SITE INFORMATION

Report Type: Work Plan

General Site Information:						
Site:	RJU South Tank Battery					
Company:	COG Operating LLC					
Section, Township and Range	Unit C	Sec 35	T17S	R29E		
Lease Number:	API-30-015-03783					
County:	Eddy County					
GPS:	32.79415° N			104.05014° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From Hwy 82 and CR213 travel south on CR213 for 1.7 miles, turn left and travel 0.3 miles, turn right and travel 0.1 miles to site.					

Release Data:	
Date Released:	12/22/2010
Type Release:	Produced Fluid
Source of Contamination:	Flowline failure
Fluid Released:	9 bbls
Fluids Recovered:	8 bbls

Official Communication:			
Name:	Pat Ellis		Ike Tavarez
Company:	COG Operating, LLC		Tetra Tech
Address:	550 W. Texas Ave. Ste. 1300		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79701		Midland, Texas
Phone number:	(432) 686-3023		(432) 425-3878
Fax:	(432) 684-7137		
Email:	pellis@conchoresources.com		ike.tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	0	**0**
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	
Water Source >1,000 ft., Private >200 ft.	0	0
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	
200 ft - 1,000 ft.	10	
>1,000 ft.	0	0
Total Ranking Score:	**0**	

Acceptable Soil RRAL (mg/kg)		
Benzene	***Total BTEX***	***TPH***
10	50	5,000

TETRA TECH

April 19, 2011

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, New Mexico 88210

Re: Work Plan for the COG Operating LLC., RJU South Tank Battery, Unit C, Section 35, Township 17 South, Range 29 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by COG Operating LLC. (COG) to assess a spill from the RJU South Tank Battery located in Unit C, Section 35, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.79415°, W 104.05014°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on December 22, 2010, from a steel flow line, releasing approximately nine (9) barrels of produced fluid in the pasture. Eight (8) barrels of standing fluids were recovered. To alleviate the problem, COG personnel repaired the flow line. The spill initiated in the pasture south of the tank battery and affected an area approximately 15' x 40' and 5' x 110' (tapering to 1.0'). The initial and final C-141 forms are enclosed in Appendix A.

Groundwater

According to the NMOCD groundwater map, one well is shown with a reported depth to water at 153'. Based on the groundwater data, the average depth to groundwater in this area is greater than 100' below surface. The depth to groundwater data is shown in Appendix B.

Tetra Tech
1910 North Big Spring, Midland,TX 79705
Tel 432.682.4559 Fax 432.682.3946 www.tetratech.com

Regulatory

A risk-based evaluation was performed for the Site in accordance with the New Mexico Oil Conservation Division (NMOCD) Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Analytical Results

On February 9, 2011, Tetra Tech personnel inspected and sampled the spill area. Three (3) auger holes (AH-1, AH-2 and AH-3) were installed using a stainless steel hand auger to assess the impacted soils. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The results of the sampling are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, auger hole (AH-2) exceeded the TPH RRAL at 0-1' of 19,570 mg/kg and at 1-1.5' of 11,320 mg/kg, which declined below the RRAL at 2-2.5' below surface. Auger hole (AH-3) also exceeded the TPH RRAL at 0-1 of 8,000 mg/kg and declined below the RRAL at 1-1.5' below surface. In addition, auger holes (AH-2 and AH-3) also exceeded either benzene or total BTEX concentrations, but declined at 1.0' to 2.0' below surface.

Chloride concentrations were detected in all of the auger holes. Auger hole (AH-1) showed a chloride high of 3,090 mg/kg at 0-1' and significantly declined to 504 mg/kg at 3.5-4.0' below surface. Auger holes (AH-2 and AH-3) have concentrations that increase with depth, which suggests that historical contamination has affected the spill foot print in this area. AH-2 and AH-3 were not vertically defined.

TETRA TECH

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area of AH-1 will be excavated to depth of 2.0' to 3.0' below surface. With regards to AH-2, once the material has been removed approximately (4.0'), a backhoe trench will be installed to attempt to delineate the chloride impact. In addition, the area of AH-3 will be excavated (1.0') and a backhoe trench installed to define the chloride impact encountered in the deeper soils. Once defined and excavated to the appropriate depths, the excavations will be backfilled with clean soil.

If deeper impact is encountered, the proposed excavation depths may not be reached due to wall cave ins and safety concerns for onsite personnel. In addition, impacted soil around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. If the depths are not reached, a 40 mil liner will be installed at depth of 4' to 5' below surface to cap the impacted area.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez
Senior Project Manager

cc: Pat Ellis – COG
cc: Terry Gregston – BLM

Figures

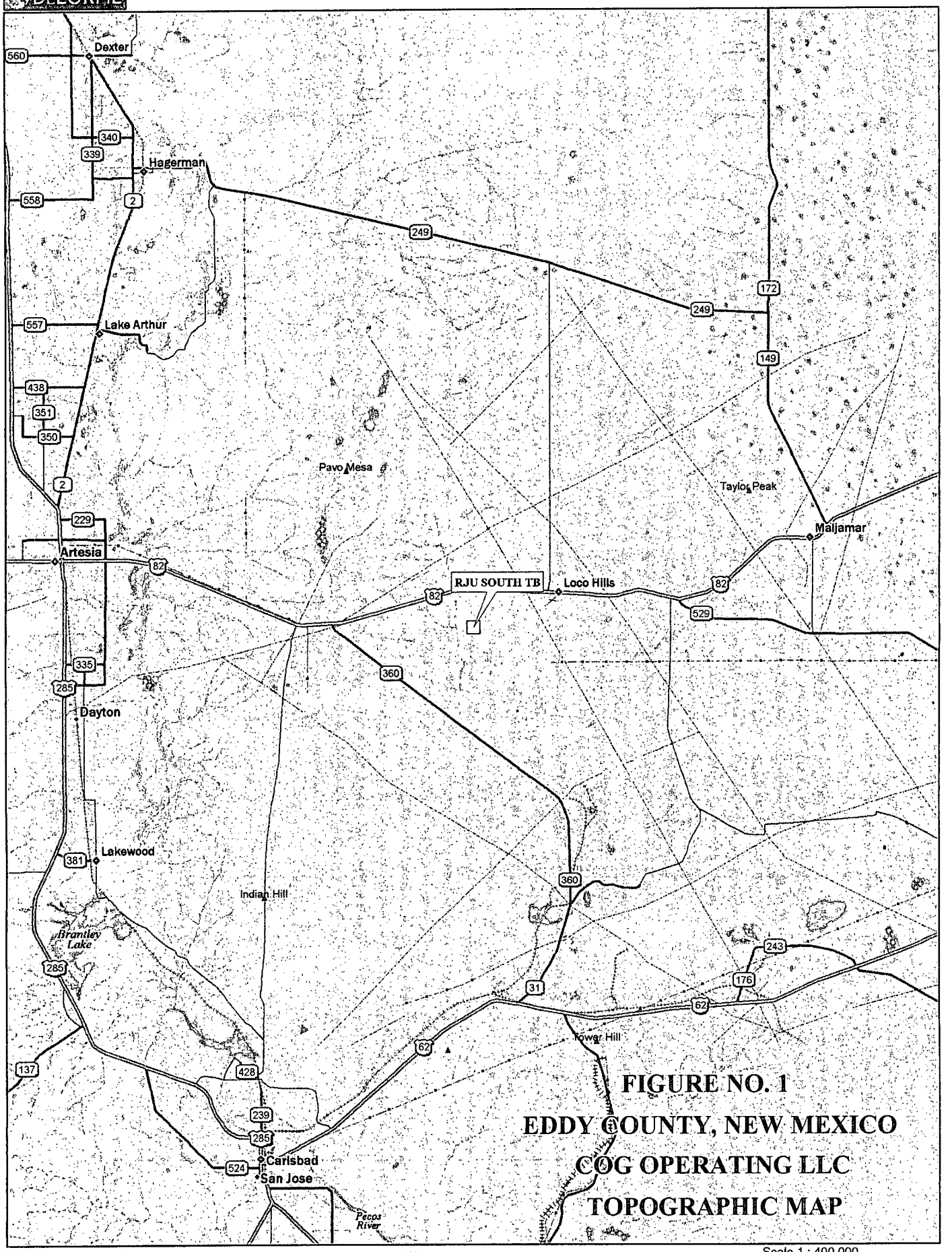


FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
COG OPERATING LLC
TOPOGRAPHIC MAP

TN
MN (7.9°E)

