SITE INFORMATION

Report Type: Closure Report

General Site Information:	
Site:	ESDU #6
Company:	SM Energy Company
Section, Township and Range	Section 24, T18S, R31E Unit Letter - A
Lease Number:	
County:	Eddy County
GPS:	32.73581° N, 103.81964° W
Surface Owner:	Federal
Mineral Owner:	
Directions:	From the intersection of Hwy 82 and Shugart Rd (Loco Hills), go south on Shugart Rd exactly 4 miles. Turn to the Southeast on a caliche road and travel southeast for another 4 miles until the road ends. Turn onto the road to the northeast and travel approximatly 1.25 miles to the location.

Release Data:	
Date Released:	8/12/2012
Type Release:	Produced Water
Source of Contamination:	Leak in a poly flowline at a failed butt weld.
Fluid Released:	20 bbls
Fluids Recovered:	15 bbls

Official Communication:			
Name:	Chad McNeely		Aaron Hale
Company:	SM Energy Company		Tetra Tech
Address:	3300 N A St # 7-200		1910 N. Big Spring
P.O. Box			
City:	Midland, Texas		Midland, Texas
Phone number:	(432) 688-3124		(432) 682-4559
Fax:			
Email:	cmcneely@sm-energy.com		aaron.hale@tetratech.com

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

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

TETRA TECH

February 25, 2013

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

Re: Closure Report for SM Energy Company
ESDU #6 Tank Battery
Polyethylene Saltwater Flowline Release,
Unit A, 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 Energy) to assess a 3 inch polyethylene (poly) flowline release at the ESDU #6 located in Unit A, Section 24, Township 18 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.73581°, W 103.81964°. 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 August 12, 2012. Approximately 20 barrels of produced water were released from a butt weld in a 3 inch poly flowline. Approximately 15 barrels of produced water were recovered. The Northeast portion of the well pad was scraped and the impacted soil was hauled to Controlled Recovery Inc. (CRI) for disposal. The poly flowline weld was cut out, re-dressed and welded back together. The final C-141 is enclosed in Appendix A.

Hydrology

The New Mexico Office of the State Engineers (OSE) Website listed two water wells within 2 miles of the site. The closest well (identified by the OSE as CP 00896) did not have any information available. The second closest well (identified by the OSE as CP 00672) had a total depth of 540 feet and a depth to water of 460 feet. The Geology and Ground-Water Resources of Eddy County, New Mexico (Report 3) showed the closest well to be in Section 34 of Township 17 South and Range 31 East. This well is over 4 miles from the site, is reported to be over 271 in depth with a pumping rate of approximately 3.5 gallons per minute. Depth to water for this well is not available. The New Mexico Oil Conservation Division (OCD) regional groundwater gradient map for Eddy County shows the depth to groundwater in this section at approximately 280 feet.

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

According to the Geology and Ground-Water Resources of Eddy County, New Mexico (Report 3), the Santa Rosa Sandstone (Dockum Group) is present in a belt 10 to 20 miles wide along the east border of Eddy County. The Santa Rosa Sandstone consists of fine to coarse grain sands with minor shale layers generally red in coloration.

On September 5, 2012, Tetra Tech advanced 6 Auger Holes (AH-1, AH-2, AH-3, AH-4, AH-5 and AH-6) to assess the current chloride concentrations at varying depths at the Site. During the soil assessment, groundwater was not encountered.

Regulatory

A risk-based evaluation was performed for the Site in accordance with the OCD 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 Results

On September 5, 2012, Tetra Tech personnel collected soils samples from up to 5.5 feet bgs utilizing a hand auger at six locations within the spill area. Tetra Tech advanced 6 Auger Holes (AH-1, AH-2, AH-3, AH-4, AH-5 and AH-6) to assess the current chloride concentrations at varying depths at the Site. During the soil assessment, groundwater was not encountered. The spill area was estimated to cover approximately 4,500 square feet. Soil samples were submitted for laboratory analysis of TPH by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0.

Referring to Table 1, all of the samples analyzed were below the RRAL for both BTEX and TPH. Analytical results indicate the maximum extent of chloride impact greater than 1,000 mg/kg extending to 1 foot at AH-1, AH-2 and AH-5 (within the well pad) and 4.5 feet at AH-6 (pasture area). All sample locations had chloride concentrations that decreased with depth. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix B. The results of the sampling are summarized in Table 1. The borehole locations are shown on Figure 3.

Remediation and Conclusion

On December 13, 2012, Tetra Tech personnel supervised the excavation of the spill area. The spill foot print and final excavation depths of the soil remediation were met as stated in the approved work plan. In order to remove the elevated chloride concentrations, the proposed excavation depths ranged from 1.0' to 5.0' below surface. Approximately 220 cubic yards were removed and disposed of at Lea Land disposal facility. The excavated area was then backfilled with clean material to grade.

