SITE INFORMATION

Report Type: Closure Request

General Site Information:						
Site:	**Estill AD Fed #2**					
Company:	**Cimarex**					
Section, Township and Range	**Unit**	**Sec 19**	**T24S**	**R26E**		
Lease Number:						
County:	**Eddy County**					
GPS:	**32.20383° N**			**104.32560° W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of Hwy 62/180 National Parks Hwy and Means Road turn southeast on means road for 0.15 miles. Turn left Northeast into the location.					

Release Data:	
Date Released:	8/10/2012
Type Release:	Condensate and Produced Water
Source of Contamination:	Condensate Tank
Fluid Released:	67 bbls
Fluids Recovered:	30 bbls

Official Communication:			
Name:	Terry D. Ainsworth		Tom Elliott
Company:	Cimarex		Tetra Tech
Address:	600 N Marienfeld		1910 N. Big Spring
	Suite 600		
City:	Midland, Texas 79701		Midland, Texas
Phone number:	575-628-3447		(432) 682-4559
Fax:	575-628-3566		
Email:	tainsworth@cimarex.com		tom.elliott@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	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

September 30, 2013

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
811 S. First Street
Artesia, New Mexico 88210

Re: Closure Report for the Cimarex Energy, Estill AD Fed 2, Section 19, Township 24S South, Range 26 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Cimarex Energy (Cimarex) to assess a spill from the Estill AD Fed 2, located in Section 19, Township 24 South, Range 26 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.20383°, W 104.32560°. 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 October 10, 2012, and released approximately sixty seven (67) barrels of condensate and produced water from a hole in a tank. Approximately thirty (30) barrels of condensate and produced water was recovered. The spill was contained within the lined facility berms and measured approximately 50' x 58'. During the initial recovery of fluids and removal of tank Cimarex noticed several small holes in the liner. The initial C-141 form is enclosed in Appendix A.

Groundwater

No wells were listed within Section 19. The NMOCD groundwater map shows an average depth to groundwater between 50 and 100 feet below surface. As approved by the NMOCD Tetra Tech installed a temporary monitor well (TMW-1) on September 3, 2013 to confirm this groundwater depth. The TMW was installed to a total depth of 140 feet below surface. On September 5, 2013 Tetra Tech gauged the depth to water in TMW-1 to be 121.10 feet below ground surface. The groundwater map and drilling log for the temporary well are 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 April 24, 2013, Tetra Tech personnel inspected and sampled the spill area. Four (4) auger holes (AH-1 through AH-4) were installed using a stainless steel hand auger to assess the impacted soils. Selected samples were analyzed for TPH analysis by EPA method 418.1 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, all of the auger hole samples were below the RRAL for BTEX and TPH. A chloride impact was detected in AH-1 at 1-1.5' of 2,910 mg/kg and 4,930 mg/kg at 2-2.5' below surface. The chloride impact was not defined. Deeper samples were not collected due to the dense formation at the Site.

On May 22, 2013 Tetra Tech met with NMOCD to discuss the site data and depth to water at the site. Due to the limited groundwater data, Tetra Tech recommended a TMW be installed at the Site to determine depth to groundwater. It was agreed upon that if groundwater was <100 feet below surface that the shallow TPH impact would be excavated and the chloride impact vertically delineated. If groundwater was >100 feet, the TPH impact would be above the RRAL and would not be an issue and the chloride impact could be deferred.

To confirm this groundwater depth Tetra Tech installed a temporary monitor well (TMW-1) on September 3, 2013 to a total depth of 140 feet below surface. On September 5, 2013 Tetra Tech gauged the depth to water in TMW-1 to be 121.10 feet below ground surface. According to the RRAL the TPH impact is no longer an issue and the chloride impact would be deferred till abandonment of the facility, as previously approved by the NMOCD.

Due to the depth of the groundwater and assessment, Cimarex requests closure of the spill issue. The final C-141 is included in Appendix A. If you have any questions or comments concerning the assessment or closure, please call me at (432) 682-4559.