Scale 1 : 400,000
1" = 6.31 mi
Data Zoom 9-0

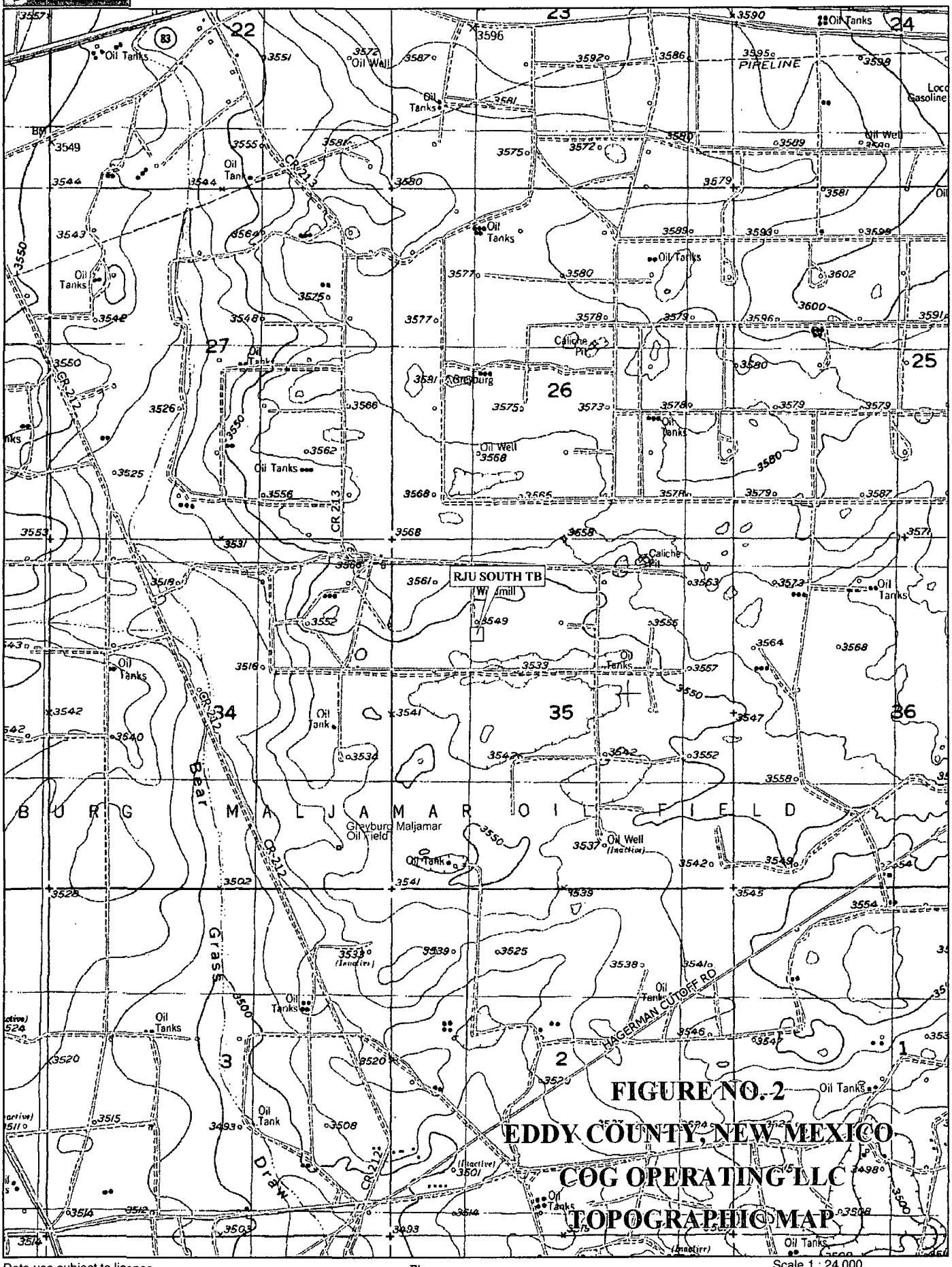


FIGURE NO. 2

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

TOPOGRAPHIC MAP

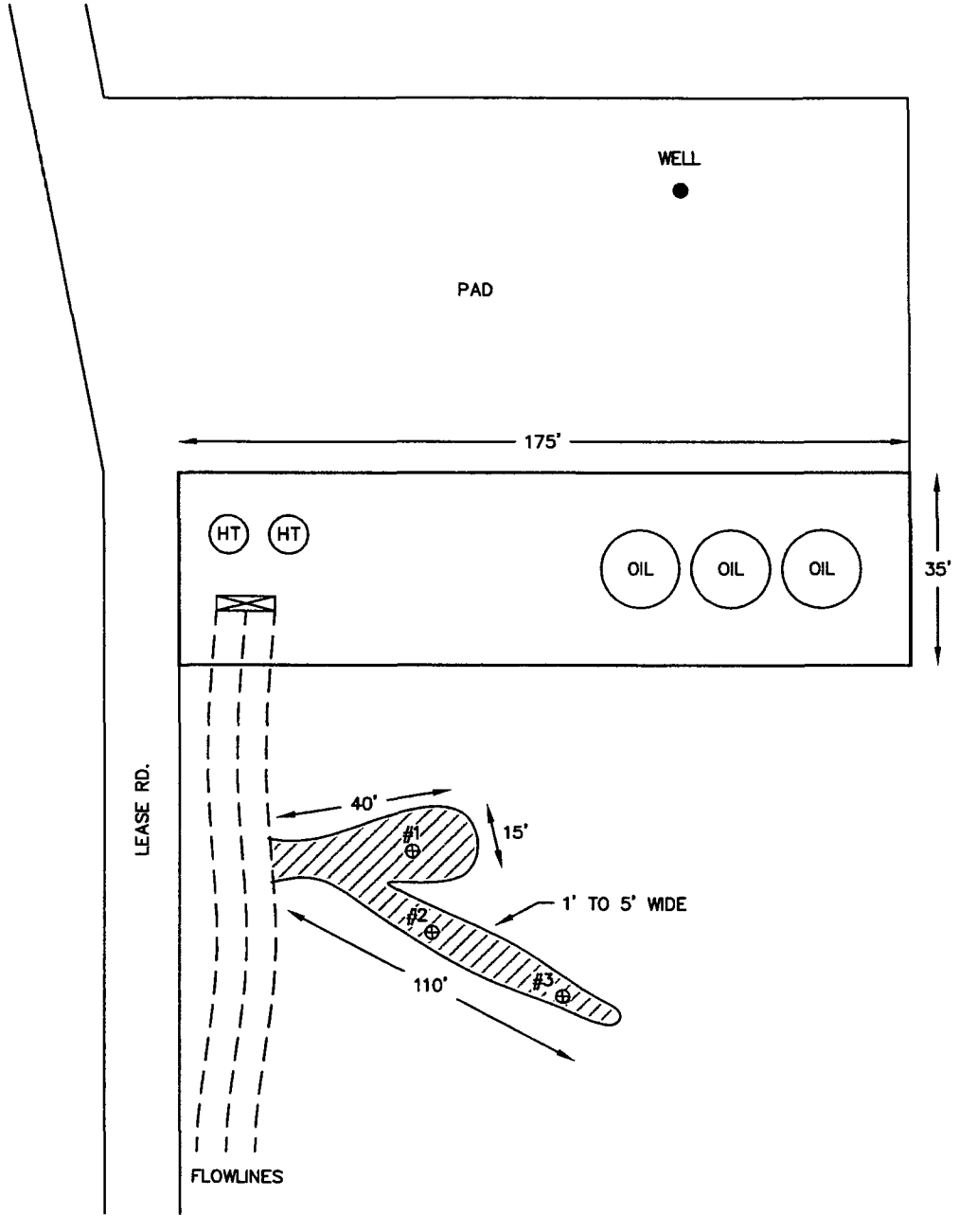
TN

MN (7.9°E)

Scale 1 : 24,000

1" = 2,000.0 ft

Data Zoom 13-0



SPILL AREA
SAMPLE LOCATIONS

NOT TO SCALE

FIGURE NO. 3

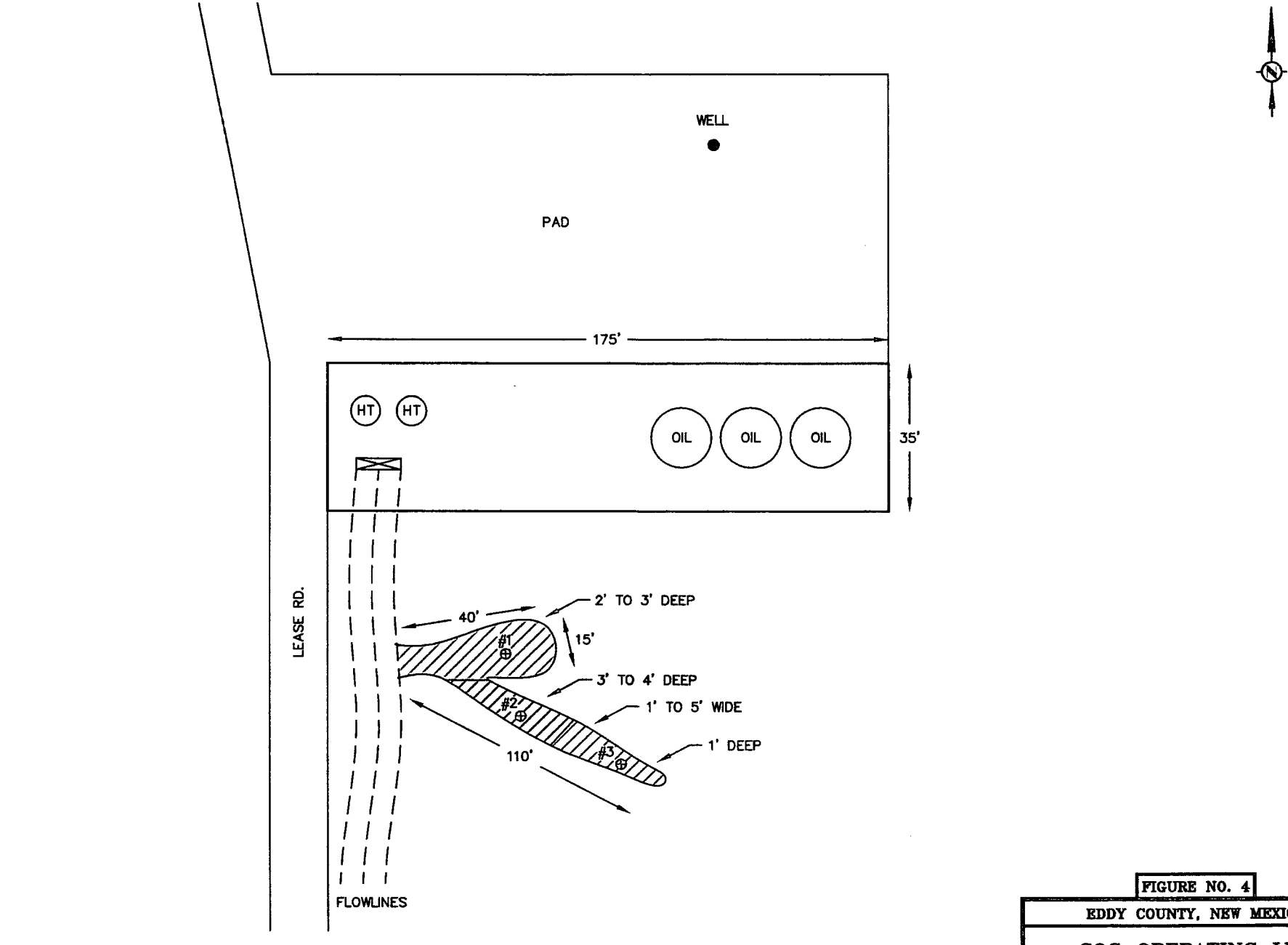
EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

