

SITE INFORMATION

Report Type: Work Plan

General Site Information:

Site:	ESDU #34					
Company:	SM Energy Company					
Section, Township and Range	Unit G	Sec 24	T18S	R 31 E		
Lease Number:	30-15-41615					
County:	Eddy County					
GPS:	32.73664° N			103.82076° W		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	From the intersection of HWY 529 and 126A, travel south on 126A for 4.33 mi. Turn right and head west on lease road for 1.10 miles, then turn south for 0.98miles to T - intersection. Turn right and travel north for 0.25 mi. Turn right and travel 420ft east to spill location in pasture.					

Release Data:

Date Released:	9/18/2013
Type Release:	Produced Water
Source of Contamination:	Injection Line
Fluid Released:	11.93 bbls
Fluids Recovered:	0 bbls

Official Communication:

Name:	Vickie Martinez	Ike Tavaréz
Company:	SM Energy Company	Tetra Tech
Address:	3300 N A St. Suite 200	4000 N. Big Spring
P.O. Box		Suite 401
City:	Midland Texas, 79705	Midland, Texas
Phone number:	(432) 688-1709	(432) 682-4559
Fax:	(432) 688-1701	
Email:	vmartinez@sm-energy.com	ike.tavarez@tetrattech.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



January 17, 2014

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

Re: Work Plan for the SM Energy Company, ESDU #34, Unit G, Section 24, Township 18 South, Range 31 East, Eddy County, New Mexico.

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by SM Energy Company (SM) to assess a spill from the ESDU #34 located in Unit G, Section 24, Township 18 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.73664°, W 103.82076°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak occurred on September 18, 2013, and released approximately twelve (12) barrels of produced fluid from an injection line. To alleviate the problem, SM personnel repaired the injection line. Zero (0) barrels of standing fluids were recovered. The spill initiated east of the pad affecting an area 195' X 160' in the pasture. The initial C-141 form is enclosed in Appendix A.

Groundwater

No water wells were listed within Section 12. According to the NMOCD groundwater map, the average depth to groundwater in this area is greater than 400' below surface. The groundwater data is shown in Figure B.

Tetra Tech

4000 North Big Spring, Suite 401, Midland, TX 79705

Tel: 432.682.4559 Fax: 432.682.3946 www.tetrattech.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 September 20, 2013, Tetra Tech personnel inspected and sampled the spill area. Four (2) auger holes (AH-1 and AH-2) were installed using a stainless steel hand auger, and six (6) surface samples were taken 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 and surface sample locations are shown on Figure 3.

Referring to Table 1, none of the samples exceeded the RRAL for TPH, BTEX, and Benzene. However, elevated chloride concentrations were detected in AH-1, AH-2 and S-1. AH-1 was not vertically defined, but showed chloride concentrations of 1,480 mg/kg at 4.0' below surface. AH-2 showed a chloride high of 14,300 mg/kg at 1.0', but declined with depth to a concentration of 346 mg/kg at 4.0' below surface. S-1 had a chloride concentration of 5,920 mg/kg at 1.0'.

Work Plan

SM proposes to remove impacted material as highlighted (green) in Table 1 and shown on Figure 4. AH-1 will be excavated to 4.0' then a trench will be installed to vertically define the chloride concentrations. AH-2 will be excavated to 3.0' below surface. S-1 will be excavated 1.0' below surface and trenched for vertical delineation.



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 safety concerns. As such, Tetra Tech will 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.