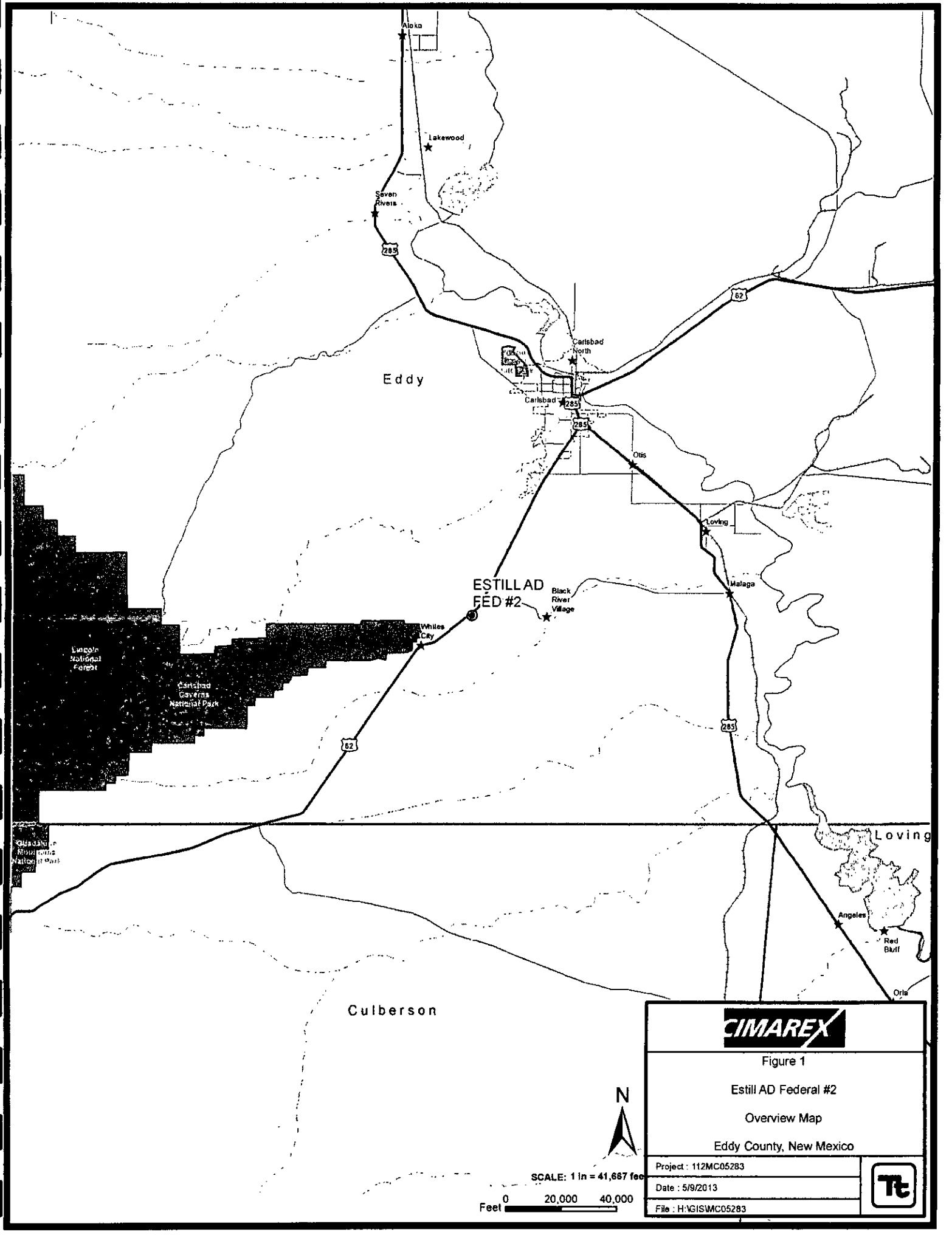
TETRA TECH

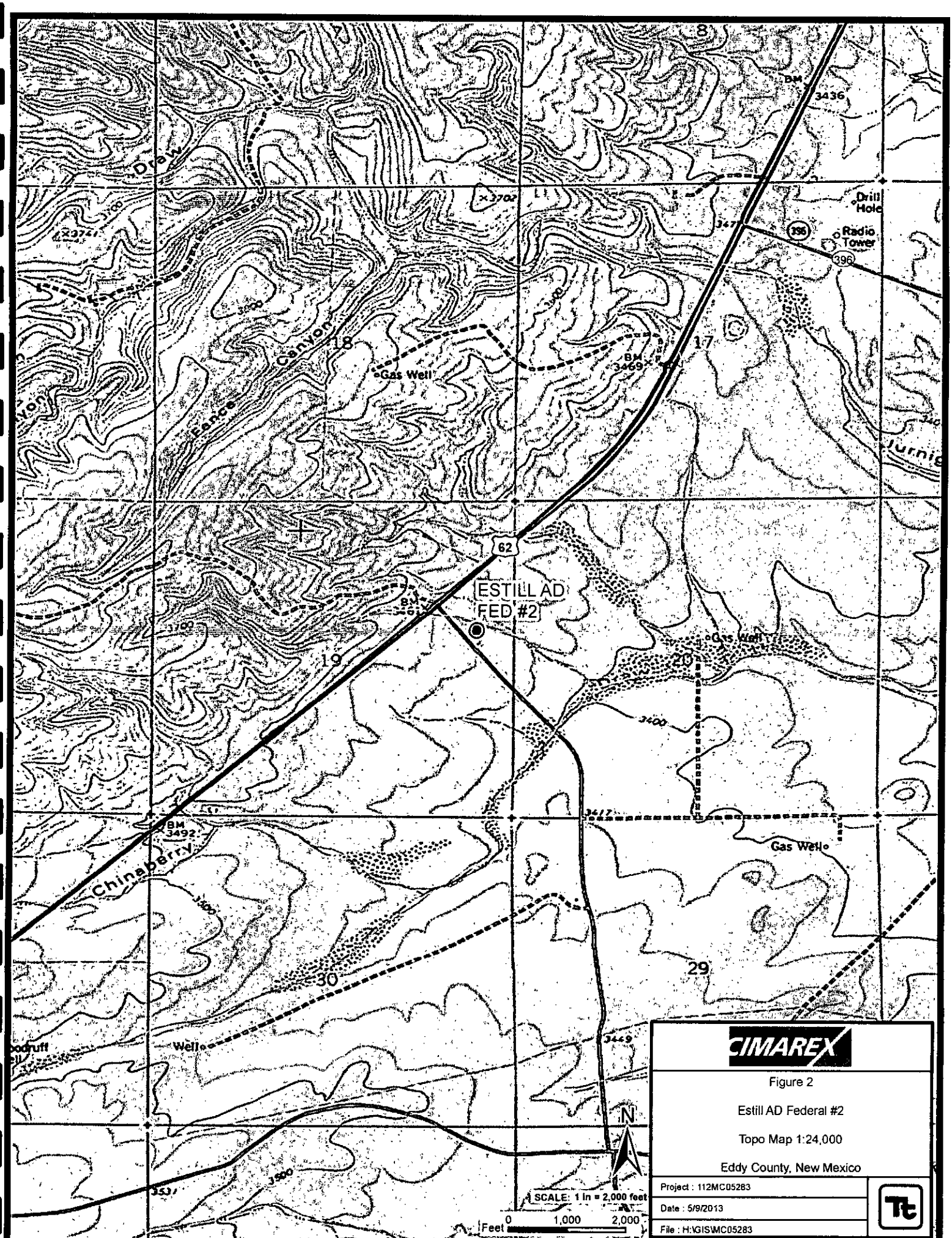
Respectfully submitted,
TETRA TECH

Tom Elliott
Project Manager

cc: Terry Ainsworth -- Cimarex
Jim Amos - BLM

FIGURES


Aloka
Lakewood
Seven Rivers
285
62
Carlsbad North
Eddy
Carlsbad
285
285
Otis
Loving
ESTILL AD FED #2
Black River Village
Malaga
Whites City
Lincoln National Forest
Carlsbad Caverns National Park
62
285
Loving
Angeles
Red Bluff
Orla
Culberson
N
SCALE: 1 In = 41,667 fee
0
20,000
40,000
Feet
CIMAREX
Figure 1
Estill AD Federal #2
Overview Map
Eddy County, New Mexico
Project : 112MC05283
Date : 5/9/2013
File : H:\GIS\MC05283



CIMAREX

Figure 2

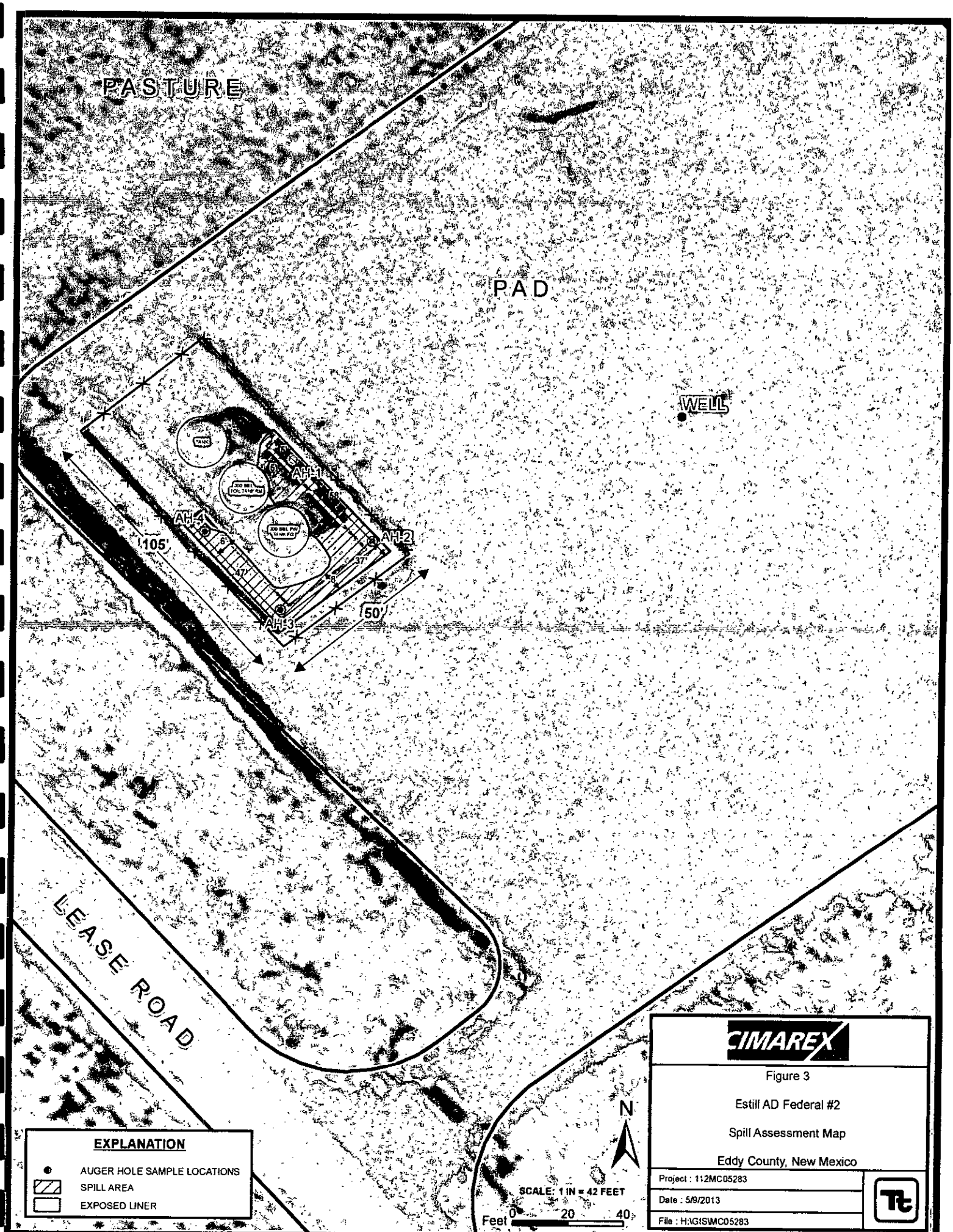
Estill AD Federal #2

Topo Map 1:24,000

Eddy County, New Mexico

Project : 112MC05283	
Date : 5/9/2013	
File : H:\GIS\MC05283	

Drawn By: Rachel Mannheim


PASTURE
PAD
WELL
AH-1
AH-2
AH-3
AH-4
105'
50'
LEASE ROAD
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
EXPOSED LINER
N
SCALE: 1 IN = 42 FEET
Feet 0 20 40
CIMAREX
Figure 3
Estill AD Federal #2
Spill Assessment Map
Eddy County, New Mexico
Project : 112MC05283
Date : 5/9/2013
File : H:\GIS\MC05283
Drawn By: Isabel Mazzolelo

TABLES

Table 1
Cimarex
Estill AD Federal #2
Eddy County, New Mexico

Sample ID	Sample Date	BEB Sample Depth (ft)	Excavation Bottom Depth (ft)	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	4/24/2013	0-1	0	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	802
	"	1-1.5	"	X		-	-	-	-	-	-	-	-	2,910
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	4,930
AH-2	4/24/2013	0-1	0	X		354	247	601	<0.0200	0.125	0.749	0.657	1.53	439
	"	1-1.5	"	X		<4.00	<50.0	<50.0	-	-	-	-	-	549
	"	2-2.5	"	X		-	-	-	-	-	-	-	-	57.3
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	71.6
	"	4-4.5	"	X		-	-	-	-	-	-	-	-	33.4
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	<20.0
	"	7-7.5	"	X		-	-	-	-	-	-	-	-	<20.0
AH-3	4/24/2013	0-1	0	X		1,290	86.4	1,376	<0.100	1.66	5.57	24.9	32.1	189
	"	1-1.5	"	X		1,160	<50.0	1,160	-	-	-	-	-	53.3
	"	2-2.5	"	X		619	66.2	685	-	-	-	-	-	53.3
	"	3-3.5	"	X		418	54.3	472	-	-	-	-	-	38.8
	"	4-4.5	"	X		<40.0	<50.0	<50.0	-	-	-	-	-	77.6
	"	5-5.5	"	X		-	-	-	-	-	-	-	-	92.1
	"	6-6.5	"	X		-	-	-	-	-	-	-	-	107
	"	7-7.5	"	X		-	-	-	-	-	-	-	-	170
AH-4	4/24/2013	0-1	0	X		1,030	130	1,160	<0.0200	0.311	1.41	3.79	5.51	<20.0
	"	1-1.5	"	X		381	69.3	450	-	-	-	-	-	<20.0
	"	2-2.5	"	X		9.72	<50.0	9.72	-	-	-	-	-	<20.0
	"	3-3.5	"	X		-	-	-	-	-	-	-	-	<20.0

