SITE INFORMATION

2RP-963

Report Type: Work Plan

General Site Information:						
Site:	RJU #134 Flowline Leak					
Company:	COG Operating LLC					
Section, Township and Range	Unit K	Sec 27	T17S	R29E		
Lease Number:	API-30-015-34573					
County:	Eddy County					
GPS:	32.80546° N			104.06604° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	In Loco Hills, from the intersection of CR 217 and Hwy 82, travel west on 82 (4.3 miles), turn south (0.9 miles), turn right (0.4 miles), turn left (50 feet), turn right (100 feet), turn left (200 feet) to location.					

Release Data:	
Date Released:	11/11/2011
Type Release:	Oil and Produced Water
Source of Contamination:	Flowline
Fluid Released:	10 bbls
Fluids Recovered:	5 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) 682-4559
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

January 19, 2012

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., RJ Unit, #134 Flowline Leak, Unit K, Section 27, 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 RJ Unit, #134 Flowline Leak located in Unit K, Section 27, Township 17 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.80546°, W 104.06604°. 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 November 11, 2011, and released approximately ten (10) barrels of produced fluid from a flowline. To alleviate the problem, COG personnel repaired the flowline. Five (5) barrels of standing fluids were recovered. The spill initiated west of the pad affecting an area 20' X 175'in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 27. According to the NMOCD groundwater map, the depth to groundwater in this area is approximately 125' below surface. The groundwater data is shown in Figure 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 December 21, 2011, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 and AH-4) 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, none of the samples exceeded the TPH RRAL, AH-2, and AH-4 were above the RRAL for total BTEX but all declined at 1'-1.5' below surface. Elevated chloride concentrations were detected in AH-2, AH-3 and AH-4, with a chloride high of 6,400 mg/kg at 2.0', 2,280 mg/kg at 1.0' and 1,800 mg/kg at 1.0', respectively. The chloride impact declined with depth and was vertically defined.

Work Plan

COG proposes to remove impacted material as highlighted (green) in Table 1 and shown in Figure 4. Once the areas are excavated to the appropriate depths, the excavation will be backfilled with clean soil. Upon completion, a final report will be submitted to the NMOCD.

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

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excavate the soils to the maximum extent practicable.

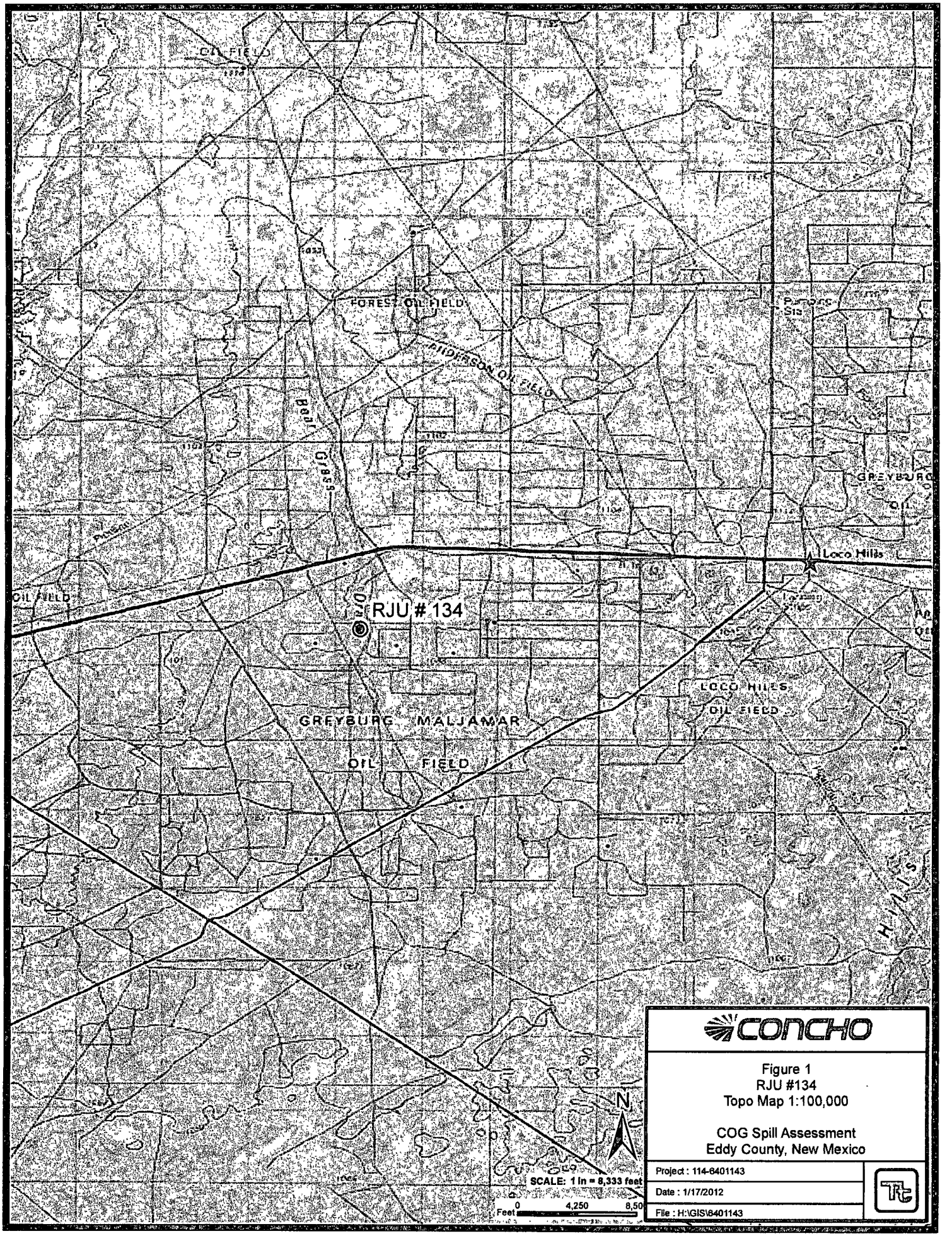
If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez
Project Manager

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

Figures



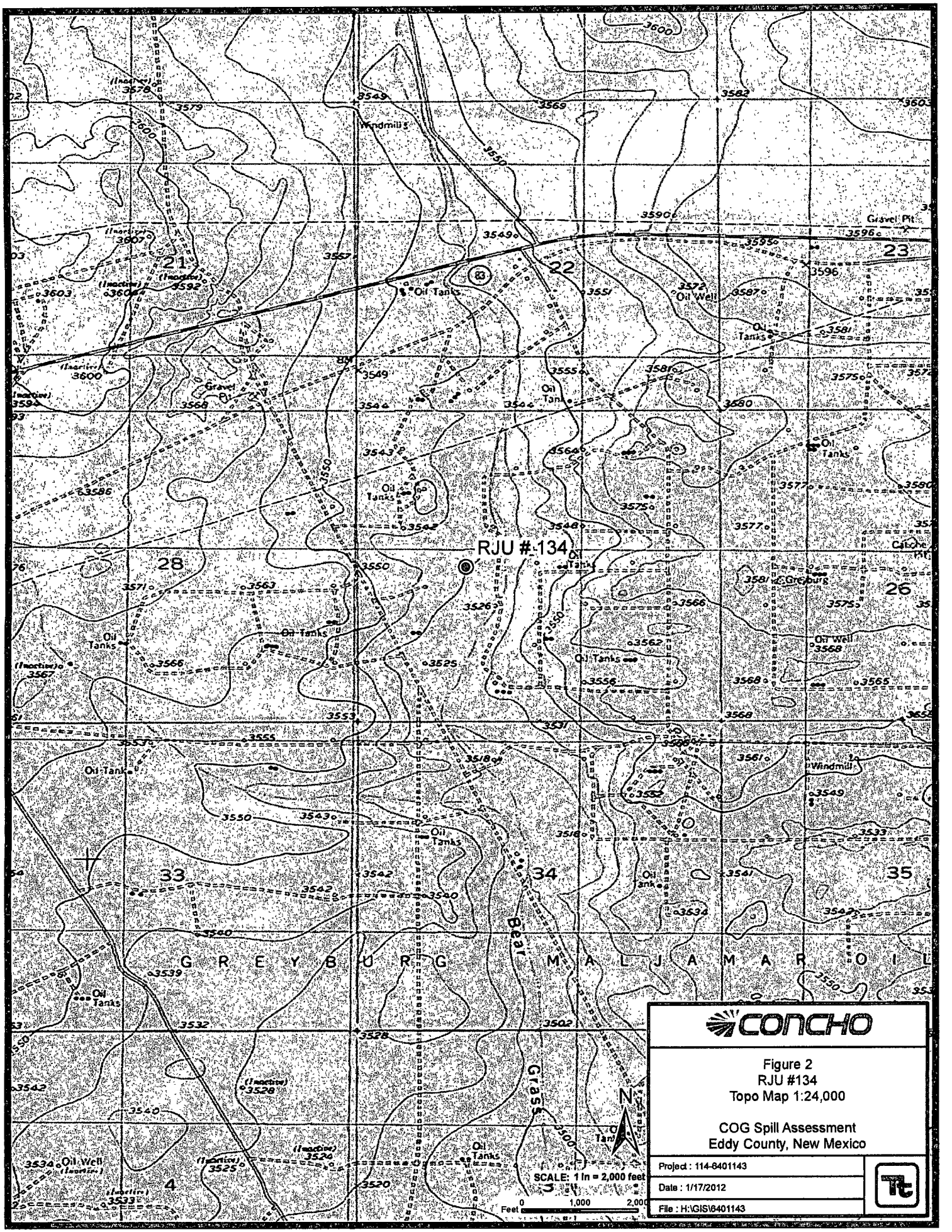
CONCHO

Figure 1
RJU #134
Topo Map 1:100,000

COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401143	
Date : 1/17/2012	
File : H:\GIS\6401143	