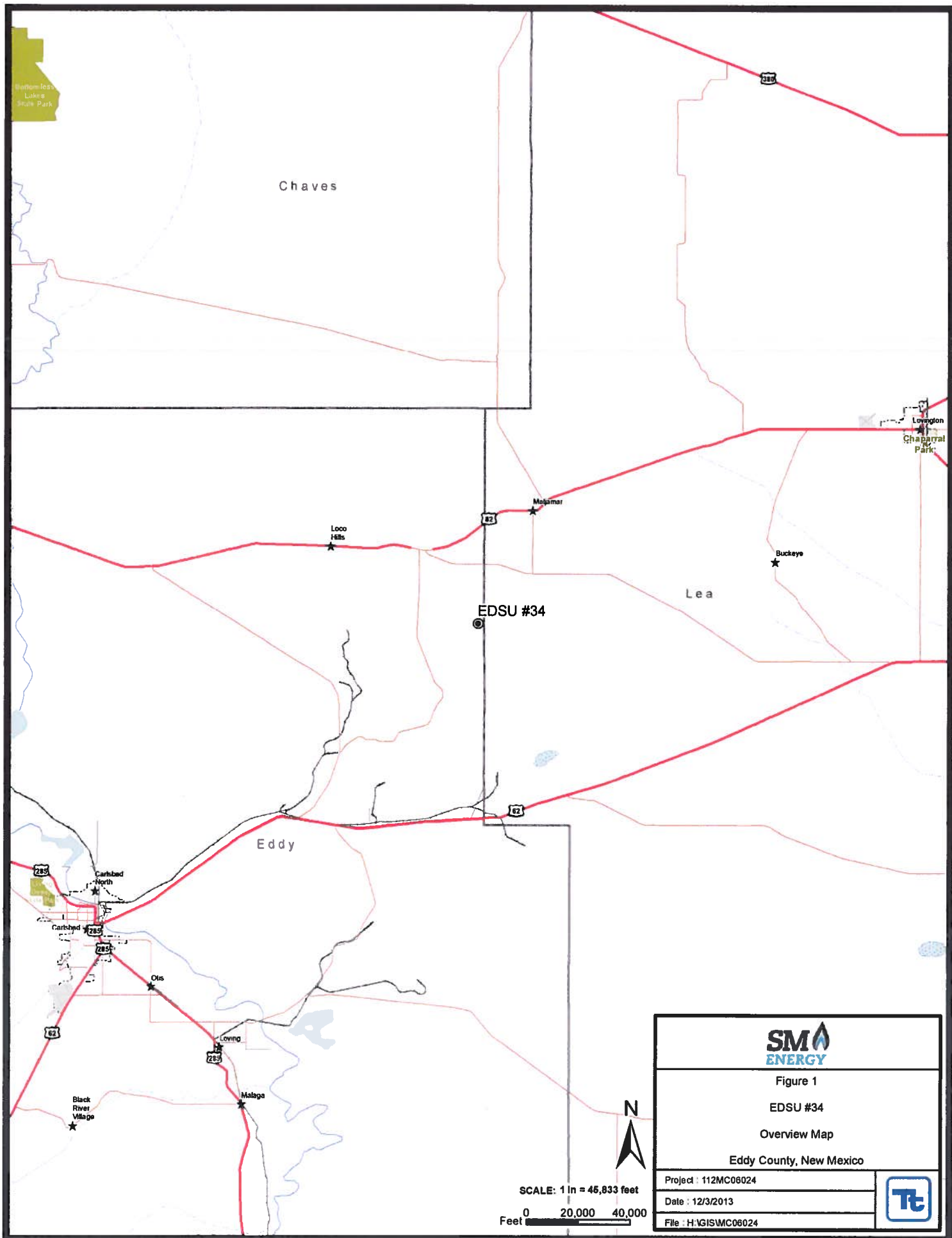
Respectfully submitted,
TETRA TECH

A handwritten signature in blue ink, appearing to read 'Tom Elliott', with a stylized flourish at the end.

Tom Elliott
Project Manager

cc: Vickie Martinez – SM
Richard Choate - SM

Figures



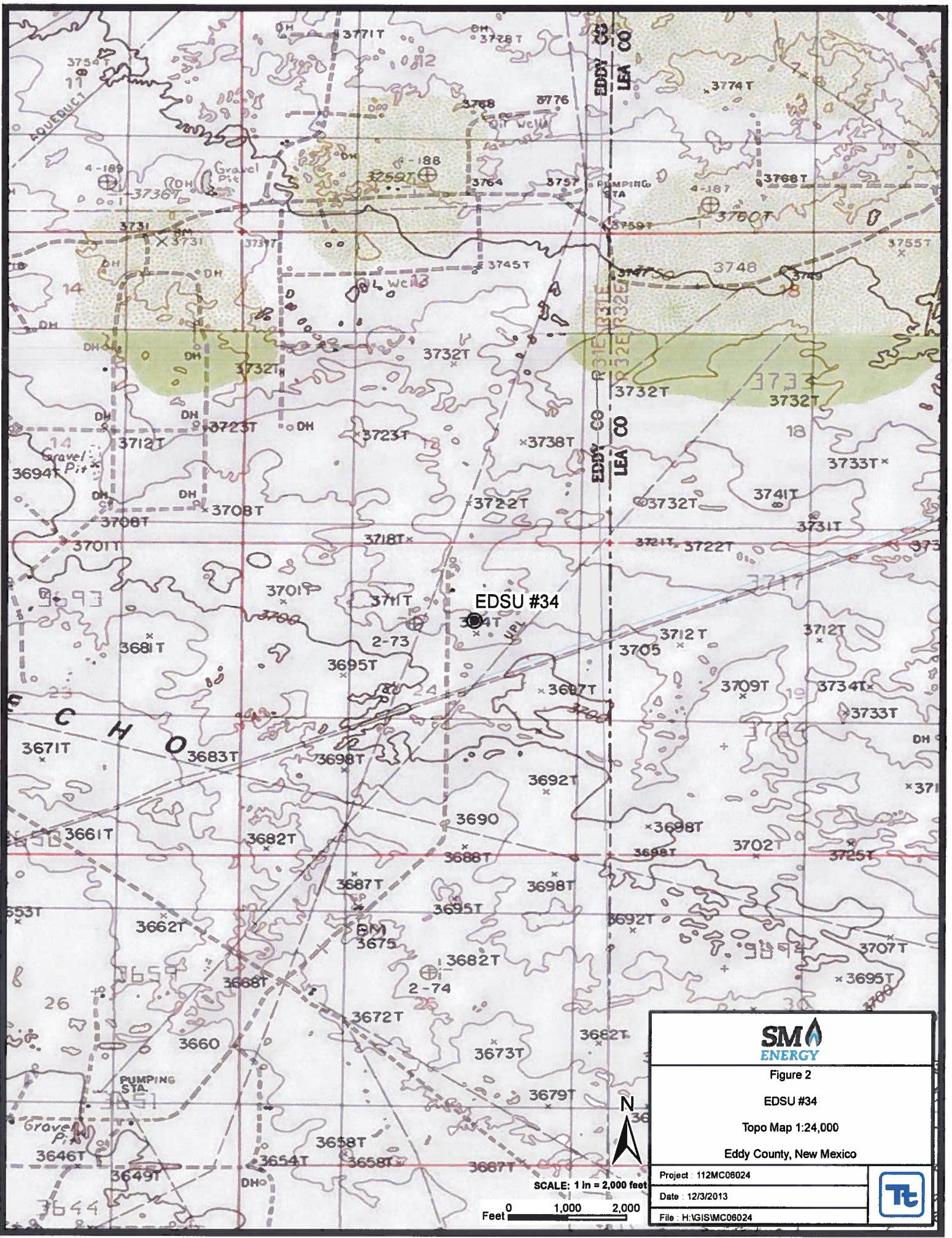




Figure 2

EDSU #34

Topo Map 1:24,000

Eddy County, New Mexico

Project: 112MC08024	
Date: 12/3/2013	
File: H:\GIS\MC08024	

PASTURE

OVERSPRAY

S-6

S-2

S-3

S-4

S-1

AH-2

S-5

AH-1

LEAK SOURCE TELEPHONE POLE

SWD LINE

UNFINISHED PAD

PASTURE

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SIDE WALL SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ OVERSPRAY AREA
- ▨ SPILL AREA