TETRA TECH

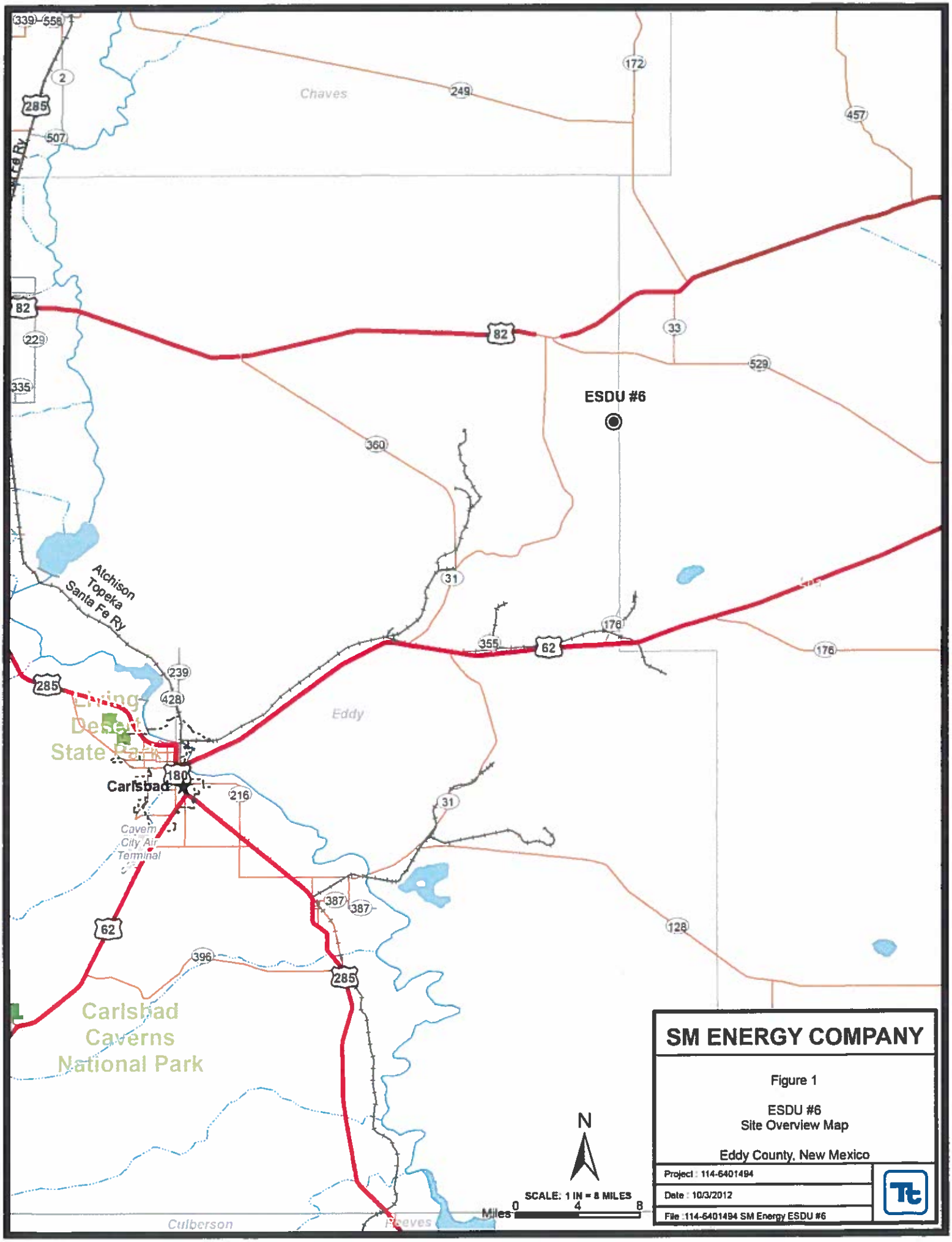
Based on the remediation activities performed at this location, SM Energy requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH, INC.