Drawn By: Isabel Marmolejo



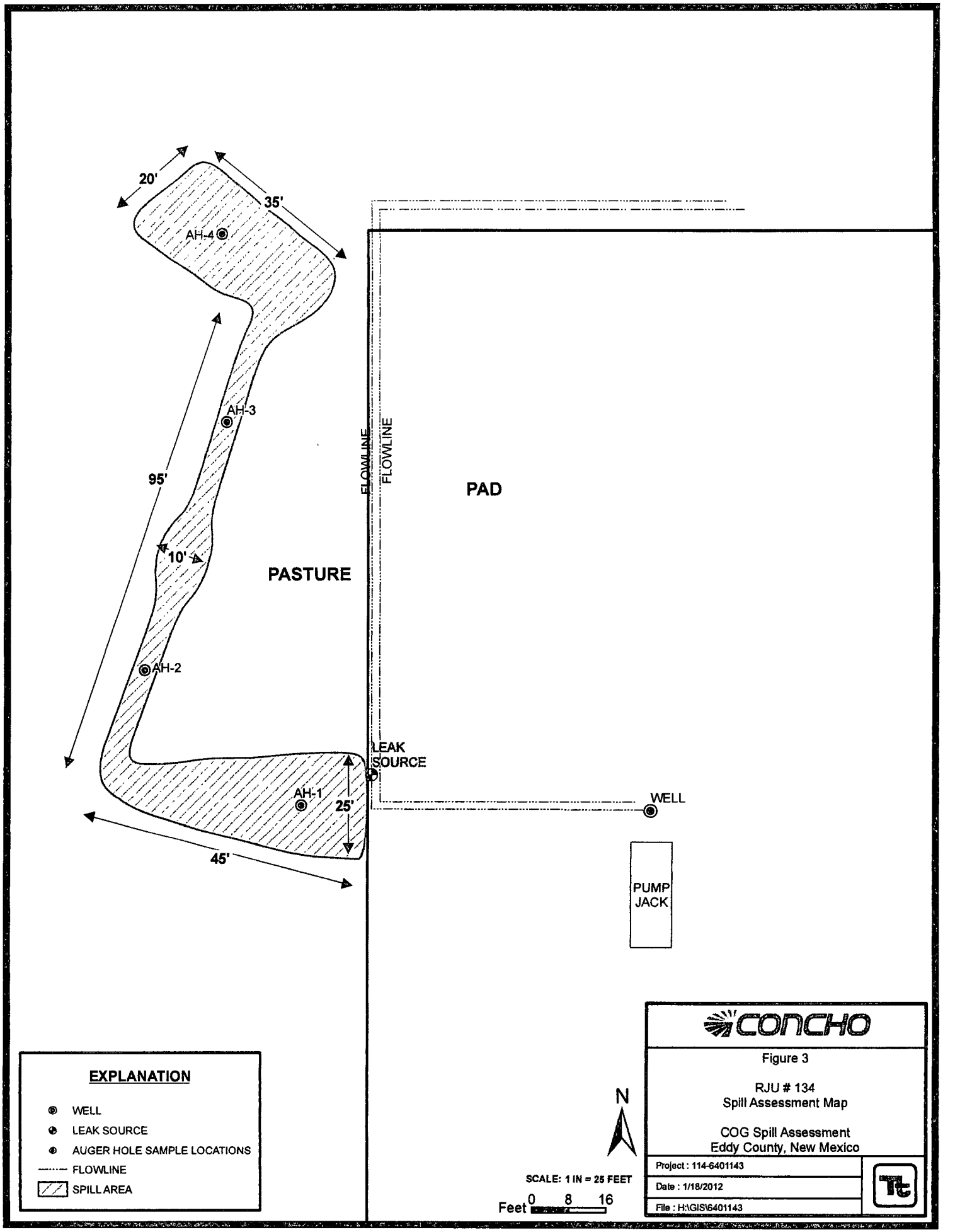
CONCHO

Figure 2
RJU #134
Topo Map 1:24,000

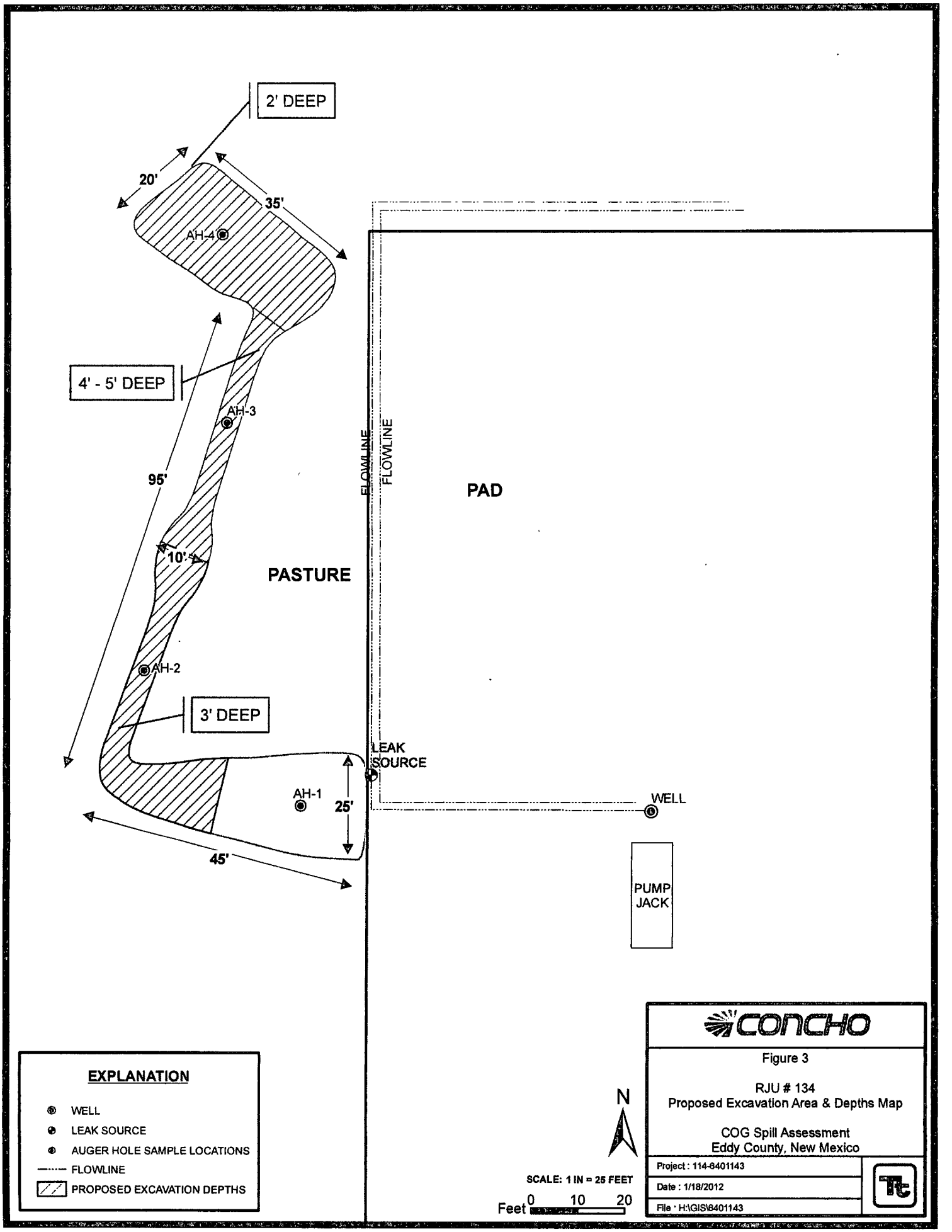
COG Spill Assessment
Eddy County, New Mexico