N

SCALE: 1 IN = 53 FEET

Feet 0 20 40



Figure 3

Eson #34

Spill Assessment Map

Eddy County, New Mexico

Project : 112MC06024

Date : 12/3/2013

File : H:\GIS\WC06024



PASTURE

SURFACE SCRAPE

5' - 6' DEEP

UNFINISHED PAD

PASTURE

SWD LINE
LEAK
SOURCE
TELEPHONE POLE

EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- SIDE WALL SAMPLE LOCATIONS
- ★ LEAK SOURCE
- ▨ SPILL AREA

SCALE: 1 IN = 69 FEET

Feet 0 20 40



Figure 4

Eson #34

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 112MC06024

Date : 12/3/2013

File : H:\GIS\MC06024



Tables

Table 1
SM Energy
ESDU #34
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethylbenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	9/20/2013	0-1	X		<4.00	149	149	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	4,200
	"	1-1.5	X		-	-	-	-	-	-	-	-	2,290
	"	2-2.5	X		-	-	-	-	-	-	-	-	4,600
	"	3-3.5	X		-	-	-	-	-	-	-	-	3,420
	"	4-4.5	X		-	-	-	-	-	-	-	-	1,480
AH-2	9/20/2013	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	7,950
	"	1-1.5	X		-	-	-	-	-	-	-	-	14,300
	"	2-2.5	X		-	-	-	-	-	-	-	-	2,950
	"	3-3.5	X		-	-	-	-	-	-	-	-	1,980
	"	4-4.5	X		-	-	-	-	-	-	-	-	346
S-1	9/20/2013	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,920
	9/20/2013	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	9/20/2013	1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	75.3
	9/20/2013	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	9/20/2013	1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	30.1
S-6	9/20/2013	0-1	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0

(-) Not Analyzed

Trench Proposed Trench Location
Propose Excavation Depths

Photos



View Southwest – AH-1 area



View North – AH-1 and AH-2

SM Energy Company
ESDU #34
Eddy County, New Mexico



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View Southeast – S-1 and AH-1



View South – S-3 and S-6

SM Energy Company
ESDU #34
Eddy County, New Mexico



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View West – S-1 and S-5



View Northwest – S-3, S-4, S-5, and S-6

Appendix A

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., 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 August 8, 2011

Submit 1 Copy to appropriate District Office in
accordance with 19.15.29 NMAC.

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	SM ENERGY COMPANY	Contact	VICKIE MARTINEZ
Address	3300 N "A" STREET, BLDG 7-200 MIDLAND, TX 79705	Telephone No.	(432)688-1709
Facility Name	ESDU 34	Facility Type	WELL
Surface Owner	BUREAU OF LAND MANAGEMENT	Mineral Owner	BUREAU OF LAND MANAGEMENT
		MPI No. 30-015-41615	

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	24	18S	31E	1500	NORTH	2020	EAST	EDDY

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release	SPILL	Volume of Release	11.93 BBLS	Volume Recovered	0 BBLS
Source of Release	INJECTION LINE	Date and Hour of Occurrence	9/18/13 5:00 PM	Date and Hour of Occurrence 9/18/13 5:00 PM	
Was Immediate Notice Given?	☒ Yes ☐ No ☐ Not Required	If YES, To Whom?	BLM-JAMES AMOS AND NMOCD-MIKE BRATCHER		
By Whom?	NATHAN LUOMA	Date and Hour	9/18/13 5:00 PM		
Was a Watercourse Reached?	☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.			

If a Watercourse was Impacted, Describe Fully.*

N/A

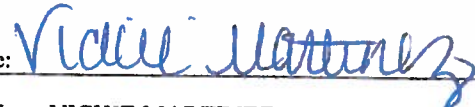
Describe Cause of Problem and Remedial Action Taken.*

WHILE BUILDING LOCATION, DOZER TRACKS SUNK INTO SOFT GROUND AND CUT AN INJ LINE BURIED 8 INCHES BELOW THE GROUND CAUSING SPILL.

Describe Area Affected and Cleanup Action Taken.*

AREA AFFECTED WAS 110' X 213'. REMOVED CONTAMINATED SOIL AND BRUSH AND HAULED TO A PERMITTED FACILITY. TETRA TECH TOOK INITIAL SOILS SAMPLES AND SENT TO LAB AND WE ARE WAITING ON RESULTS.

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: VICKIE MARTINEZ	Approved by Environmental Specialist:		
Title: ENGINEER TECH II	Approval Date:	Expiration Date:	
E-mail Address: VMARTINEZ@SM-ENERGY.COM	Conditions of Approval:		Attached ☐
Date: 09/26/2013	Phone: (432)688-1709		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
SM Energy - ESDU #34
Eddy County, New Mexico

17 South 30 East

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

17 South 31 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 32 East

6	5	4	82	3	2	60	1	225
Maljamar								
7	8	9	10	132	11	70	12	
18	17	16	15	14	88	120	13	
19	20	21	22	23	24			
30	180	29	28	27	26	25		
dry	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	44
30	29	28	27	26	25
31	32	33	34	35	36

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 Site
18	17	16	15	98	400
19	20	21	22	317	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 32 East

6	5	4	65	3	2	1
7	460	8	9	10	11	12
18	82	17	16	15	14	13
19	20	21	84	22	23	24
30	29	28	27	26	25	
31	32	33	34	35	36	

19 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
90	31	32	33	34	35
115					

19 South 31 East

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

19 South 32 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
102	345	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

Appendix C

Summary Report

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

Report Date: October 1, 2013

Work Order: 13092406

Project Location: Eddy Co, NM
Project Name: SM Energy/ESOU #34
Project Number: TBD

