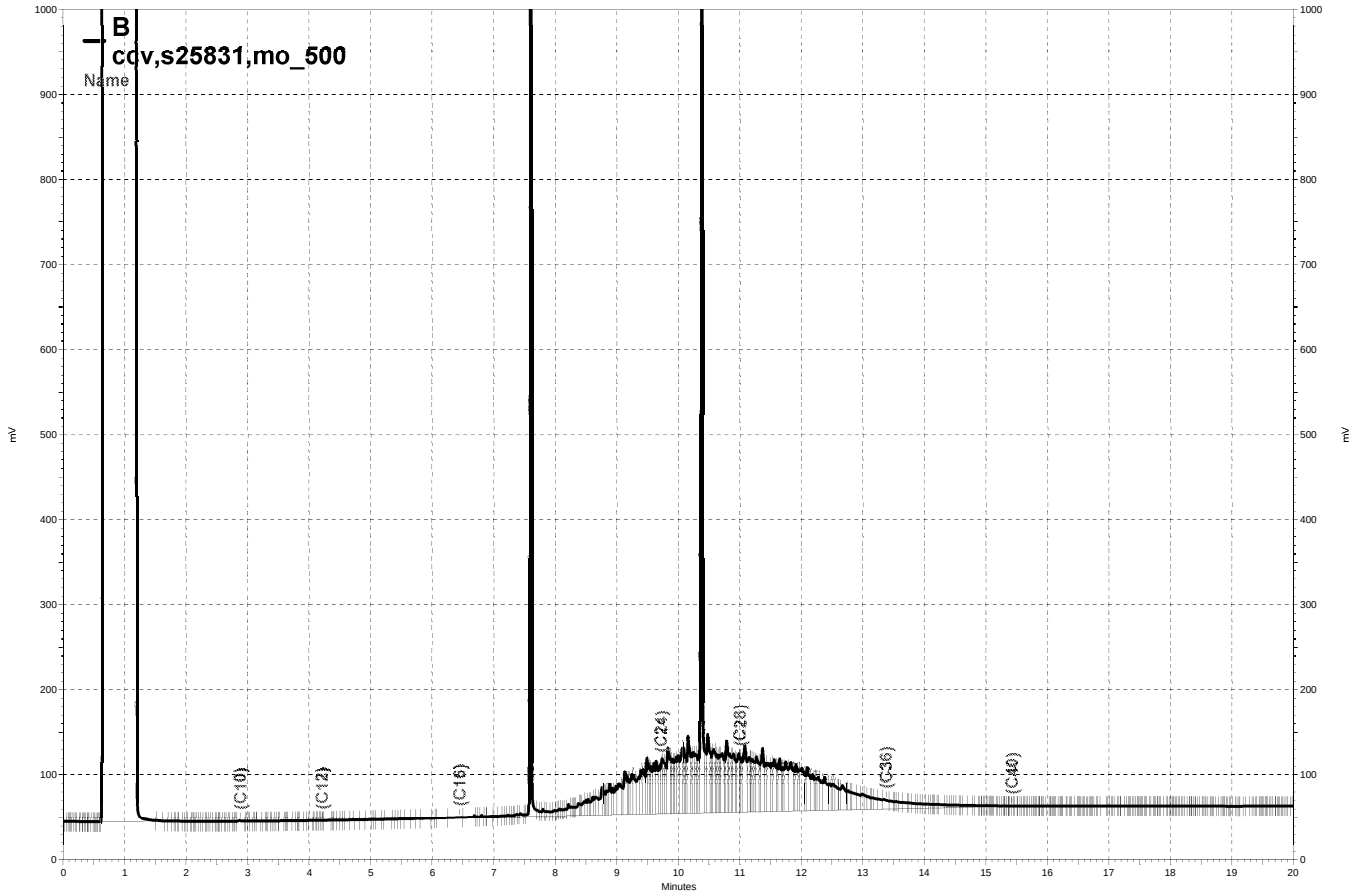
\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b012, B



\\lims\gdrive\ezchrom\Projects\GC27\Data\303a005.dat, Front Signal



\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b004, B



\\Lims\gdrive\ezchrom\Projects\GC14B\Data\303b003, B

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
Volatile Organics by GC/MS

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
VOLATILE ORGANICS BY GC/MS (EPA 8260B)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for three soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Volatile Organics by GC/MS (EPA 8260B):

Matrix spikes were not performed for this analysis in batch 216789 due to insufficient sample amount.

High recovery was observed for dibromochloromethane in the BSD for batch 216789; the associated RPD was within limits, and this analyte was not detected at or above the RL in the associated samples.

No other analytical problems were encountered.

Chain of Custody

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. 6886

261949

Lab PO#: TO Solicited

Lab: C+T

Project name: RFS-B45Q

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Bodensen

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs Asbestos	Metals	TPH Purgeables	TPH Extractables	PCB PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5 5 5		X	X	X	X	X	X	X
B45Q02										1	1			X	X	X	X	X	X	X
B45Q03										1	1			X	X	X	X	X	X	X
B45Q01-R1										1	1				X	X	X	X	X	X
45Q01-R2										1	1				X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Ohorg		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Field ID:	20141022B45001	Diln Fac:	1.109
Lab ID:	261949-001	Batch#:	216789
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/25/14

Moisture: 11%

Analyte	Result	RL	MDL
Freon 12	ND	12	0.50
Chloromethane	ND	12	1.3
Vinyl Chloride	ND	6.2	1.2
Bromomethane	ND	12	1.5
Chloroethane	ND	12	0.62
Trichlorofluoromethane	ND	6.2	0.87
Acetone	ND	12	2.3
Freon 113	ND	6.2	0.55
1,1-Dichloroethene	ND	6.2	1.2
Methylene Chloride	ND	12	1.4
Carbon Disulfide	ND	6.2	1.1
MTBE	ND	6.2	1.2
trans-1,2-Dichloroethene	ND	6.2	1.0
Vinyl Acetate	ND	12	0.90
1,1-Dichloroethane	ND	6.2	1.4
2-Butanone	ND	12	1.7
cis-1,2-Dichloroethene	ND	6.2	1.1
2,2-Dichloropropane	ND	6.2	1.3
Chloroform	ND	6.2	1.6
Bromochloromethane	ND	6.2	1.2
1,1,1-Trichloroethane	ND	6.2	1.0
1,1-Dichloropropene	ND	6.2	0.78
Carbon Tetrachloride	ND	6.2	0.59
1,2-Dichloroethane	ND	6.2	1.2
Benzene	ND	6.2	1.1
Trichloroethene	ND	6.2	1.0
1,2-Dichloropropane	ND	6.2	0.97
Bromodichloromethane	ND	6.2	1.1
Dibromomethane	ND	6.2	0.96
4-Methyl-2-Pentanone	ND	12	1.3
cis-1,3-Dichloropropene	ND	6.2	0.75
Toluene	ND	6.2	0.89
trans-1,3-Dichloropropene	ND	6.2	0.81
1,1,2-Trichloroethane	ND	6.2	0.77
2-Hexanone	ND	12	1.1
1,3-Dichloropropane	ND	6.2	1.1
Tetrachloroethene	ND	6.2	0.65
Dibromochloromethane	ND	6.2	0.64
1,2-Dibromoethane	ND	6.2	0.81
Chlorobenzene	ND	6.2	0.85
1,1,1,2-Tetrachloroethane	ND	6.2	0.77
Ethylbenzene	ND	6.2	0.85
m,p-Xylenes	ND	6.2	1.6
o-Xylene	ND	6.2	0.78
Styrene	ND	6.2	0.72
Bromoform	ND	6.2	0.49
Isopropylbenzene	ND	6.2	0.62
1,1,2,2-Tetrachloroethane	ND	6.2	0.51
1,2,3-Trichloropropane	ND	6.2	0.72
Propylbenzene	ND	6.2	0.55
Bromobenzene	ND	6.2	0.66

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Field ID:	20141022B45001	Dil'n Fac:	1.109
Lab ID:	261949-001	Batch#:	216789
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/25/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	6.2	0.71
2-Chlorotoluene	ND	6.2	0.84
4-Chlorotoluene	ND	6.2	0.81
tert-Butylbenzene	ND	6.2	0.50
1,2,4-Trimethylbenzene	ND	6.2	0.75
sec-Butylbenzene	ND	6.2	0.52
para-Isopropyl Toluene	ND	6.2	0.53
1,3-Dichlorobenzene	ND	6.2	0.55
1,4-Dichlorobenzene	ND	6.2	0.67
n-Butylbenzene	ND	6.2	0.47
1,2-Dichlorobenzene	ND	6.2	0.66
1,2-Dibromo-3-Chloropropane	ND	6.2	1.2
1,2,4-Trichlorobenzene	ND	6.2	0.52
Hexachlorobutadiene	ND	6.2	0.37
Naphthalene	ND	6.2	0.39
1,2,3-Trichlorobenzene	ND	6.2	0.53
tert-Butyl Alcohol (TBA)	ND	62	17
Isopropyl Ether (DIPE)	ND	6.2	1.1
Ethyl tert-Butyl Ether (ETBE)	ND	6.2	0.91
Methyl tert-Amyl Ether (TAME)	ND	6.2	0.71

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	106	76-128
1,2-Dichloroethane-d4	103	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	112	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Field ID:	20141022B45002	Diln Fac:	1.064
Lab ID:	261949-002	Batch#:	216789
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/25/14

Moisture: 13%

Analyte	Result	RL	MDL
Freon 12	ND	12	0.49
Chloromethane	ND	12	1.3
Vinyl Chloride	ND	6.1	1.1
Bromomethane	ND	12	1.4
Chloroethane	ND	12	0.61
Trichlorofluoromethane	ND	6.1	0.85
Acetone	ND	12	2.3
Freon 113	ND	6.1	0.54
1,1-Dichloroethene	ND	6.1	1.1
Methylene Chloride	ND	12	1.4
Carbon Disulfide	ND	6.1	1.1
MTBE	ND	6.1	1.2
trans-1,2-Dichloroethene	ND	6.1	1.0
Vinyl Acetate	ND	12	0.88
1,1-Dichloroethane	ND	6.1	1.4
2-Butanone	ND	12	1.6
cis-1,2-Dichloroethene	ND	6.1	1.1
2,2-Dichloropropane	ND	6.1	1.3
Chloroform	ND	6.1	1.6
Bromochloromethane	ND	6.1	1.1
1,1,1-Trichloroethane	ND	6.1	0.99
1,1-Dichloropropene	ND	6.1	0.77
Carbon Tetrachloride	ND	6.1	0.58
1,2-Dichloroethane	ND	6.1	1.1
Benzene	ND	6.1	1.1
Trichloroethene	ND	6.1	1.0
1,2-Dichloropropane	ND	6.1	0.95
Bromodichloromethane	ND	6.1	1.0
Dibromomethane	ND	6.1	0.94
4-Methyl-2-Pentanone	ND	12	1.2
cis-1,3-Dichloropropene	ND	6.1	0.74
Toluene	ND	6.1	0.87
trans-1,3-Dichloropropene	ND	6.1	0.79
1,1,2-Trichloroethane	ND	6.1	0.76
2-Hexanone	ND	12	1.1
1,3-Dichloropropane	ND	6.1	1.0
Tetrachloroethene	ND	6.1	0.64
Dibromochloromethane	ND	6.1	0.63
1,2-Dibromoethane	ND	6.1	0.79
Chlorobenzene	ND	6.1	0.84
1,1,1,2-Tetrachloroethane	ND	6.1	0.76
Ethylbenzene	ND	6.1	0.83
m,p-Xylenes	ND	6.1	1.5
o-Xylene	ND	6.1	0.77
Styrene	ND	6.1	0.70
Bromoform	ND	6.1	0.48
Isopropylbenzene	ND	6.1	0.61
1,1,2,2-Tetrachloroethane	ND	6.1	0.50
1,2,3-Trichloropropane	ND	6.1	0.71
Propylbenzene	ND	6.1	0.54
Bromobenzene	ND	6.1	0.65