Project : 114-6401143
Date : 1/17/2012
File : H:\GIS\6401143

Drawn By Isabel Marmolejo



Drawn By Isabel Marmolejo



Drawn By: Isabel Marmolejo

Tables

Table 1
COG Operating LLC
RJU #134
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-1	12/21/2011	0-1	1'	X		<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	242
	"	1-1.5	1'	X		-	-	-	-	-	-	-	-	256
	"	2-2.5	1'	X		-	-	-	-	-	-	-	-	394
	"	3-3.5	1'	X		-	-	-	-	-	-	-	-	340
	"	4-4.5	1'	X		-	-	-	-	-	-	-	-	<200
	"	5-5.5	1'	X		-	-	-	-	-	-	-	-	394
	"	6-6.5	1'	X		-	-	-	-	-	-	-	-	389
	"	7-7.5	1'	X		-	-	-	-	-	-	-	-	493
	"	8-8.5	1'	X		-	-	-	-	-	-	-	-	389
	"	9-9.5	1'	X		-	-	-	-	-	-	-	-	345
AH-2	12/21/2011	0-1	1'	X		1,590	2,930	4,520	<0.400	2.82	23.1	31.3	57.2	1,530
	"	1-1.5	1'	X		-	-	-	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,300
	"	2-2.5	1'	X		-	-	-	-	-	-	-	-	6,400
	"	3-3.5	1'	X		-	-	-	-	-	-	-	-	665
	"	4-4.5	1'	X		-	-	-	-	-	-	-	-	<200
	"	5-5.5	1'	X		-	-	-	-	-	-	-	-	<200

Table 1
COG Operating LLC
RJU #134
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Depth (BEB)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
				In-Situ	Removed	GRO	DRO	Total						
AH-3	12/21/2011	0-1	1'	X		483	448	931	<0.400	<0.400	1.84	2.41	4.25	2,280
	"	1-1.5	1'	X		-	-	-	-	-	-	-	-	2,510
	"	2-2.5	1'	X		-	-	-	-	-	-	-	-	1,680
	"	3-3.5	1'	X		-	-	-	-	-	-	-	-	2,440
	"	4-4.5	1'	X		-	-	-	-	-	-	-	-	1,940
	"	5-5.5	1'	X		-	-	-	-	-	-	-	-	202
	"	6-6.5	1'	X		-	-	-	-	-	-	-	-	939
	"	7-7.5	1'	X		-	-	-	-	-	-	-	-	1,070
	"	8-8.5	1'	X		-	-	-	-	-	-	-	-	<200
	"	9-9.5	1'	X		-	-	-	-	-	-	-	-	<200
AH-4	12/21/2011	0-1	1'	X		1,580	4,160	5,740	<0.400	8.42	33.9	41.4	83.7	1,060
	"	1-1.5	1'	X		2.72	<50.0	2.72	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	1,800
	"	2-2.5	1'	X		-	-	-	-	-	-	-	-	379
	"	3-3.5	1'	X		-	-	-	-	-	-	-	-	914
	"	4-4.5	1'	X		-	-	-	-	-	-	-	-	<200
	"	5-5.5	1'	X		-	-	-	-	-	-	-	-	<200
	"	6-6.5	1'	X		-	-	-	-	-	-	-	-	<200
	"	7-7.5	1'	X		-	-	-	-	-	-	-	-	<200

(--) Not Analyzed

Proposed Excavation Depths

(BEB) Below Excavation Bottom

Photos

COG Operating LLC
RJU #134
Eddy County, New Mexico

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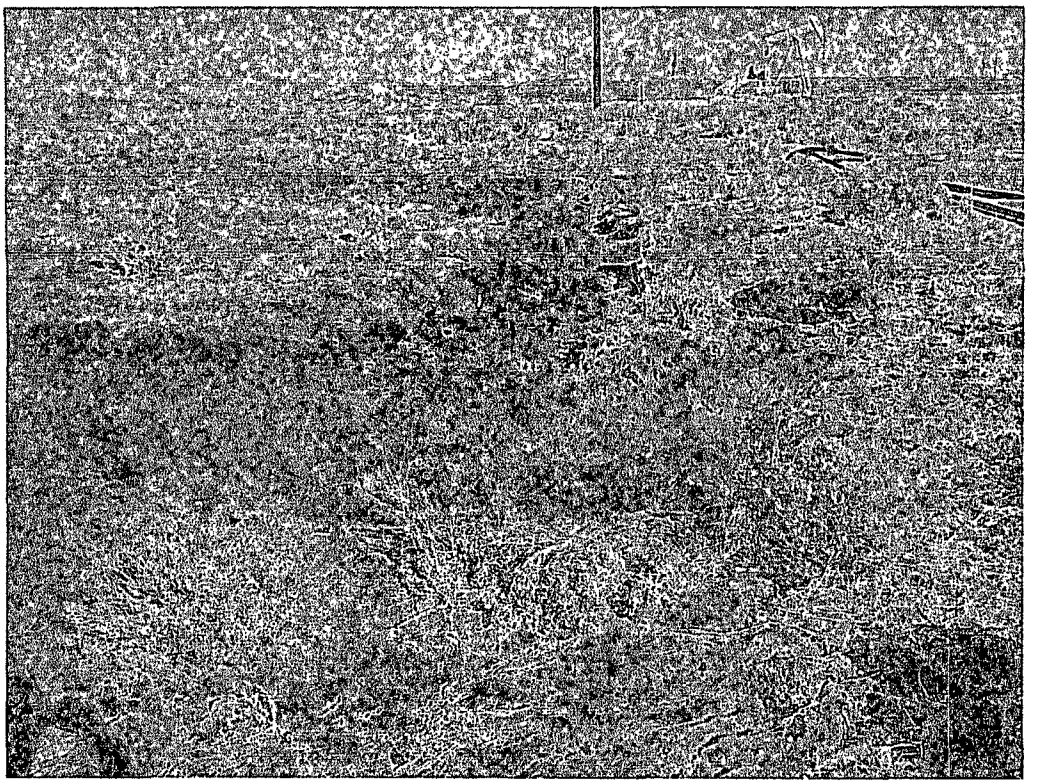
View North West – AH-1 and AH-2

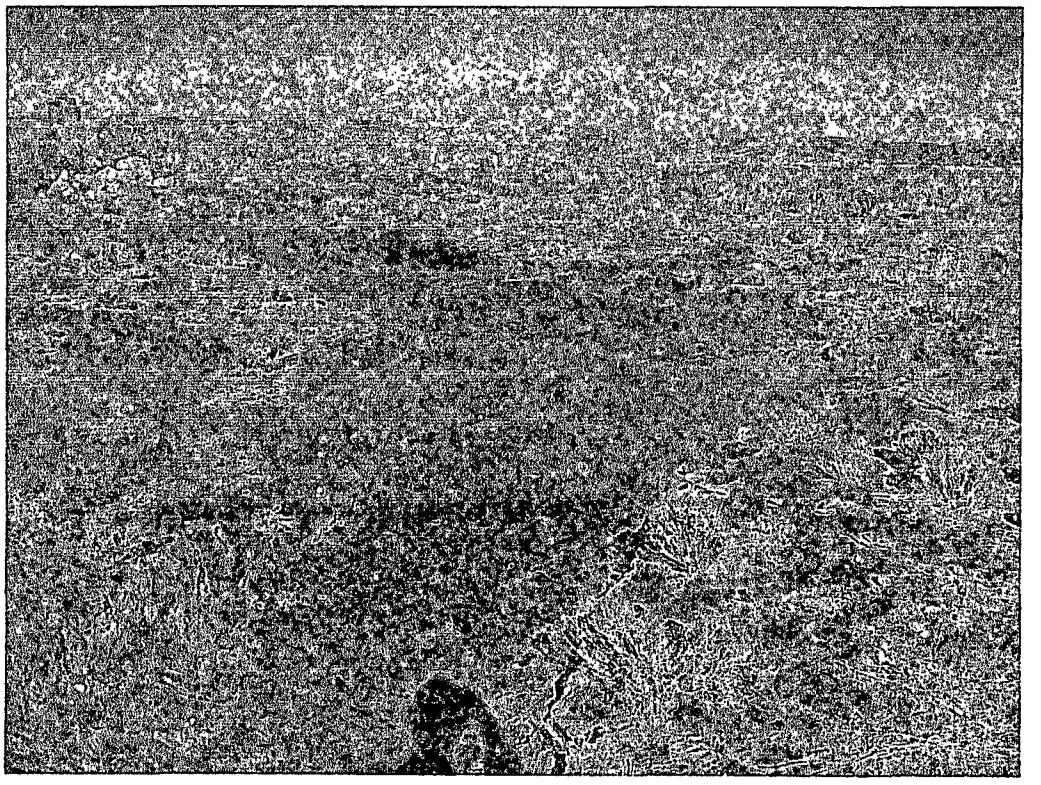
View North – AH-2 and AH-3

COG Operating LLC
RJU #134
Eddy County, New Mexico

TETRA TECH



View North – AH-3 and AH-4



View North West – AH-4

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	RJ Unit #134	Facility Type	Flowline

Surface Owner Federal	Mineral Owner	Lease No. (API#) 30-015-34573

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
K	27	17S	29E					Eddy

Latitude 32.80554 Longitude 104.06587

NATURE OF RELEASE

Type of Release Oil and Produced water	Volume of Release 4bbls oil 6bbls produced water	Volume Recovered 2bbls oil 3bbls produced water
Source of Release Flowline	Date and Hour of Occurrence 11/11/2011	Date and Hour of Discovery 11/11/2011 3:00 p.m.
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.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

A hole developed in the flowline on the west side of the pad location. The bad joint of flowline has been replaced and returned into service.