RJU SOUTH TB

DATE: 2/9/11
DWN. BY: JJ
FILE: H:\COG\8400815 RJU SOUTH

TETRA TECH, INC.
MIDLAND, TEXAS



SPILL & EXCAVATION AREA
⊕ SAMPLE LOCATIONS

NOT TO SCALE

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

COG OPERATING LLC

RJU SOUTH TB

DATE: 2/9/11
DWN. BY: JJ
FILE: H:\COG\8400815 RJU SOUTH

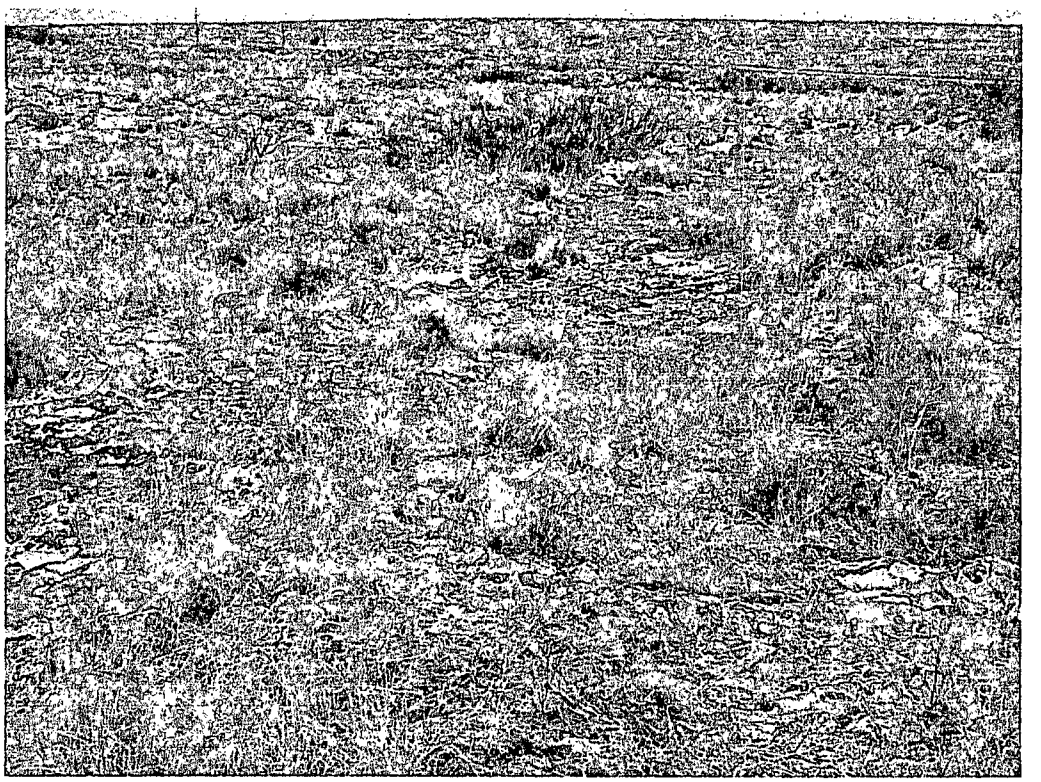
TETRA TECH, INC.
MIDLAND, TEXAS

Photos

COG Operating LLC
RJU South Tank Battery
Eddy County, New Mexico

TETRA TECH

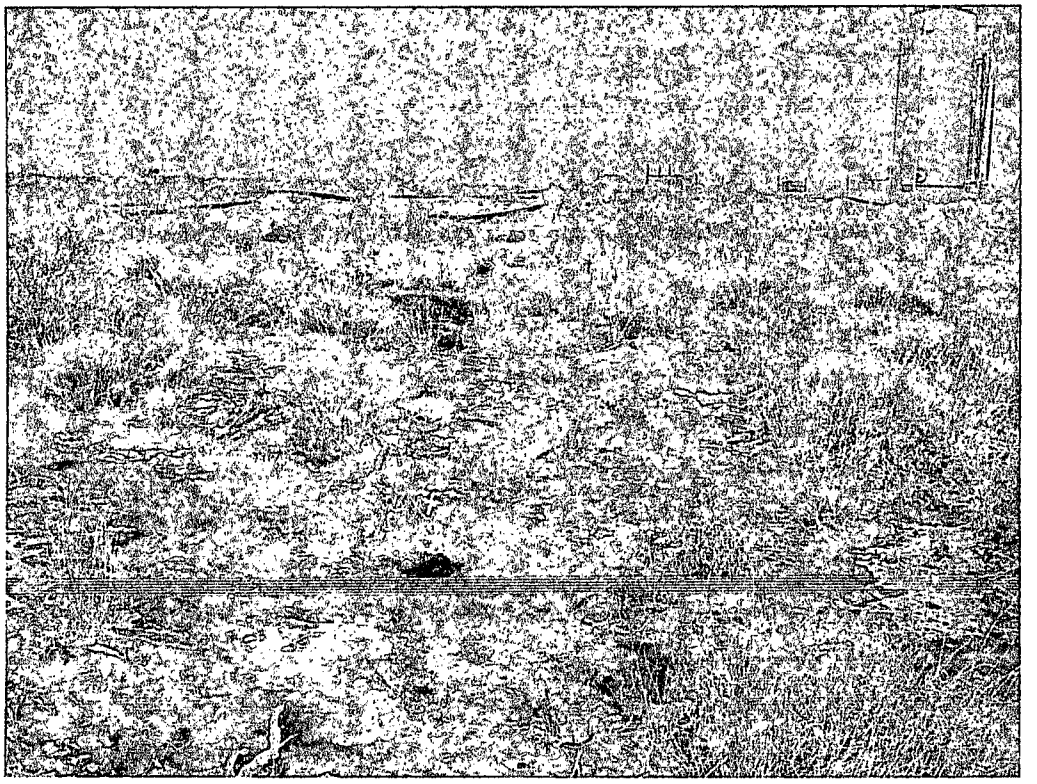
View East – AH-1



View South East – AH-2

COG Operating LLC
RJU South Tank Battery
Eddy County, New Mexico

TETRA TECH



View North West – AH-3

Site info and picture details

Tables

Table 1
COG Operating LLC.
RJU SOUTH TANK BATTERY
EDDY COUNTY, NEW MEXICO

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total					
AH-1	2/9/2011	0-1'	X		180	2,130	2,310	-	-	-	-	3,090
	"	1-1.5'	X		1,440	3,000	4,440	-	-	-	-	2,480
	"	2-2.5'	X		1,040	1,100	2,140	-	-	-	-	1,600
	"	3-3.5'	X		435	1,350	1,785	-	-	-	-	731
	"	3.5-4'	X		636	2,660	3,296	-	-	-	-	504
AH-2	2/9/2011	0-1'	X		5,270	14,300	19,570	<1.00	4.33	8.73	138	2,120
	"	1-1.5'	X		2,920	8,400	11,320	14.1	103	74.3	90.9	1,460
	"	2-2.5'	X		344	637	981	0.220	4.58	6.89	9.42	1,020
		2.5-3'	X		1,960	648	2,608	-	-	-	-	2,840
	"											
AH-3	2/9/2011	0-1'	X		3,070	4,930	8,000	<0.200	1.05	3.49	70.0	410
	"	1-1.5'	X		302	1,170	1,472	0.905	19.9	12.9	13.4	880
	"	2-2.5'	X		29.8	136	165.8	-	-	-	-	836
	"	3-3.5'	X		4.18	<50.0	4.18	-	-	-	-	1,250
	"	4-4.5'	X		-	-	-	-	-	-	-	1,090

BEB Below Excavation Bottom

(--) Not Analyzed

Proposed Excavation Depths

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural Resources

Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised October 10, 2003

Submit 2 Copies to appropriate District Office in accordance with Rule 116 on back side of form

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	COG OPERATING LLC	Contact	Pat Ellis
Address	550 W. Texas, Suite 100, Midland, TX 79701	Telephone No.	432-230-0077
Facility Name	RJU South Tank Battery	Facility Type	Tank Battery

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-03783

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C	35	17S	29E					Eddy

Latitude 32 47.647 **Longitude** 104 03.004

NATURE OF RELEASE

Type of Release Produced fluid	Volume of Release 9bbls	Volume Recovered 8bbls
Source of Release Steel flowline	Date and Hour of Occurrence 12/22/2010	Date and Hour of Discovery 12/22/2010
Was Immediate Notice Given? ☐ Yes ☒ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

RECEIVED
JUN 03 2011
NMOCD ARTESIA

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A steel flowline ruptured at the RJU South Tank Battery Location. A clamp has been placed over the ruptured part in the flowline and the entire flowline is going to be replaced from the well to the header.