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Field ID:	20141022B45002	Dil'n Fac:	1.064
Lab ID:	261949-002	Batch#:	216789
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/25/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	6.1	0.69
2-Chlorotoluene	ND	6.1	0.83
4-Chlorotoluene	ND	6.1	0.79
tert-Butylbenzene	ND	6.1	0.49
1,2,4-Trimethylbenzene	ND	6.1	0.73
sec-Butylbenzene	ND	6.1	0.51
para-Isopropyl Toluene	ND	6.1	0.52
1,3-Dichlorobenzene	ND	6.1	0.54
1,4-Dichlorobenzene	ND	6.1	0.66
n-Butylbenzene	ND	6.1	0.47
1,2-Dichlorobenzene	ND	6.1	0.65
1,2-Dibromo-3-Chloropropane	ND	6.1	1.1
1,2,4-Trichlorobenzene	ND	6.1	0.51
Hexachlorobutadiene	ND	6.1	0.37
Naphthalene	ND	6.1	0.38
1,2,3-Trichlorobenzene	ND	6.1	0.52
tert-Butyl Alcohol (TBA)	ND	61	16
Isopropyl Ether (DIPE)	ND	6.1	1.1
Ethyl tert-Butyl Ether (ETBE)	ND	6.1	0.90
Methyl tert-Amyl Ether (TAME)	ND	6.1	0.70

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	106	76-128
1,2-Dichloroethane-d4	101	80-137
Toluene-d8	101	80-120
Bromofluorobenzene	111	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Field ID:	20141022B45003	Dil'n Fac:	0.9542
Lab ID:	261949-003	Batch#:	216789
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/25/14

Moisture: 12%

Analyte	Result	RL	MDL
Freon 12	ND	11	0.43
Chloromethane	ND	11	1.1
Vinyl Chloride	ND	5.4	1.0
Bromomethane	ND	11	1.3
Chloroethane	ND	11	0.54
Trichlorofluoromethane	ND	5.4	0.75
Acetone	ND	11	2.0
Freon 113	ND	5.4	0.48
1,1-Dichloroethene	ND	5.4	1.0
Methylene Chloride	ND	11	1.2
Carbon Disulfide	ND	5.4	0.94
MTBE	ND	5.4	1.1
trans-1,2-Dichloroethene	ND	5.4	0.91
Vinyl Acetate	ND	11	0.78
1,1-Dichloroethane	ND	5.4	1.2
2-Butanone	ND	11	1.5
cis-1,2-Dichloroethene	ND	5.4	0.94
2,2-Dichloropropane	ND	5.4	1.2
Chloroform	ND	5.4	1.4
Bromochloromethane	ND	5.4	1.0
1,1,1-Trichloroethane	ND	5.4	0.88
1,1-Dichloropropene	ND	5.4	0.68
Carbon Tetrachloride	ND	5.4	0.52
1,2-Dichloroethane	ND	5.4	1.0
Benzene	ND	5.4	0.98
Trichloroethene	ND	5.4	0.91
1,2-Dichloropropane	ND	5.4	0.84
Bromodichloromethane	ND	5.4	0.92
Dibromomethane	ND	5.4	0.84
4-Methyl-2-Pentanone	ND	11	1.1
cis-1,3-Dichloropropene	ND	5.4	0.66
Toluene	ND	5.4	0.77
trans-1,3-Dichloropropene	ND	5.4	0.70
1,1,2-Trichloroethane	ND	5.4	0.67
2-Hexanone	ND	11	0.95
1,3-Dichloropropane	ND	5.4	0.92
Tetrachloroethene	ND	5.4	0.57
Dibromochloromethane	ND	5.4	0.56
1,2-Dibromoethane	ND	5.4	0.70
Chlorobenzene	ND	5.4	0.74
1,1,1,2-Tetrachloroethane	ND	5.4	0.67
Ethylbenzene	ND	5.4	0.74
m,p-Xylenes	ND	5.4	1.4
o-Xylene	ND	5.4	0.68
Styrene	ND	5.4	0.62
Bromoform	ND	5.4	0.43
Isopropylbenzene	ND	5.4	0.54
1,1,2,2-Tetrachloroethane	ND	5.4	0.44
1,2,3-Trichloropropane	ND	5.4	0.63
Propylbenzene	ND	5.4	0.48
Bromobenzene	ND	5.4	0.58

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Field ID:	20141022B45003	Dil'n Fac:	0.9542
Lab ID:	261949-003	Batch#:	216789
Matrix:	Soil	Sampled:	10/22/14
Units:	ug/Kg	Received:	10/22/14
Basis:	dry	Analyzed:	10/25/14

Analyte	Result	RL	MDL
1,3,5-Trimethylbenzene	ND	5.4	0.62
2-Chlorotoluene	ND	5.4	0.73
4-Chlorotoluene	ND	5.4	0.70
tert-Butylbenzene	ND	5.4	0.44
1,2,4-Trimethylbenzene	ND	5.4	0.65
sec-Butylbenzene	ND	5.4	0.45
para-Isopropyl Toluene	ND	5.4	0.46
1,3-Dichlorobenzene	ND	5.4	0.48
1,4-Dichlorobenzene	ND	5.4	0.59
n-Butylbenzene	ND	5.4	0.41
1,2-Dichlorobenzene	ND	5.4	0.57
1,2-Dibromo-3-Chloropropane	ND	5.4	1.0
1,2,4-Trichlorobenzene	ND	5.4	0.45
Hexachlorobutadiene	ND	5.4	0.32
Naphthalene	ND	5.4	0.34
1,2,3-Trichlorobenzene	ND	5.4	0.46
tert-Butyl Alcohol (TBA)	ND	54	14
Isopropyl Ether (DIPE)	ND	5.4	0.94
Ethyl tert-Butyl Ether (ETBE)	ND	5.4	0.79
Methyl tert-Amyl Ether (TAME)	ND	5.4	0.62

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	103	76-128
1,2-Dichloroethane-d4	104	80-137
Toluene-d8	99	80-120
Bromofluorobenzene	111	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	216789
Units:	ug/Kg	Analyzed:	10/25/14
Diln Fac:	1.000		

Type: BS Lab ID: QC763106

Analyte	Spiked	Result	%REC	Limits
Freon 12	20.00	17.33	87	49-139
Chloromethane	20.00	19.27	96	52-135
Vinyl Chloride	20.00	17.28	86	67-134
Bromomethane	20.00	26.00	130	60-180
Chloroethane	20.00	17.33	87	66-132
Trichlorofluoromethane	20.00	17.84	89	66-140
Acetone	25.00	29.02	116	62-188
Freon 113	25.00	20.70	83	65-137
1,1-Dichloroethene	25.00	23.64	95	68-135
Methylene Chloride	25.00	25.32	101	70-136
Carbon Disulfide	25.00	25.15	101	63-142
MTBE	25.00	24.13	97	64-126
trans-1,2-Dichloroethene	25.00	26.35	105	74-135
Vinyl Acetate	25.00	28.48	114	59-194
1,1-Dichloroethane	25.00	21.73	87	72-129
2-Butanone	25.00	25.13	101	60-150
cis-1,2-Dichloroethene	25.00	25.37	101	77-129
2,2-Dichloropropane	25.00	24.50	98	73-140
Chloroform	25.00	24.87	99	76-130
Bromochloromethane	25.00	26.39	106	80-130
1,1,1-Trichloroethane	25.00	25.82	103	75-138
1,1-Dichloropropene	25.00	26.73	107	76-136
Carbon Tetrachloride	25.00	27.62	110	69-148
1,2-Dichloroethane	25.00	25.72	103	73-139
Benzene	25.00	24.96	100	80-127
Trichloroethene	25.00	27.04	108	77-129
1,2-Dichloropropane	25.00	22.59	90	74-123
Bromodichloromethane	25.00	26.40	106	75-128
Dibromomethane	25.00	27.25	109	78-128
4-Methyl-2-Pentanone	25.00	23.15	93	64-133
cis-1,3-Dichloropropene	25.00	26.24	105	80-131
Toluene	25.00	24.88	100	79-125
trans-1,3-Dichloropropene	25.00	26.11	104	71-121
1,1,2-Trichloroethane	25.00	26.08	104	78-125
2-Hexanone	25.00	24.80	99	62-139
1,3-Dichloropropane	25.00	26.46	106	79-124
Tetrachloroethene	25.00	27.31	109	76-137
Dibromochloromethane	25.00	30.99	124	74-124
1,2-Dibromoethane	25.00	27.33	109	77-122
Chlorobenzene	25.00	25.78	103	78-120
1,1,1,2-Tetrachloroethane	25.00	27.87	111	78-126
Ethylbenzene	25.00	25.38	102	80-127
m,p-Xylenes	50.00	54.12	108	78-126
o-Xylene	25.00	26.72	107	73-120
Styrene	25.00	26.75	107	80-124
Bromoform	25.00	32.11	128	76-135
Isopropylbenzene	25.00	23.07	92	68-120
1,1,2,2-Tetrachloroethane	25.00	23.46	94	77-128
1,2,3-Trichloropropane	25.00	22.52	90	75-124
Propylbenzene	25.00	25.15	101	72-123
Bromobenzene	25.00	25.58	102	80-123

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	216789
Units:	ug/Kg	Analyzed:	10/25/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits
1,3,5-Trimethylbenzene	25.00	25.87	103	79-132
2-Chlorotoluene	25.00	25.98	104	77-124
4-Chlorotoluene	25.00	26.69	107	75-120
tert-Butylbenzene	25.00	23.00	92	72-121
1,2,4-Trimethylbenzene	25.00	25.25	101	80-129
sec-Butylbenzene	25.00	23.95	96	73-124
para-Isopropyl Toluene	25.00	25.78	103	73-122
1,3-Dichlorobenzene	25.00	29.23	117	78-120
1,4-Dichlorobenzene	25.00	27.98	112	80-125
n-Butylbenzene	25.00	27.03	108	77-139
1,2-Dichlorobenzene	25.00	26.91	108	79-120
1,2-Dibromo-3-Chloropropane	25.00	23.92	96	64-129
1,2,4-Trichlorobenzene	25.00	33.84	135	80-137
Hexachlorobutadiene	25.00	27.97	112	73-145
Naphthalene	25.00	24.83	99	72-128
1,2,3-Trichlorobenzene	25.00	29.99	120	79-132
tert-Butyl Alcohol (TBA)	125.0	113.9	91	46-146
Isopropyl Ether (DIPE)	25.00	19.84	79	61-126
Ethyl tert-Butyl Ether (ETBE)	25.00	20.90	84	66-123
Methyl tert-Amyl Ether (TAME)	25.00	24.45	98	69-120

Surrogate	%REC	Limits
Dibromofluoromethane	99	76-128
1,2-Dichloroethane-d4	102	80-137
Toluene-d8	99	80-120
Bromofluorobenzene	91	79-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	216789
Units:	ug/Kg	Analyzed:	10/25/14
Diln Fac:	1.000		

Type: BSD Lab ID: QC763107

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Freon 12	20.00	16.69	83	49-139	4	40
Chloromethane	20.00	18.56	93	52-135	4	39
Vinyl Chloride	20.00	17.13	86	67-134	1	25
Bromomethane	20.00	23.59	118	60-180	10	30
Chloroethane	20.00	16.31	82	66-132	6	27
Trichlorofluoromethane	20.00	17.11	86	66-140	4	26
Acetone	25.00	23.39	94	62-188	21	42
Freon 113	25.00	20.91	84	65-137	1	26
1,1-Dichloroethene	25.00	22.89	92	68-135	3	35
Methylene Chloride	25.00	25.19	101	70-136	1	33
Carbon Disulfide	25.00	23.58	94	63-142	6	33
MTBE	25.00	22.37	89	64-126	8	28
trans-1,2-Dichloroethene	25.00	24.93	100	74-135	6	29
Vinyl Acetate	25.00	26.79	107	59-194	6	30
1,1-Dichloroethane	25.00	21.27	85	72-129	2	23
2-Butanone	25.00	22.11	88	60-150	13	30
cis-1,2-Dichloroethene	25.00	24.56	98	77-129	3	23
2,2-Dichloropropane	25.00	23.96	96	73-140	2	23
Chloroform	25.00	24.35	97	76-130	2	21
Bromochloromethane	25.00	26.01	104	80-130	1	24
1,1,1-Trichloroethane	25.00	25.38	102	75-138	2	24
1,1-Dichloropropene	25.00	25.87	103	76-136	3	23
Carbon Tetrachloride	25.00	28.31	113	69-148	2	23
1,2-Dichloroethane	25.00	23.77	95	73-139	8	23
Benzene	25.00	24.23	97	80-127	3	20
Trichloroethene	25.00	26.64	107	77-129	2	20
1,2-Dichloropropane	25.00	21.82	87	74-123	3	21
Bromodichloromethane	25.00	25.56	102	75-128	3	22
Dibromomethane	25.00	26.48	106	78-128	3	21
4-Methyl-2-Pentanone	25.00	21.27	85	64-133	8	26
cis-1,3-Dichloropropene	25.00	26.83	107	80-131	2	23
Toluene	25.00	25.09	100	79-125	1	23
trans-1,3-Dichloropropene	25.00	27.08	108	71-121	4	20
1,1,2-Trichloroethane	25.00	26.87	107	78-125	3	21
2-Hexanone	25.00	23.91	96	62-139	4	27
1,3-Dichloropropane	25.00	26.86	107	79-124	1	20
Tetrachloroethene	25.00	29.12	116	76-137	6	21
Dibromochloromethane	25.00	31.82	127 *	74-124	3	20
1,2-Dibromoethane	25.00	26.94	108	77-122	1	21
Chlorobenzene	25.00	26.97	108	78-120	4	20
1,1,1,2-Tetrachloroethane	25.00	28.09	112	78-126	1	20
Ethylbenzene	25.00	26.23	105	80-127	3	22
m,p-Xylenes	50.00	54.16	108	78-126	0	22
o-Xylene	25.00	27.58	110	73-120	3	21
Styrene	25.00	26.04	104	80-124	3	20
Bromoform	25.00	32.30	129	76-135	1	21
Isopropylbenzene	25.00	21.59	86	68-120	7	20
1,1,2,2-Tetrachloroethane	25.00	21.82	87	77-128	7	22
1,2,3-Trichloropropane	25.00	20.64	83	75-124	9	23
Propylbenzene	25.00	23.61	94	72-123	6	20
Bromobenzene	25.00	23.94	96	80-123	7	20