Describe Area Affected and Cleanup Action Taken.*

Initially 10bbls of produced fluid was release from the hole in the flowline and we were able to recover 5bbls with a vacuum truck. The fluid traveled from the west side of the pad north into the pasture and gathered in an area of 20' x 30'. The pasture area has had micro-blaze applied and all standing fluid has been recovered. Tetra Tech will sample the spill site area to delineate any possible contamination from the release and we will present a remediation work plan to the NMOCD/BLM 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: 11/22/2011 Phone: 432-212-2399		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
COG - RJU #134
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	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	23	24
30	29	28	27 SITE	26	25
31	32	33	34	35	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

- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level
- New Mexico Water and Infrastructure Data System
- Site Location - State S-19

Appendix C

Summary Report

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: January 5, 2012

Work Order: 11122308

Project Location: Eddy Co., NM
Project Name: RJU #134
Project Number: 114-6401143

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
285206	AH-1 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285207	AH-1 1 'BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285208	AH-1 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285209	AH-1 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285210	AH-1 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285211	AH-1 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285212	AH-1 1' BEB 6-6.5'	soil	2011-12-21	00:00	2011-12-22
285213	AH-1 1' BEB 7-7.5'	soil	2011-12-21	00:00	2011-12-22
285214	AH-1 1'BEB 8-8.5'	soil	2011-12-21	00:00	2011-12-22
285215	AH-1 1' BEB 9-9.5'	soil	2011-12-21	00:00	2011-12-22
285216	AH-2 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285217	AH-2 1' BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285218	AH-2 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285219	AH-2 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285220	AH-2 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285221	AH-2 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285222	AH-3 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285223	AH-3 1' BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285224	AH-3 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285225	AH-3 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285226	AH-3 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285227	AH-3 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285228	AH-3 1' BEB 6-6.5'	soil	2011-12-21	00:00	2011-12-22
285229	AH-3 1' BEB 7-7.5'	soil	2011-12-21	00:00	2011-12-22
285230	AH-3 1' BEB 8-8.5'	soil	2011-12-21	00:00	2011-12-22
285231	AH-3 1' BEB 9-9.5'	soil	2011-12-21	00:00	2011-12-22
285232	AH-4 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285233	AH-4 1' BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285234	AH-4 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285235	AH-4 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
285236	AH-4 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285237	AH-4 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285238	AH-4 1' BEB 6-6.5'	soil	2011-12-21	00:00	2011-12-22
285239	AH-4 1' BEB 7-7.5'	soil	2011-12-21	00:00	2011-12-22

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
285206 - AH-1 1' BEB 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00 Qr,Qs
285216 - AH-2 1' BEB 0-1'	<0.400 [1]	**2.82**	**23.1**	**31.3**	**2930**	**1590** Qs
285217 - AH-2 1' BEB 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200		
285222 - AH-3 1' BEB 0-1'	<0.400 [2]	<0.400	**1.84**	**2.41**	**448**	**483** Qr,Qs
285232 - AH-4 1' BEB 0-1'	<0.400 [3]	**8.42**	**33.9**	**41.4**	**4160**	**1580** Qs
285233 - AH-4 1' BEB 1-1.5'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	**2.72** Qr,Qs

Sample: 285206 - AH-1 1' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**242**	mg/Kg	4

Sample: 285207 - AH-1 1 'BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**256**	mg/Kg	4

Sample: 285208 - AH-1 1' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**394**	mg/Kg	4

Sample: 285209 - AH-1 1' BEB 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**340**	mg/Kg	4

Sample: 285210 - AH-1 1' BEB 4-4.5'

continued ...

[1]Sample dilution due to hydrocarbons.
[2]Sample dilution due to hydrocarbons.
[3]Sample dilution due to hydrocarbons.

sample 285210 continued ...

Param	Flag	Result	Units	RL

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285211 - AH-1 1' BEB 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**394**	mg/Kg	4

Sample: 285212 - AH-1 1' BEB 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**389**	mg/Kg	4

Sample: 285213 - AH-1 1' BEB 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**493**	mg/Kg	4

Sample: 285214 - AH-1 1'BEB 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**389**	mg/Kg	4

Sample: 285215 - AH-1 1' BEB 9-9.5'

Param	Flag	Result	Units	RL
Chloride		**345**	mg/Kg	4

Sample: 285216 - AH-2 1' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**1530**	mg/Kg	4

Sample: 285217 - AH-2 1' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**6300**	mg/Kg	4

Sample: 285218 - AH-2 1' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**6400**	mg/Kg	4

Sample: 285219 - AH-2 1' BEB 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**665**	mg/Kg	4

Sample: 285220 - AH-2 1' BEB 4-4.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285221 - AH-2 1' BEB 5-5.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285222 - AH-3 1' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**2280**	mg/Kg	4

Sample: 285223 - AH-3 1' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2510**	mg/Kg	4

Sample: 285224 - AH-3 1' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1680**	mg/Kg	4

Sample: 285225 - AH-3 1' BEB 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**2440**	mg/Kg	4

Sample: 285226 - AH-3 1' BEB 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**1940**	mg/Kg	4

Sample: 285227 - AH-3 1' BEB 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**202**	mg/Kg	4

Sample: 285228 - AH-3 1' BEB 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**939**	mg/Kg	4

Sample: 285229 - AH-3 1' BEB 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**1070**	mg/Kg	4

Sample: 285230 - AH-3 1' BEB 8-8.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285231 - AH-3 1' BEB 9-9.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285232 - AH-4 1' BEB 0-1'

Param	Flag	Result	Units	RL
Chloride		**1060**	mg/Kg	4

Sample: 285233 - AH-4 1' BEB 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1800**	mg/Kg	4

Sample: 285234 - AH-4 1' BEB 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**379**	mg/Kg	4

Sample: 285235 - AH-4 1' BEB 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**914**	mg/Kg	4

Sample: 285236 - AH-4 1' BEB 4-4.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285237 - AH-4 1' BEB 5-5.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285238 - AH-4 1' BEB 6-6.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

Sample: 285239 - AH-4 1' BEB 7-7.5'

Param	Flag	Result	Units	RL
Chloride		<200	mg/Kg	4

TRACEANALYSIS, INC.

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report
(Corrected Report)

Ike Tavarez
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: January 5, 2012

Work Order: 11122308

Project Location: Eddy Co., NM
Project Name: RJU #134
Project Number: 114-6401143

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
285206	AH-1 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285207	AH-1 1 'BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285208	AH-1 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285209	AH-1 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285210	AH-1 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285211	AH-1 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285212	AH-1 1' BEB 6-6.5'	soil	2011-12-21	00:00	2011-12-22
285213	AH-1 1' BEB 7-7.5'	soil	2011-12-21	00:00	2011-12-22
285214	AH-1 1'BEB 8-8.5'	soil	2011-12-21	00:00	2011-12-22
285215	AH-1 1' BEB 9-9.5'	soil	2011-12-21	00:00	2011-12-22
285216	AH-2 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285217	AH-2 1' BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285218	AH-2 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285219	AH-2 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285220	AH-2 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
285221	AH-2 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285222	AH-3 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285223	AH-3 1' BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285224	AH-3 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285225	AH-3 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285226	AH-3 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285227	AH-3 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285228	AH-3 1' BEB 6-6.5'	soil	2011-12-21	00:00	2011-12-22
285229	AH-3 1' BEB 7-7.5'	soil	2011-12-21	00:00	2011-12-22
285230	AH-3 1' BEB 8-8.5'	soil	2011-12-21	00:00	2011-12-22
285231	AH-3 1' BEB 9-9.5'	soil	2011-12-21	00:00	2011-12-22
285232	AH-4 1' BEB 0-1'	soil	2011-12-21	00:00	2011-12-22
285233	AH-4 1' BEB 1-1.5'	soil	2011-12-21	00:00	2011-12-22
285234	AH-4 1' BEB 2-2.5'	soil	2011-12-21	00:00	2011-12-22
285235	AH-4 1' BEB 3-3.5'	soil	2011-12-21	00:00	2011-12-22
285236	AH-4 1' BEB 4-4.5'	soil	2011-12-21	00:00	2011-12-22
285237	AH-4 1' BEB 5-5.5'	soil	2011-12-21	00:00	2011-12-22
285238	AH-4 1' BEB 6-6.5'	soil	2011-12-21	00:00	2011-12-22
285239	AH-4 1' BEB 7-7.5'	soil	2011-12-21	00:00	2011-12-22