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
342541	AH-1 0-1'	soil	2013-09-20	00:00	2013-09-24
342542	AH-1 1-1.5'	soil	2013-09-20	00:00	2013-09-24
342543	AH-1 2-2.5'	soil	2013-09-20	00:00	2013-09-24
342544	AH-1 3-3.5'	soil	2013-09-20	00:00	2013-09-24
342545	AH-1 4-4.5'	soil	2013-09-20	00:00	2013-09-24
342546	AH-2 0-1'	soil	2013-09-20	00:00	2013-09-24
342547	AH-2 1-1.5'	soil	2013-09-20	00:00	2013-09-24
342548	AH-2 2-2.5'	soil	2013-09-20	00:00	2013-09-24
342549	AH-2 3-3.5'	soil	2013-09-20	00:00	2013-09-24
342550	AH-2 4-4.5'	soil	2013-09-20	00:00	2013-09-24
342551	AH-2 5-5.5'	soil	2013-09-20	00:00	2013-09-24
342552	S-1 0-1'	soil	2013-09-20	00:00	2013-09-24
342553	S-2 0-1'	soil	2013-09-20	00:00	2013-09-24
342554	S-3 0-1'	soil	2013-09-20	00:00	2013-09-24
342555	S-4 0-1'	soil	2013-09-20	00:00	2013-09-24
342556	S-5 0-1'	soil	2013-09-20	00:00	2013-09-24
342557	S-6 0-1'	soil	2013-09-20	00:00	2013-09-24

Sample - Field Code	BTEX				TPH DRO - NEW	TPH GRO
	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
342541 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	149	<4.00
342546 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
342552 - S-1 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
342553 - S-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
342554 - S-3 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
342555 - S-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
342556 - S-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00
342557 - S-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<4.00

Sample: 342541 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		4200	mg/Kg	4

Sample: 342542 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		2290	mg/Kg	4

Sample: 342543 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		4600	mg/Kg	4

Sample: 342544 - AH-1 3-3.5'

Param	Flag	Result	Units	RL
Chloride		3420	mg/Kg	4

Sample: 342545 - AH-1 4-4.5'

Param	Flag	Result	Units	RL
Chloride		1480	mg/Kg	4

Sample: 342546 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		7950	mg/Kg	4

Sample: 342547 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		14300	mg/Kg	4

Sample: 342548 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		2950	mg/Kg	4

Sample: 342549 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		1980	mg/Kg	4

Sample: 342550 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		346	mg/Kg	4

Sample: 342551 - AH-2 5-5.5'

Param	Flag	Result	Units	RL
Chloride		542	mg/Kg	4

Sample: 342552 - S-1 0-1'

Param	Flag	Result	Units	RL
Chloride		5920	mg/Kg	4

Sample: 342553 - S-2 0-1'

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

Sample: 342554 - S-3 0-1'

Param	Flag	Result	Units	RL
Chloride		75.3	mg/Kg	4

Sample: 342555 - S-4 0-1'

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

Sample: 342556 - S-5 0-1'

Param	Flag	Result	Units	RL
Chloride		30.1	mg/Kg	4

Report Date: October 1, 2013

Work Order: 13092406

Page Number: 4 of 4

Sample: 342557 - S-6 0-1'

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



6701 Aberdeen Avenue, Suite 9
200 East Sunset Road, Suite E
5002 Basin Street, Suite A1
(BioAquatic) 2501 Mayes Rd., Suite 100

Lubbock, Texas 79424
El Paso, Texas 79922
Midland, Texas 79703
Carrollton, Texas 75006

800-378-1296

806-794-1296

915-585-3443

432-689-6301

972-242-7750

FAX 806-794-1298

FAX 915-585-4944

FAX 432-689-6313

E-Mail: lab@traceanalysis.com WEB: www.traceanalysis.com

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: October 1, 2013

Work Order: 13092406

Project Location: Eddy Co, NM
Project Name: SM Energy/ESOU #34
Project Number: TBD

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
342541	AH-1 0-1'	soil	2013-09-20	00:00	2013-09-24
342542	AH-1 1-1.5'	soil	2013-09-20	00:00	2013-09-24
342543	AH-1 2-2.5'	soil	2013-09-20	00:00	2013-09-24
342544	AH-1 3-3.5'	soil	2013-09-20	00:00	2013-09-24
342545	AH-1 4-4.5'	soil	2013-09-20	00:00	2013-09-24
342546	AH-2 0-1'	soil	2013-09-20	00:00	2013-09-24
342547	AH-2 1-1.5'	soil	2013-09-20	00:00	2013-09-24
342548	AH-2 2-2.5'	soil	2013-09-20	00:00	2013-09-24
342549	AH-2 3-3.5'	soil	2013-09-20	00:00	2013-09-24
342550	AH-2 4-4.5'	soil	2013-09-20	00:00	2013-09-24
342551	AH-2 5-5.5'	soil	2013-09-20	00:00	2013-09-24
342552	S-1 0-1'	soil	2013-09-20	00:00	2013-09-24
342553	S-2 0-1'	soil	2013-09-20	00:00	2013-09-24
342554	S-3 0-1'	soil	2013-09-20	00:00	2013-09-24
342555	S-4 0-1'	soil	2013-09-20	00:00	2013-09-24
342556	S-5 0-1'	soil	2013-09-20	00:00	2013-09-24
342557	S-6 0-1'	soil	2013-09-20	00:00	2013-09-24

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 33 pages and shall not be reproduced except in its entirety, without written approval of TraceAnalysis, Inc.

A handwritten signature in black ink that reads "Michael Abel". The signature is written in a cursive, flowing style.

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

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Case Narrative

Samples for project SM Energy/ESOU #34 were received by TraceAnalysis, Inc. on 2013-09-24 and assigned to work order 13092406. Samples for work order 13092406 were received intact at a temperature of 5.6 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	89246	2013-09-24 at 11:09	105407	2013-09-25 at 07:39
Chloride (Titration)	SM 4500-Cl B	89442	2013-10-01 at 09:35	105602	2013-10-01 at 11:36
Chloride (Titration)	SM 4500-Cl B	89442	2013-10-01 at 09:35	105619	2013-10-01 at 13:22
TPH DRO - NEW	S 8015 D	89415	2013-09-30 at 09:30	105578	2013-09-30 at 16:11
TPH GRO	S 8015 D	89246	2013-09-24 at 11:09	105408	2013-09-25 at 07:52

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 13092406 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.