Tom Elliott
Staff Scientist

cc: SM Energy Company – File Copy
BLM – Jim Amos

FIGURES



SM ENERGY COMPANY

Figure 1

ESDU #6
Site Overview Map

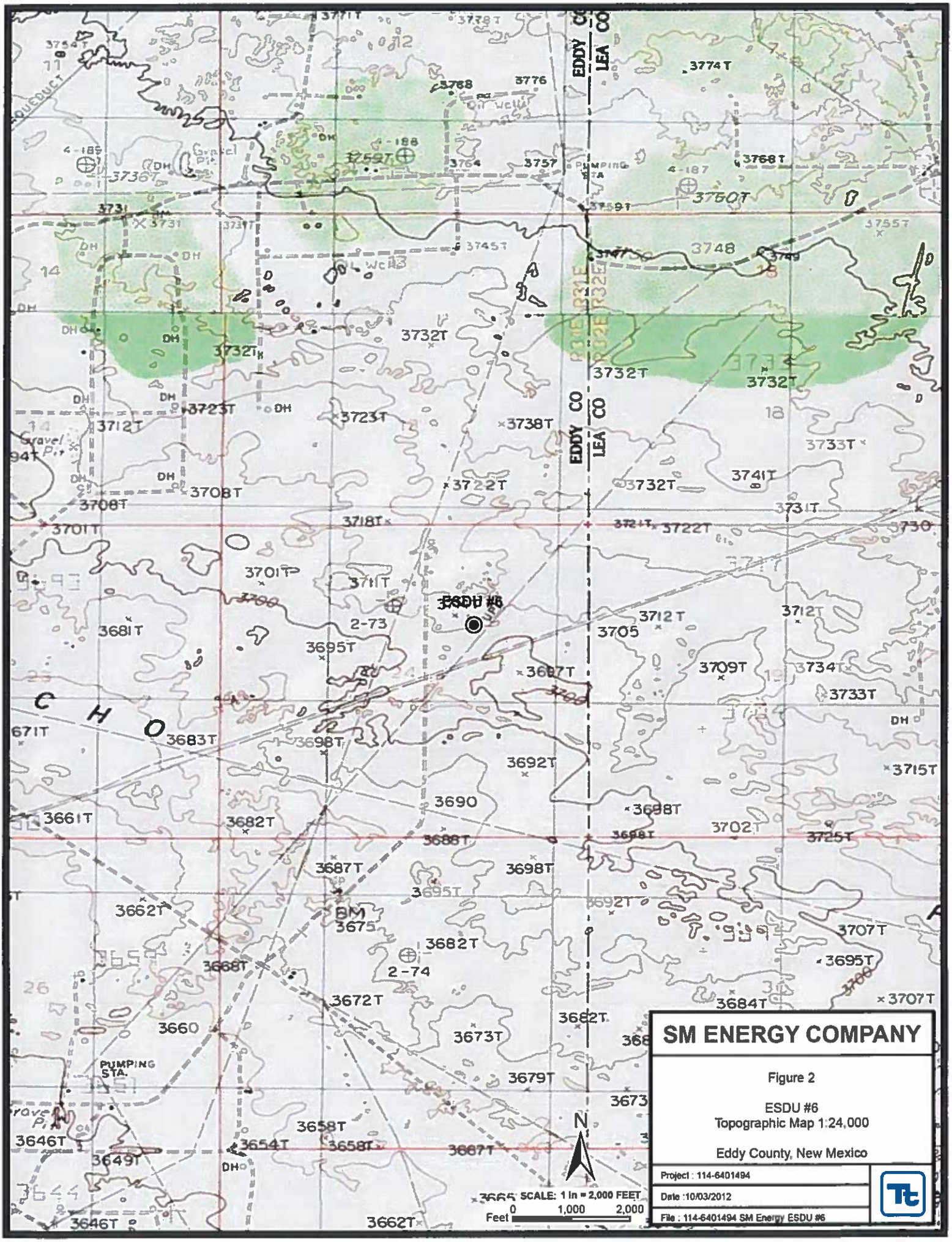
Eddy County, New Mexico

Project : 114-6401494

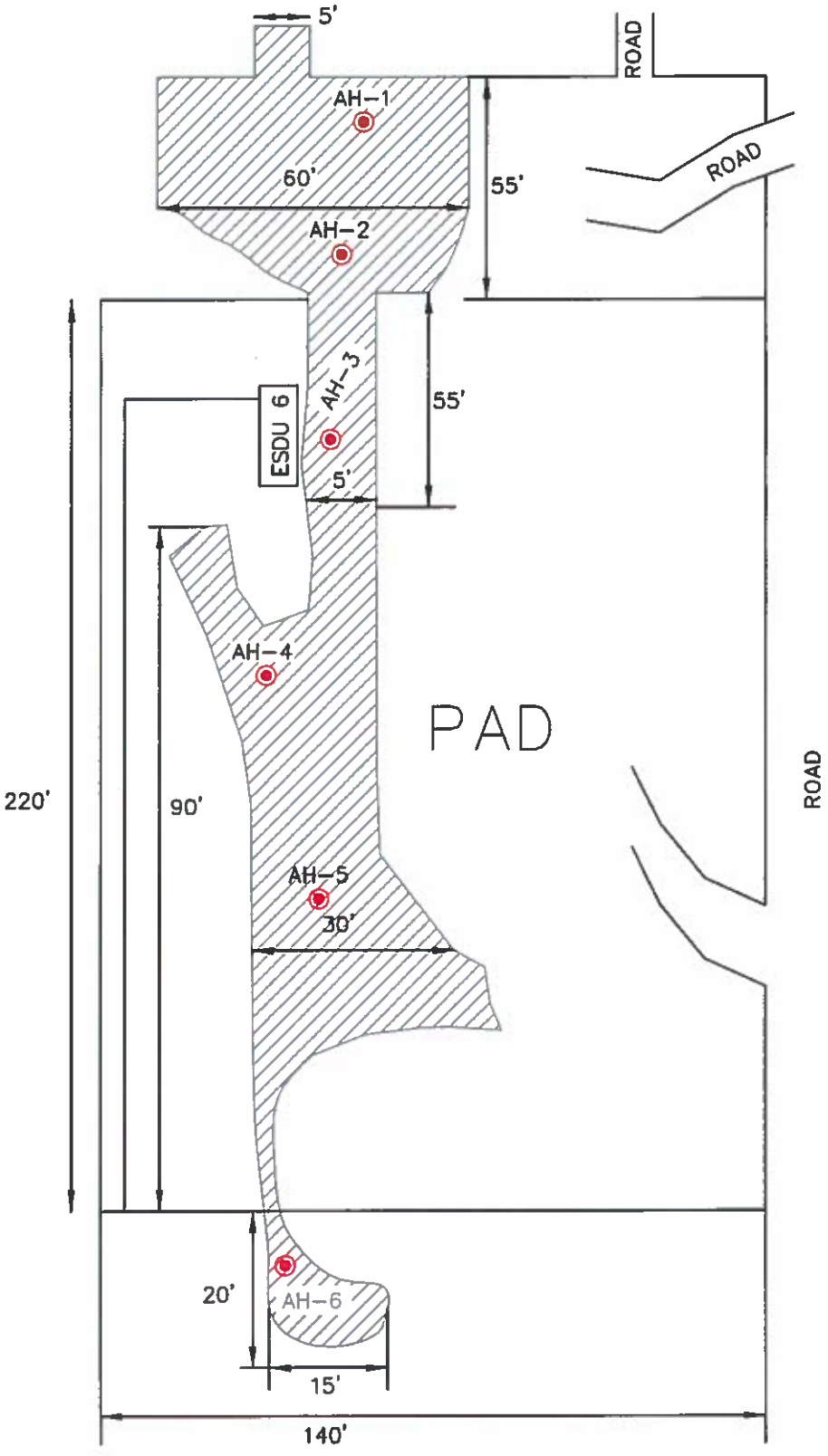
Date : 10/3/2012

File :114-6401494 SM Energy ESDU #6

Drawn By: Jason Scallon



Drawn by: Jason Scallan



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- PROPOSED EXCAVATION AREAS

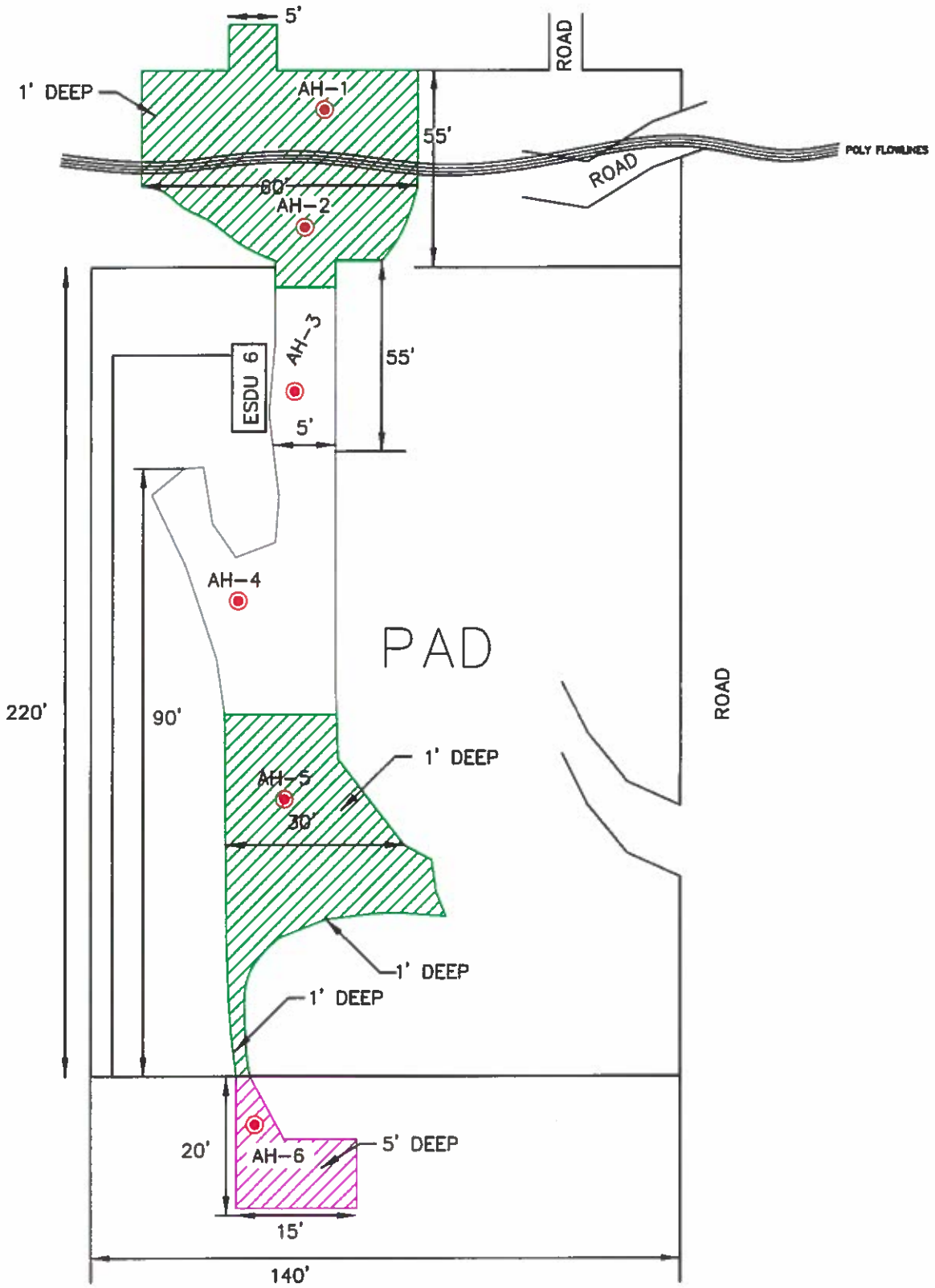
N

NOT TO SCALE

SM ENERGY COMPANY

FIGURE 3
ESDU #6
SPILL ASSISMENT MAP
EDDY COUNTY, NEW MEXICO

PROJECT: 114-0401494
DATE: OCTOBER 04, 2012



EXPLANATION

- AUGER HOLE SAMPLE LOCATIONS
- EXCAVATED AREAS

N

NOT TO SCALE

SM ENERGY COMPANY

FIGURE 4
ESDU #6
EXCAVATION AREAS & DEPTHS MAP
EDDY COUNTY, NEW MEXICO

PROJECT: 114-0491404
DATE: OCTOBER 04, 2012

TABLES

Table 1
SM Energy
ESDU #6 Flowline
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	9/5/2012	0-1		X	869	285	1,154	<1.00	<1.00	<1.00	<1.00	<1.00	6,930
	"	1-1.5	X		-	-	-	-	-	-	-	-	107
	"	2-2.5	X		-	-	-	-	-	-	-	-	224
AH-2	9/5/2012	0-1		X	477	534	1,011	<1.00	<1.00	<1.00	<1.00	<1.00	10,400
	"	1-1.5	X		-	-	-	-	-	-	-	-	151
	"	2-2.5	X		-	-	-	-	-	-	-	-	176
	"	3-3.5	X		-	-	-	-	-	-	-	-	33.9
	"	4-4.5	X		-	-	-	-	-	-	-	-	48.5
AH-3	9/5/2012	0-1	X		6.51	<50.0	6.51	<0.0200	0.234	0.0394	0.192	0.465	848
	"	1-1.5	X		-	-	-	-	-	-	-	-	48.5
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
AH-4	9/5/2012	0-1	X		5.10	<50.0	5.10	<0.0200	0.207	0.0333	0.165	0.405	402
	"	1-1.5	X		-	-	-	-	-	-	-	-	102
	"	2-2.5	X		-	-	-	-	-	-	-	-	102
	"	3-3.5	X		-	-	-	-	-	-	-	-	189

Table 1
SM Energy
ESDU #6 Flowline
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-5	9/5/2012	0-1		X	5.56	<50.0	5.56	<0.0200	0.219	0.0388	0.193	0.451	7,290
	"	1-1.5	X		-	-	-	-	-	-	-	-	755
	"	2-2.5	X		-	-	-	-	-	-	-	-	312
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
AH-6	9/5/2012	0-1		X	5.31	<50.0	5.31	0.0201	0.218	0.0380	0.204	0.480	1,230
	"	1-1.5		X	-	-	-	-	-	-	-	-	1,110
	"	2-2.5		X	-	-	-	-	-	-	-	-	10,800