Report Corrections (Work Order 11122308)

- BTEX and 8015 DRO/GRO results removed for sample 285234. 1/5/12

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

Report Contents

Case Narrative

Samples for project RJU #134 were received by TraceAnalysis, Inc. on 2011-12-22 and assigned to work order 11122308. Samples for work order 11122308 were received intact at a temperature of 7.7 C. Samples were received on ice.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	74262	2011-12-28 at 07:25	87453	2011-12-28 at 07:25
BTEX	S 8021B	74348	2012-01-02 at 14:50	87557	2012-01-02 at 18:27
Chloride (Titration)	SM 4500-Cl B	74333	2011-12-30 at 11:20	87542	2012-01-02 at 14:19
Chloride (Titration)	SM 4500-Cl B	74333	2011-12-30 at 11:20	87543	2012-01-02 at 14:20
Chloride (Titration)	SM 4500-Cl B	74333	2011-12-30 at 11:20	87544	2012-01-02 at 14:21
Chloride (Titration)	SM 4500-Cl B	74333	2011-12-30 at 11:20	87545	2012-01-02 at 14:22
TPH DRO - NEW	S 8015 D	74279	2011-12-28 at 14:36	87474	2011-12-28 at 14:36
TPH DRO - NEW	S 8015 D	74345	2012-01-02 at 10:00	87554	2012-01-02 at 12:00
TPH GRO	S 8015 D	74262	2011-12-28 at 07:25	87454	2011-12-28 at 07:25
TPH GRO	S 8015 D	74291	2011-12-29 at 13:50	87486	2011-12-29 at 13:50
TPH GRO	S 8015 D	74348	2012-01-02 at 14:50	87558	2012-01-02 at 17:09

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 11122308 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: 285206 - AH-1 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87453	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	Sample Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene	U	1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	1	<0.0200	mg/Kg	1	0.0200
Xylene	U	1	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.78	mg/Kg	1	2.00	89	70 - 130
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	70 - 130

Sample: 285206 - AH-1 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**242**	mg/Kg	50	4.00

Sample: 285206 - AH-1 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	87474	Date Analyzed:	2011-12-28	Analyzed By:	kg
Prep Batch:	74279	Sample Preparation:	2011-12-28	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	U	2	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			90.1	mg/Kg	1	100	90	53.5 - 147.1

Sample: 285206 - AH-1 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87454	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	Sample Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qr,Qs	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.32	mg/Kg	1	2.00	116	70 - 130
4-Bromofluorobenzene (4-BFB)			2.11	mg/Kg	1	2.00	106	70 - 130

Sample: 285207 - AH-1 1 'BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**256**	mg/Kg	50	4.00

Sample: 285208 - AH-1 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

continued ...

sample 285208 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**394**	mg/Kg	50	4.00

Sample: 285209 - AH-1 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**340**	mg/Kg	50	4.00

Sample: 285210 - AH-1 1' BEB 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285211 - AH-1 1' BEB 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**394**	mg/Kg	50	4.00

Sample: 285212 - AH-1 1' BEB 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**389**	mg/Kg	50	4.00

Sample: 285213 - AH-1 1' BEB 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**493**	mg/Kg	50	4.00

Sample: 285214 - AH-1 1'BEB 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**389**	mg/Kg	50	4.00

Sample: 285215 - AH-1 1' BEB 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87542	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**345**	mg/Kg	50	4.00

Sample: 285216 - AH-2 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87453	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	Sample Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.400	mg/Kg	20	0.0200
Toluene		1	**2.82**	mg/Kg	20	0.0200
Ethylbenzene		1	**23.1**	mg/Kg	20	0.0200
Xylene		1	**31.3**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.62	mg/Kg	20	2.00	81	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	13.9	mg/Kg	20	2.00	695	70 - 130

Sample: 285216 - AH-2 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1530**	mg/Kg	100	4.00

Sample: 285216 - AH-2 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	87474	Date Analyzed:	2011-12-28	Analyzed By:	kg
Prep Batch:	74279	Sample Preparation:	2011-12-28	Prepared By:	kg

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO		2	**2930**		mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		180	mg/Kg	5	100	180	53.5 - 147.1

Sample: 285216 - AH-2 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87486	Date Analyzed:	2011-12-29	Analyzed By:	MT
Prep Batch:	74291	Sample Preparation:	2011-12-29	Prepared By:	MT

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO	Qs	1	**1590**		mg/Kg	50	2.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.20	mg/Kg	50	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		32.5	mg/Kg	50	2.00	1625	70 - 130

Sample: 285217 - AH-2 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87557	Date Analyzed:	2012-01-02	Analyzed By:	AG
Prep Batch:	74348	Sample Preparation:	2012-01-02	Prepared By:	AG

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene	U	2	<0.0200		mg/Kg	1	0.0200
Toluene	U	2	<0.0200		mg/Kg	1	0.0200
Ethylbenzene	U	2	<0.0200		mg/Kg	1	0.0200
Xylene	U	2	<0.0200		mg/Kg	1	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.54	mg/Kg	1	2.00	77	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)				1.46	mg/Kg	1	2.00	73	70.6 - 179

Sample: 285217 - AH-2 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6300**	mg/Kg	100	4.00

Sample: 285218 - AH-2 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6400**	mg/Kg	100	4.00

Sample: 285219 - AH-2 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**665**	mg/Kg	50	4.00

Sample: 285220 - AH-2 1' BEB 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285221 - AH-2 1' BEB 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285222 - AH-3 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87453	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	Sample Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [2]	U	1	<0.400	mg/Kg	20	0.0200
Toluene	U	1	<0.400	mg/Kg	20	0.0200
Ethylbenzene		1	**1.84**	mg/Kg	20	0.0200
Xylene		1	**2.41**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.36	mg/Kg	20	2.00	68	70 - 130
4-Bromofluorobenzene (4-BFB)			1.92	mg/Kg	20	2.00	96	70 - 130

Sample: 285222 - AH-3 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2280**	mg/Kg	100	4.00

Sample: 285222 - AH-3 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	87474	Date Analyzed:	2011-12-28	Analyzed By:	kg
Prep Batch:	74279	Sample Preparation:	2011-12-28	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**448**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			105	mg/Kg	1	100	105	53.5 - 147.1

Sample: 285222 - AH-3 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87454	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	Sample Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qr,Qs	1	**483**	mg/Kg	20	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	20	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	5.63	mg/Kg	20	2.00	282	70 - 130

Sample: 285223 - AH-3 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2510**	mg/Kg	100	4.00

Sample: 285224 - AH-3 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1680**	mg/Kg	100	4.00

Sample: 285225 - AH-3 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87543	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**2440**	mg/Kg	100	4.00

Sample: 285226 - AH-3 1' BEB 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1940**	mg/Kg	100	4.00

Sample: 285227 - AH-3 1' BEB 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**202**	mg/Kg	50	4.00

Sample: 285228 - AH-3 1' BEB 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**939**	mg/Kg	100	4.00

Sample: 285229 - AH-3 1' BEB 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1070**	mg/Kg	100	4.00

Sample: 285230 - AH-3 1' BEB 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285231 - AH-3 1' BEB 9-9.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285232 - AH-4 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87453	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	Sample Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene [3]	U	1	<0.400	mg/Kg	20	0.0200
Toluene		1	**8.42**	mg/Kg	20	0.0200
Ethylbenzene		1	**33.9**	mg/Kg	20	0.0200
Xylene		1	**41.4**	mg/Kg	20	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.46	mg/Kg	20	2.00	73	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	15.6	mg/Kg	20	2.00	780	70 - 130

Sample: 285232 - AH-4 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**1060**	mg/Kg	100	4.00

Sample: 285232 - AH-4 1' BEB 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	87474	Date Analyzed:	2011-12-28	Analyzed By:	kg
Prep Batch:	74279	Sample Preparation:	2011-12-28	Prepared By:	kg

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**4160**	mg/Kg	5	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		205	mg/Kg	5	100	205	53.5 - 147.1

Sample: 285232 - AH-4 1' BEB 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87486	Date Analyzed:	2011-12-29	Analyzed By:	MT
Prep Batch:	74291	Sample Preparation:	2011-12-29	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qs	1	**1580**	mg/Kg	50	2.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)				2.37	mg/Kg	50	2.00	118	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		28.5	mg/Kg	50	2.00	1425	70 - 130

Sample: 285233 - AH-4 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	87557	Date Analyzed:	2012-01-02	Analyzed By:	AG
Prep Batch:	74348	Sample Preparation:	2012-01-02	Prepared By:	AG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	2	<0.0200	mg/Kg	1	0.0200
Toluene	U	2	<0.0200	mg/Kg	1	0.0200
Ethylbenzene	U	2	<0.0200	mg/Kg	1	0.0200
Xylene	U	2	<0.0200	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.32	mg/Kg	1	2.00	116	82.8 - 143.1
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70.6 - 179