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Matrix:	Soil	Batch#:	216789
Units:	ug/Kg	Analyzed:	10/25/14
Diln Fac:	1.000		

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,3,5-Trimethylbenzene	25.00	24.90	100	79-132	4	20
2-Chlorotoluene	25.00	24.93	100	77-124	4	21
4-Chlorotoluene	25.00	25.23	101	75-120	6	21
tert-Butylbenzene	25.00	23.34	93	72-121	1	22
1,2,4-Trimethylbenzene	25.00	24.60	98	80-129	3	20
sec-Butylbenzene	25.00	24.05	96	73-124	0	20
para-Isopropyl Toluene	25.00	25.93	104	73-122	1	20
1,3-Dichlorobenzene	25.00	29.20	117	78-120	0	20
1,4-Dichlorobenzene	25.00	27.90	112	80-125	0	20
n-Butylbenzene	25.00	27.16	109	77-139	0	20
1,2-Dichlorobenzene	25.00	28.53	114	79-120	6	23
1,2-Dibromo-3-Chloropropane	25.00	22.70	91	64-129	5	25
1,2,4-Trichlorobenzene	25.00	32.38	130	80-137	4	24
Hexachlorobutadiene	25.00	27.89	112	73-145	0	22
Naphthalene	25.00	24.60	98	72-128	1	23
1,2,3-Trichlorobenzene	25.00	29.69	119	79-132	1	23
tert-Butyl Alcohol (TBA)	125.0	94.70	76	46-146	18	37
Isopropyl Ether (DIPE)	25.00	19.10	76	61-126	4	24
Ethyl tert-Butyl Ether (ETBE)	25.00	20.60	82	66-123	1	25
Methyl tert-Amyl Ether (TAME)	25.00	23.87	95	69-120	2	24

Surrogate	%REC	Limits
Dibromofluoromethane	101	76-128
1,2-Dichloroethane-d4	95	80-137
Toluene-d8	102	80-120
Bromofluorobenzene	87	79-128

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Type:	BLANK	Dil'n Fac:	1.000
Lab ID:	QC763108	Batch#:	216789
Matrix:	Soil	Analyzed:	10/25/14
Units:	ug/Kg		

Analyte	Result	RL	MDL
Freon 12	ND	10	0.40
Chloromethane	ND	10	1.0
Vinyl Chloride	ND	5.0	0.93
Bromomethane	ND	10	1.2
Chloroethane	ND	10	0.50
Trichlorofluoromethane	ND	5.0	0.70
Acetone	ND	10	1.8
Freon 113	ND	5.0	0.44
1,1-Dichloroethene	ND	5.0	0.94
Methylene Chloride	ND	10	1.1
Carbon Disulfide	ND	5.0	0.87
MTBE	ND	5.0	1.0
trans-1,2-Dichloroethene	ND	5.0	0.84
Vinyl Acetate	ND	10	0.72
1,1-Dichloroethane	ND	5.0	1.2
2-Butanone	ND	10	1.3
cis-1,2-Dichloroethene	ND	5.0	0.87
2,2-Dichloropropane	ND	5.0	1.1
Chloroform	ND	5.0	1.3
Bromochloromethane	ND	5.0	0.93
1,1,1-Trichloroethane	ND	5.0	0.81
1,1-Dichloropropene	ND	5.0	0.63
Carbon Tetrachloride	ND	5.0	0.48
1,2-Dichloroethane	ND	5.0	0.93
Benzene	ND	5.0	0.90
Trichloroethene	ND	5.0	0.84
1,2-Dichloropropane	ND	5.0	0.78
Bromodichloromethane	ND	5.0	0.85
Dibromomethane	ND	5.0	0.77
4-Methyl-2-Pentanone	ND	10	1.0
cis-1,3-Dichloropropene	ND	5.0	0.61
Toluene	ND	5.0	0.71
trans-1,3-Dichloropropene	ND	5.0	0.65
1,1,2-Trichloroethane	ND	5.0	0.62
2-Hexanone	ND	10	0.88
1,3-Dichloropropane	ND	5.0	0.84
Tetrachloroethene	ND	5.0	0.52
Dibromochloromethane	ND	5.0	0.51
1,2-Dibromoethane	ND	5.0	0.65
Chlorobenzene	ND	5.0	0.69
1,1,1,2-Tetrachloroethane	ND	5.0	0.62
Ethylbenzene	ND	5.0	0.68
m,p-Xylenes	ND	5.0	1.3
o-Xylene	ND	5.0	0.63
Styrene	ND	5.0	0.58
Bromoform	ND	5.0	0.39
Isopropylbenzene	ND	5.0	0.50
1,1,2,2-Tetrachloroethane	ND	5.0	0.41
1,2,3-Trichloropropane	ND	5.0	0.58
Propylbenzene	ND	5.0	0.45
Bromobenzene	ND	5.0	0.53
1,3,5-Trimethylbenzene	ND	5.0	0.57
2-Chlorotoluene	ND	5.0	0.68

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Purgeable Organics by GC/MS

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 5035
Project#:	RFS-B450	Analysis:	EPA 8260B
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763108	Batch#:	216789
Matrix:	Soil	Analyzed:	10/25/14
Units:	ug/Kg		

Analyte	Result	RL	MDL
4-Chlorotoluene	ND	5.0	0.65
tert-Butylbenzene	ND	5.0	0.40
1,2,4-Trimethylbenzene	ND	5.0	0.60
sec-Butylbenzene	ND	5.0	0.42
para-Isopropyl Toluene	ND	5.0	0.42
1,3-Dichlorobenzene	ND	5.0	0.44
1,4-Dichlorobenzene	ND	5.0	0.54
n-Butylbenzene	ND	5.0	0.38
1,2-Dichlorobenzene	ND	5.0	0.53
1,2-Dibromo-3-Chloropropane	ND	5.0	0.94
1,2,4-Trichlorobenzene	ND	5.0	0.42
Hexachlorobutadiene	ND	5.0	0.30
Naphthalene	ND	5.0	0.31
1,2,3-Trichlorobenzene	ND	5.0	0.43
tert-Butyl Alcohol (TBA)	ND	50	13
Isopropyl Ether (DIPE)	ND	5.0	0.87
Ethyl tert-Butyl Ether (ETBE)	ND	5.0	0.73
Methyl tert-Amyl Ether (TAME)	ND	5.0	0.57

Tentatively Identified Compounds

No TICs found.

Surrogate	%REC	Limits
Dibromofluoromethane	100	76-128
1,2-Dichloroethane-d4	96	80-137
Toluene-d8	99	80-120
Bromofluorobenzene	109	79-128

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
Semivolatile Organics by GC/MS SIM

Tetra Tech EMI
1999 Harrison Street
Oakland, CA 94612

Project : RFS-B450
Location : RFS-B450
Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003
20141022B45001-R1	261949-004
20141022B45001-R2	261949-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
SEMIVOLATILE ORGANICS BY GC/MS SIM (EPA 8270C-SIM)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for five soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Semivolatile Organics by GC/MS SIM (EPA 8270C-SIM):

High recoveries were observed for benzo(b)fluoranthene in the MS/MSD for batch 216999; the parent sample was not a project sample, the LCS was within limits, and the associated RPD was within limits.

20141022B45001-R1 (lab # 261949-004) was diluted due to the dark and viscous nature of the sample extract.

No other analytical problems were encountered.

Chain of Custody

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. 261949 6886

Lab PO#: TO Solicited
Lab: C+T
Project name: RFS-B45Q
TtEMI technical contact: Sara Woolley
Field samplers: Dayna Aragon, Sara Woolley
Project (CTO) number:
TtEMI project manager: Jason Bodensen
Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs Pest	Metals	TPH Purgeables	TPH Extractables	PCB	PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5 5 5		X	X	X	X	X	X	X	X
B45Q02										1	1			X	X	X	X	X	X	X	X
B45Q03										1	1			X	X	X	X	X	X	X	X
B45Q01-R1										1	1				X	X	X	X	X	X	X
45Q01-R2										1	1				X	X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Ohorg		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	20141022B45001	Batch#:	216999
Lab ID:	261949-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 11%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	74	5.6
Naphthalene	ND	11	2.7
1-Methylnaphthalene	ND	11	2.3
2-Methylnaphthalene	ND	11	2.4
Acenaphthylene	ND	11	2.2
Acenaphthene	ND	11	2.2
Fluorene	ND	11	2.2
Phenanthrene	2.8 J	11	2.2
Anthracene	ND	11	2.2
Fluoranthene	3.6 J	11	2.2
Pyrene	4.1 J	11	2.2
Benzo(a)anthracene	ND	11	2.2
Chrysene	3.6 J	11	2.2
Benzo(b)fluoranthene	4.4 J	11	2.2
Benzo(k)fluoranthene	ND	11	2.2
Benzo(a)pyrene	2.3 J	11	2.2
Indeno(1,2,3-cd)pyrene	ND	11	2.2
Dibenz(a,h)anthracene	ND	11	2.2
Benzo(g,h,i)perylene	4.2 J	11	2.2

Surrogate	%REC	Limits
Nitrobenzene-d5	74	46-120
2-Fluorobiphenyl	88	52-120
Terphenyl-d14	102	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	20141022B45002	Batch#:	216999
Lab ID:	261949-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	38	2.9
Naphthalene	ND	5.7	1.4
1-Methylnaphthalene	ND	5.7	1.2
2-Methylnaphthalene	ND	5.7	1.2
Acenaphthylene	ND	5.7	1.1
Acenaphthene	ND	5.7	1.1
Fluorene	ND	5.7	1.1
Phenanthrene	ND	5.7	1.1
Anthracene	ND	5.7	1.1
Fluoranthene	ND	5.7	1.1
Pyrene	ND	5.7	1.1
Benzo(a)anthracene	ND	5.7	1.1
Chrysene	ND	5.7	1.1
Benzo(b)fluoranthene	ND	5.7	1.1
Benzo(k)fluoranthene	ND	5.7	1.1
Benzo(a)pyrene	ND	5.7	1.1
Indeno(1,2,3-cd)pyrene	ND	5.7	1.1
Dibenz(a,h)anthracene	ND	5.7	1.1
Benzo(g,h,i)perylene	ND	5.7	1.1