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Analytical Report

Sample: 342541 - AH-1 0-1'

Laboratory: Midland

Analysis: BTEX

QC Batch: 105407

Prep Batch: 89246

Analytical Method: S 8021B

Date Analyzed: 2013-09-25

Sample Preparation: 2013-09-24

Prep Method: S 5035

Analyzed By: AK

Prepared By: AK

Parameter	Flag	Cert	RL Result	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)			1.93	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.80	mg/Kg	1	2.00	90	70 - 130

Sample: 342541 - AH-1 0-1'

Laboratory: Midland

Analysis: Chloride (Titration)

QC Batch: 105619

Prep Batch: 89442

Analytical Method: SM 4500-Cl B

Date Analyzed: 2013-10-01

Sample Preparation: 2013-10-01

Prep Method: N/A

Analyzed By: AR

Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4200	mg/Kg	10	4.00

Sample: 342541 - AH-1 0-1'

Laboratory: Midland

Analysis: TPH DRO - NEW

QC Batch: 105578

Prep Batch: 89415

Analytical Method: S 8015 D

Date Analyzed: 2013-09-30

Sample Preparation: 2013-09-30

Prep Method: N/A

Analyzed By: KC

Prepared By: KC

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		1	149	mg/Kg	1	50.0

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			121	mg/Kg	1	100	121	76.3 - 192.6

Sample: 342541 - AH-1 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 105408
Prep Batch: 89246

Analytical Method: S 8015 D
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.45	mg/Kg	1	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)			2.42	mg/Kg	1	2.00	121	70 - 130

Sample: 342542 - AH-1 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 105619
Prep Batch: 89442

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-01
Sample Preparation: 2013-10-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2290	mg/Kg	10	4.00

Sample: 342543 - AH-1 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 105619
Prep Batch: 89442

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-01
Sample Preparation: 2013-10-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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sample 342543 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			4600	mg/Kg	10	4.00

Sample: 342544 - AH-1 3-3.5'

Laboratory:	Midland			
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method: N/A
QC Batch:	105619	Date Analyzed:	2013-10-01	Analyzed By: AR
Prep Batch:	89442	Sample Preparation:	2013-10-01	Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			3420	mg/Kg	10	4.00

Sample: 342545 - AH-1 4-4.5'

Laboratory:	Midland			
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method: N/A
QC Batch:	105619	Date Analyzed:	2013-10-01	Analyzed By: AR
Prep Batch:	89442	Sample Preparation:	2013-10-01	Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1480	mg/Kg	10	4.00

Sample: 342546 - AH-2 0-1'

Laboratory:	Midland			
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method: S 5035
QC Batch:	105407	Date Analyzed:	2013-09-25	Analyzed By: AK
Prep Batch:	89246	Sample Preparation:	2013-09-24	Prepared By: AK

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Parameter	Flag	Cert	RL Result	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)			1.94	mg/Kg	1	2.00	97	70 - 130
4-Bromofluorobenzene (4-BFB)			1.75	mg/Kg	1	2.00	88	70 - 130

Sample: 342546 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-10-01	Analyzed By:	AR
QC Batch:	105619	Sample Preparation:	2013-10-01	Prepared By:	AR
Prep Batch:	89442				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			7950	mg/Kg	10	4.00

Sample: 342546 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2013-09-30	Analyzed By:	KC
QC Batch:	105578	Sample Preparation:	2013-09-30	Prepared By:	KC
Prep Batch:	89415				

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			112	mg/Kg	1	100	112	76.3 - 192.6

Sample: 342546 - AH-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2013-09-25	Analyzed By:	AK
QC Batch:	105408	Sample Preparation:	2013-09-24	Prepared By:	AK
Prep Batch:	89246				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.43	mg/Kg	1	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)			2.27	mg/Kg	1	2.00	114	70 - 130

Sample: 342547 - AH-2 1-1.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105619 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			14300	mg/Kg	10	4.00

Sample: 342548 - AH-2 2-2.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105619 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			2950	mg/Kg	10	4.00

Sample: 342549 - AH-2 3-3.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105619 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

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Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			1980	mg/Kg	10	4.00

Sample: 342550 - AH-2 4-4.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105619 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			346	mg/Kg	5	4.00

Sample: 342551 - AH-2 5-5.5'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105602 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			542	mg/Kg	5	4.00

Sample: 342552 - S-1 0-1'

Laboratory: Midland
Analysis: BTEX Analytical Method: S 8021B Prep Method: S 5035
QC Batch: 105407 Date Analyzed: 2013-09-25 Analyzed By: AK
Prep Batch: 89246 Sample Preparation: 2013-09-24 Prepared By: AK

Parameter	Flag	Cert	RL Result	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

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sample 342552 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.92	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	70 - 130

Sample: 342552 - S-1 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105602 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			5920	mg/Kg	10	4.00

Sample: 342552 - S-1 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 105578 Date Analyzed: 2013-09-30 Analyzed By: KC
Prep Batch: 89415 Sample Preparation: 2013-09-30 Prepared By: KC

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		113		mg/Kg	1	100	113	76.3 - 192.6

Sample: 342552 - S-1 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 105408 Date Analyzed: 2013-09-25 Analyzed By: AK
Prep Batch: 89246 Sample Preparation: 2013-09-24 Prepared By: AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.52	mg/Kg	1	2.00	126	70 - 130
4-Bromofluorobenzene (4-BFB)			2.36	mg/Kg	1	2.00	118	70 - 130

Sample: 342553 - S-2 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105407
Prep Batch: 89246

Analytical Method: S 8021B
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	70 - 130

Sample: 342553 - S-2 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 105602
Prep Batch: 89442

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-01
Sample Preparation: 2013-10-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

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Sample: 342553 - S-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2013-09-30	Analyzed By:	KC
QC Batch:	105578	Sample Preparation:	2013-09-30	Prepared By:	KC
Prep Batch:	89415				

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			111	mg/Kg	1	100	111	76.3 - 192.6

Sample: 342553 - S-2 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2013-09-25	Analyzed By:	AK
QC Batch:	105408	Sample Preparation:	2013-09-24	Prepared By:	AK
Prep Batch:	89246				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.51	mg/Kg	1	2.00	126	70 - 130
4-Bromofluorobenzene (4-BFB)			2.33	mg/Kg	1	2.00	116	70 - 130

Sample: 342554 - S-3 0-1'