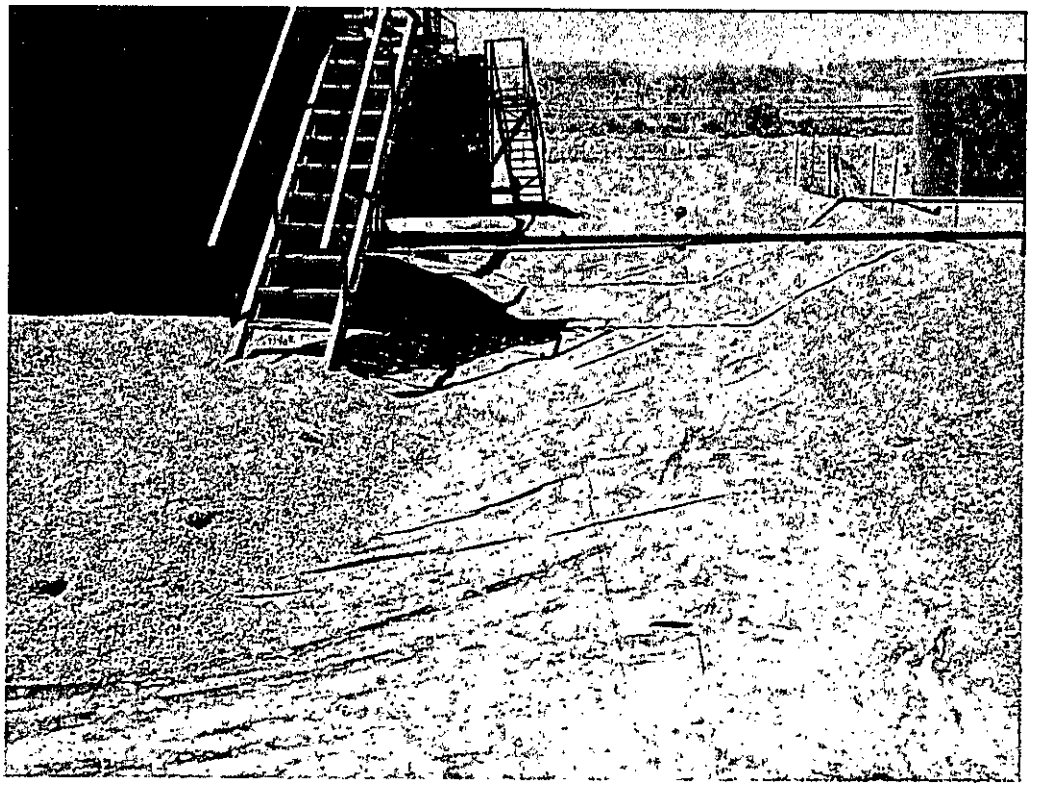
(-) Not Analyzed

(BEB) Below Excavation Bottom

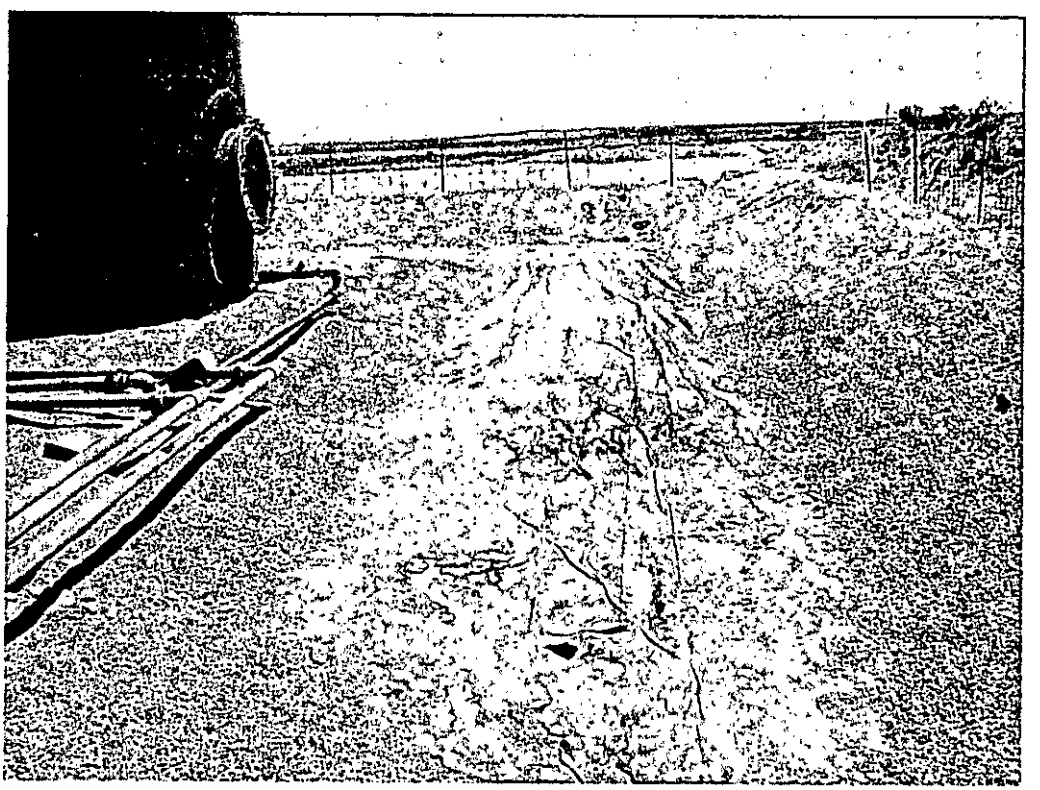
PHOTOGRAPHS

Cimarex Energy
Estill AD Fed #2
Eddy County, New Mexico

TETRA TECH



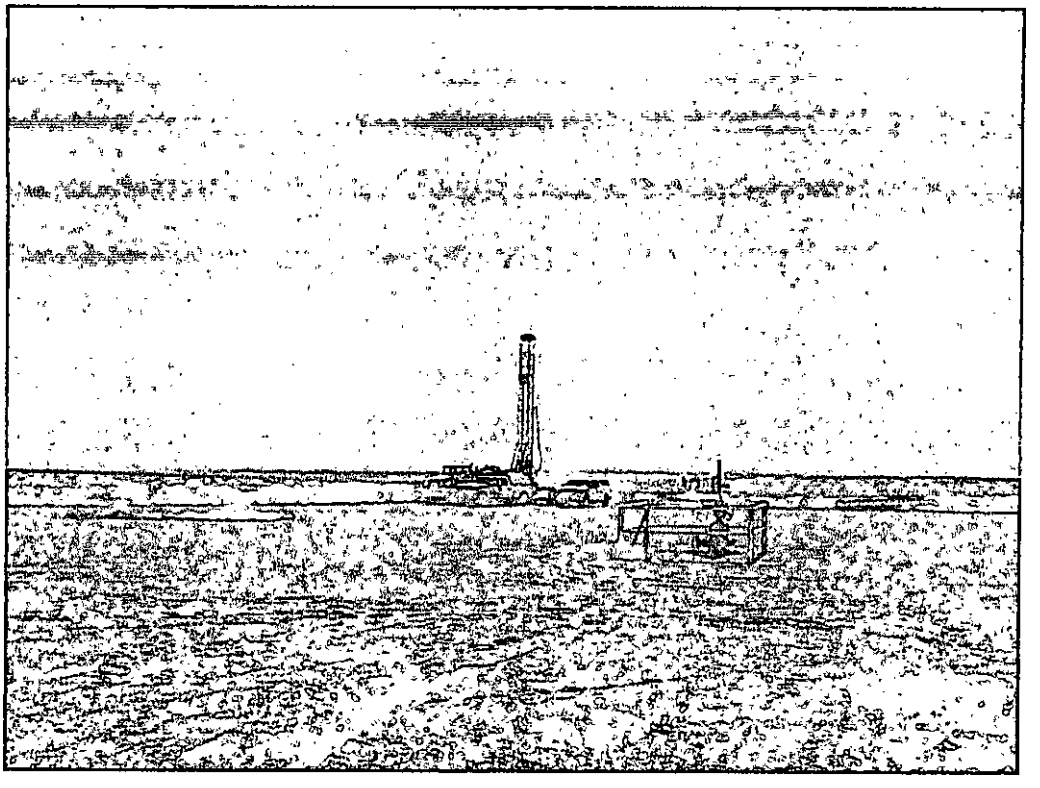
View Northwest – Area of AH-1 and AH-2.