Describe Area Affected and Cleanup Action Taken.*

Initially 9bbls of produced fluid was released from the flowline and we were able to recover 8bbls with a vacuum truck. The spill area measured 8' x 15' on the pad location and an additional area of 3' x 25' that ran off the pad location. Tetra Tech will sample the spill site area to delineate and possible contamination from the release and we will present a remediation work plan to the NMOCD for approval prior to any significant remediation work.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Josh Russo	Approved by District Supervisor:	
Title: HSE Coordinator	Approval Date:	Expiration Date:
E-mail Address: jrusso@conchoresources.com	Conditions of Approval:	Attached ☐
Date: 01/04/2011 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - RJU South Tank Battery
Eddy County, New Mexico

16 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21 **61**	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19 **110**	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

16 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **79**	23	24
30	29	28	27	26	25
31	32	33	34 **53**	35	36

17 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22 **80**	23	24
30	29 **210** **208'**	28	27	26	25
31	32	33	34	35 153	36

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35 **65**	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

88 New Mexico State Engineers Well Reports

105 USGS Well Reports

90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)

Geology and Groundwater Resources of Eddy County, NM (Report 3)

34 NMOCD - Groundwater Data

123 Field water level

143 NMOCD Groundwater map well location

Appendix C

Summary Report

Jeff Kindley
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: February 28, 2011

Work Order: 11021118

Project Location: Eddy Co., NM
Project Name: COG/RJU South TB
Project Number: 114-6400815

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
257285	AH-1 0-1'	soil	2011-02-09	00:00	2011-02-11
257286	AH-1 1-1.5'	soil	2011-02-09	00:00	2011-02-11
257287	AH-1 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257288	AH-1 3-3.5'	soil	2011-02-09	00:00	2011-02-11
257289	AH-1 3.5-4'	soil	2011-02-09	00:00	2011-02-11
257290	AH-2 0-1'	soil	2011-02-09	00:00	2011-02-11
257291	AH-2 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257292	AH-2 2.5-3'	soil	2011-02-09	00:00	2011-02-11
257293	AH-3 0-1'	soil	2011-02-09	00:00	2011-02-11
257294	AH-3 1-1.5'	soil	2011-02-09	00:00	2011-02-11
257295	AH-3 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257296	AH-3 3-3.5'	soil	2011-02-09	00:00	2011-02-11
257297	AH-3 4-4.5'	soil	2011-02-09	00:00	2011-02-11
257298	AH-2 1-1.5'	soil	2011-02-09	00:00	2011-02-11

Sample - Field Code	BTEX Benzene (mg/Kg)	BTEX Toluene (mg/Kg)	BTEX Ethylbenzene (mg/Kg)	BTEX Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
257285 - AH-1 0-1'					**2130**	**180**
257286 - AH-1 1-1.5'					**3000**	**1440**
257287 - AH-1 2-2.5'					**1100**	**1040**
257288 - AH-1 3-3.5'					**1350**	**435**
257289 - AH-1 3.5-4'					**2660**	**636**
257290 - AH-2 0-1'	<1.00	**4.33**	**8.73**	**138**	**14300**	**5270**
257291 - AH-2 2-2.5'	**0.220**	**4.58**	**6.89**	**9.42**	**637**	**344**
257292 - AH-2 2.5-3'					**648**	**1960**
257293 - AH-3 0-1'	<0.200	**1.05**	**3.49**	**70.0**	**4930**	**3070**
257294 - AH-3 1-1.5'	**0.905**	**19.9**	**12.9**	**13.4**	**1170**	**302**
257295 - AH-3 2-2.5'					**136**	**29.8**

continued ...

... continued

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
257296 - AH-3 3-3.5'					<50.0	**4.18**
257298 - AH-2 1-1.5'	**14.1**	**103**	**74.3**	**90.9**	**8400**	**2920**

Sample: 257285 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**3090**	mg/Kg	4.00

Sample: 257286 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2480**	mg/Kg	4.00

Sample: 257287 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1600**	mg/Kg	4.00

Sample: 257288 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**731**	mg/Kg	4.00

Sample: 257289 - AH-1 3.5-4'

Param	Flag	Result	Units	RL
Chloride		**504**	mg/Kg	4.00

Sample: 257290 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**2120**	mg/Kg	4.00

Sample: 257291 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1020**	mg/Kg	4.00

Sample: 257292 - AH-2 2.5-3'

Param	Flag	Result	Units	RL
Chloride		**2840**	mg/Kg	4.00

Sample: 257293 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**410**	mg/Kg	4.00

Sample: 257294 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**880**	mg/Kg	4.00

Sample: 257295 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**836**	mg/Kg	4.00

Sample: 257296 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1250**	mg/Kg	4.00

Sample: 257297 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**1090**	mg/Kg	4.00

Sample: 257298 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1460**	mg/Kg	4.00

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800•378•1296 806•794•1296 FAX 806•794•1298
200 East Sunset Road, Suite E El Paso, Texas 79922 888•588•3443 915•585•3443 FAX 915•585•4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432•689•6301 FAX 432•689•6313
6015 Harris Parkway, Suite 110 Ft. Worth, Texas 76132 817•201•5260
E-Mail: lab@traceanalysis.com

Certifications

WBENC: 237019 **HUB:** 1752439743100-86536 **DBE:** VN 20657
NCTRCA WFWB38444Y0909

NELAP Certifications

Lubbock: T104704219-08-TX LELAP-02003 Kansas E-10317 **El Paso:** T104704221-08-TX LELAP-02002 **Midland:** T104704392-08-TX

Analytical and Quality Control Report

Megan Beard
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: February 28, 2011

Work Order: 11021118

Project Location: Eddy Co., NM
Project Name: COG/RJU South TB
Project Number: 114-6400815

Enclosed are the Analytical Report and Quality Control Report for the following sample(s) submitted to TraceAnalysis, Inc.

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
257285	AH-1 0-1'	soil	2011-02-09	00:00	2011-02-11
257286	AH-1 1-1.5'	soil	2011-02-09	00:00	2011-02-11
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257290	AH-2 0-1'	soil	2011-02-09	00:00	2011-02-11
257291	AH-2 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257292	AH-2 2.5-3'	soil	2011-02-09	00:00	2011-02-11
257293	AH-3 0-1'	soil	2011-02-09	00:00	2011-02-11
257294	AH-3 1-1.5'	soil	2011-02-09	00:00	2011-02-11

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
257295	AH-3 2-2.5'	soil	2011-02-09	00:00	2011-02-11
257296	AH-3 3-3.5'	soil	2011-02-09	00:00	2011-02-11
257297	AH-3 4-4.5'	soil	2011-02-09	00:00	2011-02-11
257298	AH-2 1-1.5'	soil	2011-02-09	00:00	2011-02-11

These results represent only the samples received in the laboratory. The Quality Control Report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Dr. Blair Leftwich, Director
Dr. Michael Abel, Project Manager

Standard Flags

B - The sample contains less than ten times the concentration found in the method blank.

Samples for project COG/RJU South TB were received by TraceAnalysis, Inc. on 2011-02-11 and assigned to work order 11021118. Samples for work order 11021118 were received intact at a temperature of 10.1 C.

Samples were analyzed for the following tests using their respective methods.

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	66561	2011-02-14 at 12:44	77767	2011-02-14 at 12:44
BTEX	S 8021B	66683	2011-02-17 at 14:21	77746	2011-02-18 at 14:34
BTEX	S 8021B	66777	2011-02-23 at 10:44	77858	2011-02-23 at 10:44
Chloride (Titration)	SM 4500-Cl B	66550	2011-02-14 at 12:32	77628	2011-02-15 at 15:31
Chloride (Titration)	SM 4500-Cl B	66550	2011-02-14 at 12:32	77629	2011-02-15 at 15:32
TPH DRO - NEW	S 8015 D	66584	2011-02-15 at 10:10	77634	2011-02-15 at 10:10
TPH DRO - NEW	S 8015 D	66796	2011-02-23 at 09:00	77882	2011-02-23 at 10:07
TPH DRO - NEW	S 8015 D	66844	2011-02-25 at 09:40	77932	2011-02-25 at 09:40
TPH GRO	S 8015 D	66561	2011-02-14 at 12:44	77597	2011-02-14 at 12:44
TPH GRO	S 8015 D	66683	2011-02-17 at 14:21	77748	2011-02-18 at 14:34
TPH GRO	S 8015 D	66777	2011-02-23 at 10:44	77859	2011-02-23 at 10:44
TPH GRO	S 8015 D	66842	2011-02-25 at 08:21	77929	2011-02-25 at 09:15

Results for these samples are reported on a wet weight basis unless data package indicates otherwise.

A matrix spike (MS) and matrix spike duplicate (MSD) sample is chosen at random from each preparation batch. The MS and MSD will indicate if a site specific matrix problem is occurring, however, it may not pertain to the samples for work order 11021118 since the sample was chosen at random. Therefore, the validity of the analytical data reported has been determined by the laboratory control sample (LCS) and the method blank (MB). These quality control measures are performed with each preparation batch to ensure data integrity.

All other exceptions associated with this report have been footnoted on the appropriate analytical page to assist in general data comprehension. Please contact the laboratory directly if there are any questions regarding this project.

Analytical Report

Sample: 257285 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL Units	Dilution	RL
Chloride		**3090**	mg/Kg	100	4.00

Sample: 257285 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	Sample Preparation:	2011-02-15	Prepared By:	kg

Parameter	Flag	Result	RL Units	Dilution	RL
DRO		**2130**	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[1]	312	mg/Kg	5	100	312	70 - 130

Sample: 257285 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77597	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	Sample Preparation:	2011-02-14	Prepared By:	ME

Parameter	Flag	Result	RL Units	Dilution	RL
GRO		**180**	mg/Kg	5	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.75	mg/Kg	5	5.00	115	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		6.12	mg/Kg	5	5.00	122	22.2 - 160.2

[1] High surrogate recovery due to peak interference.

Sample: 257286 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**2480**		mg/Kg	100	4.00

Sample: 257286 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**3000**		mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[2]	333	mg/Kg	5	100	333	70 - 130

Sample: 257286 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77859	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	Result	RL	Units	Dilution	RL
GRO		**1440**		mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		56.5	mg/Kg	50	50.0	113	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		73.0	mg/Kg	50	50.0	146	22.2 - 160.2

[2]High surrogate recovery due to peak interference.