Surrogate	%REC	Limits
Nitrobenzene-d5	83	46-120
2-Fluorobiphenyl	91	52-120
Terphenyl-d14	103	54-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	20141022B45003	Batch#:	216999
Lab ID:	261949-003	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 12%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	38	2.9
Naphthalene	ND	5.7	1.4
1-Methylnaphthalene	ND	5.7	1.2
2-Methylnaphthalene	ND	5.7	1.2
Acenaphthylene	ND	5.7	1.1
Acenaphthene	ND	5.7	1.1
Fluorene	ND	5.7	1.1
Phenanthrene	ND	5.7	1.1
Anthracene	ND	5.7	1.1
Fluoranthene	ND	5.7	1.1
Pyrene	ND	5.7	1.1
Benzo(a)anthracene	ND	5.7	1.1
Chrysene	ND	5.7	1.1
Benzo(b)fluoranthene	ND	5.7	1.1
Benzo(k)fluoranthene	ND	5.7	1.1
Benzo(a)pyrene	ND	5.7	1.1
Indeno(1,2,3-cd)pyrene	ND	5.7	1.1
Dibenz(a,h)anthracene	ND	5.7	1.1
Benzo(g,h,i)perylene	ND	5.7	1.1

Surrogate	%REC	Limits
Nitrobenzene-d5	74	46-120
2-Fluorobiphenyl	81	52-120
Terphenyl-d14	92	54-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	20141022B45001-R1	Batch#:	216999
Lab ID:	261949-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	5.000		

Moisture: 9%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	180	14
Naphthalene	ND	27	6.6
1-Methylnaphthalene	ND	27	5.6
2-Methylnaphthalene	ND	27	5.8
Acenaphthylene	ND	27	5.5
Acenaphthene	ND	27	5.5
Fluorene	ND	27	5.5
Phenanthrene	5.9 J	27	5.5
Anthracene	12 J	27	5.5
Fluoranthene	21 J	27	5.5
Pyrene	20 J	27	5.5
Benzo(a)anthracene	9.2 J	27	5.5
Chrysene	32	27	5.5
Benzo(b)fluoranthene	43	27	5.5
Benzo(k)fluoranthene	10 J	27	5.5
Benzo(a)pyrene	11 J	27	5.5
Indeno(1,2,3-cd)pyrene	10 J	27	5.5
Dibenz(a,h)anthracene	ND	27	5.5
Benzo(g,h,i)perylene	18 J	27	5.5

Surrogate	%REC	Limits
Nitrobenzene-d5	96	46-120
2-Fluorobiphenyl	107	52-120
Terphenyl-d14	112	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	20141022B45001-R2	Batch#:	216999
Lab ID:	261949-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 14%

Analyte	Result	RL	MDL
1,4-Dioxane	ND	39	2.9
Naphthalene	ND	5.8	1.4
1-Methylnaphthalene	ND	5.8	1.2
2-Methylnaphthalene	ND	5.8	1.2
Acenaphthylene	11	5.8	1.2
Acenaphthene	ND	5.8	1.2
Fluorene	ND	5.8	1.2
Phenanthrene	7.8	5.8	1.2
Anthracene	21	5.8	1.2
Fluoranthene	34	5.8	1.2
Pyrene	32	5.8	1.2
Benzo(a)anthracene	14	5.8	1.2
Chrysene	38	5.8	1.2
Benzo(b)fluoranthene	110	5.8	1.2
Benzo(k)fluoranthene	13	5.8	1.2
Benzo(a)pyrene	14	5.8	1.2
Indeno(1,2,3-cd)pyrene	15	5.8	1.2
Dibenz(a,h)anthracene	4.6 J	5.8	1.2
Benzo(g,h,i)perylene	34	5.8	1.2

Surrogate	%REC	Limits
Nitrobenzene-d5	82	46-120
2-Fluorobiphenyl	90	52-120
Terphenyl-d14	100	54-132

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763919	Batch#:	216999
Matrix:	Soil	Prepared:	10/31/14
Units:	ug/Kg	Analyzed:	11/03/14

Analyte	Result	RL	MDL
1,4-Dioxane	ND	33	2.5
Naphthalene	ND	4.9	1.2
1-Methylnaphthalene	ND	4.9	1.0
2-Methylnaphthalene	ND	4.9	1.1
Acenaphthylene	ND	4.9	0.99
Acenaphthene	ND	4.9	0.99
Fluorene	ND	4.9	0.99
Phenanthrene	ND	4.9	0.99
Anthracene	ND	4.9	0.99
Fluoranthene	ND	4.9	0.99
Pyrene	ND	4.9	0.99
Benzo(a)anthracene	ND	4.9	0.99
Chrysene	ND	4.9	0.99
Benzo(b)fluoranthene	ND	4.9	0.99
Benzo(k)fluoranthene	ND	4.9	0.99
Benzo(a)pyrene	ND	4.9	0.99
Indeno(1,2,3-cd)pyrene	ND	4.9	0.99
Dibenz(a,h)anthracene	ND	4.9	0.99
Benzo(g,h,i)perylene	ND	4.9	0.99

Surrogate	%REC	Limits
Nitrobenzene-d5	82	46-120
2-Fluorobiphenyl	90	52-120
Terphenyl-d14	108	54-132

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763920	Batch#:	216999
Matrix:	Soil	Prepared:	10/31/14
Units:	ug/Kg	Analyzed:	11/03/14

Analyte	Spiked	Result	%REC	Limits
1,4-Dioxane	100.7	53.71	53	12-120
Naphthalene	33.56	29.67	88	52-120
1-Methylnaphthalene	33.56	28.01	83	49-120
2-Methylnaphthalene	33.56	29.18	87	52-120
Acenaphthylene	33.56	29.31	87	39-120
Acenaphthene	33.56	29.68	88	43-120
Fluorene	33.56	29.84	89	46-120
Phenanthrene	33.56	28.82	86	42-120
Anthracene	33.56	27.98	83	37-120
Fluoranthene	33.56	29.12	87	38-120
Pyrene	33.56	31.66	94	39-120
Benzo(a)anthracene	33.56	30.61	91	36-120
Chrysene	33.56	30.62	91	35-120
Benzo(b)fluoranthene	33.56	29.83	89	39-120
Benzo(k)fluoranthene	33.56	29.98	89	36-120
Benzo(a)pyrene	33.56	28.86	86	38-120
Indeno(1,2,3-cd)pyrene	33.56	30.41	91	35-120
Dibenz(a,h)anthracene	33.56	32.73	98	31-120
Benzo(g,h,i)perylene	33.56	30.11	90	39-120

Surrogate	%REC	Limits
Nitrobenzene-d5	84	46-120
2-Fluorobiphenyl	89	52-120
Terphenyl-d14	106	54-132

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	216999
MSS Lab ID:	261950-017	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Type: MS Moisture: 9%
Lab ID: QC763921

Analyte	MSS Result	Spiked	Result	%REC	Limits
1,4-Dioxane	<2.808	110.9	58.11	52	12-120
Naphthalene	<1.342	36.95	37.67	102	51-120
1-Methylnaphthalene	<1.138	36.95	33.95	92	51-120
2-Methylnaphthalene	<1.184	36.95	35.81	97	50-121
Acenaphthylene	<1.109	36.95	37.30	101	46-120
Acenaphthene	<1.109	36.95	36.60	99	47-120
Fluorene	<1.109	36.95	36.20	98	43-120
Phenanthrene	7.338	36.95	40.01	88	27-139
Anthracene	<1.109	36.95	34.94	95	34-130
Fluoranthene	14.14	36.95	47.65	91	18-141
Pyrene	12.52	36.95	45.79	90	21-143
Benzo(a)anthracene	5.469	36.95	42.66	101	18-128
Chrysene	11.84	36.95	47.41	96	16-126
Benzo(b)fluoranthene	24.75	36.95	77.44	143 *	18-134
Benzo(k)fluoranthene	3.580	36.95	38.85	95	15-135
Benzo(a)pyrene	8.085	36.95	40.92	89	21-135
Indeno(1,2,3-cd)pyrene	6.093	36.95	38.66	88	3-121
Dibenz(a,h)anthracene	1.818	36.95	35.22	90	6-120
Benzo(g,h,i)perylene	17.44	36.95	54.17	99	1-120

Surrogate	%REC	Limits
Nitrobenzene-d5	91	46-120
2-Fluorobiphenyl	98	52-120
Terphenyl-d14	104	54-132

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Semivolatile Organics by GC/MS SIM

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8270C-SIM
Field ID:	ZZZZZZZZZZ	Batch#:	216999
MSS Lab ID:	261950-017	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Type: MSD Moisture: 9%
Lab ID: QC763922

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
1,4-Dioxane	110.9	60.95	55	12-120	5	59
Naphthalene	36.95	38.41	104	51-120	2	50
1-Methylnaphthalene	36.95	34.29	93	51-120	1	42
2-Methylnaphthalene	36.95	36.60	99	50-121	2	43
Acenaphthylene	36.95	38.69	105	46-120	4	35
Acenaphthene	36.95	37.30	101	47-120	2	54
Fluorene	36.95	37.13	100	43-120	3	42
Phenanthrene	36.95	41.47	92	27-139	4	78
Anthracene	36.95	35.90	97	34-130	3	74
Fluoranthene	36.95	48.93	94	18-141	3	63
Pyrene	36.95	46.52	92	21-143	2	67
Benzo(a)anthracene	36.95	42.76	101	18-128	0	55
Chrysene	36.95	46.28	93	16-126	2	58
Benzo(b)fluoranthene	36.95	81.65	154 *	18-134	5	75
Benzo(k)fluoranthene	36.95	39.28	97	15-135	1	52
Benzo(a)pyrene	36.95	41.30	90	21-135	1	61
Indeno(1,2,3-cd)pyrene	36.95	38.82	89	3-121	0	56
Dibenz(a,h)anthracene	36.95	36.01	93	6-120	2	58
Benzo(g,h,i)perylene	36.95	53.81	98	1-120	1	64

Surrogate	%REC	Limits
Nitrobenzene-d5	91	46-120
2-Fluorobiphenyl	103	52-120
Terphenyl-d14	106	54-132

*= Value outside of QC limits; see narrative
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
Pesticides

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003
20141022B45001-R1	261949-004
20141022B45001-R2	261949-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
PESTICIDES (EPA 8081A)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for five soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Pesticides (EPA 8081A):

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

All samples underwent florisil cleanup using EPA Method 3620C.

Low response was observed for 4,4'-DDT in the ICV analyzed 10/17/14 00:01; average ICV drift met method requirements.

High response was observed for methoxychlor in the CCV analyzed 11/03/14 21:55; average CCV drift met method requirements, and this analyte was not detected at or above the RL in the associated samples.

Low responses were observed for endrin and endrin aldehyde in the CCV analyzed 10/31/14 11:17; average CCV drift met method requirements.

Low responses were observed for endrin and endrin aldehyde in the CCV analyzed 10/31/14 15:37; average CCV drift met method requirements.

20141022B45001-R1 (lab # 261949-004) was diluted due to the color of the sample extract.

No other analytical problems were encountered.

Chain of Custody

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. 261949 6886

Page 1 of 1

Project name: RFS-B45Q	**Lab PO#:** TO Sellaw	**Lab:** C+T	
Project (CTO) number:	**TtEMI technical contact:** Sara Woolley	**Field samplers:** Dayna Aragon, Sara Woolley	
	TtEMI project manager: Jason Bodensen	**Field samplers' signatures:**	

Preservative Added ← None →

No./Container Types / **Analysis Required**

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	VOA	SVOA	Pest/PCBs Acet	Metals	TPH Purgeables	TPH Extractables	PCB PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5 5 5	X	X	X	X	X	X	X
B45Q02										1	1		X	X	X	X	X	X	X
B45Q03										1	1		X	X	X	X	X	X	X
B45Q01-R1										1	1			X	X	X	X	X	X
45Q01-R2										1	1			X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Barbie Ohorg		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	20141022B45001	Batch#:	216971
Lab ID:	261949-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 11%

Cleanup Method: EPA 3620B

Analyte	Result	RL	MDL
alpha-BHC	ND	1.9	0.22
beta-BHC	ND	1.9	0.46
gamma-BHC	ND	1.9	0.24
delta-BHC	ND	1.9	0.31
Heptachlor	ND	1.9	0.21
Aldrin	ND	1.9	0.23
Heptachlor epoxide	ND	1.9	0.25
Endosulfan I	ND	1.9	0.20
Dieldrin	ND	1.9	0.44
4,4'-DDE	1.9 J	3.7	0.34
Endrin	ND	3.7	0.63
Endosulfan II	0.69 C J	3.7	0.68
Endosulfan sulfate	ND	3.7	0.58
4,4'-DDD	ND	3.7	0.81
Endrin aldehyde	ND	3.7	0.38
4,4'-DDT	1.5 C J	3.7	0.79
alpha-Chlordane	ND	1.9	0.23
gamma-Chlordane	ND	1.9	0.27
Methoxychlor	ND	19	3.5
Toxaphene	ND	67	10