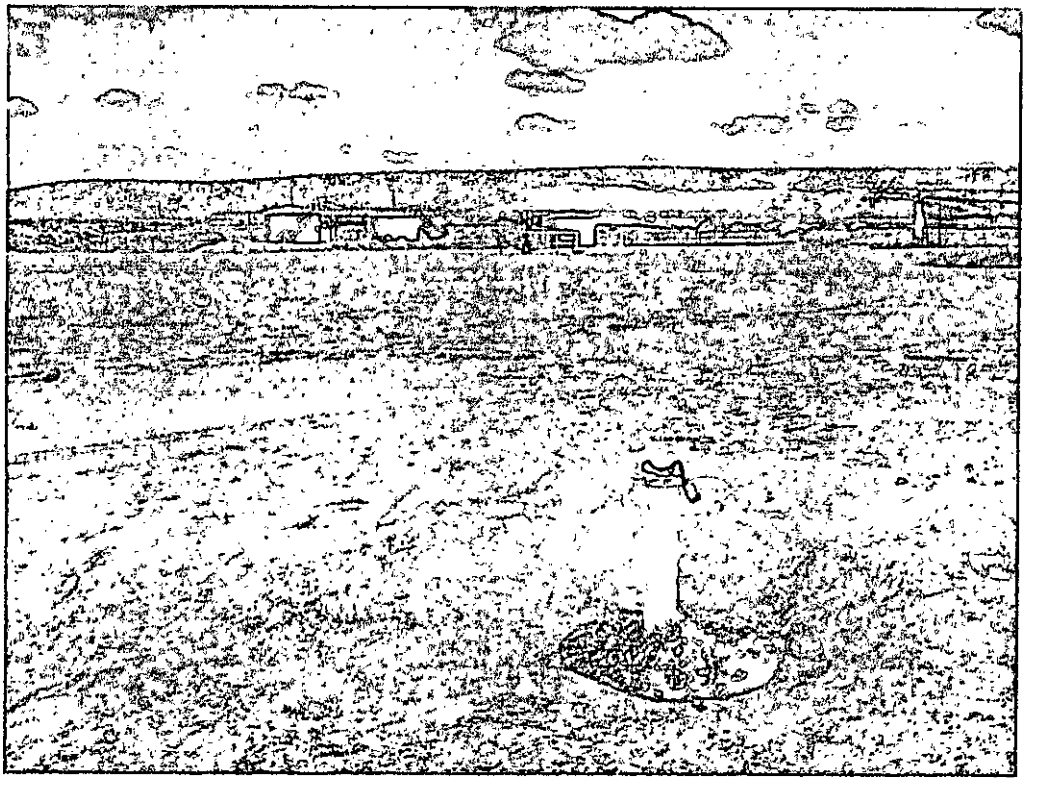
View Southeast – Area of AH-3 and AH-4.

Cimarex Energy
Estill AD Fed #2
Eddy County, New Mexico

TETRA TECH



View East – Drilling location of TMW-1 (Estill AD FED #2 in foreground).



View West– View of TMW-1 (Estill AD Fed #2 in background).

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

RECEIVED
OCT 15 2013
NMOCD ARTESIA

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 Cimarex Energy	Contact Terry D. Ainsworth
Address 600 Marienfeld Midland, TX 79701	Telephone No. (575) 390-1388
Facility Name Estail AD Fed 2	Facility Type Gas Well

Surface Owner	Mineral Owner	Lease No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
H	19	24S	26E	2270	North	380	East	Eddy

Latitude 32 12' 13.68" N **Longitude** 104 19' 29.07 W

NATURE OF RELEASE

Type of Release Condensate & Water	Volume of Release 67	Volume Recovered 30
Source of Release Hole in tank bottom	Date and Hour of Occurrence 8/10/12 ???	Date and Hour of Discovery 8/10/12 9:00 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Terry Gregston	
By Whom? Terry D. Ainsworth	Date and Hour 8/10/12 10:00 AM	
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.*
oil tank #2 developed a hole in the bottom – called vacuum truck to recover what we could - pulled tank out of service

Describe Area Affected and Cleanup Action Taken.*
Tetra Tech personnel inspected the site and collected samples to define the spills extent. Since depth to water was unknown in the area of the spill, Tetra Tech installed a Temporary Monitor Well and determined the depth to groundwater to be greater than 100 feet below surface. Tetra Tech prepared a closure report and submitted it to NMOCD for review.

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: Ike Tavarez	Approved by District Supervisor:	
Title: Senior Project Manager	Approval Date:	Expiration Date:
E-mail Address: ike.tavarez@tetratech.com	Conditions of Approval:	Attached ☐
Date: 9/30/2013 Phone: 432-682-4559		

* Attach Additional Sheets If Necessary

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

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Surface Owner	Mineral Owner	Lease No.

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Source of Release Hole in tank bottom	Date and Hour of Occurrence 8/10/12 ???	Date and Hour of Discovery 8/10/12 9:00 AM
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By Whom? Terry D. Ainsworth	Date and Hour 8/10/12 10:00 AM	
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.*
oil tank #2 developed a hole in the bottom – called vacuum truck to recover what we could - pulled tank out of service

Describe Area Affected and Cleanup Action Taken.*
While cleaning up contaminated gravel we found that the liner was full of holes – we will drill some core holes to see how deep contamination goes.

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: Terry D. Ainsworth	Approved by District Supervisor:	
Title: Senior Production Foreman	Approval Date:	Expiration Date:
E-mail Address: tainsworth@cimarex.com	Conditions of Approval:	Attached ☐
Date: 3/27/2013 Phone: 575-390-1388		

* Attach Additional Sheets If Necessary

DRILLING LOG

Boring/Well: TMW-1
Project Number: 112MC05283
Client: Cimarex
Site Location: Estill AD Federal #2
Location: Eddy Co., NM
Legals: Township 24-S Range 26-E Sec 19 Unit H
Total Depth 140
Date Installed: 09/03/13
DTW: 121.10

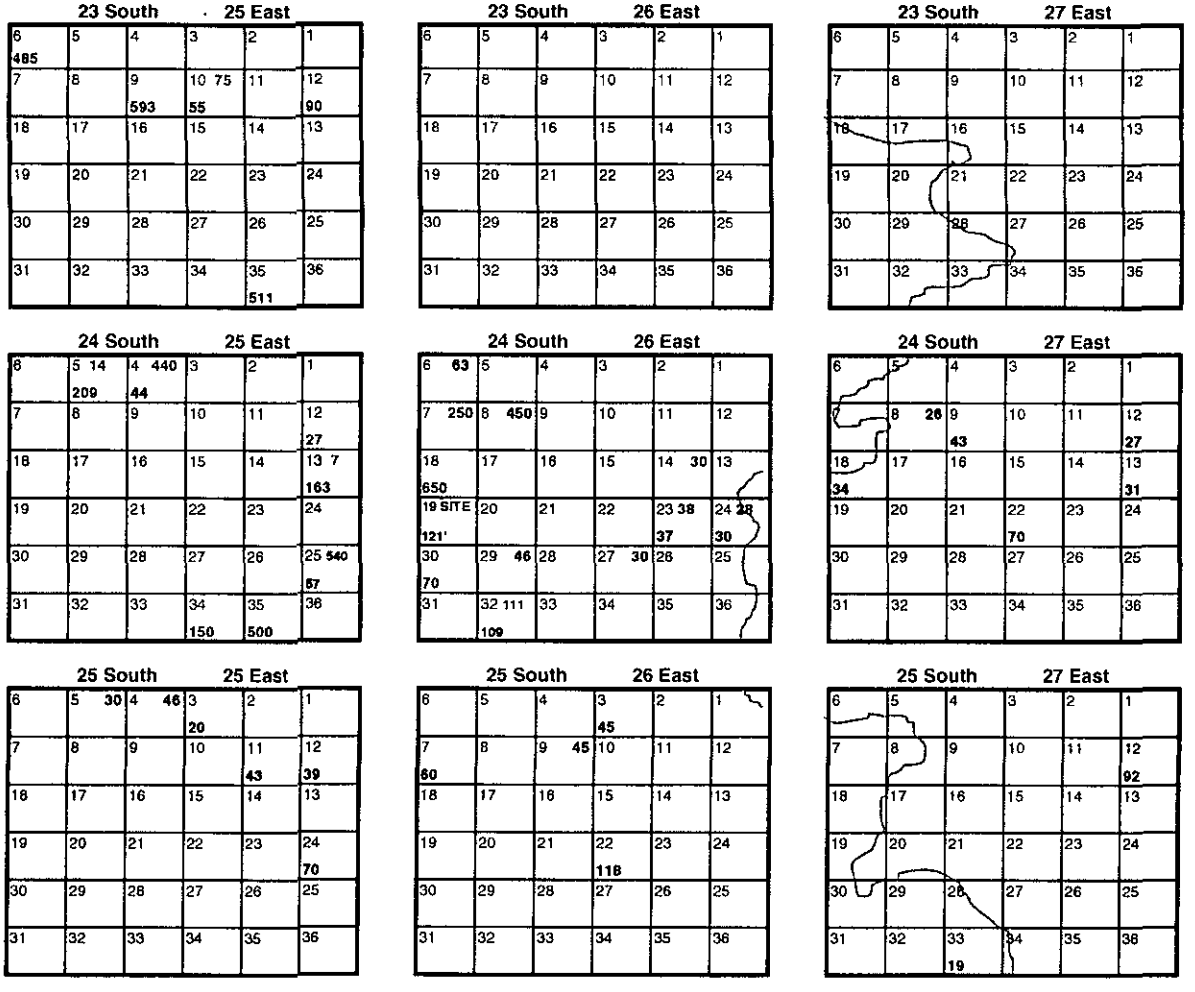
DEPTH (Ft)	OVM	SAMPLE DESCRIPTION
5	--	Caliche pad base
10	--	Clayey sand
15	--	Clayey sand and caliche rock
20	--	Siltstone/Limestone
25	--	Siltstone/Limestone with clay lenses
30	--	Medium stiff sily clay
35	--	Medium stiff sily clay
40	--	Medium stiff sily clay
45	--	Medium stiff sily clay
50	--	Medium stiff sily clay
55	--	Medium stiff sily clay
60	--	Medium stiff silty clay
65	--	Medium stiff silty clay
70	--	Siltstone with silicated sandstone lenses
75	--	Siltstone with silicated sandstone lenses
80	--	Siltstone with silicated sandstone lenses
85	--	Gypsum with Silicated sandstones lenses
90	--	Gypsum with Silicated sandstones lenses
95	--	Gypsum with Silicated sandstones lenses
100	--	Gypsum with Silicated sandstones lenses
105	--	Gypsum with Silicated sandstones lenses
110	--	Gypsum with Silicated sandstones lenses
115	--	Gypsum with Silicated sandstones lenses
120	--	Gypsum with Silicated sandstones lenses
125	--	Gypsum with Silicated sandstones lenses
130	--	Gypsum with Silicated sandstones lenses
135	--	Gypsum with Silicated sandstones lenses
140	--	Gypsum with Silicated sandstones lenses