Sample: 257287 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**1600**		mg/Kg	100	4.00

Sample: 257287 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**1100**		mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[3]	171	mg/Kg	5	100	171	70 - 130

Sample: 257287 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77859	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	Result	RL	Units	Dilution	RL
GRO		**1040**		mg/Kg	5	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		5.83	mg/Kg	5	5.00	117	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[4]	11.1	mg/Kg	5	5.00	222	22.2 - 160.2

[3] High surrogate recovery due to peak interference.
[4] High surrogate recovery due to peak interference.

Sample: 257288 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**731**		mg/Kg	50	4.00

Sample: 257288 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77932	Date Analyzed:	2011-02-25	Analyzed By:	kg
Prep Batch:	66844	Sample Preparation:	2011-02-25	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**1350**		mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[5]	221	mg/Kg	1	100	221	70 - 130

Sample: 257288 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77929	Date Analyzed:	2011-02-25	Analyzed By:	ME
Prep Batch:	66842	Sample Preparation:	2011-02-25	Prepared By:	ME

Parameter	Flag	Result	RL	Units	Dilution	RL
GRO		**435**		mg/Kg	10	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		11.6	mg/Kg	10	10.0	116	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[6]	16.4	mg/Kg	10	10.0	164	22.2 - 160.2

[5] High surrogate recovery due to peak interference.
[6] High surrogate recovery due to peak interference.

Sample: 257289 - AH-1 3.5-4'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**504**		mg/Kg	50	4.00

Sample: 257289 - AH-1 3.5-4'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77932	Date Analyzed:	2011-02-25	Analyzed By:	kg
Prep Batch:	66844	Sample Preparation:	2011-02-25	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**2660**		mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[7]	430	mg/Kg	5	100	430	70 - 130

Sample: 257289 - AH-1 3.5-4'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77929	Date Analyzed:	2011-02-25	Analyzed By:	ME
Prep Batch:	66842	Sample Preparation:	2011-02-25	Prepared By:	ME

Parameter	Flag	Result	RL	Units	Dilution	RL
GRO		**636**		mg/Kg	10	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		10.6	mg/Kg	10	10.0	106	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[8]	19.6	mg/Kg	10	10.0	196	22.2 - 160.2

[7] High surrogate recovery due to peak interference.
[8] High surrogate recovery due to peak interference.

Sample: 257290 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	77767	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	Sample Preparation:	2011-02-14	Prepared By:	ME

Parameter	Flag	Result	RL	Units	Dilution	RL
Benzene		<1.00		mg/Kg	50	0.0200
Toluene		**4.33**		mg/Kg	50	0.0200
Ethylbenzene		**8.73**		mg/Kg	50	0.0200
Xylene		**138**		mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		72.1	mg/Kg	50	50.0	144	51.6 - 149.2
4-Bromofluorobenzene (4-BFB)		77.3	mg/Kg	50	50.0	155	35.7 - 159.6

Sample: 257290 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**2120**		mg/Kg	100	4.00

Sample: 257290 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	Sample Preparation:	2011-02-15	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**14300**		mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[9]	1250	mg/Kg	10	100	1250	70 - 130

[9] High surrogate recovery due to peak interference.

Sample: 257290 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77597	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	Sample Preparation:	2011-02-14	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**5270**	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		58.7	mg/Kg	50	50.0	117	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		69.9	mg/Kg	50	50.0	140	22.2 - 160.2

Sample: 257291 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	77858	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**0.220**	mg/Kg	1	0.0200
Toluene		**4.58**	mg/Kg	1	0.0200
Ethylbenzene		**6.89**	mg/Kg	1	0.0200
Xylene		**9.42**	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.32	mg/Kg	1	2.00	116	51.6 - 149.2
4-Bromofluorobenzene (4-BFB)	[10]	4.92	mg/Kg	1	2.00	246	35.7 - 159.6

Sample: 257291 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1020**	mg/Kg	100	4.00

[10] High surrogate recovery due to peak interference.

Sample: 257291 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

Parameter	Flag	Result	RL	Units	Dilution	RL
DRO		**637**		mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[11]	152	mg/Kg	5	100	152	70 - 130

Sample: 257291 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77859	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	Result	RL	Units	Dilution	RL
GRO		**344**		mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.38	mg/Kg	1	2.00	119	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[12]	4.52	mg/Kg	1	2.00	226	22.2 - 160.2

Sample: 257292 - AH-2 2.5-3'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL	Units	Dilution	RL
Chloride		**2840**		mg/Kg	100	4.00

[11] High surrogate recovery due to peak interference.
[12] High surrogate recovery due to peak interference.

Sample: 257292 - AH-2 2.5-3'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

Parameter	Flag	Result	RL Result	Units	Dilution	RL
DRO			**648**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[13]	161	mg/Kg	1	100	161	70 - 130

Sample: 257292 - AH-2 2.5-3'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77859	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	Result	RL Result	Units	Dilution	RL
GRO			**1960**	mg/Kg	20	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		21.5	mg/Kg	20	20.0	108	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[14]	36.2	mg/Kg	20	20.0	181	22.2 - 160.2

Sample: 257293 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	77767	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	Sample Preparation:	2011-02-14	Prepared By:	ME

Parameter	Flag	Result	RL Result	Units	Dilution	RL
Benzene			<0.200	mg/Kg	10	0.0200
Toluene			**1.05**	mg/Kg	10	0.0200
Ethylbenzene			**3.49**	mg/Kg	10	0.0200
Xylene			**70.0**	mg/Kg	10	0.0200

[13] High surrogate recovery due to peak interference.
[14] High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		6.84	mg/Kg	10	10.0	68	51.6 - 149.2
4-Bromofluorobenzene (4-BFB)	[15]	32.8	mg/Kg	10	10.0	328	35.7 - 159.6

Sample: 257293 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**410**	mg/Kg	50	4.00

Sample: 257293 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	Sample Preparation:	2011-02-15	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**4930**	mg/Kg	5	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[16]	490	mg/Kg	5	100	490	70 - 130

Sample: 257293 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77597	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	Sample Preparation:	2011-02-14	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**3070**	mg/Kg	10	2.00

[15] High surrogate recovery due to peak interference.
[16] High surrogate recovery due to peak interference.

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		12.9	mg/Kg	10	10.0	129	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[17]	53.3	mg/Kg	10	10.0	533	22.2 - 160.2

Sample: 257294 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	77746	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	Sample Preparation:	2011-02-17	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**0.905**	mg/Kg	1	0.0200
Toluene	[18]	**19.9**	mg/Kg	1	0.0200
Ethylbenzene	[19]	**12.9**	mg/Kg	1	0.0200
Xylene		**13.4**	mg/Kg	1	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.45	mg/Kg	1	2.00	122	51.6 - 149.2
4-Bromofluorobenzene (4-BFB)	[20]	3.39	mg/Kg	1	2.00	170	35.7 - 159.6

Sample: 257294 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**880**	mg/Kg	50	4.00

Sample: 257294 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	Sample Preparation:	2011-02-15	Prepared By:	kg

[17] High surrogate recovery due to peak interference.
[18] Estimated concentration value greater than standard range.
[19] Estimated concentration value greater than standard range.
[20] High surrogate recovery due to peak interference.

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**1170**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[21]	326	mg/Kg	1	100	326	70 - 130

Sample: 257294 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77748	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	Sample Preparation:	2011-02-17	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**302**	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.47	mg/Kg	1	2.00	124	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)	[22]	4.41	mg/Kg	1	2.00	220	22.2 - 160.2

Sample: 257295 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**836**	mg/Kg	50	4.00

Sample: 257295 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

continued ...

[21] High surrogate recovery due to peak interference.
[22] High surrogate recovery due to peak interference.

sample 257295 continued ...

Parameter	Flag	RL Result	Units	Dilution	RL

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**136**	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		115	mg/Kg	1	100	115	70 - 130

Sample: 257295 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77859	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**29.8**	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.46	mg/Kg	1	2.00	123	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		3.06	mg/Kg	1	2.00	153	22.2 - 160.2

Sample: 257296 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1250**	mg/Kg	100	4.00

Sample: 257296 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77882	Date Analyzed:	2011-02-23	Analyzed By:	kg
Prep Batch:	66796	Sample Preparation:	2011-02-23	Prepared By:	kg

Parameter	Flag	Result	RL Result	Units	Dilution	RL
DRO			<50.0	mg/Kg	1	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		99.5	mg/Kg	1	100	100	70 - 130

Sample: 257296 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77859	Date Analyzed:	2011-02-23	Analyzed By:	ME
Prep Batch:	66777	Sample Preparation:	2011-02-23	Prepared By:	ME

Parameter	Flag	Result	RL Result	Units	Dilution	RL
GRO			**4.18**	mg/Kg	1	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.57	mg/Kg	1	2.00	128	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		2.84	mg/Kg	1	2.00	142	22.2 - 160.2

Sample: 257297 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	Result	RL Result	Units	Dilution	RL
Chloride			**1090**	mg/Kg	100	4.00

Sample: 257298 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	77746	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	Sample Preparation:	2011-02-17	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
Benzene		**14.1**	mg/Kg	50	0.0200
Toluene		**103**	mg/Kg	50	0.0200
Ethylbenzene		**74.3**	mg/Kg	50	0.0200
Xylene		**90.9**	mg/Kg	50	0.0200

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		52.4	mg/Kg	50	50.0	105	51.6 - 149.2
4-Bromofluorobenzene (4-BFB)		65.3	mg/Kg	50	50.0	131	35.7 - 159.6

Sample: 257298 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	Sample Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	RL Result	Units	Dilution	RL
Chloride		**1460**	mg/Kg	100	4.00

Sample: 257298 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	77634	Date Analyzed:	2011-02-15	Analyzed By:	kg
Prep Batch:	66584	Sample Preparation:	2011-02-15	Prepared By:	kg

Parameter	Flag	RL Result	Units	Dilution	RL
DRO		**8400**	mg/Kg	10	50.0

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	[23]	818	mg/Kg	10	100	818	70 - 130

[23] High surrogate recovery due to peak interference.