Surrogate	%REC	Limits
TCMX	80	42-134
Decachlorobiphenyl	76	29-122

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	20141022B45002	Batch#:	216971
Lab ID:	261949-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 13%

Cleanup Method: EPA 3620B

Analyte	Result	RL	MDL
alpha-BHC	ND	2.0	0.23
beta-BHC	ND	2.0	0.47
gamma-BHC	ND	2.0	0.25
delta-BHC	ND	2.0	0.32
Heptachlor	ND	2.0	0.22
Aldrin	ND	2.0	0.24
Heptachlor epoxide	ND	2.0	0.25
Endosulfan I	0.25 C J	2.0	0.20
Dieldrin	ND	2.0	0.46
4,4'-DDE	ND	3.8	0.68
Endrin	ND	3.8	0.65
Endosulfan II	ND	3.8	0.58
Endosulfan sulfate	ND	3.8	0.59
4,4'-DDD	ND	3.8	0.84
Endrin aldehyde	ND	3.8	0.39
4,4'-DDT	ND	3.8	0.54
alpha-Chlordane	ND	2.0	0.24
gamma-Chlordane	ND	2.0	0.28
Methoxychlor	ND	20	3.6
Toxaphene	ND	69	11

Surrogate	%REC	Limits
TCMX	86	42-134
Decachlorobiphenyl	76	29-122

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	20141022B45003	Batch#:	216971
Lab ID:	261949-003	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 12%

Cleanup Method: EPA 3620B

Analyte	Result	RL	MDL
alpha-BHC	ND	1.9	0.22
beta-BHC	ND	1.9	0.47
gamma-BHC	ND	1.9	0.24
delta-BHC	ND	1.9	0.31
Heptachlor	ND	1.9	0.22
Aldrin	ND	1.9	0.23
Heptachlor epoxide	ND	1.9	0.25
Endosulfan I	ND	1.9	0.20
Dieldrin	ND	1.9	0.45
4,4'-DDE	ND	3.7	0.66
Endrin	ND	3.7	0.63
Endosulfan II	ND	3.7	0.57
Endosulfan sulfate	ND	3.7	0.58
4,4'-DDD	ND	3.7	0.82
Endrin aldehyde	ND	3.7	0.38
4,4'-DDT	ND	3.7	0.53
alpha-Chlordane	ND	1.9	0.23
gamma-Chlordane	ND	1.9	0.28
Methoxychlor	ND	19	3.6
Toxaphene	ND	68	10

Surrogate	%REC	Limits
TCMX	98	42-134
Decachlorobiphenyl	85	29-122

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	20141022B45001-R1	Batch#:	216971
Lab ID:	261949-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	5.000		

Moisture: 9% Cleanup Method: EPA 3620B

Analyte	Result	RL	MDL
alpha-BHC	ND	9.3	1.1
beta-BHC	ND	9.3	2.3
gamma-BHC	ND	9.3	1.2
delta-BHC	ND	9.3	1.5
Heptachlor	1.8 J	9.3	1.0
Aldrin	ND	9.3	1.1
Heptachlor epoxide	ND	9.3	1.2
Endosulfan I	ND	9.3	0.96
Dieldrin	ND	9.3	2.2
4,4'-DDE	ND	18	3.2
Endrin	ND	18	3.1
Endosulfan II	ND	18	2.7
Endosulfan sulfate	ND	18	2.8
4,4'-DDD	ND	18	4.0
Endrin aldehyde	ND	18	1.8
4,4'-DDT	5.4 J	18	3.9
alpha-Chlordane	ND	9.3	1.1
gamma-Chlordane	ND	9.3	1.3
Methoxychlor	ND	93	17
Toxaphene	ND	330	50

Surrogate	%REC	Limits
TCMX	76	42-134
Decachlorobiphenyl	66	29-122

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	20141022B45001-R2	Batch#:	216971
Lab ID:	261949-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	11/03/14
Diln Fac:	1.000		

Moisture: 14% Cleanup Method: EPA 3620B

Analyte	Result	RL	MDL
alpha-BHC	ND	2.0	0.23
beta-BHC	ND	2.0	0.47
gamma-BHC	ND	2.0	0.25
delta-BHC	ND	2.0	0.32
Heptachlor	0.40 C J	2.0	0.25
Aldrin	ND	2.0	0.24
Heptachlor epoxide	ND	2.0	0.25
Endosulfan I	0.28 C J	2.0	0.20
Dieldrin	1.2 C J	2.0	0.46
4,4'-DDE	2.8 J	3.8	0.68
Endrin	ND	3.8	0.65
Endosulfan II	ND	3.8	0.58
Endosulfan sulfate	0.62 C J	3.8	0.59
4,4'-DDD	1.2 J	3.8	0.78
Endrin aldehyde	ND	3.8	0.39
4,4'-DDT	ND	3.8	0.55
alpha-Chlordane	0.36 C J	2.0	0.24
gamma-Chlordane	ND	2.0	0.28
Methoxychlor	ND	20	3.6
Toxaphene	ND	69	11

Surrogate	%REC	Limits
TCMX	64	42-134
Decachlorobiphenyl	63	29-122

C= Presence confirmed, but RPD between columns exceeds 40%
J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763826	Batch#:	216971
Matrix:	Soil	Prepared:	10/30/14
Units:	ug/Kg	Analyzed:	10/31/14

Cleanup Method: EPA 3620B

Analyte	Result	RL	MDL
alpha-BHC	ND	1.7	0.15
beta-BHC	ND	1.7	0.28
gamma-BHC	ND	1.7	0.21
delta-BHC	ND	1.7	0.31
Heptachlor	ND	1.7	0.25
Aldrin	ND	1.7	0.22
Heptachlor epoxide	ND	1.7	0.28
Endosulfan I	ND	1.7	0.20
Dieldrin	ND	1.7	0.26
4,4'-DDE	ND	3.3	0.24
Endrin	ND #	3.3	0.26
Endosulfan II	ND	3.3	0.27
Endosulfan sulfate	ND	3.3	0.30
4,4'-DDD	ND	3.3	0.41
Endrin aldehyde	ND #	3.3	0.31
4,4'-DDT	ND	3.3	0.14
alpha-Chlordane	ND	1.7	0.22
gamma-Chlordane	ND	1.7	0.23
Methoxychlor	ND	17	1.5
Toxaphene	ND	60	17

Surrogate	%REC	Limits
TCMX	79	42-134
Decachlorobiphenyl	76	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763827	Batch#:	216971
Matrix:	Soil	Prepared:	10/30/14
Units:	ug/Kg	Analyzed:	10/31/14

Cleanup Method: EPA 3620B

Analyte	Spiked	Result	%REC	Limits
alpha-BHC	13.16	8.939	68	47-120
beta-BHC	13.16	9.589	73	51-127
gamma-BHC	13.16	8.724	66	46-120
delta-BHC	13.16	9.310	71	43-134
Heptachlor	13.16	8.756	67	41-124
Aldrin	13.16	8.759	67	48-122
Heptachlor epoxide	13.16	9.648	73	47-125
Endosulfan I	13.16	9.786	74	47-127
Dieldrin	13.16	9.881	75	39-142
4,4'-DDE	13.16	10.18	77	46-135
Endrin	13.16	8.476 #	64	45-138
Endosulfan II	13.16	10.50	80	39-135
Endosulfan sulfate	13.16	11.12	84	37-132
4,4'-DDD	13.16	9.736	74	42-138
Endrin aldehyde	13.16	7.463 #	57	18-120
4,4'-DDT	13.16	12.14	92	32-145
alpha-Chlordane	13.16	9.471	72	49-125
gamma-Chlordane	13.16	9.605	73	49-127
Methoxychlor	144.7	155.2	107	33-146
Toxaphene		NA		

Surrogate	%REC	Limits
TCMX	69	42-134
Decachlorobiphenyl	70	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	ZZZZZZZZZZ	Batch#:	216971
MSS Lab ID:	261950-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	10/31/14
Diln Fac:	1.000		

Type:	MS	Moisture:	8%
Lab ID:	QC763828	Cleanup Method:	EPA 3620B

Analyte	MSS Result	Spiked	Result	%REC	Limits
alpha-BHC	<0.1649	14.60	11.82	81	49-132
beta-BHC	0.4255	14.60	11.92	79	45-145
gamma-BHC	<0.2349	14.60	10.96	75	42-136
delta-BHC	0.4134	14.60	11.60	77	48-144
Heptachlor	0.5434	14.60	12.35	81	40-144
Aldrin	1.427	14.60	11.51	69	45-143
Heptachlor epoxide	0.5656	14.60	14.63	86	47-145
Endosulfan I	<0.2223	14.60	12.19	84	50-139
Dieldrin	0.3754	14.60	12.10	80	47-145
4,4'-DDE	7.394	14.60	20.69	91	43-148
Endrin	0.9600	14.60	10.05 #	62	46-150
Endosulfan II	<0.2954	14.60	17.04	117	38-134
Endosulfan sulfate	1.652	14.60	19.36	95	40-141
4,4'-DDD	3.357	14.60	12.44	62	45-151
Endrin aldehyde	2.023	14.60	11.18 #	63	30-125
4,4'-DDT	7.655	14.60	25.15	120	30-157
alpha-Chlordane	0.3813	14.60	11.43	76	46-143
gamma-Chlordane	1.152	14.60	12.51	78	44-148
Methoxychlor	<1.655	160.6	194.2	121	39-153
Toxaphene		NA			

Surrogate	%REC	Limits
TCMX	83	42-134
Decachlorobiphenyl	82	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Organochlorine Pesticides

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8081A
Field ID:	ZZZZZZZZZZ	Batch#:	216971
MSS Lab ID:	261950-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/30/14
Basis:	dry	Analyzed:	10/31/14
Diln Fac:	1.000		

Type:	MSD	Moisture:	8%
Lab ID:	QC763829	Cleanup Method:	EPA 3620B

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
alpha-BHC	14.44	9.936	69	49-132	16	36
beta-BHC	14.44	9.427	62	45-145	22	39
gamma-BHC	14.44	9.339	65	42-136	15	40
delta-BHC	14.44	9.776	65	48-144	16	47
Heptachlor	14.44	11.19	74	40-144	9	46
Aldrin	14.44	9.831	58	45-143	15	41
Heptachlor epoxide	14.44	12.49	72	47-145	15	38
Endosulfan I	14.44	10.08	70	50-139	18	39
Dieldrin	14.44	10.25	68	47-145	15	36
4,4'-DDE	14.44	18.11	74	43-148	13	36
Endrin	14.44	9.026 #	56	46-150	10	41
Endosulfan II	14.44	17.30	120	38-134	3	43
Endosulfan sulfate	14.44	16.61	77	40-141	14	50
4,4'-DDD	14.44	12.24	62	45-151	1	40
Endrin aldehyde	14.44	9.642 #	53	30-125	14	47
4,4'-DDT	14.44	17.74	70	30-157	34	52
alpha-Chlordane	14.44	10.12	67	46-143	11	43
gamma-Chlordane	14.44	10.72	66	44-148	14	36
Methoxychlor	158.8	148.6	94	39-153	25	44
Toxaphene		NA				

Surrogate	%REC	Limits
TCMX	73	42-134
Decachlorobiphenyl	66	29-122

#= CCV drift outside limits; average CCV drift within limits per method requirements
NA= Not Analyzed
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
PCBs

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003
20141022B45001-R1	261949-004
20141022B45001-R2	261949-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
PCBS (EPA 8082)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for five soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

PCBs (EPA 8082):

All samples underwent sulfuric acid cleanup using EPA Method 3665A.

All samples underwent sulfur cleanup using the copper option in EPA Method 3660B.

Low recoveries were observed for Aroclor-1016 in the MS/MSD for batch 216996; the parent sample was not a project sample, and the LCS was within limits.

High surrogate recovery was observed for TCMX in the MSD for batch 216996; the corresponding decachlorobiphenyl surrogate recovery was within limits, and the parent sample was not a project sample.

No other analytical problems were encountered.