Laboratory:	Midland	Analytical Method:	S 8021B	Prep Method:	S 5035
Analysis:	BTEX	Date Analyzed:	2013-09-25	Analyzed By:	AK
QC Batch:	105407	Sample Preparation:	2013-09-24	Prepared By:	AK
Prep Batch:	89246				

Parameter	Flag	Cert	RL Result	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

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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)			1.83	mg/Kg	1	2.00	92	70 - 130

Sample: 342554 - S-3 0-1'

Laboratory: Midland
Analysis: Chloride (Titration) Analytical Method: SM 4500-Cl B Prep Method: N/A
QC Batch: 105602 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 Sample Preparation: 2013-10-01 Prepared By: AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			75.3	mg/Kg	5	4.00

Sample: 342554 - S-3 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW Analytical Method: S 8015 D Prep Method: N/A
QC Batch: 105578 Date Analyzed: 2013-09-30 Analyzed By: KC
Prep Batch: 89415 Sample Preparation: 2013-09-30 Prepared By: KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			110	mg/Kg	1	100	110	76.3 - 192.6

Sample: 342554 - S-3 0-1'

Laboratory: Midland
Analysis: TPH GRO Analytical Method: S 8015 D Prep Method: S 5035
QC Batch: 105408 Date Analyzed: 2013-09-25 Analyzed By: AK
Prep Batch: 89246 Sample Preparation: 2013-09-24 Prepared By: AK

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

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Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.54	mg/Kg	1	2.00	127	70 - 130
4-Bromofluorobenzene (4-BFB)			2.50	mg/Kg	1	2.00	125	70 - 130

Sample: 342555 - S-4 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105407
Prep Batch: 89246

Analytical Method: S 8021B
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	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)			1.86	mg/Kg	1	2.00	93	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Sample: 342555 - S-4 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 105602
Prep Batch: 89442

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-01
Sample Preparation: 2013-10-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 342555 - S-4 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 105578
Prep Batch: 89415

Analytical Method: S 8015 D
Date Analyzed: 2013-09-30
Sample Preparation: 2013-09-30

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

Report Date: October 1, 2013
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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			111	mg/Kg	1	100	111	76.3 - 192.6

Sample: 342555 - S-4 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 105408
Prep Batch: 89246

Analytical Method: S 8015 D
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.45	mg/Kg	1	2.00	122	70 - 130
4-Bromofluorobenzene (4-BFB)			2.39	mg/Kg	1	2.00	120	70 - 130

Sample: 342556 - S-5 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105407
Prep Batch: 89246

Analytical Method: S 8021B
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL Result	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)			1.97	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			1.79	mg/Kg	1	2.00	90	70 - 130

Report Date: October 1, 2013
TBD

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Sample: 342556 - S-5 0-1'

Laboratory:	Midland	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
Analysis:	Chloride (Titration)	Date Analyzed:	2013-10-01	Analyzed By:	AR
QC Batch:	105602	Sample Preparation:	2013-10-01	Prepared By:	AR
Prep Batch:	89442				

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			30.1	mg/Kg	5	4.00

Sample: 342556 - S-5 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	N/A
Analysis:	TPH DRO - NEW	Date Analyzed:	2013-09-30	Analyzed By:	KC
QC Batch:	105578	Sample Preparation:	2013-09-30	Prepared By:	KC
Prep Batch:	89415				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			122	mg/Kg	1	100	122	76.3 - 192.6

Sample: 342556 - S-5 0-1'

Laboratory:	Midland	Analytical Method:	S 8015 D	Prep Method:	S 5035
Analysis:	TPH GRO	Date Analyzed:	2013-09-25	Analyzed By:	AK
QC Batch:	105408	Sample Preparation:	2013-09-24	Prepared By:	AK
Prep Batch:	89246				

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.50	mg/Kg	1	2.00	125	70 - 130
4-Bromofluorobenzene (4-BFB)			2.44	mg/Kg	1	2.00	122	70 - 130

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Sample: 342557 - S-6 0-1'

Laboratory: Midland
Analysis: BTEX
QC Batch: 105407
Prep Batch: 89246

Analytical Method: S 8021B
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

Parameter	Flag	Cert	RL		Dilution	RL
			Result	Units		
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)			2.01	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			1.84	mg/Kg	1	2.00	92	70 - 130

Sample: 342557 - S-6 0-1'

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 105602
Prep Batch: 89442

Analytical Method: SM 4500-Cl B
Date Analyzed: 2013-10-01
Sample Preparation: 2013-10-01

Prep Method: N/A
Analyzed By: AR
Prepared By: AR

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

Sample: 342557 - S-6 0-1'

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 105578
Prep Batch: 89415

Analytical Method: S 8015 D
Date Analyzed: 2013-09-30
Sample Preparation: 2013-09-30

Prep Method: N/A
Analyzed By: KC
Prepared By: KC

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			113	mg/Kg	1	100	113	76.3 - 192.6

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Sample: 342557 - S-6 0-1'

Laboratory: Midland
Analysis: TPH GRO
QC Batch: 105408
Prep Batch: 89246

Analytical Method: S 8015 D
Date Analyzed: 2013-09-25
Sample Preparation: 2013-09-24

Prep Method: S 5035
Analyzed By: AK
Prepared By: AK

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.46	mg/Kg	1	2.00	123	70 - 130
4-Bromofluorobenzene (4-BFB)			2.32	mg/Kg	1	2.00	116	70 - 130

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Method Blanks

Method Blank (1) QC Batch: 105407

QC Batch: 105407
Prep Batch: 89246

Date Analyzed: 2013-09-25
QC Preparation: 2013-09-24

Analyzed By: AK
Prepared By: AK

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)			2.02	mg/Kg	1	2.00	101	70 - 130
4-Bromofluorobenzene (4-BFB)			1.82	mg/Kg	1	2.00	91	70 - 130

Method Blank (1) QC Batch: 105408

QC Batch: 105408
Prep Batch: 89246

Date Analyzed: 2013-09-25
QC Preparation: 2013-09-24

Analyzed By: AK
Prepared By: AK

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)			2.50	mg/Kg	1	2.00	125	70 - 130
4-Bromofluorobenzene (4-BFB)			2.32	mg/Kg	1	2.00	116	70 - 130