Sample: 257298 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	77748	Date Analyzed:	2011-02-18	Analyzed By:	ME
Prep Batch:	66683	Sample Preparation:	2011-02-17	Prepared By:	ME

Parameter	Flag	RL Result	Units	Dilution	RL
GRO		**2920**	mg/Kg	50	2.00

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		53.5	mg/Kg	50	50.0	107	36.3 - 158.9
4-Bromofluorobenzene (4-BFB)		73.1	mg/Kg	50	50.0	146	22.2 - 160.2

Method Blank (1) QC Batch: 77597

QC Batch:	77597	Date Analyzed:	2011-02-14	Analyzed By:	ME
Prep Batch:	66561	QC Preparation:	2011-02-14	Prepared By:	ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.08	mg/Kg	1	2.00	104	74.6 - 127.8
4-Bromofluorobenzene (4-BFB)		1.89	mg/Kg	1	2.00	94	32.9 - 129.8

Method Blank (1) QC Batch: 77628

QC Batch:	77628	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	QC Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 77629

QC Batch:	77629	Date Analyzed:	2011-02-15	Analyzed By:	AR
Prep Batch:	66550	QC Preparation:	2011-02-14	Prepared By:	AR

Parameter	Flag	MDL Result	Units	RL
Chloride		<2.18	mg/Kg	4

Method Blank (1) QC Batch: 77634

QC Batch: 77634 Date Analyzed: 2011-02-15 Analyzed By: kg
Prep Batch: 66584 QC Preparation: 2011-02-15 Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		84.0	mg/Kg	1	100	84	70 - 130

Method Blank (1) QC Batch: 77746

QC Batch: 77746 Date Analyzed: 2011-02-18 Analyzed By: ME
Prep Batch: 66683 QC Preparation: 2011-02-17 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0118	mg/Kg	0.02
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.76	mg/Kg	1	2.00	88	70.8 - 123.5
4-Bromofluorobenzene (4-BFB)		1.56	mg/Kg	1	2.00	78	48.8 - 134

Method Blank (1) QC Batch: 77748

QC Batch: 77748 Date Analyzed: 2011-02-18 Analyzed By: ME
Prep Batch: 66683 QC Preparation: 2011-02-17 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.80	mg/Kg	1	2.00	90	74.6 - 127.8
4-Bromofluorobenzene (4-BFB)		1.45	mg/Kg	1	2.00	72	32.9 - 129.8

Method Blank (1) QC Batch: 77767

QC Batch: 77767 Date Analyzed: 2011-02-14 Analyzed By: ME
Prep Batch: 66561 QC Preparation: 2011-02-14 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0118	mg/Kg	0.02
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		2.15	mg/Kg	1	2.00	108	70.8 - 123.5
4-Bromofluorobenzene (4-BFB)		2.18	mg/Kg	1	2.00	109	48.8 - 134

Method Blank (1) QC Batch: 77858

QC Batch: 77858 Date Analyzed: 2011-02-23 Analyzed By: ME
Prep Batch: 66777 QC Preparation: 2011-02-23 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
Benzene		<0.0118	mg/Kg	0.02
Toluene		<0.00600	mg/Kg	0.02
Ethylbenzene		<0.00850	mg/Kg	0.02
Xylene		<0.00613	mg/Kg	0.02

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.90	mg/Kg	1	2.00	95	70.8 - 123.5
4-Bromofluorobenzene (4-BFB)		2.26	mg/Kg	1	2.00	113	48.8 - 134

Method Blank (1) QC Batch: 77859

QC Batch: 77859 Date Analyzed: 2011-02-23 Analyzed By: ME
Prep Batch: 66777 QC Preparation: 2011-02-23 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.97	mg/Kg	1	2.00	98	74.6 - 127.8
4-Bromofluorobenzene (4-BFB)		2.09	mg/Kg	1	2.00	104	32.9 - 129.8

Method Blank (1) QC Batch: 77882

QC Batch: 77882 Date Analyzed: 2011-02-23 Analyzed By: kg
Prep Batch: 66796 QC Preparation: 2011-02-23 Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		90.9	mg/Kg	1	100	91	70 - 130

Method Blank (1) QC Batch: 77929

QC Batch: 77929 Date Analyzed: 2011-02-25 Analyzed By: ME
Prep Batch: 66842 QC Preparation: 2011-02-25 Prepared By: ME

Parameter	Flag	MDL Result	Units	RL
GRO		<0.753	mg/Kg	2

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)		1.92	mg/Kg	1	2.00	96	74.6 - 127.8
4-Bromofluorobenzene (4-BFB)		2.22	mg/Kg	1	2.00	111	32.9 - 129.8

Method Blank (1) QC Batch: 77932

QC Batch: 77932 Date Analyzed: 2011-02-25 Analyzed By: kg
Prep Batch: 66844 QC Preparation: 2011-02-25 Prepared By: kg

Parameter	Flag	MDL Result	Units	RL
DRO		<15.7	mg/Kg	50

Surrogate	Flag	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane		91.4	mg/Kg	1	100	91	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 77597 | Date Analyzed: 2011-02-14 | Analyzed By: ME
Prep Batch: 66561 | QC Preparation: 2011-02-14 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	16.7	mg/Kg	1	20.0	<0.753	84	61.8 - 97

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.4	mg/Kg	1	20.0	<0.753	82	61.8 - 97	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	2.02	mg/Kg	1	2.00	100	101	74.6 - 124
4-Bromofluorobenzene (4-BFB)	1.94	1.97	mg/Kg	1	2.00	97	98	53.9 - 121.1

Laboratory Control Spike (LCS-1)

QC Batch: 77628 | Date Analyzed: 2011-02-15 | Analyzed By: AR
Prep Batch: 66550 | QC Preparation: 2011-02-14 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.4	mg/Kg	1	100	<2.18	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 77629 | Date Analyzed: 2011-02-15 | Analyzed By: AR
Prep Batch: 66550 | QC Preparation: 2011-02-14 | Prepared By: AR

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	96.2	mg/Kg	1	100	<2.18	96	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	102	mg/Kg	1	100	<2.18	102	85 - 115	6	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Laboratory Control Spike (LCS-1)

QC Batch: 77634 | Date Analyzed: 2011-02-15 | Analyzed By: kg
Prep Batch: 66584 | QC Preparation: 2011-02-15 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	234	mg/Kg	1	250	<15.7	94	47.5 - 144.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	263	mg/Kg	1	250	<15.7	105	47.5 - 144.1	12	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	106	127	mg/Kg	1	100	106	127	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 77746 | Date Analyzed: 2011-02-18 | Analyzed By: ME
Prep Batch: 66683 | QC Preparation: 2011-02-17 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.86	mg/Kg	1	2.00	<0.0118	93	76.4 - 118.4
Toluene	1.85	mg/Kg	1	2.00	<0.00600	92	81.8 - 111.9

continued ...

control spikes continued ...

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Ethylbenzene	1.83	mg/Kg	1	2.00	<0.00850	92	81.1 - 112.2
Xylene	5.44	mg/Kg	1	6.00	<0.00613	91	81.7 - 111.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.86	mg/Kg	1	2.00	<0.0118	93	76.4 - 118.4	0	20
Toluene	1.88	mg/Kg	1	2.00	<0.00600	94	81.8 - 111.9	2	20
Ethylbenzene	1.89	mg/Kg	1	2.00	<0.00850	94	81.1 - 112.2	3	20
Xylene	5.62	mg/Kg	1	6.00	<0.00613	94	81.7 - 111.5	3	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.84	1.70	mg/Kg	1	2.00	92	85	69 - 123.3
4-Bromofluorobenzene (4-BFB)	2.20	2.07	mg/Kg	1	2.00	110	104	64.9 - 131.9

Laboratory Control Spike (LCS-1)

QC Batch: 77748 | Date Analyzed: 2011-02-18 | Analyzed By: ME
Prep Batch: 66683 | QC Preparation: 2011-02-17 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.1	mg/Kg	1	20.0	<0.753	70	61.8 - 97

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	13.9	mg/Kg	1	20.0	<0.753	70	61.8 - 97	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.03	1.91	mg/Kg	1	2.00	102	96	74.6 - 124
4-Bromofluorobenzene (4-BFB)	1.74	1.64	mg/Kg	1	2.00	87	82	53.9 - 121.1

Laboratory Control Spike (LCS-1)

QC Batch: 77767 | Date Analyzed: 2011-02-14 | Analyzed By: ME
Prep Batch: 66561 | QC Preparation: 2011-02-14 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	2.05	mg/Kg	1	2.00	<0.0118	102	76.4 - 118.4
Toluene	2.05	mg/Kg	1	2.00	<0.00600	102	81.8 - 111.9
Ethylbenzene	2.06	mg/Kg	1	2.00	<0.00850	103	81.1 - 112.2
Xylene	6.19	mg/Kg	1	6.00	<0.00613	103	81.7 - 111.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	2.02	mg/Kg	1	2.00	<0.0118	101	76.4 - 118.4	2	20
Toluene	2.01	mg/Kg	1	2.00	<0.00600	100	81.8 - 111.9	2	20
Ethylbenzene	2.05	mg/Kg	1	2.00	<0.00850	102	81.1 - 112.2	0	20
Xylene	6.18	mg/Kg	1	6.00	<0.00613	103	81.7 - 111.5	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.20	2.12	mg/Kg	1	2.00	110	106	69 - 123.3
4-Bromofluorobenzene (4-BFB)	2.38	2.26	mg/Kg	1	2.00	119	113	64.9 - 131.9

Laboratory Control Spike (LCS-1)

QC Batch: 77858 | Date Analyzed: 2011-02-23 | Analyzed By: ME
Prep Batch: 66777 | QC Preparation: 2011-02-23 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.96	mg/Kg	1	2.00	<0.0118	98	76.4 - 118.4
Toluene	1.99	mg/Kg	1	2.00	<0.00600	100	81.8 - 111.9
Ethylbenzene	2.04	mg/Kg	1	2.00	<0.00850	102	81.1 - 112.2
Xylene	6.14	mg/Kg	1	6.00	<0.00613	102	81.7 - 111.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.96	mg/Kg	1	2.00	<0.0118	98	76.4 - 118.4	0	20
Toluene	1.95	mg/Kg	1	2.00	<0.00600	98	81.8 - 111.9	2	20
Ethylbenzene	2.01	mg/Kg	1	2.00	<0.00850	100	81.1 - 112.2	2	20
Xylene	6.05	mg/Kg	1	6.00	<0.00613	101	81.7 - 111.5	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.01	1.97	mg/Kg	1	2.00	100	98	69 - 123.3

continued ...

control spikes continued . . .