Chain of Custody

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. 6886

261949

Lab PO#: TO Solicited

Lab: C+T

Project name: RFS-B45Q

TtEMI technical contact: Sara Woolley

Field samplers: Dayna Aragon, Sara Woolley

Project (CTO) number:

TtEMI project manager: Jason Bodensen

Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	No./Container Types: 40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	Preservative Added: None	Analysis Required: VOA	SVOA	Pest/PCBs Asbestos	Metals	TPH Purgeables	TPH Extractables	PCB PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5 5 5		X	X	X	X	X	X	X
B45Q02										1	1			X	X	X	X	X	X	X
B45Q03										1	1			X	X	X	X	X	X	X
B45Q01-R1										1	1				X	X	X	X	X	X
45Q01-R2										1	1				X	X	X	X	X	X

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech C&T	10/22/14	1705
Received by:	Isabelle Ohorg		10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	20141022B45001	Batch#:	216980
Lab ID:	261949-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/01/14
Diln Fac:	1.000		

Moisture: 11%

Analyte	Result	RL	MDL
Aroclor-1016	ND	13	3.4
Aroclor-1221	ND	27	9.1
Aroclor-1232	ND	13	4.4
Aroclor-1242	ND	13	4.1
Aroclor-1248	ND	13	4.3
Aroclor-1254	ND	13	3.5
Aroclor-1260	ND	13	2.2

Surrogate	%REC	Limits
TCMX	99	60-140
Decachlorobiphenyl	68	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	20141022B45002	Batch#:	216980
Lab ID:	261949-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/01/14
Diln Fac:	1.000		

Moisture: 13%

Analyte	Result	RL	MDL
Aroclor-1016	ND	14	3.4
Aroclor-1221	ND	28	9.3
Aroclor-1232	ND	14	4.5
Aroclor-1242	ND	14	4.2
Aroclor-1248	ND	14	4.4
Aroclor-1254	ND	14	3.6
Aroclor-1260	ND	14	2.3

Surrogate	%REC	Limits
TCMX	101	60-140
Decachlorobiphenyl	79	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	20141022B45003	Batch#:	216980
Lab ID:	261949-003	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/01/14
Diln Fac:	1.000		

Moisture: 12%

Analyte	Result	RL	MDL
Aroclor-1016	ND	14	3.4
Aroclor-1221	ND	27	9.0
Aroclor-1232	ND	14	4.4
Aroclor-1242	ND	14	4.1
Aroclor-1248	ND	14	4.3
Aroclor-1254	ND	14	3.5
Aroclor-1260	ND	14	2.2

Surrogate	%REC	Limits
TCMX	98	60-140
Decachlorobiphenyl	75	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	20141022B45001-R1	Batch#:	216996
Lab ID:	261949-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/05/14
Diln Fac:	1.000		

Moisture: 9%

Analyte	Result	RL	MDL
Aroclor-1016	ND	13	3.9
Aroclor-1221	ND	26	11
Aroclor-1232	ND	13	5.1
Aroclor-1242	ND	13	4.7
Aroclor-1248	ND	13	5.0
Aroclor-1254	31	13	4.0
Aroclor-1260	7.5 J	13	2.6

Surrogate	%REC	Limits
TCMX	115	60-140
Decachlorobiphenyl	89	36-133

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	20141022B45001-R2	Batch#:	216996
Lab ID:	261949-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/05/14
Diln Fac:	1.000		

Moisture: 14%

Analyte	Result	RL	MDL
Aroclor-1016	ND	14	4.1
Aroclor-1221	ND	28	11
Aroclor-1232	ND	14	5.4
Aroclor-1242	ND	14	5.0
Aroclor-1248	ND	14	5.3
Aroclor-1254	10 J	14	4.3
Aroclor-1260	8.1 J	14	2.7

Surrogate	%REC	Limits
TCMX	110	60-140
Decachlorobiphenyl	95	36-133

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763852	Batch#:	216980
Matrix:	Soil	Prepared:	10/31/14
Units:	ug/Kg	Analyzed:	10/31/14

Analyte	Result	RL	MDL
Aroclor-1016	ND	12	3.0
Aroclor-1221	ND	24	8.1
Aroclor-1232	ND	12	3.9
Aroclor-1242	ND	12	3.6
Aroclor-1248	ND	12	3.9
Aroclor-1254	ND	12	3.1
Aroclor-1260	ND	12	2.0

Surrogate	%REC	Limits
TCMX	107	60-140
Decachlorobiphenyl	83	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763853	Batch#:	216980
Matrix:	Soil	Prepared:	10/31/14
Units:	ug/Kg	Analyzed:	10/31/14

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	168.2	175.9	105	58-144
Aroclor-1260	168.2	166.1	99	55-146

Surrogate	%REC	Limits
TCMX	98	60-140
Decachlorobiphenyl	84	36-133

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	216980
MSS Lab ID:	262017-002	Sampled:	10/24/14
Matrix:	Soil	Received:	10/27/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	as received	Analyzed:	10/31/14
Diln Fac:	1.000		

Type: MS Lab ID: QC763854

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<2.937	167.5	169.1	101	51-155
Aroclor-1260	11.35	167.5	158.7	88	38-155

Surrogate	%REC	Limits
TCMX	106	60-140
Decachlorobiphenyl	78	36-133

Type: MSD Lab ID: QC763855

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	167.0	165.6	99	51-155	2	38
Aroclor-1260	167.0	156.0	87	38-155	1	55

Surrogate	%REC	Limits
TCMX	101	60-140
Decachlorobiphenyl	78	36-133

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Type:	BLANK	Diln Fac:	1.000
Lab ID:	QC763913	Batch#:	216996
Matrix:	Soil	Prepared:	10/31/14
Units:	ug/Kg	Analyzed:	11/05/14

Analyte	Result	RL	MDL
Aroclor-1016	ND	12	3.5
Aroclor-1221	ND	24	9.6
Aroclor-1232	ND	12	4.7
Aroclor-1242	ND	12	4.3
Aroclor-1248	ND	12	4.6
Aroclor-1254	ND	12	3.7
Aroclor-1260	ND	12	2.3

Surrogate	%REC	Limits
TCMX	127	60-140
Decachlorobiphenyl	115	36-133

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Type:	LCS	Diln Fac:	1.000
Lab ID:	QC763914	Batch#:	216996
Matrix:	Soil	Prepared:	10/31/14
Units:	ug/Kg	Analyzed:	11/05/14

Analyte	Spiked	Result	%REC	Limits
Aroclor-1016	169.1	227.9	135	58-144
Aroclor-1260	169.1	238.9	141	55-146

Surrogate	%REC	Limits
TCMX	127	60-140
Decachlorobiphenyl	112	36-133

Curtis & Tompkins, Ltd.

Batch QC Report

Polychlorinated Biphenyls (PCBs)

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3550B
Project#:	RFS-B450	Analysis:	EPA 8082
Field ID:	ZZZZZZZZZZ	Batch#:	216996
MSS Lab ID:	261950-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	ug/Kg	Prepared:	10/31/14
Basis:	dry	Analyzed:	11/05/14
Diln Fac:	1.000		

Type: MS Moisture: 10%
Lab ID: QC763915

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aroclor-1016	<3.943	188.2	ND	0 *	51-155
Aroclor-1260	33.70	188.2	213.3	95	38-155

Surrogate	%REC	Limits
TCMX	107	60-140
Decachlorobiphenyl	83	36-133

Type: MSD Moisture: 10%
Lab ID: QC763916

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aroclor-1016	184.8	ND	0 *	51-155	NC	38
Aroclor-1260	184.8	277.1	132	38-155	28	55

Surrogate	%REC	Limits
TCMX	148 *	60-140
Decachlorobiphenyl	94	36-133

*= Value outside of QC limits; see narrative
NC= Not Calculated
ND= Not Detected at or above MDL
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
Metals

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003
20141022B45001-R1	261949-004
20141022B45001-R2	261949-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001

Curtis & Tompkins, Ltd.

CASE NARRATIVE
METALS (EPA 6020 AND EPA 7471A)

Laboratory number:	**261949**
Client:	**Tetra Tech EMI**
Project:	**RFS-B450**
Location:	**RFS-B450**
Request Date:	**10/22/14**
Samples Received:	**10/22/14**

This data package contains sample and QC results for five soil samples, requested for the above referenced project on 10/22/14. See attached cooler receipt form for any sample receipt problems or discrepancies.

Metals (EPA 6020 and EPA 7471A):

Low recoveries were observed for molybdenum and antimony in the MS/MSD for batch 216676; the parent sample was not a project sample, and the associated RPDs were within limits. High recoveries were observed for chromium and nickel; the associated RPDs were within limits.

High recovery was observed for barium in the post digest spike for batch 216676; the parent sample was not a project sample.

Responses exceeding the instrument's linear range were observed for barium, calcium, and manganese in the MS/MSD for batch 216676.

High % differences were observed for iron, potassium, and nickel in the serial dilution for batch 216676.

Calcium, iron, and potassium were detected between the MDL and the RL in the method blank for batch 216676; these analytes were detected in samples at a level at least 10 times that of the blank.

No other analytical problems were encountered.

Chain of Custody

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. 261949 6886

Lab PO#: TO Solicited
Lab: C+T
Project name: RFS-B45Q
TtEMI technical contact: Sara Woolley
Field samplers: Dayna Aragon, Sara Woolley
Project (CTO) number:
TtEMI project manager: Jason Bodensen
Field samplers' signatures:

Sample ID	Sample Location (Pt. ID)	Date	Time	Matrix	MS / MSD	40 ml VOA	1 liter Amber	500 ml Poly	Sleeve	Glass Jar	Plastic Bag	Encores	VOA	SVOA	Pest/PCBs	Metals	TPH Purgeables	TPH Extractables	PCB	PAH-SIM
20141022B45Q01		10/22/14	1500	Soil						1	1	5	X	X	X	X	X	X	X	X
B45Q02										1	1	5	X	X	X	X	X	X	X	X
B45Q03										1	1	5	X	X	X	X	X	X	X	X
B45Q01-R1										1	1			X	X	X	X	X	X	X
45Q01-R2										1	1			X	X	X	X	X	X	X

Preservative Added: None

	Name (print)	Company Name	Date	Time
Relinquished by:	Dayna Aragon	Tetra Tech	10/22/14	1705
Received by:	Isabelle Ohlsen	C&T	10/22/14	1705
Relinquished by:				
Received by:				
Relinquished by:				
Received by:				

Turnaround time/remarks:

Fed Ex #:

WHITE-Laboratory Copy YELLOW-Sample Tracker PINK-File Copy

COOLER RECEIPT CHECKLIST

Curtis & Tompkins, Ltd.

Login # 261949 Date Received 10/22/14 Number of coolers 3
Client Tetra Tech Project RFS - 3450

Date Opened 10/22 By (print) SL (sign)
Date Logged in 10/22 By (print) PJ (sign)

1. Did cooler come with a shipping slip (airbill, etc)_____ YES (NO)
Shipping info_____

2A. Were custody seals present? .... ☐ YES (circle) on cooler on samples ☒ NO
How many _____ Name_____ Date_____
2B. Were custody seals intact upon arrival? _____ YES NO (N/A)
3. Were custody papers dry and intact when received?_____ (YES) NO
4. Were custody papers filled out properly (ink, signed, etc)? _____ (YES) NO
5. Is the project identifiable from custody papers? (If so fill out top of form)___ (YES) NO
6. Indicate the packing in cooler: (if other, describe)_____

☐ Bubble Wrap ☐ Foam blocks ☐ Bags ☒ None
☐ Cloth material ☐ Cardboard ☐ Styrofoam ☐ Paper towels

7. Temperature documentation: * Notify PM if temperature exceeds 6°C

Type of ice used: ☒ Wet ☐ Blue/Gel ☐ None Temp(°C) 5.9°, 6.3°

☐ Samples Received on ice & cold without a temperature blank; temp. taken with IR gun

☐ Samples received on ice directly from the field. Cooling process had begun

8. Were Method 5035 sampling containers present? 10/22 (YES) NO
If YES, what time were they transferred to freezer? 2310
9. Did all bottles arrive unbroken/unopened? _____ (YES) NO SL
10. Are there any missing / extra samples? _____ YES (NO)
11. Are samples in the appropriate containers for indicated tests? _____ (YES) NO
12. Are sample labels present, in good condition and complete? _____ (YES) NO
13. Do the sample labels agree with custody papers? _____ (YES) NO
14. Was sufficient amount of sample sent for tests requested? _____ (YES) NO
15. Are the samples appropriately preserved? _____ YES NO (N/A)
16. Did you check preservatives for all bottles for each sample? _____ YES NO (N/A)
17. Did you document your preservative check? _____ YES NO (N/A)
18. Did you change the hold time in LIMS for unpreserved VOAs? _____ YES NO (N/A)
19. Did you change the hold time in LIMS for preserved terracores? _____ YES NO (N/A)
20. Are bubbles > 6mm absent in VOA samples? _____ YES NO (N/A)
21. Was the client contacted concerning this sample delivery? _____ YES (NO)
If YES, Who was called?_____ By_____ Date:_____