Total Depth 140'

Groundwater was not encountered during drilling. Gauged on 9/5/2013 and depth to groundwater measured 121.10'bgs.

APPENDIX B

Water Well Data
Average Depth to Groundwater (ft)
Estill AD Federal #2
Eddy County, New Mexico



- New Mexico State Engineers Well Reports
- USGS Well Reports
- Geology and Groundwater Conditions in Southern Eddy, County, NM
- NMOCD - Groundwater Data
- Field water level TMW-1 DTW 121' bgs
- New Mexico Water and Infrastructure Data System

New Mexico Office of the State Engineer

Wells with Well Log Information

No wells found.

Search:

tion(s): 19 **Township:** 24S **Range:** 26E

APPENDIX C

Summary Report

(Corrected Report)

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

Report Date: May 8, 2013

Work Order: 13042633

Project Location: Eddy Co., NM
Project Name: Cimarex/Estill AD Fed. #2
Project Number: 112MC05283

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
327466	AH-1 0-1'	soil	2013-04-24	00:00	2013-04-25
327467	AH-1 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327468	AH-1 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327469	AH-2 0-1'	soil	2013-04-24	00:00	2013-04-25
327470	AH-2 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327471	AH-2 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327472	AH-2 3-3.5"'	soil	2013-04-24	00:00	2013-04-25
327473	AH-2 4-4.5'	soil	2013-04-24	00:00	2013-04-25
327474	AH-2 5-5.5'	soil	2013-04-24	00:00	2013-04-25
327475	AH-2 6-6.5'	soil	2013-04-24	00:00	2013-04-25
327476	AH-2 7-7.5'	soil	2013-04-24	00:00	2013-04-25
327477	AH-3 0-1'	soil	2013-04-24	00:00	2013-04-25
327478	AH-3 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327479	AH-3 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327480	AH-3 3-3.5'	soil	2013-04-24	00:00	2013-04-25
327481	AH-3 4-4.5'	soil	2013-04-24	00:00	2013-04-25
327482	AH-3 5-5.5'	soil	2013-04-24	00:00	2013-04-25
327483	AH-3 6-6.5'	soil	2013-04-24	00:00	2013-04-25
327484	AH-3 7-7.5'	soil	2013-04-24	00:00	2013-04-25
327485	AH-4 0-1'	soil	2013-04-24	00:00	2013-04-25
327486	AH-4 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327487	AH-4 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327488	AH-4 3-3.5'	soil	2013-04-24	00:00	2013-04-25

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)
327466 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
327469 - AH-2 0-1'	<0.0200	**0.125**	**0.749**	**0.657**	**247**	**354**
327470 - AH-2 1-1.5'					<50.0	<4.00
327477 - AH-3 0-1'	<0.100 [1]	**1.66**	**5.57**	**24.9**	**86.4**	**1290**
327478 - AH-3 1-1.5'					<50.0	**1160**
327479 - AH-3 2-2.5'					**66.2**	**619**
327480 - AH-3 3-3.5'					**54.3**	**418**
327481 - AH-3 4-4.5'					<50.0	<40.0
327485 - AH-4 0-1'	<0.0200	**0.311**	**1.41**	**3.79**	**130**	**1030**
327486 - AH-4 1-1.5'					**69.3**	**381**
327487 - AH-4 2-2.5'					<50.0	**9.72**

Sample: 327466 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**802**	mg/Kg	4

Sample: 327467 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**2910**	mg/Kg	4

Sample: 327468 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**4930**	mg/Kg	4

Sample: 327469 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**439**	mg/Kg	4

Sample: 327470 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**549**	mg/Kg	4

Sample: 327471 - AH-2 2-2.5'

[1] Dilution due to hydrocarbons.

Param	Flag	Result	Units	RL
Chloride		**57.3**	mg/Kg	4

Sample: 327472 - AH-2 3-3.5"'

Param	Flag	Result	Units	RL
Chloride		**71.6**	mg/Kg	4

Sample: 327473 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**33.4**	mg/Kg	4

Sample: 327474 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 327475 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 327476 - AH-2 7-7.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 327477 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**189**	mg/Kg	4

Sample: 327478 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**53.3**	mg/Kg	4

Sample: 327479 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**53.3**	mg/Kg	4

Sample: 327480 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**38.8**	mg/Kg	4

Sample: 327481 - AH-3 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**77.6**	mg/Kg	4

Sample: 327482 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**92.1**	mg/Kg	4

Sample: 327483 - AH-3 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**107**	mg/Kg	4

Sample: 327484 - AH-3 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**170**	mg/Kg	4

Sample: 327485 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 327486 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 327487 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	mg/Kg	4

Sample: 327488 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		<20.0	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: May 8, 2013

Work Order: 13042633

Project Location: Eddy Co., NM
Project Name: Cimarex/Estill AD Fed. #2
Project Number: 112MC05283

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
327466	AH-1 0-1'	soil	2013-04-24	00:00	2013-04-25
327467	AH-1 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327468	AH-1 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327469	AH-2 0-1'	soil	2013-04-24	00:00	2013-04-25
327470	AH-2 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327471	AH-2 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327472	AH-2 3-3.5"'	soil	2013-04-24	00:00	2013-04-25
327473	AH-2 4-4.5'	soil	2013-04-24	00:00	2013-04-25
327474	AH-2 5-5.5'	soil	2013-04-24	00:00	2013-04-25
327475	AH-2 6-6.5'	soil	2013-04-24	00:00	2013-04-25
327476	AH-2 7-7.5'	soil	2013-04-24	00:00	2013-04-25
327477	AH-3 0-1'	soil	2013-04-24	00:00	2013-04-25
327478	AH-3 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327479	AH-3 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327480	AH-3 3-3.5'	soil	2013-04-24	00:00	2013-04-25
327481	AH-3 4-4.5'	soil	2013-04-24	00:00	2013-04-25

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
327482	AH-3 5-5.5'	soil	2013-04-24	00:00	2013-04-25
327483	AH-3 6-6.5'	soil	2013-04-24	00:00	2013-04-25
327484	AH-3 7-7.5'	soil	2013-04-24	00:00	2013-04-25
327485	AH-4 0-1'	soil	2013-04-24	00:00	2013-04-25
327486	AH-4 1-1.5'	soil	2013-04-24	00:00	2013-04-25
327487	AH-4 2-2.5'	soil	2013-04-24	00:00	2013-04-25
327488	AH-4 3-3.5'	soil	2013-04-24	00:00	2013-04-25

Report Corrections (Work Order 13042633)

- 5/8/13: Reported 10 times dilution for GRO for sample 327481.

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.