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	2.46	2.39	mg/Kg	1	2.00	123	120	64.9 - 131.9

Laboratory Control Spike (LCS-1)

QC Batch: 77859 | Date Analyzed: 2011-02-23 | Analyzed By: ME
Prep Batch: 66777 | QC Preparation: 2011-02-23 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	15.6	mg/Kg	1	20.0	<0.753	78	61.8 - 97

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.0	mg/Kg	1	20.0	<0.753	80	61.8 - 97	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.98	2.02	mg/Kg	1	2.00	99	101	74.6 - 124
4-Bromofluorobenzene (4-BFB)	2.20	2.24	mg/Kg	1	2.00	110	112	53.9 - 121.1

Laboratory Control Spike (LCS-1)

QC Batch: 77882 | Date Analyzed: 2011-02-23 | Analyzed By: kg
Prep Batch: 66796 | QC Preparation: 2011-02-23 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	242	mg/Kg	1	250	<15.7	97	47.5 - 144.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	241	mg/Kg	1	250	<15.7	96	47.5 - 144.1	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	109	115	mg/Kg	1	100	109	115	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 77929 | Date Analyzed: 2011-02-25 | Analyzed By: ME
Prep Batch: 66842 | QC Preparation: 2011-02-25 | Prepared By: ME

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.0	mg/Kg	1	20.0	<0.753	70	61.8 - 97

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	15.1	mg/Kg	1	20.0	<0.753	76	61.8 - 97	8	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.82	1.84	mg/Kg	1	2.00	91	92	74.6 - 124
4-Bromofluorobenzene (4-BFB)	2.17	2.20	mg/Kg	1	2.00	108	110	53.9 - 121.1

Laboratory Control Spike (LCS-1)

QC Batch: 77932 | Date Analyzed: 2011-02-25 | Analyzed By: kg
Prep Batch: 66844 | QC Preparation: 2011-02-25 | Prepared By: kg

Param	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	241	mg/Kg	1	250	<15.7	96	47.5 - 144.1

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	224	mg/Kg	1	250	<15.7	90	47.5 - 144.1	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	111	108	mg/Kg	1	100	111	108	70 - 130

Matrix Spike (MS-1) Spiked Sample: 257206

QC Batch: 77597 | Date Analyzed: 2011-02-14 | Analyzed By: ME
Prep Batch: 66561 | QC Preparation: 2011-02-14 | Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	22.3	mg/Kg	1	20.0	1.8232	102	63 - 108.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	20.2	mg/Kg	1	20.0	1.8232	92	63 - 108.5	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.58	2.56	mg/Kg	1	2	129	128	54.1 - 154.3
4-Bromofluorobenzene (4-BFB)	2.56	2.59	mg/Kg	1	2	128	130	41.9 - 162.8

Matrix Spike (MS-1) Spiked Sample: 257289

QC Batch: 77628 | Date Analyzed: 2011-02-15 | Analyzed By: AR
Prep Batch: 66550 | QC Preparation: 2011-02-14 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	10700	mg/Kg	100	10000	504	102	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	11100	mg/Kg	100	10000	504	106	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 257298

QC Batch: 77629 | Date Analyzed: 2011-02-15 | Analyzed By: AR
Prep Batch: 66550 | QC Preparation: 2011-02-14 | Prepared By: AR

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride	11300	mg/Kg	100	10000	1460	98	85 - 115

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride	11800	mg/Kg	100	10000	1460	103	85 - 115	4	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Matrix Spike (MS-1) Spiked Sample: 257280

QC Batch: 77634 | Date Analyzed: 2011-02-15 | Analyzed By: kg
Prep Batch: 66584 | QC Preparation: 2011-02-15 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	223	mg/Kg	1	250	<15.7	89	11.7 - 152.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	208	mg/Kg	1	250	<15.7	83	11.7 - 152.3	7	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	101	94.3	mg/Kg	1	100	101	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 257470

QC Batch: 77746 | Date Analyzed: 2011-02-18 | Analyzed By: ME
Prep Batch: 66683 | QC Preparation: 2011-02-17 | Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.85	mg/Kg	1	2.00	<0.0118	92	65.5 - 139.8
Toluene	1.89	mg/Kg	1	2.00	<0.00600	94	70.5 - 137.3
Ethylbenzene	1.84	mg/Kg	1	2.00	<0.00850	92	66.7 - 151
Xylene	5.88	mg/Kg	1	6.00	0.6462	87	68.7 - 149.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.83	mg/Kg	1	2.00	<0.0118	92	65.5 - 139.8	1	20
Toluene	1.85	mg/Kg	1	2.00	<0.00600	92	70.5 - 137.3	2	20
Ethylbenzene	1.84	mg/Kg	1	2.00	<0.00850	92	66.7 - 151	0	20
Xylene	5.80	mg/Kg	1	6.00	0.6462	86	68.7 - 149.5	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.24	2.28	mg/Kg	1	2	112	114	50.9 - 152.9
4-Bromofluorobenzene (4-BFB)	2.02	2.12	mg/Kg	1	2	101	106	48.5 - 165.8

Matrix Spike (MS-1) Spiked Sample: 257294

QC Batch: 77748 | Date Analyzed: 2011-02-18 | Analyzed By: ME
Prep Batch: 66683 | QC Preparation: 2011-02-17 | Prepared By: ME

Param		MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	[24]	417	mg/Kg	1	20.0	302.188	574	63 - 108.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param		MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	[25]	408	mg/Kg	1	20.0	302.188	529	63 - 108.5	2	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate		MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)		2.48	2.47	mg/Kg	1	2	124	124	54.1 - 154.3
4-Bromofluorobenzene (4-BFB)	[26] [27]	5.20	5.20	mg/Kg	1	2	260	260	41.9 - 162.8

Matrix Spike (MS-1) Spiked Sample: 258031

QC Batch: 77858 | Date Analyzed: 2011-02-23 | Analyzed By: ME
Prep Batch: 66777 | QC Preparation: 2011-02-23 | Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene	1.87	mg/Kg	1	2.00	<0.0118	94	65.5 - 139.8
Toluene	1.95	mg/Kg	1	2.00	<0.00600	98	70.5 - 137.3
Ethylbenzene	2.02	mg/Kg	1	2.00	<0.00850	101	66.7 - 151
Xylene	6.18	mg/Kg	1	6.00	<0.00613	103	68.7 - 149.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene	1.84	mg/Kg	1	2.00	<0.0118	92	65.5 - 139.8	2	20
Toluene	1.92	mg/Kg	1	2.00	<0.00600	96	70.5 - 137.3	2	20
Ethylbenzene	2.04	mg/Kg	1	2.00	<0.00850	102	66.7 - 151	1	20
Xylene	6.18	mg/Kg	1	6.00	<0.00613	103	68.7 - 149.5	0	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

[24] Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.
[25] Matrix spike recovery out of control limits due to peak interference. Use LCS/LCSD to demonstrate analysis is under control.
[26] High surrogate recovery due to peak interference.
[27] High surrogate recovery due to peak interference.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.46	2.46	mg/Kg	1	2	123	123	50.9 - 152.9
4-Bromofluorobenzene (4-BFB)	3.09	3.09	mg/Kg	1	2	154	154	48.5 - 165.8

Matrix Spike (MS-1) Spiked Sample: 258063

QC Batch: 77859 | Date Analyzed: 2011-02-23 | Analyzed By: ME
Prep Batch: 66777 | QC Preparation: 2011-02-23 | Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO [28]	214	mg/Kg	1	20.0	214.043	0	63 - 108.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO [29]	238	mg/Kg	1	20.0	214.043	56	63 - 108.5	11	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.53	2.50	mg/Kg	1	2	126	125	54.1 - 154.3
4-Bromofluorobenzene (4-BFB)	3.13	3.20	mg/Kg	1	2	156	160	41.9 - 162.8

Matrix Spike (MS-1) Spiked Sample: 257898

QC Batch: 77882 | Date Analyzed: 2011-02-23 | Analyzed By: kg
Prep Batch: 66796 | QC Preparation: 2011-02-23 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	240	mg/Kg	1	250	<15.7	96	11.7 - 152.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	218	mg/Kg	1	250	<15.7	87	11.7 - 152.3	10	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

continued ...

[28] Matrix spike recovery out of control limits due to matrix interference. Use LCS/LCSD to demonstrate analysis is under control.
[29] MSD analyte out of range. MS/MSD has a RPD within limits. Therfore, MS shows extraction occured properly.