COMMENTS

_____
_____
_____
_____
_____
_____

Rev 10, 9/12

Results & QC Summary

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261949	Project#:	RFS-B450
Client:	Tetra Tech EMI	Location:	RFS-B450
Field ID:	20141022B45001	Basis:	dry
Lab ID:	261949-001	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/23/14

Moisture: 11%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Aluminum	26,000	40	13	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Antimony	2.0	0.28	0.054	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Arsenic	3.6	0.28	0.091	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Barium	180	0.28	0.074	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Beryllium	0.68	0.28	0.039	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cadmium	0.14 J	0.28	0.060	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Calcium	4,800	28	2.9	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Chromium	64	0.28	0.081	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cobalt	11	0.28	0.065	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Copper	30	0.30	0.10	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Iron	23,000	14	3.4	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Lead	15	0.28	0.074	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Magnesium	4,300	28	3.8	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Manganese	590	22	6.8	2,500	216676	10/24/14	EPA 3050B	EPA 6020
Mercury	2.0	0.20	0.011	10.00	216711	10/23/14	METHOD	EPA 7471A
Molybdenum	0.39 J	0.45	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Nickel	43	0.43	0.14	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Potassium	570	28	7.3	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Selenium	0.24 J	0.28	0.089	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Silver	0.098 J	0.28	0.028	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Sodium	230	30	10	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Thallium	0.12 J	0.28	0.022	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Vanadium	39	0.49	0.16	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Zinc	43	1.1	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261949	Project#:	RFS-B450
Client:	Tetra Tech EMI	Location:	RFS-B450
Field ID:	20141022B45002	Basis:	dry
Lab ID:	261949-002	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/23/14

Moisture: 13%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Aluminum	27,000	45	15	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Antimony	0.68	0.29	0.061	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Arsenic	3.2	0.31	0.10	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Barium	130	0.29	0.084	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Beryllium	0.63	0.29	0.060	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cadmium	0.096 J	0.29	0.069	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Calcium	4,300	29	3.4	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Chromium	76	0.29	0.093	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cobalt	18	0.29	0.075	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Copper	25	0.35	0.12	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Iron	23,000	16	4.0	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Lead	7.8	0.29	0.084	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Magnesium	5,100	29	4.4	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Manganese	870	25	7.8	2,500	216676	10/24/14	EPA 3050B	EPA 6020
Mercury	0.27	0.018	0.00099	1.000	216711	10/23/14	METHOD	EPA 7471A
Molybdenum	0.25 J	0.51	0.17	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Nickel	68	0.49	0.16	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Potassium	390	29	8.4	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Selenium	0.21 J	0.31	0.10	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Silver	0.099 J	0.29	0.032	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Sodium	470	34	11	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Thallium	0.12 J	0.29	0.025	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Vanadium	44	0.56	0.19	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Zinc	44	1.1	0.18	25.00	216676	10/24/14	EPA 3050B	EPA 6020

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261949	Project#:	RFS-B450
Client:	Tetra Tech EMI	Location:	RFS-B450
Field ID:	20141022B45003	Basis:	dry
Lab ID:	261949-003	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/23/14

Moisture: 12%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Aluminum	19,000	42	14	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Antimony	0.63	0.28	0.057	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Arsenic	11	0.29	0.096	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Barium	170	0.28	0.078	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Beryllium	0.55	0.28	0.041	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cadmium	0.12 J	0.28	0.064	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Calcium	6,200	28	3.1	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Chromium	63	0.28	0.086	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cobalt	19	0.28	0.069	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Copper	27	0.32	0.11	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Iron	26,000	15	3.7	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Lead	8.4	0.28	0.078	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Magnesium	9,000	28	4.0	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Manganese	1,200	23	7.2	2,500	216676	10/24/14	EPA 3050B	EPA 6020
Mercury	0.089	0.017	0.00098	1.000	216711	10/23/14	METHOD	EPA 7471A
Molybdenum	0.36 J	0.48	0.16	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Nickel	100	0.46	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Potassium	640	28	7.8	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Selenium	ND	0.28	0.094	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Silver	0.032 J	0.28	0.030	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Sodium	1,400	32	11	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Thallium	0.10 J	0.28	0.023	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Vanadium	63	0.52	0.17	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Zinc	46	1.1	0.16	25.00	216676	10/24/14	EPA 3050B	EPA 6020

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261949	Project#:	RFS-B450
Client:	Tetra Tech EMI	Location:	RFS-B450
Field ID:	20141022B45001-R1	Basis:	dry
Lab ID:	261949-004	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/23/14

Moisture: 9%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Aluminum	15,000	41	14	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Antimony	0.65	0.27	0.056	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Arsenic	4.1	0.28	0.094	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Barium	130	0.27	0.076	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Beryllium	0.49	0.27	0.054	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cadmium	0.36	0.27	0.062	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Calcium	4,900	27	3.1	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Chromium	38	0.27	0.084	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cobalt	12	0.27	0.068	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Copper	42	0.32	0.11	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Iron	17,000	14	3.6	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Lead	29	0.27	0.076	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Magnesium	3,800	27	4.0	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Manganese	690	27	9.1	2,500	216676	10/24/14	EPA 3050B	EPA 6020
Mercury	3.4	0.39	0.022	20.00	216711	10/23/14	METHOD	EPA 7471A
Molybdenum	0.30 J	0.46	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Nickel	33	0.44	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Potassium	840	27	7.6	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Selenium	0.16 J	0.28	0.092	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Silver	0.080 J	0.27	0.029	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Sodium	130	31	10	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Thallium	0.083 J	0.27	0.023	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Vanadium	29	0.50	0.17	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Zinc	87	1.1	0.16	25.00	216676	10/24/14	EPA 3050B	EPA 6020

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Target Analyte List Metals

Lab #:	261949	Project#:	RFS-B450
Client:	Tetra Tech EMI	Location:	RFS-B450
Field ID:	20141022B45001-R2	Basis:	dry
Lab ID:	261949-005	Sampled:	10/22/14
Matrix:	Soil	Received:	10/22/14
Units:	mg/Kg	Prepared:	10/23/14

Moisture: 14%

Analyte	Result	RL	MDL	Diln Fac	Batch#	Analyzed	Prep	Analysis
Aluminum	17,000	40	13	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Antimony	0.53	0.28	0.054	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Arsenic	5.3	0.28	0.091	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Barium	160	0.28	0.056	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Beryllium	0.49	0.28	0.039	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cadmium	1.7	0.28	0.060	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Calcium	5,300	28	3.0	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Chromium	57	0.28	0.081	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Cobalt	10	0.28	0.066	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Copper	50	0.31	0.10	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Iron	21,000	14	3.5	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Lead	34	0.28	0.040	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Magnesium	4,900	28	3.8	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Manganese	560	22	6.8	2,500	216676	10/24/14	EPA 3050B	EPA 6020
Mercury	2.7	0.36	0.020	20.00	216711	10/23/14	METHOD	EPA 7471A
Molybdenum	0.43 J	0.45	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Nickel	49	0.43	0.14	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Potassium	990	28	7.3	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Selenium	0.39	0.28	0.089	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Silver	0.087 J	0.28	0.028	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Sodium	160	29	9.5	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Thallium	0.084 J	0.28	0.022	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Vanadium	35	0.49	0.16	25.00	216676	10/24/14	EPA 3050B	EPA 6020
Zinc	64	1.1	0.15	25.00	216676	10/24/14	EPA 3050B	EPA 6020

J= Estimated value
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B450	Analysis:	EPA 6020
Type:	BLANK	Diln Fac:	25.00
Lab ID:	QC762668	Batch#:	216676
Matrix:	Miscell.	Prepared:	10/22/14
Units:	mg/Kg	Analyzed:	10/24/14

Analyte	Result	RL	MDL
Aluminum	ND	36	12
Antimony	ND	0.25	0.049
Arsenic	ND	0.25	0.082
Barium	ND	0.25	0.067
Beryllium	ND	0.25	0.035
Cadmium	ND	0.25	0.055
Calcium	11 J	25	2.7
Chromium	ND	0.25	0.074
Cobalt	ND	0.25	0.059
Copper	ND	0.28	0.092
Iron	4.0 J	13	3.2
Lead	ND	0.25	0.036
Magnesium	ND	25	3.5
Manganese	ND	0.25	0.080
Molybdenum	ND	0.41	0.14
Nickel	ND	0.39	0.13
Potassium	8.2 J	25	6.6
Selenium	ND	0.25	0.081
Silver	ND	0.25	0.025
Sodium	ND	27	9.0
Thallium	ND	0.25	0.020
Vanadium	ND	0.44	0.15
Zinc	ND	1.0	0.14

J= Estimated value
ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B450	Analysis:	EPA 6020
Matrix:	Miscell.	Batch#:	216676
Units:	mg/Kg	Prepared:	10/22/14
Diln Fac:	25.00	Analyzed:	10/24/14

Type: BS Lab ID: QC762669

Analyte	Spiked	Result	%REC	Limits
Aluminum	50.00	50.55	101	57-164
Antimony	50.00	47.84	96	79-120
Arsenic	50.00	48.69	97	80-120
Barium	50.00	49.10	98	80-120
Beryllium	50.00	49.55	99	64-120
Cadmium	50.00	48.75	98	80-120
Calcium	5,000	4,791	96	72-120
Chromium	50.00	53.75	108	80-120
Cobalt	50.00	54.26	109	80-120
Copper	50.00	51.69	103	80-125
Iron	5,000	5,261	105	80-124
Lead	50.00	50.34	101	80-120
Magnesium	5,000	4,991	100	69-132
Manganese	50.00	54.10	108	80-120
Molybdenum	50.00	48.59	97	80-120
Nickel	50.00	56.20	112	80-122
Potassium	5,000	5,053	101	77-132
Selenium	50.00	49.49	99	80-122
Silver	50.00	49.31	99	80-127
Sodium	5,000	5,041	101	71-138
Thallium	50.00	47.78	96	77-120
Vanadium	50.00	51.65	103	80-120
Zinc	50.00	48.30	97	80-133

Type: BSD Lab ID: QC762670

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	50.00	49.74	99	57-164	2	42
Antimony	50.00	47.38	95	79-120	1	20
Arsenic	50.00	49.43	99	80-120	2	20
Barium	50.00	49.43	99	80-120	1	22
Beryllium	50.00	49.06	98	64-120	1	30
Cadmium	50.00	48.58	97	80-120	0	23
Calcium	5,000	4,726	95	72-120	1	22
Chromium	50.00	51.15	102	80-120	5	20
Cobalt	50.00	51.89	104	80-120	4	20
Copper	50.00	51.46	103	80-125	0	20
Iron	5,000	5,253	105	80-124	0	32
Lead	50.00	49.91	100	80-120	1	20
Magnesium	5,000	4,949	99	69-132	1	23
Manganese	50.00	51.09	102	80-120	6	20
Molybdenum	50.00	48.41	97	80-120	0	20
Nickel	50.00	53.14	106	80-122	6	20
Potassium	5,000	4,995	100	77-132	1	22
Selenium	50.00	49.60	99	80-122	0	23
Silver	50.00	48.93	98	80-127	1	20
Sodium	5,000	4,811	96	71-138	5	21
Thallium	50.00	47.53	95	77-120	1	21
Vanadium	50.00	49.11	98	80-120	5	20
Zinc	50.00	47.85	96	80-133	1	33

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B450	Analysis:	EPA 6020
Field ID:	ZZZZZZZZZZ	Batch#:	216676
MSS Lab ID:	261865-001	Sampled:	10/11/14
Matrix:	Miscell.	Received:	10/15/14
Units:	mg/Kg	Prepared:	10/22/14
Basis:	as received	Analyzed:	10/24/14
Diln Fac:	25.00		