This report consists of a total of 45 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

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

Report Contents

Case Narrative

Samples for project Cimarex/Estill AD Fed. #2 were received by TraceAnalysis, Inc. on 2013-04-25 and assigned to work order 13042633. Samples for work order 13042633 were received intact at a temperature of 5.9 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	85660	2013-05-06 at 08:46	101067	2013-05-06 at 08:48
BTEX	S 8021B	85684	2013-05-06 at 11:22	101098	2013-05-06 at 11:22
Chloride (Titration)	SM 4500-Cl B	85518	2013-04-29 at 11:25	100995	2013-05-01 at 11:44
Chloride (Titration)	SM 4500-Cl B	85518	2013-04-29 at 11:25	100996	2013-05-01 at 11:45
Chloride (Titration)	SM 4500-Cl B	85518	2013-04-29 at 11:25	100997	2013-05-01 at 11:46
TPH DRO - NEW	S 8015 D	85534	2013-04-29 at 16:00	100921	2013-04-30 at 14:20
TPH DRO - NEW	S 8015 D	85588	2013-05-01 at 14:00	100980	2013-05-02 at 09:49
TPH DRO - NEW	S 8015 D	85717	2013-05-07 at 09:00	101134	2013-05-07 at 11:49
TPH GRO	S 8015 D	85659	2013-05-06 at 08:35	101066	2013-05-06 at 08:36
TPH GRO	S 8015 D	85692	2013-05-06 at 13:32	101103	2013-05-06 at 13:35
TPH GRO	S 8015 D	85708	2013-05-07 at 09:57	101128	2013-05-07 at 10:00

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 13042633 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: 327466 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101067	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85660	Sample Preparation:	2013-05-01	Prepared By:	AH

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)			1.98	mg/Kg	1	2.00	99	70 - 130
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	70 - 130

Sample: 327466 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**802**	mg/Kg	5	4.00

Sample: 327466 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	100921	Date Analyzed:	2013-04-30	Analyzed By:	CW
Prep Batch:	85534	Sample Preparation:	2013-04-29	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			119	mg/Kg	1	100	119	70 - 130

Sample: 327466 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101066	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85659	Sample Preparation:	2013-05-01	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U		<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.62	mg/Kg	1	2.00	81	70 - 130
4-Bromofluorobenzene (4-BFB)			1.72	mg/Kg	1	2.00	86	70 - 130

Sample: 327467 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2910**	mg/Kg	10	4.00

Sample: 327468 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

continued ...

sample 327468 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**4930**	mg/Kg	10	4.00

Sample: 327469 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101067	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85660	Sample Preparation:	2013-05-01	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.125**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.749**	mg/Kg	1	0.0200
Xylene		1	**0.657**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.12	mg/Kg	1	2.00	106	70 - 130

Sample: 327469 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**439**	mg/Kg	5	4.00

Sample: 327469 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	100921	Date Analyzed:	2013-04-30	Analyzed By:	CW
Prep Batch:	85534	Sample Preparation:	2013-04-29	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**247**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	132	mg/Kg	1	100	132	70 - 130

Sample: 327469 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101103	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85692	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**354**	mg/Kg	20	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			32.2	mg/Kg	20	40.0	80	70 - 130
4-Bromofluorobenzene (4-BFB)			36.4	mg/Kg	20	40.0	91	70 - 130

Sample: 327470 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**549**	mg/Kg	5	4.00

Sample: 327470 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	100980	Date Analyzed:	2013-05-02	Analyzed By:	CW
Prep Batch:	85588	Sample Preparation:	2013-05-01	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsv	Qsv	147	mg/Kg	1	100	147	70 - 130

Sample: 327470 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101103	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85692	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		t	<4.00	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

Sample: 327471 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**57.3**	mg/Kg	5	4.00

Sample: 327472 - AH-2 3-3.5"'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**71.6**	mg/Kg	5	4.00

Sample: 327473 - AH-2 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**33.4**	mg/Kg	5	4.00

Sample: 327474 - AH-2 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 327475 - AH-2 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100995	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 327476 - AH-2 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 327477 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101098	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85684	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U		<0.100	mg/Kg	5	0.0200
Toluene			**1.66**	mg/Kg	5	0.0200
Ethylbenzene			**5.57**	mg/Kg	5	0.0200
Xylene			**24.9**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			9.56	mg/Kg	5	10.0	96	70 - 130
4-Bromofluorobenzene (4-BFB)			11.1	mg/Kg	5	10.0	111	70 - 130

Sample: 327477 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**189**	mg/Kg	5	4.00

Sample: 327477 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	100921	Date Analyzed:	2013-04-30	Analyzed By:	CW
Prep Batch:	85534	Sample Preparation:	2013-04-29	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**86.4**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			121	mg/Kg	1	100	121	70 - 130

Sample: 327477 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101103	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85692	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1290**	mg/Kg	20	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			33.2	mg/Kg	20	40.0	83	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	55.6	mg/Kg	20	40.0	139	70 - 130

Sample: 327478 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**53.3**	mg/Kg	5	4.00

Sample: 327478 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101134	Date Analyzed:	2013-05-07	Analyzed By:	CW
Prep Batch:	85717	Sample Preparation:	2013-05-07	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	1	100	118	70 - 130

Sample: 327478 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101103	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85692	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1160**	mg/Kg	20	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			32.7	mg/Kg	20	40.0	82	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	55.4	mg/Kg	20	40.0	138	70 - 130

Sample: 327479 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**53.3**	mg/Kg	5	4.00

Sample: 327479 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101134	Date Analyzed:	2013-05-07	Analyzed By:	CW
Prep Batch:	85717	Sample Preparation:	2013-05-07	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**66.2**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			72.7	mg/Kg	1	100	73	70 - 130

Sample: 327479 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101128	Date Analyzed:	2013-05-07	Analyzed By:	AH
Prep Batch:	85708	Sample Preparation:	2013-05-06	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	B	1	**619**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			82.4	mg/Kg	50	100	82	70 - 130
4-Bromofluorobenzene (4-BFB)			90.6	mg/Kg	50	100	91	70 - 130

Sample: 327480 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**38.8**	mg/Kg	5	4.00

Sample: 327480 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101134	Date Analyzed:	2013-05-07	Analyzed By:	CW
Prep Batch:	85717	Sample Preparation:	2013-05-07	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**54.3**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			103	mg/Kg	1	100	103	70 - 130

Sample: 327480 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101128	Date Analyzed:	2013-05-07	Analyzed By:	AH
Prep Batch:	85708	Sample Preparation:	2013-05-06	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	B	1	**418**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			81.2	mg/Kg	50	100	81	70 - 130
4-Bromofluorobenzene (4-BFB)			87.1	mg/Kg	50	100	87	70 - 130

Sample: 327481 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**77.6**	mg/Kg	5	4.00

Sample: 327481 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101134	Date Analyzed:	2013-05-07	Analyzed By:	CW
Prep Batch:	85717	Sample Preparation:	2013-05-07	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			118	mg/Kg	1	100	118	70 - 130

Sample: 327481 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101128	Date Analyzed:	2013-05-07	Analyzed By:	AH
Prep Batch:	85708	Sample Preparation:	2013-05-06	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	<40.0	mg/Kg	10	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			16.7	mg/Kg	10	20.0	84	70 - 130
4-Bromofluorobenzene (4-BFB)			17.4	mg/Kg	10	20.0	87	70 - 130

Sample: 327482 - AH-3 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**92.1**	mg/Kg	5	4.00

Sample: 327483 - AH-3 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**107**	mg/Kg	5	4.00

Sample: 327484 - AH-3 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**170**	mg/Kg	5	4.00

Sample: 327485 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	101067	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85660	Sample Preparation:	2013-05-01	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.311**	mg/Kg	1	0.0200
Ethylbenzene		1	**1.41**	mg/Kg	1	0.0200

continued ...

sample 327485 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene		1	**3.79**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.00	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	70 - 130

Sample: 327485 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 327485 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	100921	Date Analyzed:	2013-04-30	Analyzed By:	CW
Prep Batch:	85534	Sample Preparation:	2013-04-29	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**130**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			120	mg/Kg	1	100	120	70 - 130

Sample: 327485 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101103	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85692	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1030**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			83.7	mg/Kg	50	100	84	70 - 130
4-Bromofluorobenzene (4-BFB)			96.1	mg/Kg	50	100	96	70 - 130

Sample: 327486 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100997	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 327486 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	100980	Date Analyzed:	2013-05-02	Analyzed By:	CW
Prep Batch:	85588	Sample Preparation:	2013-05-01	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	**69.3**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	70 - 130

Sample: 327486 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101128	Date Analyzed:	2013-05-07	Analyzed By:	AH
Prep Batch:	85708	Sample Preparation:	2013-05-06	Prepared By:	AH

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**381**	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			8.17	mg/Kg	5	10.0	82	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	14.2	mg/Kg	5	10.0	142	70 - 130

Sample: 327487 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100997	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride	U		<20.0	mg/Kg	5	4.00

Sample: 327487 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	101134	Date Analyzed:	2013-05-07	Analyzed By:	CW
Prep Batch:	85717	Sample Preparation:	2013-05-07	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			97.9	mg/Kg	1	100	98	70 - 130

Sample: 327487 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	101103	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85692	Sample Preparation:	2013-05-03	Prepared By:	AH

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO			**9.72**		mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.65	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.69	mg/Kg	1	2.00	84	70 - 130

Sample: 327488 - AH-4 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	100997	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	Sample Preparation:	2013-04-29	Prepared By:	AR

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride	U		<20.0		mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 100921

QC Batch: 100921 | Date Analyzed: 2013-04-30 | Analyzed By: CW
Prep Batch: 85534 | QC Preparation: 2013-04-29 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<6.88	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	70 - 130

Method Blank (1) QC Batch: 100980

QC Batch: 100980 | Date Analyzed: 2013-05-02 | Analyzed By: CW
Prep Batch: 85588 | QC Preparation: 2013-05-01 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<6.88	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			111	mg/Kg	1	100	111	70 - 130

Method Blank (1) QC Batch: 100995

QC Batch: 100995 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

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

Method Blank (1) QC Batch: 100996

QC Batch:	100996	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	QC Preparation:	2013-04-29	Prepared By:	AR

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

Method Blank (1) QC Batch: 100997

QC Batch:	100997	Date Analyzed:	2013-05-01	Analyzed By:	AR
Prep Batch:	85518	QC Preparation:	2013-04-29	Prepared By:	AR

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

Method Blank (1) QC Batch: 101066

QC Batch:	101066	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85659	QC Preparation:	2013-05-06	Prepared By:	AH

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.61	mg/Kg	1	2.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)			1.60	mg/Kg	1	2.00	80	70 - 130

Method Blank (1) QC Batch: 101067

QC Batch:	101067	Date Analyzed:	2013-05-06	Analyzed By:	AH
Prep Batch:	85660	QC Preparation:	2013-05-06	Prepared By:	AH

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.89	mg/Kg	1	2.00	94	70 - 130

Method Blank (1) QC Batch: 101098

QC Batch: 101098 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85684 | QC Preparation: 2013-05-06 | Prepared By: AH

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00810	mg/Kg	0.02
Toluene		1	<0.00750	mg/Kg	0.02
Ethylbenzene		1	<0.00730	mg/Kg	0.02
Xylene		1	<0.00700	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.92	mg/Kg	1	2.00	96	70 - 130

Method Blank (1) QC Batch: 101103

QC Batch: 101103 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85692 | QC Preparation: 2013-05-06 | Prepared By: AH

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<2.32	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	70 - 130

continued ...

method blank continued . . .