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	113	101	mg/Kg	1	100	113	101	70 - 130

Matrix Spike (MS-1) Spiked Sample: 258253

QC Batch: 77929 | Date Analyzed: 2011-02-25 | Analyzed By: ME
Prep Batch: 66842 | QC Preparation: 2011-02-25 | Prepared By: ME

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	14.6	mg/Kg	1	20.0	<0.753	73	63 - 108.5

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	16.0	mg/Kg	1	20.0	<0.753	80	63 - 108.5	9	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.46	2.53	mg/Kg	1	2	123	126	54.1 - 154.3
4-Bromofluorobenzene (4-BFB)	2.99	3.09	mg/Kg	1	2	150	154	41.9 - 162.8

Matrix Spike (MS-1) Spiked Sample: 257873

QC Batch: 77932 | Date Analyzed: 2011-02-25 | Analyzed By: kg
Prep Batch: 66844 | QC Preparation: 2011-02-25 | Prepared By: kg

Param	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO	207	mg/Kg	1	250	<15.7	83	11.7 - 152.3

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Param	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO	210	mg/Kg	1	250	<15.7	84	11.7 - 152.3	1	20

Percent recovery is based on the spike result. RPD is based on the spike and spike duplicate result.

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	96.0	97.4	mg/Kg	1	100	96	97	70 - 130

Standard (CCV-2)

QC Batch: 77597 Date Analyzed: 2011-02-14 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.912	91	80 - 120	2011-02-14

Standard (CCV-3)

QC Batch: 77597 Date Analyzed: 2011-02-14 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.10	110	80 - 120	2011-02-14

Standard (ICV-1)

QC Batch: 77628 Date Analyzed: 2011-02-15 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2011-02-15

Standard (CCV-1)

QC Batch: 77628 Date Analyzed: 2011-02-15 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.2	99	85 - 115	2011-02-15

Standard (ICV-1)

QC Batch: 77629 Date Analyzed: 2011-02-15 Analyzed By: AR

Param	Flag	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	99.3	99	85 - 115	2011-02-15

Standard (CCV-1)

QC Batch: 77629 Date Analyzed: 2011-02-15 Analyzed By: AR

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride		mg/Kg	100	101	101	85 - 115	2011-02-15

Standard (CCV-2)

QC Batch: 77634 Date Analyzed: 2011-02-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	240	96	80 - 120	2011-02-15

Standard (CCV-3)

QC Batch: 77634 Date Analyzed: 2011-02-15 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	220	88	80 - 120	2011-02-15

Standard (CCV-1)

QC Batch: 77746 Date Analyzed: 2011-02-18 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0918	92	80 - 120	2011-02-18
Toluene		mg/Kg	0.100	0.0926	93	80 - 120	2011-02-18
Ethylbenzene		mg/Kg	0.100	0.0908	91	80 - 120	2011-02-18
Xylene		mg/Kg	0.300	0.274	91	80 - 120	2011-02-18

Standard (CCV-2)

QC Batch: 77746 | Date Analyzed: 2011-02-18 | Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0969	97	80 - 120	2011-02-18
Toluene		mg/Kg	0.100	0.0949	95	80 - 120	2011-02-18
Ethylbenzene		mg/Kg	0.100	0.0927	93	80 - 120	2011-02-18
Xylene		mg/Kg	0.300	0.278	93	80 - 120	2011-02-18

Standard (CCV-3)

QC Batch: 77746 | Date Analyzed: 2011-02-18 | Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0911	91	80 - 120	2011-02-18
Toluene		mg/Kg	0.100	0.0913	91	80 - 120	2011-02-18
Ethylbenzene		mg/Kg	0.100	0.0876	88	80 - 120	2011-02-18
Xylene		mg/Kg	0.300	0.264	88	80 - 120	2011-02-18

Standard (CCV-1)

QC Batch: 77748 | Date Analyzed: 2011-02-18 | Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.846	85	80 - 120	2011-02-18

Standard (CCV-2)

QC Batch: 77748 | Date Analyzed: 2011-02-18 | Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.04	104	80 - 120	2011-02-18

Standard (CCV-3)

QC Batch: 77748 | Date Analyzed: 2011-02-18 | Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.998	100	80 - 120	2011-02-18

Standard (CCV-2)

QC Batch: 77767 Date Analyzed: 2011-02-14 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.101	101	80 - 120	2011-02-14
Toluene		mg/Kg	0.100	0.101	101	80 - 120	2011-02-14
Ethylbenzene		mg/Kg	0.100	0.101	101	80 - 120	2011-02-14
Xylene		mg/Kg	0.300	0.305	102	80 - 120	2011-02-14

Standard (CCV-3)

QC Batch: 77767 Date Analyzed: 2011-02-14 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.100	100	80 - 120	2011-02-14
Toluene		mg/Kg	0.100	0.0993	99	80 - 120	2011-02-14
Ethylbenzene		mg/Kg	0.100	0.102	102	80 - 120	2011-02-14
Xylene		mg/Kg	0.300	0.330	110	80 - 120	2011-02-14

Standard (CCV-1)

QC Batch: 77858 Date Analyzed: 2011-02-23 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0955	96	80 - 120	2011-02-23
Toluene		mg/Kg	0.100	0.0959	96	80 - 120	2011-02-23
Ethylbenzene		mg/Kg	0.100	0.0977	98	80 - 120	2011-02-23
Xylene		mg/Kg	0.300	0.297	99	80 - 120	2011-02-23

Standard (CCV-2)

QC Batch: 77858 Date Analyzed: 2011-02-23 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		mg/Kg	0.100	0.0923	92	80 - 120	2011-02-23
Toluene		mg/Kg	0.100	0.0925	92	80 - 120	2011-02-23
Ethylbenzene		mg/Kg	0.100	0.0920	92	80 - 120	2011-02-23
Xylene		mg/Kg	0.300	0.278	93	80 - 120	2011-02-23

Standard (CCV-1)

QC Batch: 77859 Date Analyzed: 2011-02-23 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.960	96	80 - 120	2011-02-23

Standard (CCV-2)

QC Batch: 77859 Date Analyzed: 2011-02-23 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.989	99	80 - 120	2011-02-23

Standard (CCV-3)

QC Batch: 77859 Date Analyzed: 2011-02-23 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	1.12	112	80 - 120	2011-02-23

Standard (CCV-1)

QC Batch: 77882 Date Analyzed: 2011-02-23 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	243	97	80 - 120	2011-02-23

Standard (CCV-2)

QC Batch: 77882 Date Analyzed: 2011-02-23 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	232	93	80 - 120	2011-02-23

Standard (CCV-3)

QC Batch: 77882 Date Analyzed: 2011-02-23 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	226	90	80 - 120	2011-02-23

Standard (CCV-2)

QC Batch: 77929 Date Analyzed: 2011-02-25 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.872	87	80 - 120	2011-02-25

Standard (CCV-3)

QC Batch: 77929 Date Analyzed: 2011-02-25 Analyzed By: ME

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		mg/Kg	1.00	0.913	91	80 - 120	2011-02-25

Standard (CCV-1)

QC Batch: 77932 Date Analyzed: 2011-02-25 Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	208	83	80 - 120	2011-02-25

Standard (CCV-2)

QC Batch: 77932 | Date Analyzed: 2011-02-25 | Analyzed By: kg

Param	Flag	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		mg/Kg	250	258	103	80 - 120	2011-02-25

*WO #: 110211 18

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 2

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-G400815

PROJECT NAME: COG / RSU South TB
Eddy Co, NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/808	Past. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
257285	2/9		S		X	AH-1 0-1'	1				X			X											X				
286						AH-1 1'-1.5'																							
287						AH-1 2'-2.5'																							
288						AH-1 3'-3.5'																							
289						AH-1 3.5'-4'																							
290						AH-2 0-1'								X															
291						AH-2 2'-2.5'																							
292						AH-2 2.5'-3'																							
293						AH-3 0-1'								X															
294						AH-3 1'-1.5'																							

RELINQUISHED BY: (Signature) — Date: 2/11/11 Time: 1410
RECEIVED BY: (Signature) — Date: Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) JT/TF — Date: 2/9/11 Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature)
DATE: 2-11-11 TIME: 14:10

SAMPLE CONDITION WHEN RECEIVED: 10.1°C intact

REMARKS: If total TPH exceeds 1,000 mg/kg run deeper samples / Run BTEX on 2 highest TPH. If Benzene exceeds 10 mg/kg or BTEX exceeds 50 mg/kg run deeper samples

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.

*All tests Midland

XWO #: 11021118

Analysis Request of Chain of Custody Record

TETRA TECH
1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-3946

PAGE: 2 OF: 2

CLIENT NAME:	SITE MANAGER:
COG	Ike Tavarez

PROJECT NO.:	PROJECT NAME:
114-4000815	COG / RIU South TB Eddy Co, NM

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
257295	2/9		S		X	AH-3 2'-2.5'	1				X	
296						AH-3 3'-3.5'						
297						AH-3 4'-4.5'						
298	2/9		S		X	AH-2 1'-1.5'	1				X	

ANALYSIS REQUEST (Circle or Specify Method No.)

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				
												X				

RELINQUISHED BY: (Signature)	Date: 2/11/11 Time: 1410	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:
RECEIVING LABORATORY: Trav		RECEIVED BY: (Signature)	
ADDRESS:			
CITY: Midland STATE: TX ZIP:		DATE: 2-11-11	TIME: 14:10
CONTACT: PHONE:			

SAMPLED BY: (Print & Initial) JT/TF Date: 2/9/11 Time:

SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 10.1 °C wet

REMARKS: If total TPH exceeds 1,000 mg/kg run dupper samples / Run BTEX on 2 highest TPH. If Benzene exceeds 10 mg/kg or BTEX exceeds 50 mg/kg run dupper samples

Please fill out all copies - Laboratory retains Yellow copy - Return Orginal copy to Tetra Tech - Project Manager retains Pink copy - Accounting receives Gold copy.