Sample: 285233 - AH-4 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1800**	mg/Kg	100	4.00

Sample: 285233 - AH-4 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	87554	Date Analyzed:	2012-01-02	Analyzed By:	kg
Prep Batch:	74345	Sample Preparation:	2012-01-02	Prepared By:	kg

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO	U	2	<50.0	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			98.0	mg/Kg	1	100	98	53.5 - 147.1

Sample: 285233 - AH-4 1' BEB 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	87558	Date Analyzed:	2012-01-02	Analyzed By:	AG
Prep Batch:	74348	Sample Preparation:	2012-01-02	Prepared By:	AG

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
GRO	Qr,Qs	2		**2.72**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.34	mg/Kg	1	2.00	117	30 - 134.6
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	22.4 - 149

Sample: 285234 - AH-4 1' BEB 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**379**	mg/Kg	50	4.00

Sample: 285235 - AH-4 1' BEB 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**914**	mg/Kg	50	4.00

Sample: 285236 - AH-4 1' BEB 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87545	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285237 - AH-4 1' BEB 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87545	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285238 - AH-4 1' BEB 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87545	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Sample: 285239 - AH-4 1' BEB 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	87545	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	Sample Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<200	mg/Kg	50	4.00

Method Blanks

Method Blank (1) QC Batch: 87453

QC Batch:	87453	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	QC Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00335	mg/Kg	0.02
Toluene		1	<0.00471	mg/Kg	0.02
Ethylbenzene		1	<0.00440	mg/Kg	0.02
Xylene		1	<0.00557	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.70	mg/Kg	1	2.00	85	70 - 130
4-Bromofluorobenzene (4-BFB)			1.70	mg/Kg	1	2.00	85	70 - 130

Method Blank (1) QC Batch: 87454

QC Batch:	87454	Date Analyzed:	2011-12-28	Analyzed By:	MT
Prep Batch:	74262	QC Preparation:	2011-12-28	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.446	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.20	mg/Kg	1	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

Method Blank (1) QC Batch: 87474

QC Batch:	87474	Date Analyzed:	2011-12-28	Analyzed By:	kg
Prep Batch:	74279	QC Preparation:	2011-12-28	Prepared By:	kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			97.4	mg/Kg	1	100	97	52.7 - 133.8

Method Blank (1) QC Batch: 87486

QC Batch: 87486 Date Analyzed: 2011-12-29 Analyzed By: MT
Prep Batch: 74291 QC Preparation: 2011-12-29 Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.446	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.08	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

Method Blank (1) QC Batch: 87542

QC Batch: 87542 Date Analyzed: 2012-01-02 Analyzed By: AR
Prep Batch: 74333 QC Preparation: 2011-12-30 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 87543

QC Batch: 87543 Date Analyzed: 2012-01-02 Analyzed By: AR
Prep Batch: 74333 QC Preparation: 2011-12-30 Prepared By: AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 87544

QC Batch:	87544	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	QC Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 87545

QC Batch:	87545	Date Analyzed:	2012-01-02	Analyzed By:	AR
Prep Batch:	74333	QC Preparation:	2011-12-30	Prepared By:	AR

Parameter	Flag	Cert	MDL Result	Units	RL
Chloride			<3.85	mg/Kg	4

Method Blank (1) QC Batch: 87554

QC Batch:	87554	Date Analyzed:	2012-01-02	Analyzed By:	kg
Prep Batch:	74345	QC Preparation:	2012-01-02	Prepared By:	kg

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		2	<14.5	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			83.5	mg/Kg	1	100	84	52.7 - 133.8

Method Blank (1) QC Batch: 87557

QC Batch: 87557 | Date Analyzed: 2012-01-02 | Analyzed By: AG
Prep Batch: 74348 | QC Preparation: 2012-01-02 | Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		2	<0.0118	mg/Kg	0.02
Toluene		2	<0.00600	mg/Kg	0.02
Ethylbenzene		2	<0.00850	mg/Kg	0.02
Xylene		2	<0.00613	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	65.9 - 111.8
4-Bromofluorobenzene (4-BFB)			1.66	mg/Kg	1	2.00	83	48.4 - 123.1

Method Blank (1) QC Batch: 87558

QC Batch: 87558 | Date Analyzed: 2012-01-02 | Analyzed By: AG
Prep Batch: 74348 | QC Preparation: 2012-01-02 | Prepared By: AG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		2	1.04	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.05	mg/Kg	1	2.00	102	67.6 - 150
4-Bromofluorobenzene (4-BFB)			1.59	mg/Kg	1	2.00	80	52.4 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 87453 | Date Analyzed: 2011-12-28 | Analyzed By: MT
Prep Batch: 74262 | QC Preparation: 2011-12-28 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.79	mg/Kg	1	2.00	<0.00335	89	70 - 130
Toluene		1	1.80	mg/Kg	1	2.00	<0.00471	90	70 - 130
Ethylbenzene		1	1.84	mg/Kg	1	2.00	<0.00440	92	70 - 130
Xylene		1	5.48	mg/Kg	1	6.00	<0.00557	91	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.79	mg/Kg	1	2.00	<0.00335	90	70 - 130	0	20
Toluene		1	1.80	mg/Kg	1	2.00	<0.00471	90	70 - 130	0	20
Ethylbenzene		1	1.86	mg/Kg	1	2.00	<0.00440	93	70 - 130	1	20
Xylene		1	5.55	mg/Kg	1	6.00	<0.00557	92	70 - 130	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)	1.80	1.81	mg/Kg	1	2.00	90	90	70 - 130
4-Bromofluorobenzene (4-BFB)	1.77	1.80	mg/Kg	1	2.00	89	90	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 87454 | Date Analyzed: 2011-12-28 | Analyzed By: MT
Prep Batch: 74262 | QC Preparation: 2011-12-28 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.8	mg/Kg	1	20.0	<0.446	94	70 - 130

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

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control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	19.8	mg/Kg	1	20.0	<0.446	99	70 - 130	5	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)	2.00	2.05	mg/Kg	1	2.00	100	103	70 - 130
4-Bromofluorobenzene (4-BFB)	2.13	2.16	mg/Kg	1	2.00	106	108	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 87474 | Date Analyzed: 2011-12-28 | Analyzed By: kg
Prep Batch: 74279 | QC Preparation: 2011-12-28 | Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	205	mg/Kg	1	250	<14.5	82	64.5 - 146.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		2	210	mg/Kg	1	250	<14.5	84	64.5 - 146.9	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
n-Tricosane	104	105	mg/Kg	1	100	104	105	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 87486 | Date Analyzed: 2011-12-29 | Analyzed By: MT
Prep Batch: 74291 | QC Preparation: 2011-12-29 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.0	mg/Kg	1	20.0	<0.446	90	70 - 130

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	18.2	mg/Kg	1	20.0	<0.446	91	70 - 130	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)	1.94	1.87	mg/Kg	1	2.00	97	94	70 - 130
4-Bromofluorobenzene (4-BFB)	2.14	2.17	mg/Kg	1	2.00	107	108	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 87542 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.5	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			105	mg/Kg	1	100	<3.85	105	85 - 115	10	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: 87543 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.4	mg/Kg	1	100	<3.85	95	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			102	mg/Kg	1	100	<3.85	102	85 - 115	7	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: 87544 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.9	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			104	mg/Kg	1	100	<3.85	104	85 - 115	8	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: 87545 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			95.8	mg/Kg	1	100	<3.85	96	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			106	mg/Kg	1	100	<3.85	106	85 - 115	10	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: 87554 | Date Analyzed: 2012-01-02 | Analyzed By: kg
Prep Batch: 74345 | QC Preparation: 2012-01-02 | Prepared By: kg

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	201	mg/Kg	1	250	<14.5	80	64.5 - 146.9

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		2	219	mg/Kg	1	250	<14.5	88	64.5 - 146.9	9	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	99.5	107	mg/Kg	1	100	100	107	65.3 - 135.8

Laboratory Control Spike (LCS-1)

QC Batch: 87557 | Date Analyzed: 2012-01-02 | Analyzed By: AG
Prep Batch: 74348 | QC Preparation: 2012-01-02 | Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.08	mg/Kg	1	2.00	<0.0118	104	77.4 - 121.7
Toluene		2	2.02	mg/Kg	1	2.00	<0.00600	101	88.6 - 121.6
Ethylbenzene		2	1.92	mg/Kg	1	2.00	<0.00850	96	74.3 - 117.9
Xylene		2	5.75	mg/Kg	1	6.00	<0.00613	96	73.4 - 118.8

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	2.20	mg/Kg	1	2.00	<0.0118	110	77.4 - 121.7	6	20
Toluene		2	2.12	mg/Kg	1	2.00	<0.00600	106	88.6 - 121.6	5	20
Ethylbenzene		2	2.03	mg/Kg	1	2.00	<0.00850	102	74.3 - 117.9	6	20
Xylene		2	6.08	mg/Kg	1	6.00	<0.00613	101	73.4 - 118.8	6	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)	2.02	2.06	mg/Kg	1	2.00	101	103	65.5 - 116.7
4-Bromofluorobenzene (4-BFB)	1.93	2.02	mg/Kg	1	2.00	96	101	56.2 - 132.1