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
4-Bromofluorobenzene (4-BFB)			1.67	mg/Kg	1	2.00	84	70 - 130

Method Blank (1) QC Batch: 101128

QC Batch: 101128 | Date Analyzed: 2013-05-07 | Analyzed By: AH
Prep Batch: 85708 | QC Preparation: 2013-05-07 | Prepared By: AH

Parameter	Flag	Cert	MDL Result	Units	RL
GRO			2.59	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	70 - 130
4-Bromofluorobenzene (4-BFB)			1.65	mg/Kg	1	2.00	82	70 - 130

Method Blank (1) QC Batch: 101134

QC Batch: 101134 | Date Analyzed: 2013-05-07 | Analyzed By: CW
Prep Batch: 85717 | QC Preparation: 2013-05-07 | Prepared By: CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<6.88	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			97.4	mg/Kg	1	100	97	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 100921 | Date Analyzed: 2013-04-30 | Analyzed By: CW
Prep Batch: 85534 | QC Preparation: 2013-04-29 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	250	mg/Kg	1	250	<6.88	100	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
DRO		1	256	mg/Kg	1	250	<6.88	102	70 - 130	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	122	120	mg/Kg	1	100	122	120	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 100980 | Date Analyzed: 2013-05-02 | Analyzed By: CW
Prep Batch: 85588 | QC Preparation: 2013-05-01 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	249	mg/Kg	1	250	<6.88	100	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
DRO		1	252	mg/Kg	1	250	<6.88	101	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
n-Tricosane	Qsr	Qsr	131	127	mg/Kg	1	100	131	127	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 100995 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2630	mg/Kg	1	2500	<3.85	105	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			2460	mg/Kg	1	2500	<3.85	98	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: 100996 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2650	mg/Kg	1	2500	<3.85	106	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			2430	mg/Kg	1	2500	<3.85	97	85 - 115	9	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: 100997 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2500	mg/Kg	1	2500	<3.85	100	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			2710	mg/Kg	1	2500	<3.85	108	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: 101066 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85659 | QC Preparation: 2013-05-06 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.0	mg/Kg	1	20.0	<2.32	85	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	17.0	mg/Kg	1	20.0	<2.32	85	70 - 130	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)	1.69	1.67	mg/Kg	1	2.00	84	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.69	1.69	mg/Kg	1	2.00	84	84	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101067 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85660 | QC Preparation: 2013-05-06 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.85	mg/Kg	1	2.00	<0.00810	92	70 - 130
Toluene		1	1.82	mg/Kg	1	2.00	<0.00750	91	70 - 130
Ethylbenzene		1	1.78	mg/Kg	1	2.00	<0.00730	89	70 - 130
Xylene		1	5.19	mg/Kg	1	6.00	<0.00700	86	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	1.98	mg/Kg	1	2.00	<0.00810	99	70 - 130	7	20

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene		1	1.95	mg/Kg	1	2.00	<0.00750	98	70 - 130	7	20
Ethylbenzene		1	1.92	mg/Kg	1	2.00	<0.00730	96	70 - 130	8	20
Xylene		1	5.57	mg/Kg	1	6.00	<0.00700	93	70 - 130	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
Trifluorotoluene (TFT)	2.00	1.93	mg/Kg	1	2.00	100	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.98	1.94	mg/Kg	1	2.00	99	97	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101098 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85684 | QC Preparation: 2013-05-06 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	2.11	mg/Kg	1	2.00	<0.00810	106	70 - 130
Toluene		1	2.06	mg/Kg	1	2.00	<0.00750	103	70 - 130
Ethylbenzene		1	2.02	mg/Kg	1	2.00	<0.00730	101	70 - 130
Xylene		1	5.87	mg/Kg	1	6.00	<0.00700	98	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	2.09	mg/Kg	1	2.00	<0.00810	104	70 - 130	1	20
Toluene		1	2.05	mg/Kg	1	2.00	<0.00750	102	70 - 130	0	20
Ethylbenzene		1	2.03	mg/Kg	1	2.00	<0.00730	102	70 - 130	0	20
Xylene		1	5.89	mg/Kg	1	6.00	<0.00700	98	70 - 130	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)	1.95	1.97	mg/Kg	1	2.00	98	98	70 - 130
4-Bromofluorobenzene (4-BFB)	1.96	1.98	mg/Kg	1	2.00	98	99	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101103 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85692 | QC Preparation: 2013-05-06 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.6	mg/Kg	1	20.0	<2.32	83	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	17.2	mg/Kg	1	20.0	<2.32	86	70 - 130	4	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)	1.75	1.66	mg/Kg	1	2.00	88	83	70 - 130
4-Bromofluorobenzene (4-BFB)	1.70	1.73	mg/Kg	1	2.00	85	86	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101128 | Date Analyzed: 2013-05-07 | Analyzed By: AH
Prep Batch: 85708 | QC Preparation: 2013-05-07 | Prepared By: AH

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	18.2	mg/Kg	1	20.0	2.59	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
GRO	2	1	18.3	mg/Kg	1	20.0	2.59	78	70 - 130	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)	1.69	1.68	mg/Kg	1	2.00	84	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.72	1.74	mg/Kg	1	2.00	86	87	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 101134 | Date Analyzed: 2013-05-07 | Analyzed By: CW
Prep Batch: 85717 | QC Preparation: 2013-05-07 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	236	mg/Kg	1	250	<6.88	94	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
DRO		1	239	mg/Kg	1	250	<6.88	96	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
n-Tricosane	112	112	mg/Kg	1	100	112	112	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327466

QC Batch: 100921 | Date Analyzed: 2013-04-30 | Analyzed By: CW
Prep Batch: 85534 | QC Preparation: 2013-04-29 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	257	mg/Kg	1	250	<6.88	103	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
DRO		1	274	mg/Kg	1	250	<6.88	110	70 - 130	6	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	117	127	mg/Kg	1	100	117	127	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327470

QC Batch: 100980 | Date Analyzed: 2013-05-02 | Analyzed By: CW
Prep Batch: 85588 | QC Preparation: 2013-05-01 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	263	mg/Kg	1	250	<6.88	105	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
DRO		1	264	mg/Kg	1	250	<6.88	106	70 - 130	0	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	125	124	mg/Kg	1	100	125	124	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327475

QC Batch: 100995 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2410	mg/Kg	5	2500	<19.2	96	78.9 - 121

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			2530	mg/Kg	5	2500	<19.2	101	78.9 - 121	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: 327485

QC Batch: 100996 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2350	mg/Kg	5	2500	<19.2	94	78.9 - 121

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			2530	mg/Kg	5	2500	<19.2	101	78.9 - 121	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: 327488

QC Batch: 100997 | Date Analyzed: 2013-05-01 | Analyzed By: AR
Prep Batch: 85518 | QC Preparation: 2013-04-29 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2460	mg/Kg	5	2500	<19.2	98	78.9 - 121

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			2630	mg/Kg	5	2500	<19.2	105	78.9 - 121	7	20

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

Matrix Spike (xMS-1) Spiked Sample: 327470

QC Batch: 101098 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85684 | QC Preparation: 2013-05-06 | Prepared By: AH

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.80	mg/Kg	1	2.00	<0.00810	90	70 - 130
Toluene		1	1.82	mg/Kg	1	2.00	<0.00750	91	70 - 130
Ethylbenzene		1	1.88	mg/Kg	1	2.00	<0.00730	94	70 - 130
Xylene		1	5.45	mg/Kg	1	6.00	<0.00700	91	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	1.78	mg/Kg	1	2.00	<0.00810	89	70 - 130	1	20
Toluene		1	1.82	mg/Kg	1	2.00	<0.00750	91	70 - 130	0	20
Ethylbenzene		1	1.90	mg/Kg	1	2.00	<0.00730	95	70 - 130	1	20
Xylene		1	5.51	mg/Kg	1	6.00	<0.00700	92	70 - 130	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)	1.94	1.93	mg/Kg	1	2	97	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.91	1.93	mg/Kg	1	2	96	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327470