Method Blank (1) QC Batch: 105578

QC Batch: 105578
Prep Batch: 89415

Date Analyzed: 2013-09-30
QC Preparation: 2013-09-30

Analyzed By: KC
Prepared By: KC

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Parameter	Flag	Cert	MDL Result	Units	RL
DRO			<10.2	mg/Kg	50

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			94.2	mg/Kg	1	100	94	64.1 - 164.4

Method Blank (1) QC Batch: 105602

QC Batch: 105602 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 QC Preparation: 2013-10-01 Prepared By: AR

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

Method Blank (1) QC Batch: 105619

QC Batch: 105619 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 QC Preparation: 2013-10-01 Prepared By: AR

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

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Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 105407 Date Analyzed: 2013-09-25 Analyzed By: AK
Prep Batch: 89246 QC Preparation: 2013-09-24 Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.65	mg/Kg	1	2.00	<0.00810	82	70 - 130
Toluene		1	1.69	mg/Kg	1	2.00	<0.00750	84	70 - 130
Ethylbenzene		1	1.70	mg/Kg	1	2.00	<0.00730	85	70 - 130
Xylene		1	5.18	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	1.54	mg/Kg	1	2.00	<0.00810	77	70 - 130	7	20
Toluene		1	1.56	mg/Kg	1	2.00	<0.00750	78	70 - 130	8	20
Ethylbenzene		1	1.57	mg/Kg	1	2.00	<0.00730	78	70 - 130	8	20
Xylene		1	4.80	mg/Kg	1	6.00	<0.00700	80	70 - 130	8	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.10	1.90	mg/Kg	1	2.00	105	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.82	mg/Kg	1	2.00	96	91	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 105408 Date Analyzed: 2013-09-25 Analyzed By: AK
Prep Batch: 89246 QC Preparation: 2013-09-24 Prepared By: AK

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.8	mg/Kg	1	20.0	<2.32	89	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	16.1	mg/Kg	1	20.0	<2.32	80	70 - 130	10	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)	2.55	2.26	mg/Kg	1	2.00	128	113	70 - 130
4-Bromofluorobenzene (4-BFB)	2.60	2.45	mg/Kg	1	2.00	130	122	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 105578
Prep Batch: 89415

Date Analyzed: 2013-09-30
QC Preparation: 2013-09-30

Analyzed By: KC
Prepared By: KC

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	247	mg/Kg	1	250	<10.2	99	53.8 - 129

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	213	mg/Kg	1	250	<10.2	85	53.8 - 129	15	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	108	104	mg/Kg	1	100	108	104	61.3 - 170.4

Laboratory Control Spike (LCS-1)

QC Batch: 105602
Prep Batch: 89442

Date Analyzed: 2013-10-01
QC Preparation: 2013-10-01

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2480	mg/Kg	1	2500	<3.85	99	89.7 - 115.9

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2560	mg/Kg	1	2500	<3.85	102	89.7 - 115.9	3	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: 105619
Prep Batch: 89442

Date Analyzed: 2013-10-01
QC Preparation: 2013-10-01

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2390	mg/Kg	1	2500	<3.85	96	89.7 - 115.9

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

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2510	mg/Kg	1	2500	<3.85	100	89.7 - 115.9	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: 342557

QC Batch: 105407
Prep Batch: 89246

Date Analyzed: 2013-09-25
QC Preparation: 2013-09-24

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene			1.57	mg/Kg	1	2.00	<0.00810	78	70 - 130
Toluene			1.65	mg/Kg	1	2.00	<0.00750	82	70 - 130
Ethylbenzene			1.64	mg/Kg	1	2.00	<0.00730	82	70 - 130
Xylene			5.01	mg/Kg	1	6.00	<0.00700	84	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			1.53	mg/Kg	1	2.00	<0.00810	76	70 - 130	3	20
Toluene			1.61	mg/Kg	1	2.00	<0.00750	80	70 - 130	2	20
Ethylbenzene			1.60	mg/Kg	1	2.00	<0.00730	80	70 - 130	2	20
Xylene			4.88	mg/Kg	1	6.00	<0.00700	81	70 - 130	3	20

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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)	2.00	1.88	mg/Kg	1	2	100	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.80	mg/Kg	1	2	97	90	70 - 130

Matrix Spike (MS-1) Spiked Sample: 342557

QC Batch: 105408
Prep Batch: 89246

Date Analyzed: 2013-09-25
QC Preparation: 2013-09-24

Analyzed By: AK
Prepared By: AK

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.1	mg/Kg	1	20.0	<2.32	80	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	16.5	mg/Kg	1	20.0	<2.32	82	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)	2.27	2.30	mg/Kg	1	2	114	115	70 - 130
4-Bromofluorobenzene (4-BFB)	2.38	2.48	mg/Kg	1	2	119	124	70 - 130

Matrix Spike (MS-1) Spiked Sample: 342590

QC Batch: 105578
Prep Batch: 89415

Date Analyzed: 2013-09-30
QC Preparation: 2013-09-30

Analyzed By: KC
Prepared By: KC

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	249	mg/Kg	1	250	<10.2	100	29 - 168.5

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	230	mg/Kg	1	250	<10.2	92	29 - 168.5	8	20

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

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Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
n-Tricosane	107	107	mg/Kg	1	100	107	107	59.5 - 168.9

Matrix Spike (MS-1) Spiked Sample: 342978

QC Batch: 105602 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 QC Preparation: 2013-10-01 Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2660	mg/Kg	5	2500	266	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			2780	mg/Kg	5	2500	266	100	78.9 - 121	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: 342550

QC Batch: 105619 Date Analyzed: 2013-10-01 Analyzed By: AR
Prep Batch: 89442 QC Preparation: 2013-10-01 Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2760	mg/Kg	5	2500	346	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			2650	mg/Kg	5	2500	346	92	78.9 - 121	4	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 105407