Type: MS Lab ID: QC762671

Analyte	MSS Result	Spiked	Result	%REC	Limits
Aluminum	11,500	48.54	11,720	465 NM	50-151
Antimony	7.643	48.54	11.47	8 *	25-120
Arsenic	<7.836	48.54	44.49	92	75-120
Barium	3,312	48.54	3,421 >LR	225 NM	47-145
Beryllium	6.452	48.54	46.98	83	68-120
Cadmium	<5.191	48.54	47.69	98	76-120
Calcium	86,550	4,854	100,400 >LR	285 NM	55-132
Chromium	86.52	48.54	144.1	119	60-133
Cobalt	8.071	48.54	56.77	100	71-122
Copper	26.30	48.54	72.50	95	64-131
Iron	15,580	4,854	21,440	121	49-139
Lead	6.238	48.54	56.41	103	68-127
Magnesium	7,108	4,854	11,560	92	48-146
Manganese	293.6	48.54	386.5 >LR	191 NM	52-134
Molybdenum	24.20	48.54	42.03	37 *	70-120
Nickel	<12.34	48.54	83.41	172 *	58-138
Potassium	746.0	4,854	5,525	98	62-129
Selenium	9.536	48.54	42.35	68	68-121
Silver	<2.406	48.54	48.23	99	80-125
Sodium	719.3	4,854	5,496	98	58-126
Thallium	4.571	48.54	42.67	78	76-120
Vanadium	52.02	48.54	97.05	93	58-132
Zinc	96.26	48.54	138.1	86	41-147

*= Value outside of QC limits; see narrative
NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B450	Analysis:	EPA 6020
Field ID:	ZZZZZZZZZZ	Batch#:	216676
MSS Lab ID:	261865-001	Sampled:	10/11/14
Matrix:	Miscell.	Received:	10/15/14
Units:	mg/Kg	Prepared:	10/22/14
Basis:	as received	Analyzed:	10/24/14
Diln Fac:	25.00		

Type: MSD Lab ID: QC762672

Analyte	Spiked	Result	%REC	Limits	RPD	Lim
Aluminum	49.02	12,440	1922 NM	50-151	6	56
Antimony	49.02	13.44	12 *	25-120	15	24
Arsenic	49.02	49.68	101	75-120	10	27
Barium	49.02	3,619 >LR	626 NM	47-145	NC	20
Beryllium	49.02	49.91	89	68-120	5	34
Cadmium	49.02	50.56	103	76-120	5	31
Calcium	4,902	114,600 >LR	573 NM	55-132	NC	20
Chromium	49.02	158.2	146 *	60-133	9	20
Cobalt	49.02	64.01	114	71-122	11	23
Copper	49.02	81.47	113	64-131	11	52
Iron	4,902	20,100	92	49-139	7	31
Lead	49.02	59.93	110	68-127	5	29
Magnesium	4,902	12,770	115	48-146	10	39
Manganese	49.02	404.3 >LR	226 NM	52-134	NC	38
Molybdenum	49.02	45.47	43 *	70-120	7	22
Nickel	49.02	94.22	192 *	58-138	11	32
Potassium	4,902	5,929	106	62-129	6	47
Selenium	49.02	46.90	76	68-121	9	31
Silver	49.02	51.54	105	80-125	6	27
Sodium	4,902	5,963	107	58-126	7	20
Thallium	49.02	46.50	86	76-120	8	29
Vanadium	49.02	107.3	113	58-132	10	20
Zinc	49.02	132.7	74	41-147	4	40

*= Value outside of QC limits; see narrative
NC= Not Calculated
NM= Not Meaningful: Sample concentration > 4X spike concentration
>LR= Response exceeds instrument's linear range
RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B450	Analysis:	EPA 6020
Field ID:	ZZZZZZZZZZ	Units:	mg/Kg
Type:	Serial Dilution	Basis:	as received
MSS Lab ID:	261865-001	Batch#:	216676
Lab ID:	QC762673	Sampled:	10/11/14
Matrix:	Miscell.	Received:	10/15/14

Analyte	MSS Result	MSS RL	Result	RL	% Diff	Lim	Diln Fac	Analyzed
Aluminum	11,500	34.23	11,970	171.1	4	10	125.0	10/24/14
Antimony	0.1561	0.2381	ND	0.6943	NC	10	125.0	10/24/14
Arsenic	2.158	0.2381	2.035	1.175	NC	10	125.0	10/24/14
Barium	3,312	19.09	3,015	95.45	9	10	12,500	10/23/14
Beryllium	0.2385	0.2381	0.4167 J	0.5952	NC	10	125.0	10/24/14
Cadmium	0.1936	0.2381	ND	0.7786	NC	10	125.0	10/24/14
Calcium	86,550	1,190	83,150	5,952	4	10	12,500	10/23/14
Chromium	93.87	0.2381	99.94	1.051	6	10	125.0	10/24/14
Cobalt	6.613	0.2381	7.149	0.9524	8	10	125.0	10/24/14
Copper	25.64	0.2632	27.18	1.316	6	10	125.0	10/24/14
Iron	15,580	11.90	19,350	59.52	24 *	10	125.0	10/24/14
Lead	3.805	0.2381	3.923	0.5952	3	10	125.0	10/24/14
Magnesium	7,108	23.81	7,429	59.52	5	10	125.0	10/24/14
Manganese	293.6	22.83	232.7	114.1	NC	10	12,500	10/23/14
Molybdenum	0.4580	0.3862	ND	1.931	NC	10	125.0	10/24/14
Nickel	36.37	0.3702	28.68	1.851	21 *	10	125.0	10/24/14
Potassium	746.0	23.81	604.8	95.24	19 *	10	125.0	10/24/14
Selenium	ND	0.2381	ND	1.152	NC	10	125.0	10/24/14
Silver	0.1226	0.2381	ND	0.5952	NC	10	125.0	10/24/14
Sodium	719.3	25.82	723.2	129.1	1	10	125.0	10/24/14
Thallium	ND	0.2381	ND	0.2976	NC	10	125.0	10/24/14
Vanadium	45.37	0.4198	47.29	2.099	4	10	125.0	10/24/14
Zinc	105.9	0.9524	108.4	2.976	2	10	125.0	10/24/14

*= Value outside of QC limits; see narrative
J= Estimated value
NC= Not Calculated
ND= Not Detected at or above MDL
RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	EPA 3050B
Project#:	RFS-B450	Analysis:	EPA 6020
Field ID:	ZZZZZZZZZZ	Basis:	as received
Type:	Post Digest Spike	Batch#:	216676
MSS Lab ID:	261865-001	Sampled:	10/11/14
Lab ID:	QC762674	Received:	10/15/14
Matrix:	Miscell.	Analyzed:	10/24/14
Units:	mg/Kg		

Analyte	MSS Result	Spiked	Result	%REC	Limits	Diln Fac
Aluminum	11,500	5,952	18,560	119	75-125	25.00
Antimony	0.1561	59.52	58.40	98	75-125	25.00
Arsenic	2.158	59.52	62.50	101	75-125	25.00
Barium	3,312	5,952	10,850	127 *	75-125	2,500
Beryllium	0.2385	59.52	60.20	101	75-125	25.00
Cadmium	0.1936	59.52	61.49	103	75-125	25.00
Calcium	86,550	595,200	723,200	107	75-125	2,500
Chromium	93.87	59.52	163.3	117	75-125	25.00
Cobalt	6.613	59.52	71.58	109	75-125	25.00
Copper	25.64	59.52	88.63	106	75-125	25.00
Iron	15,580	5,952	20,550	83	75-125	25.00
Lead	3.805	59.52	72.44	115	75-125	25.00
Magnesium	7,108	5,952	13,920	114	75-125	25.00
Manganese	293.6	5,952	7,069	114	75-125	2,500
Molybdenum	0.4580	59.52	59.35	99	75-125	25.00
Nickel	36.37	59.52	102.6	111	75-125	25.00
Potassium	746.0	5,952	7,237	109	75-125	25.00
Selenium	<0.07679	59.52	65.96	111	75-125	25.00
Silver	0.1226	59.52	55.69	93	75-125	25.00
Sodium	719.3	5,952	6,904	104	75-125	25.00
Thallium	<0.01883	29.76	32.05	108	75-125	25.00
Vanadium	45.37	59.52	110.4	109	75-125	25.00
Zinc	105.9	59.52	170.2	108	75-125	25.00

*= Value outside of QC limits; see narrative

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	216711
Lab ID:	QC762809	Prepared:	10/23/14
Matrix:	Soil	Analyzed:	10/23/14
Units:	mg/Kg		

Result	RL	MDL
ND	0.017	0.00093

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals			
Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Type:	BLANK	Batch#:	216711
Lab ID:	QC762809	Prepared:	10/23/14
Matrix:	Soil	Analyzed:	10/23/14
Units:	mg/Kg		

Result	RL	MDL
ND	0.017	0.00093

ND= Not Detected at or above MDL
RL= Reporting Limit
MDL= Method Detection Limit

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	216711
Matrix:	Soil	Prepared:	10/23/14
Units:	mg/Kg	Analyzed:	10/23/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC762810	0.2083	0.2141	103	80-120		
BSD	QC762811	0.2083	0.2141	103	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Batch#:	216711
Matrix:	Soil	Prepared:	10/23/14
Units:	mg/Kg	Analyzed:	10/23/14
Diln Fac:	1.000		

Type	Lab ID	Spiked	Result	%REC	Limits	RPD	Lim
BS	QC762810	0.2083	0.2141	103	80-120		
BSD	QC762811	0.2083	0.2141	103	80-120	0	20

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	216711
MSS Lab ID:	261732-001	Sampled:	10/15/14
Matrix:	Soil	Received:	10/15/14
Units:	mg/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/23/14

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC762812	0.3632	0.2367	0.5966	99	69-136	12%		
MSD	QC762813		0.2329	0.5905	98	69-136	12%	0	35

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Diln Fac:	1.000
Field ID:	ZZZZZZZZZZ	Batch#:	216711
MSS Lab ID:	261732-001	Sampled:	10/15/14
Matrix:	Soil	Received:	10/15/14
Units:	mg/Kg	Prepared:	10/23/14
Basis:	dry	Analyzed:	10/23/14

Type	Lab ID	MSS Result	Spiked	Result	%REC	Limits	Moisture	RPD	Lim
MS	QC762812	0.3632	0.2367	0.5966	99	69-136	12%		
MSD	QC762813		0.2329	0.5905	98	69-136	12%	0	35

RPD= Relative Percent Difference

Curtis & Tompkins, Ltd.

Batch QC Report

California Title 22 Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	216711
MSS Lab ID:	261732-001	Sampled:	10/15/14
Lab ID:	QC762814	Received:	10/15/14
Matrix:	Soil	Analyzed:	10/23/14
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
0.3632	0.02066	0.3691	0.1033	12%	2	10

RL= Reporting Limit

Curtis & Tompkins, Ltd.

Batch QC Report

Target Analyte List Metals

Lab #:	261949	Location:	RFS-B450
Client:	Tetra Tech EMI	Prep:	METHOD
Project#:	RFS-B450	Analysis:	EPA 7471A
Analyte:	Mercury	Basis:	dry
Field ID:	ZZZZZZZZZZ	Diln Fac:	5.000
Type:	Serial Dilution	Batch#:	216711
MSS Lab ID:	261732-001	Sampled:	10/15/14
Lab ID:	QC762814	Received:	10/15/14
Matrix:	Soil	Analyzed:	10/23/14
Units:	mg/Kg		

MSS Result	MSS RL	Result	RL	Moisture %	Diff	Lim
0.3632	0.02066	0.3691	0.1033	12%	2	10

RL= Reporting Limit

Curtis & Tompkins, Ltd., Analytical Laboratories, Since 1878
2323 Fifth Street, Berkeley, CA 94710, Phone (510) 486-0900

Laboratory Job Number 261949
ANALYTICAL REPORT
Wet Chemistry

Tetra Tech EMI	Project : RFS-B450
1999 Harrison Street	Location : RFS-B450
Oakland, CA 94612	Level : IV

Sample ID	Lab ID
20141022B45001	261949-001
20141022B45002	261949-002
20141022B45003	261949-003
20141022B45001-R1	261949-004
20141022B45001-R2	261949-005

This data package has been reviewed for technical correctness and completeness. Release of this data has been authorized by the Laboratory Manager or the Manager's designee, as verified by the following signature. The results contained in this report meet all requirements of NELAC and pertain only to those samples which were submitted for analysis. This report may be reproduced only in its entirety.

Signature: _____ Date: 11/10/2014

Mike J. Dahlquist
Project Manager
mike.dahlquist@ctberk.com

CA ELAP# 2896, NELAP# 4044-001