QC Batch: 101103 | Date Analyzed: 2013-05-06 | Analyzed By: AH
Prep Batch: 85692 | QC Preparation: 2013-05-06 | Prepared By: AH

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	19.5	mg/Kg	1	20.0	3.67	79	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		1	16.7	mg/Kg	1	20.0	3.67	84	70 - 130	16	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)	1.64	1.62	mg/Kg	1	2	82	81	70 - 130
4-Bromofluorobenzene (4-BFB)	1.99	1.91	mg/Kg	1	2	100	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 327478

QC Batch: 101134 | Date Analyzed: 2013-05-07 | Analyzed By: CW
Prep Batch: 85717 | QC Preparation: 2013-05-07 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	351	mg/Kg	1	250	43.5	123	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
DRO		1	347	mg/Kg	1	250	43.5	121	70 - 130	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	113	113	mg/Kg	1	100	113	113	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 100921 | Date Analyzed: 2013-04-30 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	273	109	80 - 120	2013-04-30

Standard (CCV-2)

QC Batch: 100921 | Date Analyzed: 2013-04-30 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	264	106	80 - 120	2013-04-30

Standard (CCV-1)

QC Batch: 100980 | Date Analyzed: 2013-05-02 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	251	100	80 - 120	2013-05-02

Standard (CCV-2)

QC Batch: 100980 | Date Analyzed: 2013-05-02 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	259	104	80 - 120	2013-05-02

Standard (CCV-1)

QC Batch: 100995 Date Analyzed: 2013-05-01 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	102	102	85 - 115	2013-05-01

Standard (CCV-2)

QC Batch: 100995 Date Analyzed: 2013-05-01 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	98.3	98	85 - 115	2013-05-01

Standard (CCV-1)

QC Batch: 100996 Date Analyzed: 2013-05-01 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	99.8	100	85 - 115	2013-05-01

Standard (CCV-2)

QC Batch: 100996 Date Analyzed: 2013-05-01 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	2013-05-01

Standard (CCV-1)

QC Batch: 100997 Date Analyzed: 2013-05-01 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	2013-05-01

Standard (CCV-2)

QC Batch: 100997 Date Analyzed: 2013-05-01 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	99.8	100	85 - 115	2013-05-01

Standard (CCV-1)

QC Batch: 101066 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.821	82	80 - 120	2013-05-06

Standard (CCV-2)

QC Batch: 101066 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.03	103	80 - 120	2013-05-06

Standard (CCV-1)

QC Batch: 101067 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0992	99	80 - 120	2013-05-06
Toluene		1	mg/kg	0.100	0.0968	97	80 - 120	2013-05-06
Ethylbenzene		1	mg/kg	0.100	0.0959	96	80 - 120	2013-05-06
Xylene		1	mg/kg	0.300	0.279	93	80 - 120	2013-05-06

Standard (CCV-2)

QC Batch: 101067 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0932	93	80 - 120	2013-05-06
Toluene		1	mg/kg	0.100	0.0923	92	80 - 120	2013-05-06
Ethylbenzene		1	mg/kg	0.100	0.0939	94	80 - 120	2013-05-06
Xylene		1	mg/kg	0.300	0.256	85	80 - 120	2013-05-06

Standard (CCV-1)

QC Batch: 101098 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0928	93	80 - 120	2013-05-06
Toluene		1	mg/kg	0.100	0.0933	93	80 - 120	2013-05-06
Ethylbenzene		1	mg/kg	0.100	0.0943	94	80 - 120	2013-05-06
Xylene		1	mg/kg	0.300	0.269	90	80 - 120	2013-05-06

Standard (CCV-2)

QC Batch: 101098 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0950	95	80 - 120	2013-05-06

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standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Toluene		1	mg/kg	0.100	0.0945	94	80 - 120	2013-05-06
Ethylbenzene		1	mg/kg	0.100	0.0937	94	80 - 120	2013-05-06
Xylene		1	mg/kg	0.300	0.268	89	80 - 120	2013-05-06

Standard (CCV-3)

QC Batch: 101098 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.101	101	80 - 120	2013-05-06
Toluene		1	mg/kg	0.100	0.0989	99	80 - 120	2013-05-06
Ethylbenzene		1	mg/kg	0.100	0.0969	97	80 - 120	2013-05-06
Xylene		1	mg/kg	0.300	0.280	93	80 - 120	2013-05-06

Standard (CCV-1)

QC Batch: 101103 Date Analyzed: 2013-05-06 Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.889	89	80 - 120	2013-05-06

Standard (CCV-2)

QC Batch: 101103 Date Analyzed: 2013-05-06 Analyzed By: AH

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	2013-05-06

Standard (CCV-1)

QC Batch: 101128 | Date Analyzed: 2013-05-07 | Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.871	87	80 - 120	2013-05-07

Standard (CCV-2)

QC Batch: 101128 | Date Analyzed: 2013-05-07 | Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.857	86	80 - 120	2013-05-07

Standard (CCV-3)

QC Batch: 101128 | Date Analyzed: 2013-05-07 | Analyzed By: AH

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.938	94	80 - 120	2013-05-07

Standard (CCV-1)

QC Batch: 101134 | Date Analyzed: 2013-05-07 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	279	112	80 - 120	2013-05-07

Standard (CCV-2)

QC Batch: 101134 | Date Analyzed: 2013-05-07 | Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	241	96	80 - 120	2013-05-07

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	T104704392-12-4	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.
MI1	Split peak or shoulder peak
MI2	Instrument software did not integrate
MI3	Instrument software misidentified the peak
MI4	Instrument software integrated improperly
MI5	Baseline correction
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 Dilution due to hydrocarbons.
2 Due to analyst mistake, MS/MSD was not prepped, LCS/LCSD show the batch to be under control.

Attachments

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

130426633

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 3

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

CLIENT NAME: Cimarex

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112MC05283

PROJECT NAME: Estill AD Fed #2 Eddy Co, NM

LAB I.D. NUMBER	DATE	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
327466	4/24	-	S		X	AH-1 0-1'	1				X		X	X											X				
7467		-				1-1.5'																							
7468		-				2-2.5'																							
7469		-				AH-2 0-1'							X	X															
7470		-				1-1.5'																							
7471		-				2-2.5'																							
7472		-				3-3.5'																							
7473		-				4-4.5'																							
7474		-				5-5.5'																							
7475		-				6-6.5'																							

RELINQUISHED BY: (Signature) Date: 4-25-13 Time: 16:30

RECEIVED BY: (Signature) Date: 4/25/13 Time: 16:50

SAMPLED BY: (Print & Initial) T.E. / A.G. Date: 4-24-13 Time:

RELINQUISHED BY: (Signature) Date: Time:

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: Results by:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:

RECEIVED BY: (Signature)
DATE: TIME:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 590

REMARKS: Run deeper sample if TPH exceeds 100 mg/kg, Run deeper Sample if Benzene exceeds 10 mg/kg or Total BTEX exceeds 50 mg/kg.

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

13042633

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 3

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: Cimarex

SITE MANAGER: Ike Tavarez

PROJECT NO.: 112MC052283

PROJECT NAME: BS Hill AD Fed #2
Eddy Co., NM

LAB I.D. NUMBER	DATE	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
327476	4/24	-	S		X	AH-2 7-7.5'	1				X													X				
7477		-				AH-3 0-1'							X	X														
7478		-				1-1.5'																						
7479		-				2-2.5'																						
7480		-				3-3.5'																						
7481		-				4-4.5'																						
7482		-				5-5.5'																						
7483		-				6-6.5'																						
7484		-				7-7.5'																						
7485		-				AH-4 0-1'							X	X														

RELINQUISHED BY: (Signature) Date: 4-24-13 Time: 16:50
RECEIVED BY: (Signature) Date: 4/25/13 Time: 6:50
SAMPLED BY: (Print & Initial) T.E. / A.G. Date: 4-24-13 Time: —

RELINQUISHED BY: (Signature) Date: — Time: —
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: Results by:

RECEIVING LABORATORY: —
ADDRESS: —
CITY: — STATE: — ZIP: —
CONTACT: — PHONE: —
RECEIVED BY: (Signature) —
DATE: — TIME: —
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 59°

REMARKS: See Remarks Pg 1

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

130426633

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: Cimarex
SITE MANAGER: Ike Talvarez
PROJECT NO.: 12MC05283
PROJECT NAME: Estill AD Fed #2
Eddy Co., NM

LAB I.D. NUMBER	DATE	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
327486	4/24	-	S		X	AH-4 1-1.5'	1				X													X				
7487	↓	↓	↓		↓	2-2.5'	↓				↓													↓				
7488	↓	↓	↓		↓	3-3.5'	↓				↓													↓				

RELINQUISHED BY: (Signature) Date: 4-24-13 Time: 16:30
RECEIVED BY: (Signature) Date: 4/25/13 Time: 10:50
SAMPLED BY: (Print & Initial) T.P. M.G. Date: 4-24-13 Time:

RELINQUISHED BY: (Signature) Date: Time:
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:
Results by:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE: DATE: TIME:
RECEIVED BY: (Signature)
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 59°
REMARKS: See Remarks Pg 1

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