Date Analyzed: 2013-09-25

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0880	88	80 - 120	2013-09-25
Toluene		1	mg/kg	0.100	0.0894	89	80 - 120	2013-09-25
Ethylbenzene		1	mg/kg	0.100	0.0858	86	80 - 120	2013-09-25
Xylene		1	mg/kg	0.300	0.262	87	80 - 120	2013-09-25

Standard (CCV-2)

QC Batch: 105407

Date Analyzed: 2013-09-25

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0881	88	80 - 120	2013-09-25
Toluene		1	mg/kg	0.100	0.0872	87	80 - 120	2013-09-25
Ethylbenzene		1	mg/kg	0.100	0.0832	83	80 - 120	2013-09-25
Xylene		1	mg/kg	0.300	0.252	84	80 - 120	2013-09-25

Standard (CCV-3)

QC Batch: 105407

Date Analyzed: 2013-09-25

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0849	85	80 - 120	2013-09-25
Toluene		1	mg/kg	0.100	0.0835	84	80 - 120	2013-09-25
Ethylbenzene		1	mg/kg	0.100	0.0796	80	80 - 120	2013-09-25
Xylene		1	mg/kg	0.300	0.243	81	80 - 120	2013-09-25

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Standard (CCV-1)

QC Batch: 105408

Date Analyzed: 2013-09-25

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.01	101	80 - 120	2013-09-25

Standard (CCV-2)

QC Batch: 105408

Date Analyzed: 2013-09-25

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.06	106	80 - 120	2013-09-25

Standard (CCV-3)

QC Batch: 105408

Date Analyzed: 2013-09-25

Analyzed By: AK

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.949	95	80 - 120	2013-09-25

Standard (CCV-1)

QC Batch: 105578

Date Analyzed: 2013-09-30

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	254	102	80 - 120	2013-09-30

Standard (CCV-2)

QC Batch: 105578

Date Analyzed: 2013-09-30

Analyzed By: KC

Report Date: October 1, 2013
TBD

Work Order: 13092406
SM Energy/ESOU #34

Page Number: 30 of 33
Eddy Co, NM

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	210	84	80 - 120	2013-09-30

Standard (CCV-3)

QC Batch: 105578

Date Analyzed: 2013-09-30

Analyzed By: KC

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		1	mg/Kg	250	230	92	80 - 120	2013-09-30

Standard (CCV-1)

QC Batch: 105602

Date Analyzed: 2013-10-01

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	2013-10-01

Standard (CCV-2)

QC Batch: 105602

Date Analyzed: 2013-10-01

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	2013-10-01

Standard (CCV-1)

QC Batch: 105619

Date Analyzed: 2013-10-01

Analyzed By: AR

Report Date: October 1, 2013
TBD

Work Order: 13092406
SM Energy/ESOU #34

Page Number: 31 of 33
Eddy Co, NM

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	2013-10-01

Standard (CCV-2)

QC Batch: 105619

Date Analyzed: 2013-10-01

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	98.6	99	85 - 115	2013-10-01

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 than 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

Attachments

Report Date: October 1, 2013
TBD

Work Order: 13092406
SM Energy/ESOU #34

Page Number: 33 of 33
Eddy Co, NM

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

13092406

Analysis Request of Chain of Custody Record



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

PRESERVATIVE METHOD

SITE MANAGER: Ike Tavaroz

CLIENT NAME: San Energy
PROJECT NO.: ESON #34

SAMPLE IDENTIFICATION
504 a m

NUMBER OF CONTAINERS
1

PRELIMINARY ANALYSIS
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Analysis Request of Chain of Custody Record

ANALYSIS REQUEST
(Circle or Specify Method)

**1910 N. Big Spring St.
Midland, Texas 79705
(432) 682-4559 • Fax (432) 682-4560**



PROJECT NO.:	PROJECT NAME:
	ESD # 34

LAB I.D. NUMBER	DATE	TIME	TRIX	MP	LAB	SAMPLE IDENTIFICATION
						Edley Co. Hum.

NO.	DATE	MA	CO	GR	NUM	FIL	HCL	HNO	ICE	NO	(BTE)	(TPH)	PAH	RCR	TCL	RCI	GC	GC	PCE	Pes	Chn	Gan	Alpl	PLN	Maj
551	7/20	S	X	AH-2	5-5.5						X	X									X				
552					5-1	6-1					X	X									X				
553					5-2	6-1					X	X									X				
554					5-3	6-1					X	X									X				
555					5-4	6-1					X	X									X				
556					5-5	6-1					X	X									X				
557					5-6	6-1					X	X									X				

RELINQUISHED BY: (Signature) <i>John Doe</i>	Date: 8-8-13 Time: 0500	RECEIVED BY: (Signature) <i>John Doe</i>	Date: 7/21/13 Time: 1000	SAMPLED BY: (Print & Initial) <i>Markus Kujawski</i>	Date: _____ Time: _____
RELINQUISHED BY: (Signature) <i>Adrian Davis</i>	Date: 7/24/13 Time: _____	RECEIVED BY: (Signature) <i>[Signature]</i>	Date: 7/25/13 Time: _____	SAMPLE SHIPPED BY: (Circle) FEDEX _____ HAND DELIVERED _____ BUS _____ UPS _____ OTHER: _____	AIRBILL #: _____
RELINQUISHED BY: (Signature)	Date: _____ Time: _____	RECEIVED BY: (Signature)	Date: _____ Time: _____	TETRA TECH CONTACT PERSON: _____	
RECEIVING LABORATORY: <u>FRUIT</u>	RECEIVED BY: (Signature)			Results by: _____	
ADDRESS: _____	_____			RUSH Charges Authorized: _____	
CITY: <u>MIAMI</u>	STATE: <u>FL</u>	ZIP: _____	Yes _____ No _____		
CONTACT: _____	PHONE: _____	DATE: _____	TIME: _____		
SAMPLE CONDITION WHEN RECEIVED: _____		REMARKS: _____			

S.6°
SUN DOWN & DAPPLES : 7PM approx 5.00

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

Use deeper samples if benzene exceeds 10 mg/kg or total BTEX exceeds 50 mg/kg.