	"	3-3.5		X	-	-	-	-	-	-	-	-	5,170
	"	4-4.5		X	-	-	-	-	-	-	-	-	5,570
	"	5-5.5	X		-	-	-	-	-	-	-	-	360

Excavated Depths

(-) Not Analyzed

PHOTOGRAPHS

SM Energy Company
EDSU #6
Eddy County, New Mexico

TETRA TECH

View North – Excavation of AH-1.

View Northeast – Backfill of AH-1 and AH-2 excavations.

SM Energy Company
EDSU #6
Eddy County, New Mexico

TETRA TECH

View West – Excavation of AH-5.

View North – Backfill of AH-5 excavation.

SM Energy Company
EDSU #6
Eddy County, New Mexico

TETRA TECH

View North– Excavation of AH-6.

View North – Backfill of AH-6.

APPENDIX A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	SM Energy Company	Contact	Vickie Martinez
Address	3300 N "A" ST BLDG 7-200 Midland, TX 79705	Telephone No.	(432) 688-1709
Facility Name	EDSU #6 30-015-25385	Facility Type	Well

Surface Owner: BLM	Mineral Owner: BLM	Lease No. (API#) NMNM101361X

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
A	24	18S	31E	890	North	990	East	Eddy

Latitude N 32.73581° **Longitude** W 103.81964°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 20 bbls	Volume Recovered 15 bbls
Source of Release: 3'' Polyethylene Flowline	Date and Hour of Occurrence 8/12/2012 6:00 A.M.	Date and Hour of Discovery 8/12/2012 6:00 A.M.
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Jim Amos - BLM	
By Whom? Bill Hearne	Date and Hour 8/12/2012 2:53 P.M.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

3'' Polyethylene flowline leak in butt weld. Cut off bad section of line, re-dressed ends and welded pipe back together.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted 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: Aaron Hale	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Aaron.Hale@TetraTech.com	Conditions of Approval:	Attached ☐
Date: Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

APPENDIX B

Summary Report

Aaron Hale
Tetra Tech
1910 N. Big Spring Street
Midland, TX 79705

Report Date: September 25, 2012

Work Order: 12091216

Project Location: NM
Project Name: SME/ESDU #6 Flowline
Project Number: 114-6401494

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
309050	AH-1 0-1'	soil	2012-09-05	00:00	2012-09-11
309051	AH-1 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309052	AH-1 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309053	AH-2 0-1'	soil	2012-09-05	00:00	2012-09-11
309054	AH-2 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309055	AH-2 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309056	AH-2 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309057	AH-2 4-4.5'	soil	2012-09-05	00:00	2012-09-11
309058	AH-3 0-1'	soil	2012-09-05	00:00	2012-09-11
309059	AH-3 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309060	AH-3 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309061	AH-3 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309062	AH-4 0-1'	soil	2012-09-05	00:00	2012-09-11
309063	AH-4 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309064	AH-4 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309065	AH-4 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309066	AH-5 0-1'	soil	2012-09-05	00:00	2012-09-11
309067	AH-5 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309068	AH-5 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309069	AH-5 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309070	AH-6 0-1'	soil	2012-09-05	00:00	2012-09-11
309071	AH-6 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309072	AH-6 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309073	AH-6 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309074	AH-6 4-4.5'	soil	2012-09-05	00:00	2012-09-11
309075	AH-6 5-5.5'	soil	2012-09-05	00:00	2012-09-11

Sample - Field Code	BTEX Benzene (mg/Kg)	BTEX Toluene (mg/Kg)	BTEX Ethylbenzene (mg/Kg)	BTEX Xylene (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
309050 - AH-1 0-1'	<1.00	<1.00	<1.00	<1.00	285	869 Qs
309053 - AH-2 0-1'	<1.00	<1.00	<1.00	<1.00	534	477 Qs
309058 - AH-3 0-1'	<0.0200	0.234	0.0394	0.192	<50.0	6.51 Qs
309062 - AH-4 0-1'	<0.0200	0.207	0.0333	0.165	<50.0	5.10 Qs
309066 - AH-5 0-1'	<0.0200	0.219	0.0388	0.193	<50.0	5.56 Qs
309070 - AH-6 0-1'	0.0201	0.218	0.0380	0.204	<50.0	5.31 Qs

Sample: 309050 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		6930	mg/Kg	4

Sample: 309051 - AH-1 1-1.5'

Param	Flag	Result	Units	RL
Chloride		107	mg/Kg	4

Sample: 309052 - AH-1 2-2.5'

Param	Flag	Result	Units	RL
Chloride		224	mg/Kg	4

Sample: 309053 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		10400	mg/Kg	4

Sample: 309054 - AH-2 1-1.5'

Param	Flag	Result	Units	RL
Chloride		151	mg/Kg	4

Sample: 309055 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		176	mg/Kg	4

Sample: 309056 - AH-2 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**33.9**	mg/Kg	4

Sample: 309057 - AH-2 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**48.5**	mg/Kg	4

Sample: 309058 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**848**	mg/Kg	4

Sample: 309059 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**48.5**	mg/Kg	4

Sample: 309060 - AH-3 2-2.5'

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

Sample: 309061 - AH-3 3-3.5'

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

Sample: 309062 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**402**	mg/Kg	4

Sample: 309063 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**102**	mg/Kg	4

Sample: 309064 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**102**	mg/Kg	4

Sample: 309065 - AH-4 3-3.5'

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

Sample: 309066 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**7290**	mg/Kg	4

Sample: 309067 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**755**	mg/Kg	4

Sample: 309068 - AH-5 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**312**	mg/Kg	4

Sample: 309069 - AH-5 3-3.5'

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

Sample: 309070 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**1230**	mg/Kg	4

Sample: 309071 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1110**	mg/Kg	4

Sample: 309072 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**10800**	mg/Kg	4

Sample: 309073 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**5170**	mg/Kg	4

Sample: 309074 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**5570**	mg/Kg	4

Sample: 309075 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**360**	mg/Kg	4

TRACEANALYSIS, INC.

6701 Aberdeen Avenue, Suite 9 Lubbock, Texas 79424 800-378-1296 806-794-1296 FAX 806-794-1298
200 East Sunset Road, Suite E El Paso, Texas 79922 915-585-3443 FAX 915-585-4944
5002 Basin Street, Suite A1 Midland, Texas 79703 432-689-6301 FAX 432-689-6313
(BioAquatic) 2501 Mayes Rd., Suite 100 Carrollton, Texas 75006 972-242-7750
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
(Corrected Report)

Aaron Hale
Tetra Tech
1910 N. Big Spring Street
Midland, TX, 79705

Report Date: September 25, 2012

Work Order: 12091216

Project Location: NM
Project Name: SME/ESDU #6 Flowline
Project Number: 114-6401494

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

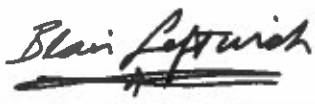
Sample	Description	Matrix	Date Taken	Time Taken	Date Received
309050	AH-1 0-1'	soil	2012-09-05	00:00	2012-09-11
309051	AH-1 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309052	AH-1 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309053	AH-2 0-1'	soil	2012-09-05	00:00	2012-09-11
309054	AH-2 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309055	AH-2 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309056	AH-2 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309057	AH-2 4-4.5'	soil	2012-09-05	00:00	2012-09-11
309058	AH-3 0-1'	soil	2012-09-05	00:00	2012-09-11
309059	AH-3 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309060	AH-3 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309061	AH-3 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309062	AH-4 0-1'	soil	2012-09-05	00:00	2012-09-11
309063	AH-4 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309064	AH-4 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309065	AH-4 3-3.5'	soil	2012-09-05	00:00	2012-09-11

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
309066	AH-5 0-1'	soil	2012-09-05	00:00	2012-09-11
309067	AH-5 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309068	AH-5 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309069	AH-5 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309070	AH-6 0-1'	soil	2012-09-05	00:00	2012-09-11
309071	AH-6 1-1.5'	soil	2012-09-05	00:00	2012-09-11
309072	AH-6 2-2.5'	soil	2012-09-05	00:00	2012-09-11
309073	AH-6 3-3.5'	soil	2012-09-05	00:00	2012-09-11
309074	AH-6 4-4.5'	soil	2012-09-05	00:00	2012-09-11
309075	AH-6 5-5.5'	soil	2012-09-05	00:00	2012-09-11

Report Corrections (Work Order 12091216)

- Corrected BTEX QC batch date. 9-25-12

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



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

Report Contents

Case Narrative

Samples for project SME/ESDU #6 Flowline were received by TraceAnalysis, Inc. on 2012-09-11 and assigned to work order 12091216. Samples for work order 12091216 were received intact at a temperature of 2.1 C.

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

Test	Method	Prep Batch	Prep Date	QC Batch	Analysis Date
BTEX	S 8021B	80514	2012-09-18 at 09:00	95020	2012-09-18 at 15:38
Chloride (Titration)	SM 4500-Cl B	80454	2012-09-18 at 13:01	95025	2012-09-19 at 15:48
Chloride (Titration)	SM 4500-Cl B	80454	2012-09-18 at 13:01	95026	2012-09-19 at 15:49
Chloride (Titration)	SM 4500-Cl B	80454	2012-09-18 at 13:01	95027	2012-09-19 at 15:50
TPH DRO - NEW	S 8015 D	80415	2012-09-17 at 08:00	94898	2012-09-18 at 08:30
TPH GRO	S 8015 D	80524	2012-09-18 at 09:00	95031	2012-09-18 at 09:00

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 12091216 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: 309050 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<1.00	mg/Kg	50	0.0200
Toluene	U	1	<1.00	mg/Kg	50	0.0200
Ethylbenzene	U	1	<1.00	mg/Kg	50	0.0200
Xylene	U	1	<1.00	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.102	mg/Kg	50	0.100	102	70 - 130
4-Bromofluorobenzene (4-BFB)			0.105	mg/Kg	50	0.100	105	70 - 130

Sample: 309050 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**6930**	mg/Kg	10	4.00

Sample: 309050 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		1	**285**	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: 309050 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95031	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80524	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q*	1	**869**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.100	mg/Kg	50	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0800	mg/Kg	50	0.100	80	70 - 130

Sample: 309051 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

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

Sample: 309052 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

continued ...

sample 309052 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**224**	mg/Kg	5	4.00

Sample: 309053 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<1.00	mg/Kg	50	0.0200
Toluene	U	1	<1.00	mg/Kg	50	0.0200
Ethylbenzene	U	1	<1.00	mg/Kg	50	0.0200
Xylene	U	1	<1.00	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.100	mg/Kg	50	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0945	mg/Kg	50	0.100	94	70 - 130

Sample: 309053 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**10400**	mg/Kg	10	4.00

Sample: 309053 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
DRO		1		**534**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	160	mg/Kg	1	100	160	70 - 130

Sample: 309053 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95031	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80524	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
GRO	Qs	1		**477**	mg/Kg	50	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0972	mg/Kg	50	0.100	97	70 - 130
4-Bromofluorobenzene (4-BFB)			0.0980	mg/Kg	50	0.100	98	70 - 130

Sample: 309054 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride				**151**	mg/Kg	5	4.00

Sample: 309055 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**176**	mg/Kg	5	4.00

Sample: 309056 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**33.9**	mg/Kg	5	4.00

Sample: 309057 - AH-2 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**48.5**	mg/Kg	5	4.00

Sample: 309058 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.234**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.0394**	mg/Kg	1	0.0200
Xylene		1	**0.192**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.102	mg/Kg	1	0.100	102	70 - 130
4-Bromofluorobenzene (4-BFB)			0.107	mg/Kg	1	0.100	107	70 - 130

Sample: 309058 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**848**	mg/Kg	5	4.00

Sample: 309058 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	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			109	mg/Kg	1	100	109	70 - 130

Sample: 309058 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95031	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80524	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q-	1	**6.51**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.100	mg/Kg	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	mg/Kg	1	0.100	100	70 - 130

Sample: 309059 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**48.5**	mg/Kg	5	4.00

Sample: 309060 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

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

Sample: 309061 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

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

Sample: 309062 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.207**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.0333**	mg/Kg	1	0.0200
Xylene		1	**0.165**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.104	mg/Kg	1	0.100	104	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	mg/Kg	1	0.100	108	70 - 130

Sample: 309062 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**402**	mg/Kg	5	4.00

Sample: 309062 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	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			113	mg/Kg	1	100	113	70 - 130

Sample: 309062 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95031	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80524	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Q-	1	**5.10**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0988	mg/Kg	1	0.100	99	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	mg/Kg	1	0.100	100	70 - 130

Sample: 309063 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**102**	mg/Kg	5	4.00

Sample: 309064 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**102**	mg/Kg	5	4.00

Sample: 309065 - AH-4 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95026	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

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

Sample: 309066 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	<0.0200	mg/Kg	1	0.0200
Toluene		1	**0.219**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.0388**	mg/Kg	1	0.0200
Xylene		1	**0.193**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0985	mg/Kg	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.103	mg/Kg	1	0.100	103	70 - 130

Sample: 309066 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**7290**	mg/Kg	10	4.00

Sample: 309066 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	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			112	mg/Kg	1	100	112	70 - 130

Sample: 309066 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95031	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80524	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	**5.56**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.100	mg/Kg	1	0.100	100	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	mg/Kg	1	0.100	100	70 - 130

Sample: 309067 - AH-5 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**755**	mg/Kg	5	4.00

Sample: 309068 - AH-5 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**312**	mg/Kg	5	4.00

Sample: 309069 - AH-5 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

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

Sample: 309070 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**0.0201**	mg/Kg	1	0.0200
Toluene		1	**0.218**	mg/Kg	1	0.0200
Ethylbenzene		1	**0.0380**	mg/Kg	1	0.0200

continued ...

sample 309070 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene		1	**0.204**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0982	mg/Kg	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.103	mg/Kg	1	0.100	103	70 - 130

Sample: 309070 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1230**	mg/Kg	5	4.00

Sample: 309070 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	Sample Preparation:	2012-09-17	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			114	mg/Kg	1	100	114	70 - 130

Sample: 309070 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	95031	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80524	Sample Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	Qs	1	**5.31**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0994	mg/Kg	1	0.100	99	70 - 130
4-Bromofluorobenzene (4-BFB)			0.102	mg/Kg	1	0.100	102	70 - 130

Sample: 309071 - AH-6 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1110**	mg/Kg	5	4.00

Sample: 309072 - AH-6 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**10800**	mg/Kg	10	4.00

Sample: 309073 - AH-6 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5170**	mg/Kg	10	4.00

Sample: 309074 - AH-6 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5570**	mg/Kg	10	4.00

Sample: 309075 - AH-6 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	95027	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	Sample Preparation:	2012-09-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**360**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 94898

QC Batch:	94898	Date Analyzed:	2012-09-18	Analyzed By:	CW
Prep Batch:	80415	QC Preparation:	2012-09-17	Prepared By:	CW

Parameter	Flag	Cert	MDL Result	Units	RL
DRO		1	<9.09	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: 95020

QC Batch:	95020	Date Analyzed:	2012-09-18	Analyzed By:	YG
Prep Batch:	80514	QC Preparation:	2012-09-18	Prepared By:	YG

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00470	mg/Kg	0.02
Toluene		1	<0.00980	mg/Kg	0.02
Ethylbenzene		1	<0.00500	mg/Kg	0.02
Xylene		1	<0.0170	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.104	mg/Kg	1	0.100	104	70 - 130
4-Bromofluorobenzene (4-BFB)			0.108	mg/Kg	1	0.100	108	70 - 130

Method Blank (1) QC Batch: 95025

QC Batch:	95025	Date Analyzed:	2012-09-19	Analyzed By:	AR
Prep Batch:	80454	QC Preparation:	2012-09-18	Prepared By:	AR

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

Method Blank (1) QC Batch: 95026

QC Batch: 95026 Date Analyzed: 2012-09-19 Analyzed By: AR
Prep Batch: 80454 QC Preparation: 2012-09-18 Prepared By: AR

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

Method Blank (1) QC Batch: 95027

QC Batch: 95027 Date Analyzed: 2012-09-19 Analyzed By: AR
Prep Batch: 80454 QC Preparation: 2012-09-18 Prepared By: AR

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

Method Blank (1) QC Batch: 95031

QC Batch: 95031 Date Analyzed: 2012-09-18 Analyzed By: YG
Prep Batch: 80524 QC Preparation: 2012-09-18 Prepared By: YG

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<1.22	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			0.0980	mg/Kg	1	0.100	98	70 - 130
4-Bromofluorobenzene (4-BFB)			0.100	mg/Kg	1	0.100	100	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW
Prep Batch: 80415 | QC Preparation: 2012-09-17 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	293	mg/Kg	1	250	<9.09	117	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	289	mg/Kg	1	250	<9.09	116	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	110	103	mg/Kg	1	100	110	103	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95020 | Date Analyzed: 2012-09-18 | Analyzed By: YG
Prep Batch: 80514 | QC Preparation: 2012-09-18 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.0990	mg/Kg	1	0.100	<0.00470	99	70 - 130
Toluene		1	0.102	mg/Kg	1	0.100	<0.00980	102	70 - 130
Ethylbenzene		1	0.0974	mg/Kg	1	0.100	<0.00500	97	70 - 130
Xylene		1	0.297	mg/Kg	1	0.300	<0.0170	99	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	0.0992	mg/Kg	1	0.100	<0.00470	99	70 - 130	0	20
Toluene		1	0.102	mg/Kg	1	0.100	<0.00980	102	70 - 130	0	20
Ethylbenzene		1	0.0980	mg/Kg	1	0.100	<0.00500	98	70 - 130	1	20
Xylene		1	0.298	mg/Kg	1	0.300	<0.0170	99	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)	0.102	0.102	mg/Kg	1	0.100	102	102	70 - 130
4-Bromofluorobenzene (4-BFB)	0.112	0.111	mg/Kg	1	0.100	112	111	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 95025 | Date Analyzed: 2012-09-19 | Analyzed By: AR
Prep Batch: 80454 | QC Preparation: 2012-09-18 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2600	mg/Kg	1	2500	<3.85	104	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			2730	mg/Kg	1	2500	<3.85	109	85 - 115	5	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: 95026 | Date Analyzed: 2012-09-19 | Analyzed By: AR
Prep Batch: 80454 | QC Preparation: 2012-09-18 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2590	mg/Kg	1	2500	<3.85	104	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			2660	mg/Kg	1	2500	<3.85	106	85 - 115	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: 95027 | Date Analyzed: 2012-09-19 | Analyzed By: AR
Prep Batch: 80454 | QC Preparation: 2012-09-18 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2510	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			2610	mg/Kg	1	2500	<3.85	104	85 - 115	4	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: 95031 | Date Analyzed: 2012-09-18 | Analyzed By: YG
Prep Batch: 80524 | QC Preparation: 2012-09-18 | Prepared By: YG

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	21.2	mg/Kg	1	20.0	<1.22	106	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	21.1	mg/Kg	1	20.0	<1.22	106	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)	0.0998	0.0990	mg/Kg	1	0.100	100	99	70 - 130
4-Bromofluorobenzene (4-BFB)	0.107	0.100	mg/Kg	1	0.100	107	100	70 - 130

Matrix Spike (MS-1) Spiked Sample: 309041

QC Batch: 94898 | Date Analyzed: 2012-09-18 | Analyzed By: CW
Prep Batch: 80415 | QC Preparation: 2012-09-17 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		1	263	mg/Kg	1	250	<9.09	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	268	mg/Kg	1	250	<9.09	107	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
n-Tricosane	114	120	mg/Kg	1	100	114	120	70 - 130

Matrix Spike (MS-1) Spiked Sample: 308963

QC Batch: 95020 | Date Analyzed: 2012-09-18 | Analyzed By: YG
Prep Batch: 80514 | QC Preparation: 2012-09-18 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	0.107	mg/Kg	1	0.100	<0.00470	107	70 - 130
Toluene		1	0.118	mg/Kg	1	0.100	<0.00980	118	70 - 130
Ethylbenzene		1	0.108	mg/Kg	1	0.100	<0.00500	108	70 - 130
Xylene		1	0.330	mg/Kg	1	0.300	<0.0170	110	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	0.107	mg/Kg	1	0.100	<0.00470	107	70 - 130	0	20
Toluene		1	0.118	mg/Kg	1	0.100	<0.00980	118	70 - 130	0	20
Ethylbenzene		1	0.108	mg/Kg	1	0.100	<0.00500	108	70 - 130	0	20
Xylene		1	0.331	mg/Kg	1	0.300	<0.0170	110	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
Trifluorotoluene (TFT)	0.105	0.106	mg/Kg	1	0.1	105	106	70 - 130
4-Bromofluorobenzene (4-BFB)	0.113	0.115	mg/Kg	1	0.1	113	115	70 - 130

Matrix Spike (MS-1) Spiked Sample: 309055

QC Batch: 95025 | Date Analyzed: 2012-09-19 | Analyzed By: AR
Prep Batch: 80454 | QC Preparation: 2012-09-18 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2790	mg/Kg	5	2500	176	104	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			2870	mg/Kg	5	2500	176	108	78.9 - 121	3	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: 309065

QC Batch: 95026 | Date Analyzed: 2012-09-19 | Analyzed By: AR
Prep Batch: 80454 | QC Preparation: 2012-09-18 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2660	mg/Kg	5	2500	189	99	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			2770	mg/Kg	5	2500	189	103	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: 309075

QC Batch: 95027 | Date Analyzed: 2012-09-19 | Analyzed By: AR
Prep Batch: 80454 | QC Preparation: 2012-09-18 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2880	mg/Kg	5	2500	360	101	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			2970	mg/Kg	5	2500	360	104	78.9 - 121	3	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: 308963

QC Batch: 95031 | Date Analyzed: 2012-09-18 | Analyzed By: YG
Prep Batch: 80524 | QC Preparation: 2012-09-18 | Prepared By: YG

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO	Q*	Q*	1	26.2	mg/Kg	1	20.0	<1.22	131	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	24.4	mg/Kg	1	20.0	<1.22	122	70 - 130	7	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	0.103	0.100	mg/Kg	1	0.1	103	100	70 - 130
4-Bromofluorobenzene (4-BFB)	0.113	0.110	mg/Kg	1	0.1	113	110	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 94898 Date Analyzed: 2012-09-18 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	278	111	80 - 120	2012-09-18

Standard (CCV-2)

QC Batch: 94898 Date Analyzed: 2012-09-18 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	288	115	80 - 120	2012-09-18

Standard (CCV-3)

QC Batch: 94898 Date Analyzed: 2012-09-18 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	256	102	80 - 120	2012-09-18

Standard (CCV-1)

QC Batch: 95020 Date Analyzed: 2012-09-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.104	104	80 - 120	2012-09-18
Toluene		1	mg/kg	0.100	0.107	107	80 - 120	2012-09-18

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standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Ethylbenzene		1	mg/kg	0.100	0.0938	94	80 - 120	2012-09-18
Xylene		1	mg/kg	0.300	0.288	96	80 - 120	2012-09-18

Standard (CCV-2)

QC Batch: 95020 Date Analyzed: 2012-09-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-09-18
Toluene		1	mg/kg	0.100	0.110	110	80 - 120	2012-09-18
Ethylbenzene		1	mg/kg	0.100	0.0940	94	80 - 120	2012-09-18
Xylene		1	mg/kg	0.300	0.287	96	80 - 120	2012-09-18

Standard (CCV-3)

QC Batch: 95020 Date Analyzed: 2012-09-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.103	103	80 - 120	2012-09-18
Toluene		1	mg/kg	0.100	0.110	110	80 - 120	2012-09-18
Ethylbenzene		1	mg/kg	0.100	0.0938	94	80 - 120	2012-09-18
Xylene		1	mg/kg	0.300	0.287	96	80 - 120	2012-09-18

Standard (CCV-1)

QC Batch: 95025 Date Analyzed: 2012-09-19 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	99.7	100	85 - 115	2012-09-19

Standard (CCV-2)

QC Batch: 95025 Date Analyzed: 2012-09-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-09-19

Standard (CCV-1)

QC Batch: 95026 Date Analyzed: 2012-09-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-09-19

Standard (CCV-2)

QC Batch: 95026 Date Analyzed: 2012-09-19 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	99.5	100	85 - 115	2012-09-19

Standard (CCV-1)

QC Batch: 95027 Date Analyzed: 2012-09-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-09-19

Standard (CCV-2)

QC Batch: 95027 Date Analyzed: 2012-09-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-09-19

Standard (CCV-1)

QC Batch: 95031 Date Analyzed: 2012-09-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.986	99	80 - 120	2012-09-18

Standard (CCV-2)

QC Batch: 95031 Date Analyzed: 2012-09-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.05	105	80 - 120	2012-09-18

Standard (CCV-3)

QC Batch: 95031 Date Analyzed: 2012-09-18 Analyzed By: YG

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	1.05	105	80 - 120	2012-09-18

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.
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

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

12091216

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: SM Energy
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-6401494
PROJECT NAME: ESDU #6 Flowline

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
309050	9-5-12		S		1	AH1 0-1	1				X		X	X											X				
051			S		1	AH1 1-1.5	1				X																		
052			S		1	AH1 2-2.5	1				X																		
053			S		1	AH2 0-1	1				X		X	X															
054			S		1	AH2 1-1.5	1				X																		
055			S		1	AH2 2-2.5	1				X																		
056			S		1	AH2 3-3.5	1				X																		
057			S		1	AH2 4-4.5	1				X																		
058			S		1	AH3 0-1	1				X		X	X															
059			S		1	AH3 1-1.5	1				X																		

RELINQUISHED BY: (Signature) [signature] Date: 9-11-12 Time: 1645
RECEIVED BY: (Signature) [signature] Hernandez Date: 9/11/12 Time: 16:45

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

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

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

SAMPLE CONDITION WHEN RECEIVED: 2.1
REMARKS:

SAMPLED BY: (Print & Initial) Marcus Kizewski / Ryan Reisdorf Date:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:
TETRA TECH CONTACT PERSON: Aaron Hale
Results by:
RUSH Charges Authorized: Yes No

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

1209216

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: SM Energy
SITE MANAGER: Aaron Hale
PROJECT NO.: IM-640 1494
PROJECT NAME: ESDU #6 Flow line

ANALYSIS REQUEST (Circle or Specify Method No.)

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. 608/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
060	9-5-12		S		X	AH 3 2-2.5	1				X													X				
061			S		X	AH3 3-3.5	1				X																	
062			S		X	AH4 0-1	1				X		X	X														
063			S		X	AH4 1-1.5	1				X																	
064			S		X	AH4 2-2.5	1				X																	
065			S		X	AH4 3-3.5	1				X																	
066			S		X	AH5 0-1	1				X		X	X														
067			S		X	AH5 1-1.5	1				X																	
068			S		X	AH5 2-2.5	1				X																	
069			S		X	AH5 3-3.5	1				X																	

RELINQUISHED BY: (Signature) Date: 9-11-12 Time: 1645
RECEIVED BY: (Signature) Date: 9/11/12 Time: 16:45
SAMPLED BY: (Print & Initial) Marcus Kinsey Date: Title:

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: Aaron Hale Results by:

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

SAMPLE CONDITION WHEN RECEIVED: 2.1

REMARKS: Run deeper samples if benzene TPH 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.

Rundeeper samples if TPH exceeds 5,000 mg/kg.

1209121[illegible]

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: SM Energy

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6402494

PROJECT NAME: ESOL #6 flowline

ANALYSIS REQUEST (Circle or Specify Method No.)

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
070	9/5		S		X	AH-6 0-1	1				X		X	X											X				
071	↓		↓		↓	AH-6 1-1.5	1				X														↓				
072	↓		↓		↓	AH-6 2-2.5	1				X														↓				
073	↓		↓		↓	AH-6 3-3.5	1				X														↓				
074	↓		↓		↓	AH-6 4-4.5	1				X														↓				
075	↓		↓		↓	AH-6 5-5.5	1				X														↓				

RELINQUISHED BY: (Signature) [signature] Date: 9-11-12 Time: 1645
RECEIVED BY: (Signature) [signature] Date: 9/11/12 Time: 16:45

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

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

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

SAMPLED BY: (Print & Initial) [illegible] Date: Time:

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

TETRA TECH CONTACT PERSON: Aaron Hale

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 2.1

REMARKS:

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