Laboratory Control Spike (LCS-1)

QC Batch: 87558 | Date Analyzed: 2012-01-02 | Analyzed By: AG
Prep Batch: 74348 | QC Preparation: 2012-01-02 | Prepared By: AG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		2	17.5	mg/Kg	1	20.0	<0.753	88	60.9 - 105.4

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		2	18.0	mg/Kg	1	20.0	<0.753	90	60.9 - 105.4	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)	2.06	2.14	mg/Kg	1	2.00	103	107	61.9 - 142
4-Bromofluorobenzene (4-BFB)	1.75	1.84	mg/Kg	1	2.00	88	92	56.2 - 132

Matrix Spike (MS-1) Spiked Sample: 285158

QC Batch: 87453 | Date Analyzed: 2011-12-28 | Analyzed By: MT
Prep Batch: 74262 | QC Preparation: 2011-12-28 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.58	mg/Kg	1	2.00	<0.00335	79	70 - 130
Toluene		1	1.70	mg/Kg	1	2.00	<0.00471	85	70 - 130
Ethylbenzene		1	1.85	mg/Kg	1	2.00	<0.00440	92	70 - 130
Xylene		1	5.49	mg/Kg	1	6.00	<0.00557	92	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.61	mg/Kg	1	2.00	<0.00335	80	70 - 130	2	20
Toluene		1	1.73	mg/Kg	1	2.00	<0.00471	86	70 - 130	2	20
Ethylbenzene		1	1.90	mg/Kg	1	2.00	<0.00440	95	70 - 130	3	20
Xylene		1	5.63	mg/Kg	1	6.00	<0.00557	94	70 - 130	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)	1.78	1.82	mg/Kg	1	2	89	91	70 - 130
4-Bromofluorobenzene (4-BFB)	1.69	1.77	mg/Kg	1	2	84	88	70 - 130

Matrix Spike (MS-1) Spiked Sample: 285158

QC Batch: 87454 | Date Analyzed: 2011-12-28 | Analyzed By: MT
Prep Batch: 74262 | QC Preparation: 2011-12-28 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	1 11.2	mg/Kg	1	20.0	<0.446	56	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qr	Qr	1 17.1	mg/Kg	1	20.0	<0.446	86	70 - 130	42	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)	Qsr	Qsr	1.28	2.00	mg/Kg	1	2	64	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.50	2.12	mg/Kg	1	2	75	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 285309

QC Batch: 87474 | Date Analyzed: 2011-12-28 | Analyzed By: kg
Prep Batch: 74279 | QC Preparation: 2011-12-28 | Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	186	mg/Kg	1	250	<14.5	74	38.8 - 153.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		2	195	mg/Kg	1	250	<14.5	78	38.8 - 153.3	5	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	85.3	93.5	mg/Kg	1	100	85	94	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 285289

QC Batch: 87486 | Date Analyzed: 2011-12-29 | Analyzed By: MT
Prep Batch: 74291 | QC Preparation: 2011-12-29 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Qs	Qs	1	2020	mg/Kg	50	20.0	1920	500	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	Qs	Qs	1	2420	mg/Kg	50	20.0	1920	2500	70 - 130	18	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)	Qsr	Qsr	11.0	19.8	mg/Kg	50	2	550	990	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	29.0	42.6	mg/Kg	50	2	1450	2130	70 - 130

Matrix Spike (MS-1) Spiked Sample: 285215

QC Batch: 87542 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10100	mg/Kg	100	10000	<385	98	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			10700	mg/Kg	100	10000	<385	104	79.4 - 120.6	6	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: 285222

QC Batch: 87543 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			12200	mg/Kg	100	10000	2280	99	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			13100	mg/Kg	100	10000	2280	108	79.4 - 120.6	7	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: 285235

QC Batch: 87544 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			11000	mg/Kg	100	10000	914	101	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11500	mg/Kg	100	10000	914	106	79.4 - 120.6	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: 285284

QC Batch: 87545 | Date Analyzed: 2012-01-02 | Analyzed By: AR
Prep Batch: 74333 | QC Preparation: 2011-12-30 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			10600	mg/Kg	100	10000	452	101	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			11100	mg/Kg	100	10000	452	106	79.4 - 120.6	5	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: 285234

QC Batch: 87554 | Date Analyzed: 2012-01-02 | Analyzed By: kg
Prep Batch: 74345 | QC Preparation: 2012-01-02 | Prepared By: kg

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	205	mg/Kg	1	250	<14.5	82	38.8 - 153.3

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
DRO		2	214	mg/Kg	1	250	<14.5	86	38.8 - 153.3	4	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	97.0	94.5	mg/Kg	1	100	97	94	54.6 - 149.8

Matrix Spike (MS-1) Spiked Sample: 285290

QC Batch: 87557 | Date Analyzed: 2012-01-02 | Analyzed By: AG
Prep Batch: 74348 | QC Preparation: 2012-01-02 | Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		2	2.24	mg/Kg	1	2.00	<0.0118	112	69.4 - 123.6
Toluene		2	2.21	mg/Kg	1	2.00	<0.00600	110	75.4 - 134.3
Ethylbenzene		2	2.16	mg/Kg	1	2.00	<0.00850	108	58.8 - 133.7
Xylene		2	6.50	mg/Kg	1	6.00	<0.00613	108	57 - 134.2

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		2	1.99	mg/Kg	1	2.00	<0.0118	100	69.4 - 123.6	12	20
Toluene		2	1.96	mg/Kg	1	2.00	<0.00600	98	75.4 - 134.3	12	20
Ethylbenzene		2	1.96	mg/Kg	1	2.00	<0.00850	98	58.8 - 133.7	10	20
Xylene		2	5.87	mg/Kg	1	6.00	<0.00613	98	57 - 134.2	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)	2.12	2.49	mg/Kg	1	2	106	124	79.4 - 141.1

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matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	2.07	2.47	mg/Kg	1	2	104	124	71 - 167

Matrix Spike (MS-1) Spiked Sample: 285125

QC Batch: 87558 | Date Analyzed: 2012-01-02 | Analyzed By: AG
Prep Batch: 74348 | QC Preparation: 2012-01-02 | Prepared By: AG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		2	20.7	mg/Kg	1	20.0	3.7	85	61.8 - 114

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO	4 Qr,Qs	Qr,Qs 2	3.47	mg/Kg	1	20.0	3.7	0	61.8 - 114	143	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)	2.70	1.72	mg/Kg	1	2	135	86	29.4 - 161.7
4-Bromofluorobenzene (4-BFB)	2.64	1.54	mg/Kg	1	2	132	77	37.3 - 162

Calibration Standards

Standard (CCV-1)

QC Batch: 87453 | Date Analyzed: 2011-12-28 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0913	91	80 - 120	2011-12-28
Toluene		1	mg/Kg	0.100	0.0920	92	80 - 120	2011-12-28
Ethylbenzene		1	mg/Kg	0.100	0.0950	95	80 - 120	2011-12-28
Xylene		1	mg/Kg	0.300	0.283	94	80 - 120	2011-12-28

Standard (CCV-2)

QC Batch: 87453 | Date Analyzed: 2011-12-28 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0876	88	80 - 120	2011-12-28
Toluene		1	mg/Kg	0.100	0.0901	90	80 - 120	2011-12-28
Ethylbenzene		1	mg/Kg	0.100	0.0919	92	80 - 120	2011-12-28
Xylene		1	mg/Kg	0.300	0.278	92	80 - 120	2011-12-28

Standard (CCV-3)

QC Batch: 87453 | Date Analyzed: 2011-12-28 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/Kg	0.100	0.0889	89	80 - 120	2011-12-28
Toluene		1	mg/Kg	0.100	0.0873	87	80 - 120	2011-12-28
Ethylbenzene		1	mg/Kg	0.100	0.0892	89	80 - 120	2011-12-28
Xylene		1	mg/Kg	0.300	0.268	89	80 - 120	2011-12-28

Standard (CCV-1)

QC Batch: 87454 | Date Analyzed: 2011-12-28 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.948	95	80 - 120	2011-12-28

Standard (CCV-2)

QC Batch: 87454 | Date Analyzed: 2011-12-28 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.10	110	80 - 120	2011-12-28

Standard (CCV-3)

QC Batch: 87454 | Date Analyzed: 2011-12-28 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.975	97	80 - 120	2011-12-28

Standard (CCV-2)

QC Batch: 87474 | Date Analyzed: 2011-12-28 | Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	223	89	80 - 120	2011-12-28

Standard (CCV-3)

QC Batch: 87474 | Date Analyzed: 2011-12-28 | Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	208	83	80 - 120	2011-12-28

Standard (CCV-4)

QC Batch: 87474 Date Analyzed: 2011-12-28 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	211	84	80 - 120	2011-12-28

Standard (CCV-2)

QC Batch: 87486 Date Analyzed: 2011-12-29 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.979	98	80 - 120	2011-12-29

Standard (CCV-3)

QC Batch: 87486 Date Analyzed: 2011-12-29 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.911	91	80 - 120	2011-12-29

Standard (ICV-1)

QC Batch: 87542 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	102	102	85 - 115	2012-01-02

Standard (CCV-1)

QC Batch: 87542 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	97.9	98	85 - 115	2012-01-02

Standard (ICV-1)

QC Batch: 87543 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-01-02

Standard (CCV-1)

QC Batch: 87543 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.2	99	85 - 115	2012-01-02

Standard (ICV-1)

QC Batch: 87544 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	98.8	99	85 - 115	2012-01-02

Standard (CCV-1)

QC Batch: 87544 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-01-02

Standard (ICV-1)

QC Batch: 87545 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	ICVs True Conc.	ICVs Found Conc.	ICVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.6	100	85 - 115	2012-01-02

Standard (CCV-1)

QC Batch: 87545 Date Analyzed: 2012-01-02 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-01-02

Standard (CCV-2)

QC Batch: 87554 Date Analyzed: 2012-01-02 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	205	82	80 - 120	2012-01-02

Standard (CCV-3)

QC Batch: 87554 Date Analyzed: 2012-01-02 Analyzed By: kg

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	202	81	80 - 120	2012-01-02

Standard (CCV-2)

QC Batch: 87557 Date Analyzed: 2012-01-02 Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.111	111	80 - 120	2012-01-02
Toluene		2	mg/Kg	0.100	0.106	106	80 - 120	2012-01-02
Ethylbenzene		2	mg/Kg	0.100	0.102	102	80 - 120	2012-01-02
Xylene		2	mg/Kg	0.300	0.303	101	80 - 120	2012-01-02

Standard (CCV-3)

QC Batch: 87557 Date Analyzed: 2012-01-02 Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		2	mg/Kg	0.100	0.108	108	80 - 120	2012-01-02
Toluene		2	mg/Kg	0.100	0.102	102	80 - 120	2012-01-02
Ethylbenzene		2	mg/Kg	0.100	0.0975	98	80 - 120	2012-01-02
Xylene		2	mg/Kg	0.300	0.292	97	80 - 120	2012-01-02

Standard (CCV-2)

QC Batch: 87558 Date Analyzed: 2012-01-02 Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.11	111	80 - 120	2012-01-02

Standard (CCV-3)

QC Batch: 87558 Date Analyzed: 2012-01-02 Analyzed By: AG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		2	mg/Kg	1.00	1.17	117	80 - 120	2012-01-02

Appendix

Report Definitions

Name	Definition
MDL	Method Detection Limit
MQL	Minimum Quantitation Limit
SDL	Sample Detection Limit

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-11-5	Lubbock
2	NELAP	T104704392-11-3	Midland

Standard Flags

F	Description
B	Analyte detected in the corresponding method blank above the method detection limit
H	Analyzed out of hold time
J	Estimated concentration
Jb	The analyte is positively identified and the value is approximated between the SDL and MQL. Sample contains less then ten times the concentration found in the method blank. The result should be considered non-detect to the SDL.
Je	Estimated concentration exceeding calibration range.
Qc	Calibration check outside of laboratory limits.
Qr	RPD outside of laboratory limits
Qs	Spike recovery outside of laboratory limits.
Qsr	Surrogate recovery outside of laboratory limits.
U	The analyte is not detected above the SDL

Result Comments

1 Sample dilution due to hydrocarbons.
2 Sample dilution due to hydrocarbons.
3 Sample dilution due to hydrocarbons.

4 special comment - Prep error. Sample was not spiked.

Attachments

The scanned attachments will follow this page.
Please note, each attachment may consist of more than one page.

#11122308

Analysis Request of Chain of Custody Record

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401143
PROJECT NAME: RJU #134 Eddy Co NM

Analyses listed: BTEX 8021B (circled); TPH 8015 MOD. TX1005 (Ext. to C35) (circled); 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 (circled); Gamma Spec.; Alpha Beta (Air); PLM (Asbestos); Major Anions/Cations, pH, TDS

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD.	Chloride
2852Ø6	12/21		S		X	AH-1 1' BEB 0-1'	1				X	X	X	X
207						1-1.5'							H/O	X
208						2-2.5'								X
209						3-3.5'								X
210						4-4.5'								X
211						5-5.5'								X
212						6-6.5'								X
213						7-7.5'								X
214						8-8.5'								X
215						9-9.5'								X

Margin notes: *Midland TPH-DRO/C... ; *Midland TPH GRO BTE...

RELINQUISHED BY: (Signature) [signature] Date: 12-22-11 Time: 1645
RECEIVED BY: (Signature) [signature] Date: 12/22/11 Time: 1645
RELINQUISHED BY: (Signature) [signature] Date: 12/23/11 Time: 10:40
RECEIVED BY: (Signature) Date: Time:
RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) TF LJT Date: 12-21-11 Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED (circled) 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) Brenda Ward LSZN 197305
DATE: 12/28/11 TIME: 8:50 3.8/3.9

SAMPLE CONDITION WHEN RECEIVED: 7.7° intact
REMARKS: Run deeper sample, if TPH exceeds 5,000 mg/kg or Benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.

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

#111823308

Analysis Request of Chain of Custody Record

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.: 114-6401143

PROJECT NAME: RJU #134

ANALYSIS REQUEST (Circle or Specify Method No.)

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	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
285210	12/21		S		X	AH-2 1'BEB 0-1'	1				X		X	X											X				
211						1-1.5'								NO											X				
218						2-2.5'																			X				Midland TPH-DRO Cl
219						3-3.5'																			X				
220						4-4.5'																			X				
221						5-5.5'																			X				Midland TPH-GRO/DRO BTEX
222						AH-3 1'BEB 0-1'							X	X											X				
223						1-1.5'							X	X	NO										X				
224						2-2.5'																			X				
225						3-3.5'																			X				

RELINQUISHED BY: (Signature) — Date: 12-22-11 Time: 1645 — RECEIVED BY: (Signature) — Date: 12/22/11 Time: 1645

RELINQUISHED BY: (Signature) — Date: 12/23/11 Time: 10:00 — RECEIVED BY: (Signature) — Date: Time:

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

SAMPLED BY: (Print & Initial) TF JT — Date: 12-21-11 Time:

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

RECEIVING LABORATORY: Trace — RECEIVED BY: (Signature)
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE: DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.70 Intact

REMARKS:

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

#111223

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: 3 OF: 4

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: COG

SITE MANAGER: Ike Tavarez

PROJECT NO.: 124-6401143

PROJECT NAME: RSU #134

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	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	Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
226	12/21		S		X	AH-3 1' BEB 4-4.5'	1				X													X				
227						5-5.5'																		X				
228						6-6.5'																		X				
229						7-7.5'																		X				
230						8-8.5'																		X				
231						9-9.5'																		X				
232						AH-4 1' BEB 0-1'							X	X										X				
233						1-1.5'							X	X										X				
234						2-2.5'																		X				
235						3-3.5																		X				

Midland TPH-GRO/DRO

TPH-GRO/DRO BTEX

RELINQUISHED BY: (Signature) Date: 12-22-11 Time: 16:45

RECEIVED BY: (Signature) Date: 12/22/11 Time: 16:45

SAMPLED BY: (Print & Initial) TF JT Date: 12-21-11 Time:

RELINQUISHED BY: (Signature) Date: 12/23/11 Time: 10:08

RECEIVED BY: (Signature) Date: Time:

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

AIRBILL #:

OTHER:

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

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: TIME:

SAMPLE CONDITION WHEN RECEIVED: 7.70 Intact

REMARKS:

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

#1113308

Analysis Request of Chain of Custody Record

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.: 114-6401143

PROJECT NAME: RJU #134 Eddy Co NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE 2011	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	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
236	12/21		S		X	AH-4 1' BEB 4-4.5'	1				X														X				
237	↓		↓		↓	5-5.5'	↓				↓														X				
238	↓		↓		↓	6-6.5'	↓				↓														X				
239	↓		↓		↓	7-7.5'	↓				↓														X				

Handwritten margin notes: Hold TPH-DRO; Hold TPH-GRO BTEX

RELINQUISHED BY: (Signature) [signature] Date: 12-22-11 Time: 1645
RECEIVED BY: (Signature) [signature] Date: 12/22/11 Time: 16:44

RELINQUISHED BY: (Signature) [signature] Date: 12/23/11 Time: 10:10
RECEIVED BY: (Signature) Date: Time:

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

SAMPLED BY: (Print & Initial) JT IF Date: 12-21-11 Time:

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

RECEIVING LABORATORY: Trace
ADDRESS:
CITY: Midland STATE: TX ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 7.7° [signature]

REMARKS: