SITE INFORMATION

Report Type: Work Plan

General Site Information:						
Site:	**Parkway Delaware Unit #2 Tank Battery**					
Company:	**SM Energy Company**					
Section, Township and Range						
Lease Number:	**NMNM-88491X**					
County:	**Eddy County**					
GPS:	**32.62122° N**			**104.04383° W**		
Surface Owner:	Federal					
Mineral Owner:						
Directions:	Northeast of Carlsbad, from the intersection of 360 and CR235, head WNW on CR235 for 4.8 miles and turn south. Travel the lease road for 1.4 miles, and turn south through another well pad. Continue south for .3 miles to the tank battery.					

RECEIVED
OCT 30 2012
NMOCD ARTESIA

Release Data:	
Date Released:	7/21/2012
Type Release:	Oil
Source of Contamination:	Failure at the water dump line on the free water knock out
Fluid Released:	100 bbls
Fluids Recovered:	72 bbls

Official Communication:			
Name:	Vickie Martinez		Aaron Hale
Company:	SM Energy Company		Tetra Tech
Address:	3300 N A St. Suite 200		1910 N. Big Spring
P.O. Box			
City:	Midland Texas, 79705		Midland, Texas
Phone number:	(432) 688-1709		(432) 682-4559
Fax:	(432) 688-1701		
Email:	vmartinez@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

October 11, 2012

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

Re: Work Plan
SM Energy Company
Parkway Delaware Unit Tract 2 Tank Battery
Section 35, Township 19S, Range 29E
Eddy County, New Mexico

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by SM Energy Company (SM Energy) to assess a spill from Parkway Delaware Unit Tract 2 (PDU #2) tank battery, located in Section 35, Township 19S, Range 29E, Eddy County, New Mexico (Site). The spill site coordinates are N 32.62122°, W 104.04383°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico Oil Conservation Division (NMOCD) Form C-141 Initial Report, the leak was discovered on July 21, 2012. The spill from the oil tank released approximately one hundred (100) barrels (bbls) of oil. SM Energy was able to recover approximately seventy two (72) bbls of oil with a vacuum truck. To alleviate the problem, SM Energy repaired the restricted water dump line on the free water knock out, which caused the problem.

The spill impacted an area within the tank battery dike and migrated off location into the pasture area. The impacted area within the dike measured approximately 30' x 115'. The spill migrated out of the southwest corner of the dike and into the pasture, measuring a length of approximately 83', with a width of approximately 3' to 16'. The spill areas are shown on Figure 3. The initial Form C-141 is enclosed in Appendix A.

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

Groundwater

The New Mexico State Engineers Well Report listed one well in Section 35 with an average depth of 110' and wells in Sections 34 and 36 with reported depths of 60' and 115' , respectively. The well report is shown in Appendix B.

Previously, Tetra Tech personnel supervised the installation of a temporary well (TMW-1) in Section 35 to establish groundwater quality and depth in this section. During the installation, the well drilled dry. The well was drilled through fine grain sand with gypsum layers and red shale to a total depth of 140', to the top of a black and gray shale formation (blue shale). The well was measured two days later and showed a depth to groundwater of 121 TOC.

Regulatory

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

On August 9, 2012, Tetra Tech personnel inspected and sampled the spill area. A total of six (6) auger holes (AH-1 through AH-6) were installed using a stainless steel hand auger to assess the impacted areas. Auger holes (AH-1 through AH-3) were installed in the pasture area and also within the diked area of the tank battery (AH-4 through AH-6). Selected 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 sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

TETRA TECH

Analytical Results

Referring to Table 1, samples from AH-5 and AH-6 were below the RRAL for TPH and BTEX. Auger holes AH-1 and AH-3 showed TPH concentrations of 6,056 mg/kg (0-1') and 8,650 mg/kg (0-1'), respectively. The TPH concentrations declined below the RRAL at 1-1.5' below surface. In addition, AH-2 and AH-4 did show a total BTEX of 147 mg/kg (0-1') and 96.5 mg/kg (0-1'), respectively, but declined to 0.944 mg/kg and <0.02 mg/kg at 1-1.5' below surface.

Work Plan

SM Energy proposes to remediate onsite the impacted material as highlighted (green) in Table 1 and shown in Figure 4. Soils will be deep tilled approximately 1-2' and micro blaze added. Tetra Tech will collect 1 confirmation sample after 1 month and submit for TPH and BTEX. If concentrations are below the RRALs then the site will be reseeded and a closure report submitted.

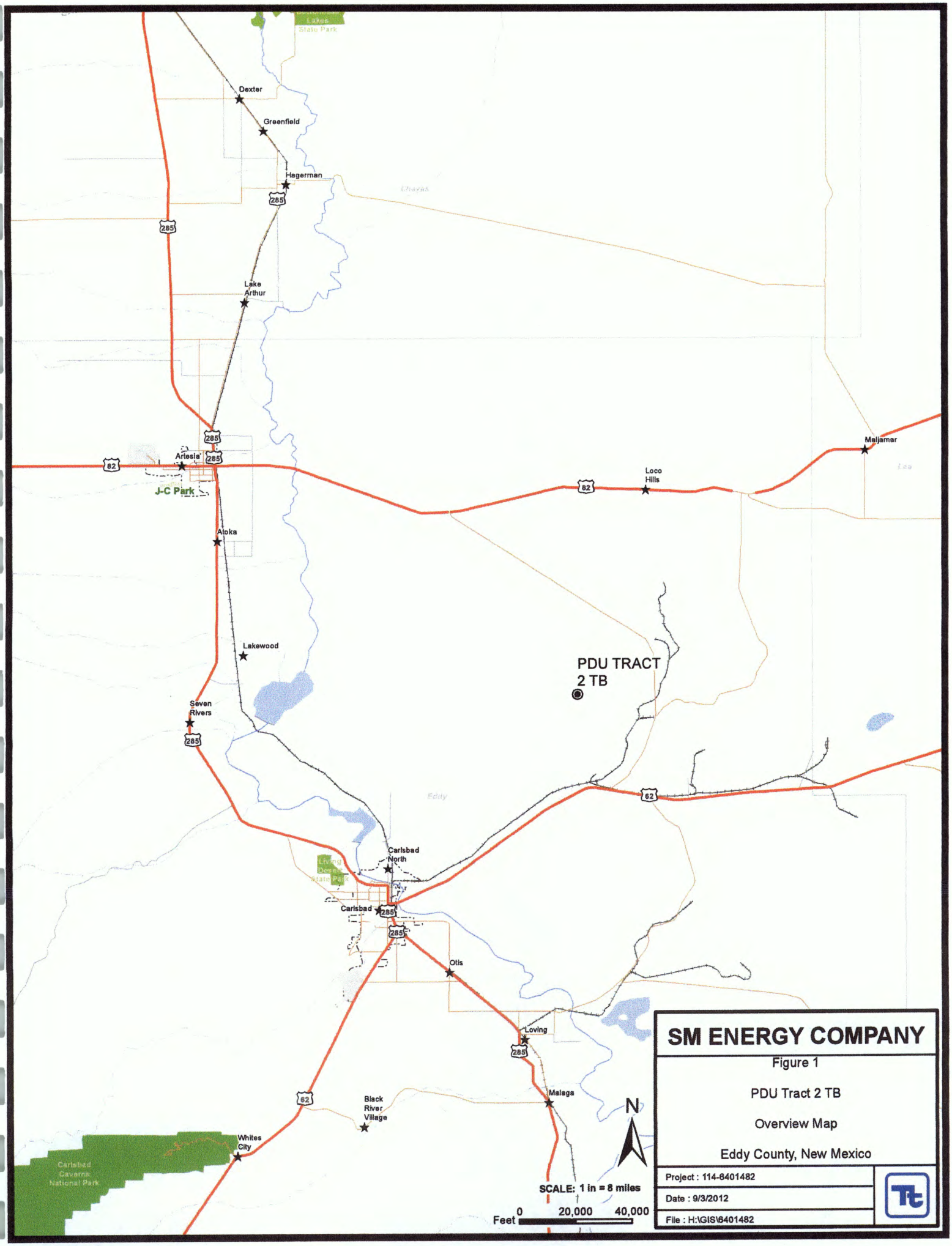
Upon completion, a final report will be submitted to the NMOCD. If you have any questions or require any additional information regarding this work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH, Inc.

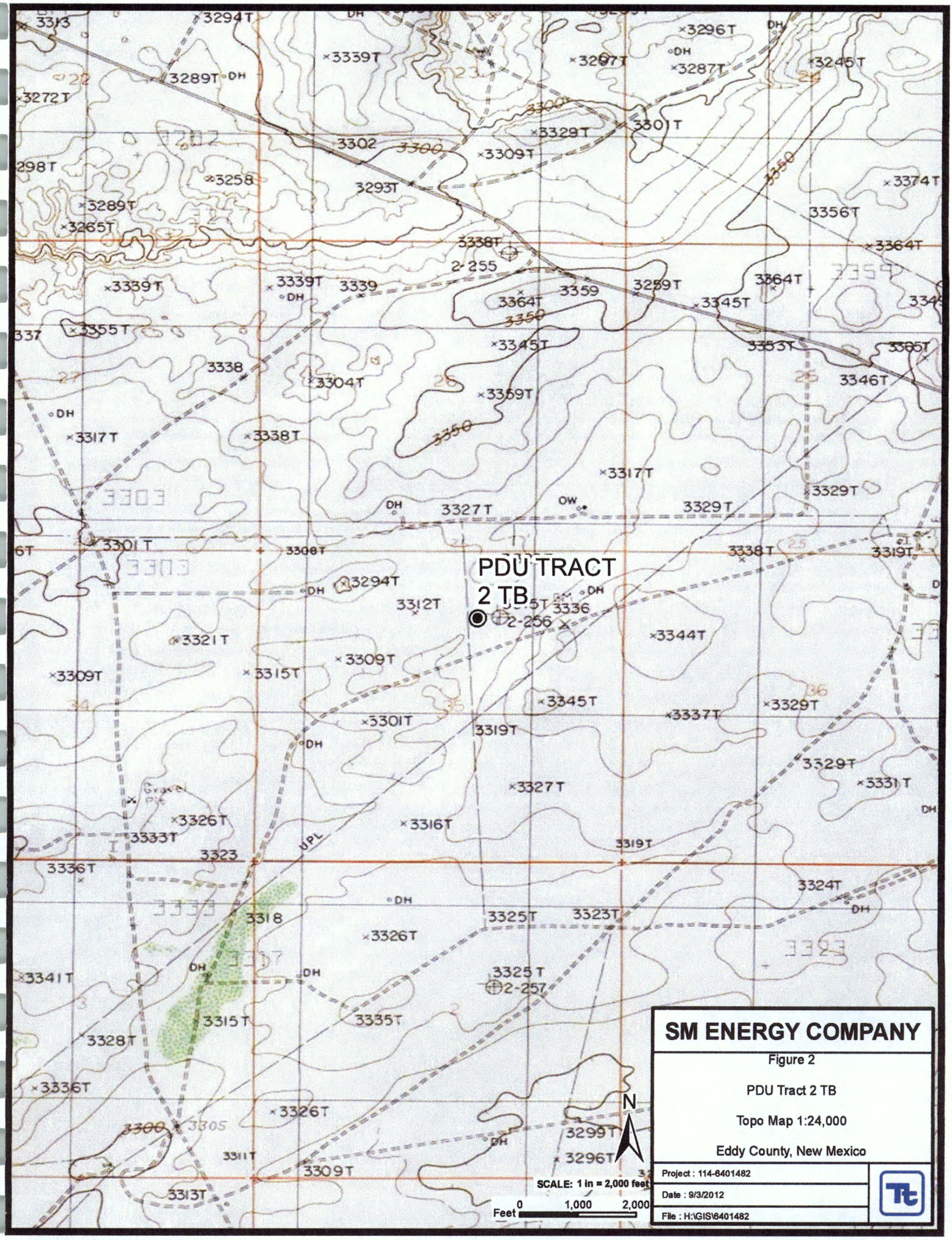
Tom Elliott
Staff Scientist

cc: Chad McNeely – File Copy
BLM – Jim Amos

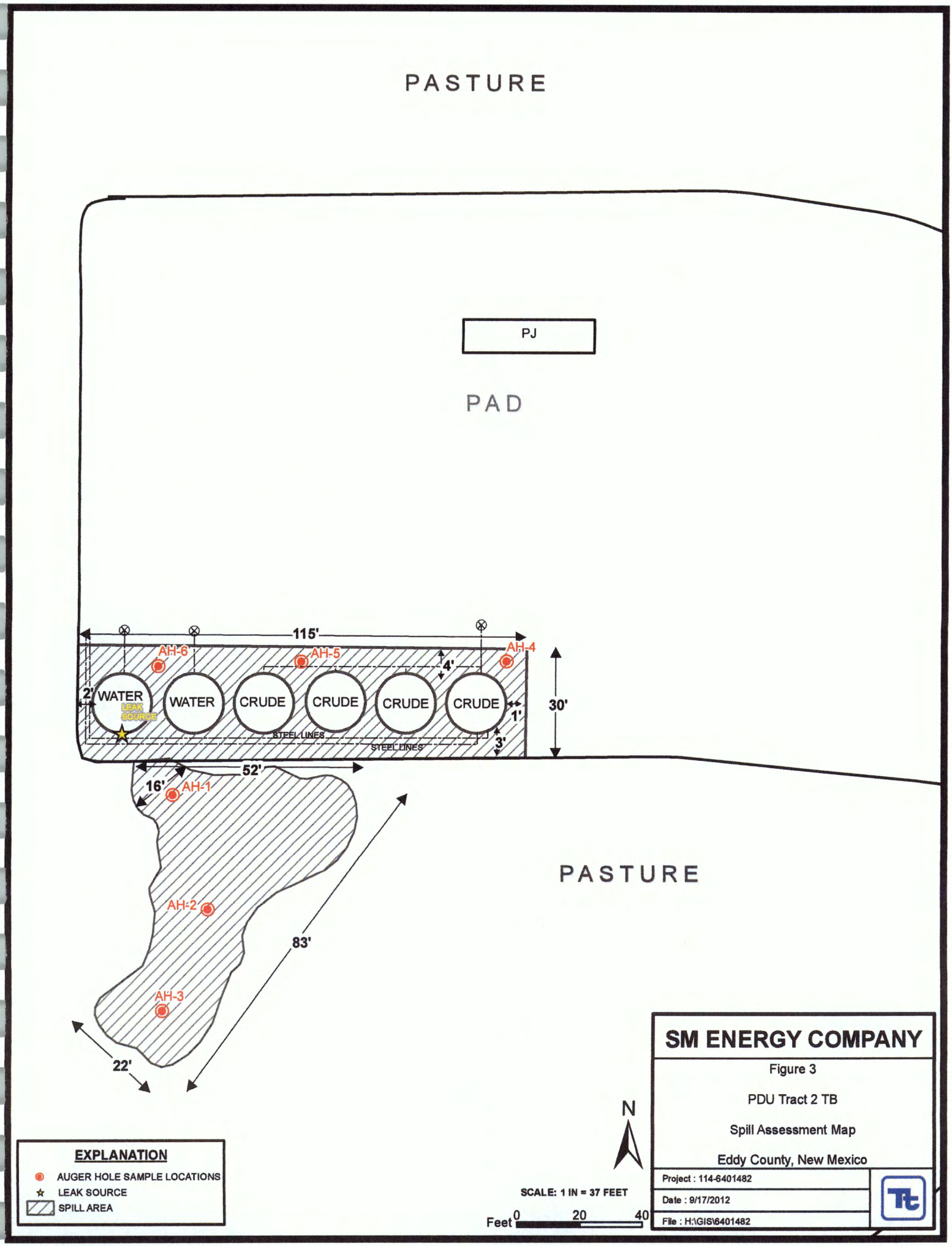
FIGURES

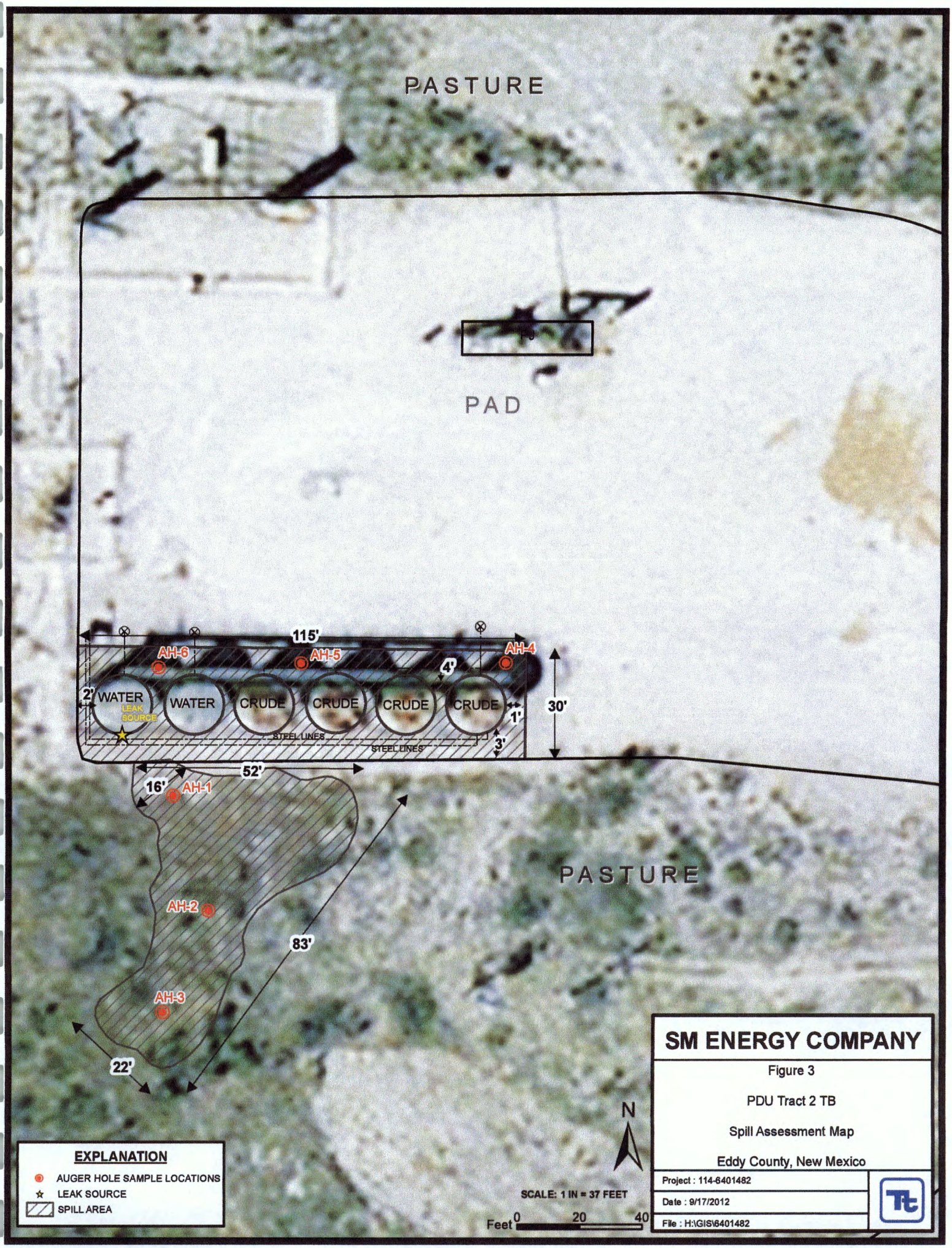


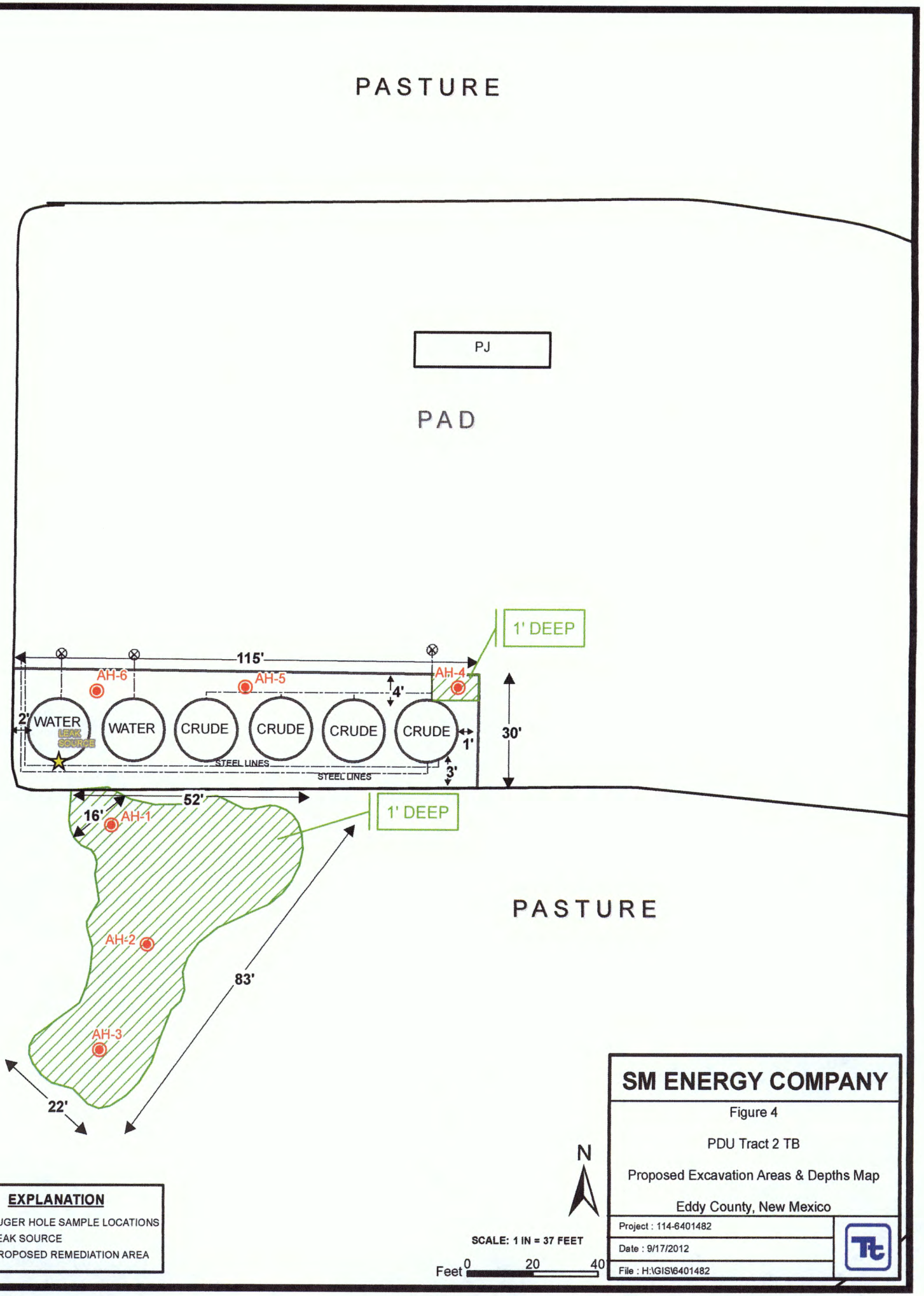
Drawn By: Isabel Marmolejo



Drawn By: Isabel Marmolejo


PASTURE
PJ
PAD
115'
AH-6
AH-5
AH-4
4'
2'
WATER
LEAK SOURCE
WATER
CRUDE
CRUDE
CRUDE
CRUDE
30'
1'
STEEL LINES
STEEL LINES
3'
52'
16'
AH-1
PASTURE
AH-2
83'
AH-3
22'
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
LEAK SOURCE
SPILL AREA
N
SCALE: 1 IN = 37 FEET
Feet 0 20 40
SM ENERGY COMPANY
Figure 3
PDU Tract 2 TB
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401482
Date : 9/17/2012
File : H:\GIS\6401482
Drawn By: Isabel Marmolejo


PASTURE
PAD
PASTURE
115'
AH-6
AH-5
AH-4
4'
2'
WATER
LEAK SOURCE
WATER
CRUDE
CRUDE
CRUDE
CRUDE
1'
30'
STEEL LINES
STEEL LINES
3'
52'
16'
AH-1
AH-2
83'
AH-3
22'
N
SCALE: 1 IN = 37 FEET
Feet 0 20 40
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
LEAK SOURCE
SPILL AREA
SM ENERGY COMPANY
Figure 3
PDU Tract 2 TB
Spill Assessment Map
Eddy County, New Mexico
Project : 114-6401482
Date : 9/17/2012
File : H:\GIS\6401482


PASTURE
PJ
PAD
1' DEEP
115'
AH-6
AH-5
AH-4
4'
2'
WATER
LEAK SOURCE
WATER
CRUDE
CRUDE
CRUDE
CRUDE
1'
30'
STEEL LINES
STEEL LINES
3'
52'
16'
AH-1
1' DEEP
PASTURE
AH-2
83'
AH-3
22'
N
SCALE: 1 IN = 37 FEET
Feet 0 20 40
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
LEAK SOURCE
PROPOSED REMEDIATION AREA
SM ENERGY COMPANY
Figure 4
PDU Tract 2 TB
Proposed Excavation Areas & Depths Map
Eddy County, New Mexico
Project : 114-6401482
Date : 9/17/2012
File : H:\GIS\6401482
Drawn By: Isabel Marmolejo

TABLES

Table 1
SM Energy
Parkway Delaware Unit Tract 2
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	8/9/2012	0-1	X		576	5,480	6,056	<0.100	0.675	4.20	14.4	19.3	<20.0
	"	1-1.5	X		4.92	<50.0	4.92	-	-	-	-	-	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	75.6
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	X		-	-	-	-	-	-	-	-	<20.0
AH-2	8/9/2012	0-1	X		951	1,750	2,701	6.87	38.0	38.1	64.3	147	<20.0
	"	1-1.5	X		156	<50.0	156	<0.0200	<0.0200	0.251	0.693	0.944	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
AH-3	8/9/2012	0-1	X		1,990	6,660	8,650	0.254	8.51	12.1	42.4	63.3	112
	"	1-1.5	X		<4.00	<50.0	<50.0	<1.00	<1.00	<1.00	<1.00	<1.00	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	55.9
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
AH-4	8/9/2012	0-1	X		1,490	2,870	4,360	<0.200	11.0	20.2	65.3	96.5	<20.0
	"	1-1.5	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	91.4
	"	3-3.5	X		-	-	-	-	-	-	-	-	117
AH-5	8/9/2012	0-1	X		119	742	861	<0.0400	0.172	0.508	1.70	2.38	<20.0
	"	1-1.5	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	X		-	-	-	-	-	-	-	-	35.4
	"	3-3.5	X		-	-	-	-	-	-	-	-	<20.0
AH-6	8/9/2012	1-1.5	X		<4.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	0.0212	0.0212	172
	"	2-2.5	X		-	-	-	-	-	-	-	-	91.1
	"	3-3.5	X		-	-	-	-	-	-	-	-	25.3

(--) Not Analyzed

Proposed Material for Remediation

PHOTOGRAPHS

SM Energy Company
Parkway Delaware Unit Tract #2 Tank Battery
Eddy County, New Mexico

Photo 1. View looking at spill area inside tank battery dike and AH-4.

Photo 2. View looking west at the spill area in the pasture with AH-1 and AH-2.

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" ST BLDG 7-200 MIDLAND, TX 79705	Telephone No. (432)688-1709
Facility Name PDU TRACT 2 30-015-26112	Facility Type BATTERY
Surface Owner BUREAU OF LAND MANAGEMENT	Mineral Owner BUREAU OF LAND MANAGEMENT	API No. NMNM88491X

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	26	19S	29E	330	SOUTH	1980	EAST	EDDY

Latitude _____ Longitude _____

NATURE OF RELEASE

Type of Release OIL	Volume of Release 100 BBLS Volume Recovered 72 BBLS
Source of Release STOCK TANK	Date and Hour of Occurrence 7/21/12 10:00 AM Date and Hour of Discovery SAME
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? JIM AMOS WITH BLM
By Whom? BILL HEARNE	Date and Hour 7/21/12 1:22 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.*

A RESTRICTED WATER DUMP LINE ON A 4'X10' FWKO WAS CAUSE OF THE PROBLEM. SM ENERGY WILL BE TURNING THIS OVER TO TETRA TECH FOR FURTHER EVALUATION.

Describe Area Affected and Cleanup Action Taken.*

SPILL AREA: 60'X90' = 5400 SQ FT (DIKE AREA), PASTURE: 30'X75' = 2250 SQ FT

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: Vickie Martinez

Printed Name: VICKIE MARTINEZ

Title: ENGINEER TECH II

E-mail Address: VMARTINEZ@SM-ENERGY.COM

Date: 08/02/2012 Phone: (432)688-1709

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: Expiration Date:

Conditions of Approval: Attached ☐

Attach Additional Sheets If Necessary

APPENDIX B

New Mexico Office of the State Engineer
Water Column/Average Depth to Water

(A CLW##### in the POD suffix indicates the POD has been replaced & no longer serves a water right file.)

(R=POD has been replaced, O=orphaned, C=the file is closed)

(quarters are 1=NW 2=NE 3=SW 4=SE)

(quarters are smallest to largest) (NAD83 UTM in meters) (In feet)

POD Number	POD Code	Subbasin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
CP 00681			ED	1	1	3	34	19S	29E	587230	3609127*			
CP 00703			ED		4	1	36	19S	29E	590945	3609441*	225	115	110
CP 00739			ED	3	4	4	35	19S	29E	589246	3608217	200	110	90
CP 00741			ED	1	3	2	34	19S	29E	588030	3609533*	230	60	170

Average Depth to Water: **95 feet**

Minimum Depth: **60 feet**

Maximum Depth: **115 feet**

Record Count: 4

PLSS Search:

Section(s): 34-36 **Township:** 19S **Range:** 29E

***UTM location was derived from PLSS - see Help**

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

Water Well Data
Average Depth to Groundwater (ft)
SM ENERGY COMPANY - PARKWAY DELAWARE UNIT TRACT 2
Eddy County, New Mexico

18 South 28 East

6	5	4 108	3	2	1
7	8 69	9	10	11	12
18	17	16	15	14	13
19	20	21 226	22	23	24
49	29	28	27	26	25
31	32	33	34	35 65	36

18 South 29 East

6	5	4	3	2	1
7	8	9	10 95	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 30 East

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

19 South 28 East

6	5	4	3	2	1
7	8	9 246 265	10	11	12
18 91	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 29 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13 123 101
19	20 62.9	21	22	23	24
30	29	28	27	26	25
31	32	33	34 62' 60	35 121 110	36 115

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 90	29	28	27	26	25
31 115	32	33	34	35	36

20 South 28 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 30	27 35	26	25
31 115	32	33 25 29	34	35	36 19

20 South 29 East

6	5	4	3 91	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 62	21	22	23	24
30 52	29	28	27	26	25
31	32	33	34	35	36

20 South 30 East

6	5 3.5	4	3 6	2	1
7	8	9	10	11	12
18	17	16 29	15	14	13
19	20 29	21 150	22	23	24
30	29	28	27	26	25
31	32 170	33 191	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
- Tetra Tech Temporary well (TD 180' - Dry Well)

APPENDIX C

Summary Report

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

Report Date: August 23, 2012

Work Order: 12081033

Project Location: Eddy Co., NM
Project Name: SM Energy/PDU Tract #2
Project Number: 114-6401482

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
306505	AH-1 (0-1')	soil	2012-08-09	00:00	2012-08-10
306506	AH-1 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306507	AH-1 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306508	AH-1 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306509	AH-1 (4-4.5')	soil	2012-08-09	00:00	2012-08-10
306510	AH-2 (0-1')	soil	2012-08-09	00:00	2012-08-10
306511	AH-2 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306512	AH-2 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306513	AH-2 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306514	AH-3 (0-1')	soil	2012-08-09	00:00	2012-08-10
306515	AH-3 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306516	AH-3 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306517	AH-3 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306518	AH-4 (0-1')	soil	2012-08-09	00:00	2012-08-10
306519	AH-4 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306520	AH-4 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306521	AH-4 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306522	AH-5 (0-1')	soil	2012-08-09	00:00	2012-08-10
306523	AH-5 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306524	AH-5 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306525	AH-5 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306526	AH-6 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306527	AH-6 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306528	AH-6 (3-3.5')	soil	2012-08-09	00:00	2012-08-10

Sample - Field Code	BTEX Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	MTBE MTBE (mg/Kg)	TPH DRO - NEW DRO (mg/Kg)	TPH GRO GRO (mg/Kg)
306505 - AH-1 (0-1')	<0.100 [1]	**0.675**	**4.20**	**14.4**		**5480**	**576**
306506 - AH-1 (1-1.5')						<50.0 Qr,Qs	**4.92** Qc
306510 - AH-2 (0-1')	**6.87**	**38.0**	**38.1**	**64.3**		**1750**	**951**
306511 - AH-2 (1-1.5')	<0.0200	<0.0200	**0.251**	**0.693**		<50.0 Qr,Qs	**156** Qc
306514 - AH-3 (0-1')	**0.254**	**8.51**	**12.1**	**42.4** Je		**6660**	**1990**
306515 - AH-3 (1-1.5')	<1.00 [2]	<1.00	<1.00	<1.00		<50.0 Qr,Qs	<4.00 [3]
306518 - AH-4 (0-1')	<0.200 [4]	**11.0**	**20.2**	**65.3**		**2870**	**1490**
306519 - AH-4 (1-1.5')	<0.0200	<0.0200	<0.0200	<0.0200		<50.0 Qr,Qs	<4.00 Qc
306522 - AH-5 (0-1')	<0.0400 [5]	**0.172**	**0.508**	**1.70**		**742**	**119** [6]
306526 - AH-6 (1-1.5')	<0.0200	<0.0200	<0.0200	**0.0212**		<50.0	<4.00 Qc

Sample: 306505 - AH-1 (0-1')

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

Sample: 306506 - AH-1 (1-1.5')

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

Sample: 306507 - AH-1 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**75.6**	mg/Kg	4

Sample: 306508 - AH-1 (3-3.5')

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

Sample: 306509 - AH-1 (4-4.5')

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

[1] Sample dilution due to hydrocarbons.
[2] Sample dilution due to hydrocarbons.
[3] Low surrogate recovery due to matrix interference.
[4] Sample dilution due to hydrocarbons.
[5] Sample dilution due to hydrocarbons.
[6] Low surrogate recovery due to matrix interference.

Sample: 306510 - AH-2 (0-1')

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

Sample: 306511 - AH-2 (1-1.5')

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

Sample: 306512 - AH-2 (2-2.5')

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

Sample: 306513 - AH-2 (3-3.5')

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

Sample: 306514 - AH-3 (0-1')

Param	Flag	Result	Units	RL
Chloride		**112**	mg/Kg	4

Sample: 306515 - AH-3 (1-1.5')

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

Sample: 306516 - AH-3 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**55.9**	mg/Kg	4

Sample: 306517 - AH-3 (3-3.5')

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

Sample: 306518 - AH-4 (0-1')

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

Sample: 306519 - AH-4 (1-1.5')

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

Sample: 306520 - AH-4 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**91.4**	mg/Kg	4

Sample: 306521 - AH-4 (3-3.5')

Param	Flag	Result	Units	RL
Chloride		**117**	mg/Kg	4

Sample: 306522 - AH-5 (0-1')

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

Sample: 306523 - AH-5 (1-1.5')

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

Sample: 306524 - AH-5 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**35.4**	mg/Kg	4

Sample: 306525 - AH-5 (3-3.5')

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

Sample: 306526 - AH-6 (1-1.5')

Param	Flag	Result	Units	RL
Chloride		**172**	mg/Kg	4

Sample: 306527 - AH-6 (2-2.5')

Param	Flag	Result	Units	RL
Chloride		**91.1**	mg/Kg	4

Sample: 306528 - AH-6 (3-3.5')

Param	Flag	Result	Units	RL
Chloride		**25.3**	mg/Kg	4

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Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: August 23, 2012

Work Order: 12081033

Project Location: Eddy Co., NM
Project Name: SM Energy/PDU Tract #2
Project Number: 114-6401482

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
306505	AH-1 (0-1')	soil	2012-08-09	00:00	2012-08-10
306506	AH-1 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306507	AH-1 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306508	AH-1 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306509	AH-1 (4-4.5')	soil	2012-08-09	00:00	2012-08-10
306510	AH-2 (0-1')	soil	2012-08-09	00:00	2012-08-10
306511	AH-2 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306512	AH-2 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306513	AH-2 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306514	AH-3 (0-1')	soil	2012-08-09	00:00	2012-08-10
306515	AH-3 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306516	AH-3 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306517	AH-3 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306518	AH-4 (0-1')	soil	2012-08-09	00:00	2012-08-10
306519	AH-4 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306520	AH-4 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306521	AH-4 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306522	AH-5 (0-1')	soil	2012-08-09	00:00	2012-08-10

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
306523	AH-5 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306524	AH-5 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306525	AH-5 (3-3.5')	soil	2012-08-09	00:00	2012-08-10
306526	AH-6 (1-1.5')	soil	2012-08-09	00:00	2012-08-10
306527	AH-6 (2-2.5')	soil	2012-08-09	00:00	2012-08-10
306528	AH-6 (3-3.5')	soil	2012-08-09	00:00	2012-08-10

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

Michael Abel

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

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Case Narrative

Samples for project SM Energy/PDU Tract #2 were received by TraceAnalysis, Inc. on 2012-08-10 and assigned to work order 12081033. Samples for work order 12081033 were received intact at a temperature of 0.6 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	79710	2012-08-17 at 16:27	94025	2012-08-17 at 16:27
BTEX	S 8021B	79758	2012-08-20 at 10:27	94090	2012-08-20 at 10:27
BTEX	S 8021B	79759	2012-08-20 at 10:27	94092	2012-08-20 at 10:27
BTEX	S 8021B	79811	2012-08-22 at 13:05	94157	2012-08-22 at 13:05
Chloride (Titration)	SM 4500-Cl B	79556	2012-08-13 at 08:42	93903	2012-08-13 at 14:08
Chloride (Titration)	SM 4500-Cl B	79556	2012-08-13 at 08:42	93904	2012-08-13 at 14:09
Chloride (Titration)	SM 4500-Cl B	79556	2012-08-13 at 08:42	93905	2012-08-13 at 14:10
TPH DRO - NEW	S 8015 D	79581	2012-08-13 at 09:00	93873	2012-08-14 at 08:36
TPH DRO - NEW	S 8015 D	79640	2012-08-15 at 08:00	93943	2012-08-16 at 10:26
TPH GRO	S 8015 D	79710	2012-08-17 at 16:27	94026	2012-08-17 at 16:27
TPH GRO	S 8015 D	79759	2012-08-20 at 10:27	94093	2012-08-20 at 10:27
TPH GRO	S 8015 D	79813	2012-08-22 at 12:56	94163	2012-08-22 at 12:56

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 12081033 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: 306505 - AH-1 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94025	Date Analyzed:	2012-08-17	Analyzed By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene [1]	U	1	<0.100	mg/Kg	5	0.0200
Toluene		1	**0.675**	mg/Kg	5	0.0200
Ethylbenzene		1	**4.20**	mg/Kg	5	0.0200
Xylene		1	**14.4**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.52	mg/Kg	5	2.00	76	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	11.7	mg/Kg	5	2.00	585	70 - 130

Sample: 306505 - AH-1 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306505 - AH-1 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93873	Date Analyzed:	2012-08-14	Analyzed By:	CW
Prep Batch:	79581	Sample Preparation:	2012-08-13	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	**5480**	mg/Kg	5	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	303	mg/Kg	5	100	303	70 - 130

Sample: 306505 - AH-1 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94093	Date Analyzed:	2012-08-20	Analyzed By:	MT
Prep Batch:	79759	Sample Preparation:	2012-08-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**576**	mg/Kg	20	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.04	mg/Kg	20	2.00	52	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	31.6	mg/Kg	20	2.00	1580	70 - 130

Sample: 306506 - AH-1 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306506 - AH-1 (1-1.5')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93943	Date Analyzed:	2012-08-16	Analyzed By:	CW
Prep Batch:	79640	Sample Preparation:	2012-08-15	Prepared By:	CW

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

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

Sample: 306506 - AH-1 (1-1.5')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94026	Date Analyzed:	2012-08-17	Analyzed By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qc	1	**4.92**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.62	mg/Kg	1	2.00	81	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	1	2.00	109	70 - 130

Sample: 306507 - AH-1 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**75.6**	mg/Kg	5	4.00

Sample: 306508 - AH-1 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

continued ...

sample 306508 continued ...

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

Sample: 306509 - AH-1 (4-4.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306510 - AH-2 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94025	Date Analyzed:	2012-08-17	Analyzed By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene		1	**6.87**	mg/Kg	10	0.0200
Toluene		1	**38.0**	mg/Kg	10	0.0200
Ethylbenzene		1	**38.1**	mg/Kg	10	0.0200
Xylene		1	**64.3**	mg/Kg	10	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.30	mg/Kg	10	2.00	65	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		38.6	mg/Kg	10	2.00	1930	70 - 130

Sample: 306510 - AH-2 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306510 - AH-2 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93873	Date Analyzed:	2012-08-14	Analyzed By:	CW
Prep Batch:	79581	Sample Preparation:	2012-08-13	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**1750**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	170	mg/Kg	1	100	170	70 - 130

Sample: 306510 - AH-2 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94093	Date Analyzed:	2012-08-20	Analyzed By:	MT
Prep Batch:	79759	Sample Preparation:	2012-08-20	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO		1	**951**	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	100	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	20.8	mg/Kg	100	2.00	1040	70 - 130

Sample: 306511 - AH-2 (1-1.5')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94157	Date Analyzed:	2012-08-22	Analyzed By:	MT
Prep Batch:	79811	Sample Preparation:	2012-08-22	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene	U	1	<0.0200	mg/Kg	1	0.0200
Toluene		1	<0.0200	mg/Kg	1	0.0200
Ethylbenzene		1	**0.251**	mg/Kg	1	0.0200
Xylene		1	**0.693**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.03	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.50	mg/Kg	1	2.00	125	70 - 130

Sample: 306511 - AH-2 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306511 - AH-2 (1-1.5')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93943	Date Analyzed:	2012-08-16	Analyzed By:	CW
Prep Batch:	79640	Sample Preparation:	2012-08-15	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO	Qr,Qs	2	<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: 306511 - AH-2 (1-1.5')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94026	Date Analyzed:	2012-08-17	Analyzed By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
GRO	Qc	1	**156**	mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	1.21	mg/Kg	1	2.00	60	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	5.48	mg/Kg	1	2.00	274	70 - 130

Sample: 306512 - AH-2 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306513 - AH-2 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93903	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306514 - AH-3 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94025	Date Analyzed:	2012-08-17	Analyzed By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17	Prepared By:	MT

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Benzene		1	**0.254**	mg/Kg	5	0.0200
Toluene		1	**8.51**	mg/Kg	5	0.0200
Ethylbenzene		1	**12.1**	mg/Kg	5	0.0200
Xylene	Je	1	**42.4**	mg/Kg	5	0.0200

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.11	mg/Kg	5	2.00	56	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		25.3	mg/Kg	5	2.00	1265	70 - 130

Sample: 306514 - AH-3 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93904	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**112**	mg/Kg	5	4.00

Sample: 306514 - AH-3 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93873	Date Analyzed:	2012-08-14	Analyzed By:	CW
Prep Batch:	79581	Sample Preparation:	2012-08-13	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**6660**	mg/Kg	1	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		320	mg/Kg	1	100	320	70 - 130

Sample: 306514 - AH-3 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94093	Date Analyzed:	2012-08-20	Analyzed By:	MT
Prep Batch:	79759	Sample Preparation:	2012-08-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1990**	mg/Kg	50	4.00

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr		1.27	mg/Kg	50	2.00	64	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr		46.2	mg/Kg	50	2.00	2310	70 - 130

Sample: 306515 - AH-3 (1-1.5')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94092	Date Analyzed:	2012-08-20	Analyzed By:	MT
Prep Batch:	79759	Sample Preparation:	2012-08-20	Prepared By:	MT

Parameter		Flag	Cert	RL Result	Units	Dilution	RL
Benzene	2	U	1	<1.00	mg/Kg	50	0.0200
Toluene			1	<1.00	mg/Kg	50	0.0200
Ethylbenzene			1	<1.00	mg/Kg	50	0.0200
Xylene			1	<1.00	mg/Kg	50	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.21	mg/Kg	50	2.00	110	70 - 130
4-Bromofluorobenzene (4-BFB)			3.56	mg/Kg	50	2.00	178	70 - 130

Sample: 306515 - AH-3 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93904	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306515 - AH-3 (1-1.5')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93943	Date Analyzed:	2012-08-16	Analyzed By:	CW
Prep Batch:	79640	Sample Preparation:	2012-08-15	Prepared By:	CW

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

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

Sample: 306515 - AH-3 (1-1.5')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94163	Date Analyzed:	2012-08-22	Analyzed By:	MT
Prep Batch:	79813	Sample Preparation:	2012-08-22	Prepared By:	MT

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
GRO	3	1	<4.00		mg/Kg	1	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.137	mg/Kg	1	2.00	7	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	0.00600	mg/Kg	1	2.00	0	70 - 130

Sample: 306516 - AH-3 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93904	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**55.9**	mg/Kg	5	4.00

Sample: 306517 - AH-3 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93904	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306518 - AH-4 (0-1')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94090	Date Analyzed:	2012-08-20	Analyzed By:	MT
Prep Batch:	79758	Sample Preparation:	2012-08-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene [4]	U	1	<0.200	mg/Kg	10	0.0200
Toluene		1	**11.0**	mg/Kg	10	0.0200
Ethylbenzene		1	**20.2**	mg/Kg	10	0.0200
Xylene		1	**65.3**	mg/Kg	10	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.41	mg/Kg	10	2.00	70	70 - 130
4-Bromofluorobenzene (4-BFB)			30.5	mg/Kg	10	2.00	1525	70 - 130

Sample: 306518 - AH-4 (0-1')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93904	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306518 - AH-4 (0-1')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93873	Date Analyzed:	2012-08-14	Analyzed By:	CW
Prep Batch:	79581	Sample Preparation:	2012-08-13	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	**2870**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	193	mg/Kg	1	100	193	70 - 130

Sample: 306518 - AH-4 (0-1')

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	94163	Date Analyzed:	2012-08-22	Analyzed By:	MT
Prep Batch:	79813	Sample Preparation:	2012-08-22	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**1490**	mg/Kg	100	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.50	mg/Kg	100	2.00	125	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	39.8	mg/Kg	100	2.00	1990	70 - 130

Sample: 306519 - AH-4 (1-1.5')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94157	Date Analyzed:	2012-08-22	Analyzed By:	MT
Prep Batch:	79811	Sample Preparation:	2012-08-22	Prepared By:	MT

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)			1.95	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.07	mg/Kg	1	2.00	104	70 - 130

Sample: 306519 - AH-4 (1-1.5')

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 93904
Prep Batch: 79556

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-08-13
Sample Preparation: 2012-08-13

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: 306519 - AH-4 (1-1.5')

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 93943
Prep Batch: 79640

Analytical Method: S 8015 D
Date Analyzed: 2012-08-16
Sample Preparation: 2012-08-15

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			106	mg/Kg	1	100	106	70 - 130

Sample: 306519 - AH-4 (1-1.5')

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 94026
Prep Batch: 79710

Analytical Method: S 8015 D
Date Analyzed: 2012-08-17
Sample Preparation: 2012-08-17

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

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.77	mg/Kg	1	2.00	88	70 - 130
4-Bromofluorobenzene (4-BFB)			2.24	mg/Kg	1	2.00	112	70 - 130

Sample: 306520 - AH-4 (2-2.5')

Laboratory:	Midland			Prep Method:	N/A
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Analyzed By:	AR
QC Batch:	93904	Date Analyzed:	2012-08-13	Prepared By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**91.4**	mg/Kg	5	4.00

Sample: 306521 - AH-4 (3-3.5')

Laboratory:	Midland			Prep Method:	N/A
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Analyzed By:	AR
QC Batch:	93904	Date Analyzed:	2012-08-13	Prepared By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**117**	mg/Kg	5	4.00

Sample: 306522 - AH-5 (0-1')

Laboratory:	Lubbock			Prep Method:	S 5035
Analysis:	BTEX	Analytical Method:	S 8021B	Analyzed By:	MT
QC Batch:	94025	Date Analyzed:	2012-08-17	Prepared By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17		

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Benzene [5]	U	1	<0.0400		mg/Kg	2	0.0200
Toluene		1	**0.172**		mg/Kg	2	0.0200
Ethylbenzene		1	**0.508**		mg/Kg	2	0.0200
Xylene		1	**1.70**		mg/Kg	2	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.57	mg/Kg	2	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.68	mg/Kg	2	2.00	84	70 - 130

Sample: 306522 - AH-5 (0-1')

Laboratory: Midland
Analysis: Chloride (Titration)
QC Batch: 93904
Prep Batch: 79556

Analytical Method: SM 4500-Cl B
Date Analyzed: 2012-08-13
Sample Preparation: 2012-08-13

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

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

Sample: 306522 - AH-5 (0-1')

Laboratory: Midland
Analysis: TPH DRO - NEW
QC Batch: 93873
Prep Batch: 79581

Analytical Method: S 8015 D
Date Analyzed: 2012-08-14
Sample Preparation: 2012-08-13

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

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
DRO		2	**742**		mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	139	mg/Kg	1	100	139	70 - 130

Sample: 306522 - AH-5 (0-1')

Laboratory: Lubbock
Analysis: TPH GRO
QC Batch: 94163
Prep Batch: 79813

Analytical Method: S 8015 D
Date Analyzed: 2012-08-22
Sample Preparation: 2012-08-22

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

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	6	1	**119**	mg/Kg	5	4.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)	Qsr	Qsr	0.236	mg/Kg	5	2.00	12	70 - 130
4-Bromofluorobenzene (4-BFB)	Qsr	Qsr	5.09	mg/Kg	5	2.00	254	70 - 130

Sample: 306523 - AH-5 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93904	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306524 - AH-5 (2-2.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93905	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**35.4**	mg/Kg	5	4.00

Sample: 306525 - AH-5 (3-3.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93905	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

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

Sample: 306526 - AH-6 (1-1.5')

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	94025	Date Analyzed:	2012-08-17	Analyzed By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17	Prepared By:	MT

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		1	<0.0200	mg/Kg	1	0.0200
Xylene	B	1	**0.0212**	mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Sample: 306526 - AH-6 (1-1.5')

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93905	Date Analyzed:	2012-08-13	Analyzed By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**172**	mg/Kg	5	4.00

Sample: 306526 - AH-6 (1-1.5')

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93873	Date Analyzed:	2012-08-14	Analyzed By:	CW
Prep Batch:	79581	Sample Preparation:	2012-08-13	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			109	mg/Kg	1	100	109	70 - 130

Sample: 306526 - AH-6 (1-1.5')

Laboratory:	Lubbock			Prep Method:	S 5035
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Analyzed By:	MT
QC Batch:	94026	Date Analyzed:	2012-08-17	Prepared By:	MT
Prep Batch:	79710	Sample Preparation:	2012-08-17		

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.66	mg/Kg	1	2.00	83	70 - 130
4-Bromofluorobenzene (4-BFB)			1.87	mg/Kg	1	2.00	94	70 - 130

Sample: 306527 - AH-6 (2-2.5')

Laboratory:	Midland			Prep Method:	N/A
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Analyzed By:	AR
QC Batch:	93905	Date Analyzed:	2012-08-13	Prepared By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13		

Parameter	Flag	Cert	Result	RL	Units	Dilution	RL
Chloride			**91.1**		mg/Kg	5	4.00

Sample: 306528 - AH-6 (3-3.5')

Laboratory:	Midland			Prep Method:	N/A
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Analyzed By:	AR
QC Batch:	93905	Date Analyzed:	2012-08-13	Prepared By:	AR
Prep Batch:	79556	Sample Preparation:	2012-08-13		

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**25.3**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 93873

QC Batch: 93873
Prep Batch: 79581

Date Analyzed: 2012-08-14
QC Preparation: 2012-08-13

Analyzed By: CW
Prepared By: CW

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

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

Method Blank (1) QC Batch: 93903

QC Batch: 93903
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 93904

QC Batch: 93904
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 93905

QC Batch: 93905
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

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

Method Blank (1) QC Batch: 93943

QC Batch: 93943
Prep Batch: 79640

Date Analyzed: 2012-08-16
QC Preparation: 2012-08-15

Analyzed By: CW
Prepared By: CW

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

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

Method Blank (1) QC Batch: 94025

QC Batch: 94025
Prep Batch: 79710

Date Analyzed: 2012-08-17
QC Preparation: 2012-08-17

Analyzed By: MT
Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02
Xylene		1	0.0168	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.88	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			1.88	mg/Kg	1	2.00	94	70 - 130

Method Blank (1) QC Batch: 94026

QC Batch: 94026 | Date Analyzed: 2012-08-17 | Analyzed By: MT
Prep Batch: 79710 | QC Preparation: 2012-08-17 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.359	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.85	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.84	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 94090

QC Batch: 94090 | Date Analyzed: 2012-08-20 | Analyzed By: MT
Prep Batch: 79758 | QC Preparation: 2012-08-20 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02
Xylene		1	<0.00460	mg/Kg	0.02

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)			1.82	mg/Kg	1	2.00	91	70 - 130

Method Blank (1) QC Batch: 94092

QC Batch: 94092 | Date Analyzed: 2012-08-20 | Analyzed By: MT
Prep Batch: 79759 | QC Preparation: 2012-08-20 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00365	mg/Kg	0.02
Toluene		1	<0.00816	mg/Kg	0.02
Ethylbenzene		1	<0.00560	mg/Kg	0.02

continued ...

method blank continued ...

Parameter	Flag	Cert	MDL Result	Units	RL
Xylene		1	<0.00460	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.61	mg/Kg	1	2.00	80	70 - 130
4-Bromofluorobenzene (4-BFB)			1.67	mg/Kg	1	2.00	84	70 - 130

Method Blank (1) QC Batch: 94093

QC Batch: 94093 | Date Analyzed: 2012-08-20 | Analyzed By: MT
Prep Batch: 79759 | QC Preparation: 2012-08-20 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.359	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.72	mg/Kg	1	2.00	86	70 - 130
4-Bromofluorobenzene (4-BFB)			1.76	mg/Kg	1	2.00	88	70 - 130

Method Blank (1) QC Batch: 94157

QC Batch: 94157 | Date Analyzed: 2012-08-22 | Analyzed By: MT
Prep Batch: 79811 | QC Preparation: 2012-08-22 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
Benzene		1	<0.00332	mg/Kg	0.02
Toluene		1	<0.00318	mg/Kg	0.02
Ethylbenzene		1	<0.00385	mg/Kg	0.02
Xylene		1	0.0133	mg/Kg	0.02

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)			2.13	mg/Kg	1	2.00	106	70 - 130

Method Blank (1) QC Batch: 94163

QC Batch:	94163	Date Analyzed:	2012-08-22	Analyzed By:	MT
Prep Batch:	79813	QC Preparation:	2012-08-22	Prepared By:	MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.359	mg/Kg	4

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.38	mg/Kg	1	2.00	119	70 - 130
4-Bromofluorobenzene (4-BFB)			2.15	mg/Kg	1	2.00	108	70 - 130

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 93873
Prep Batch: 79581

Date Analyzed: 2012-08-14
QC Preparation: 2012-08-13

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	276	mg/Kg	1	250	<14.5	110	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		2	268	mg/Kg	1	250	<14.5	107	70 - 130	3	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	119	116	mg/Kg	1	100	119	116	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93903
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2680	mg/Kg	1	2500	<3.85	107	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			2600	mg/Kg	1	2500	<3.85	104	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: 93904
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2700	mg/Kg	1	2500	<3.85	108	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			2800	mg/Kg	1	2500	<3.85	112	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: 93905
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2650	mg/Kg	1	2500	<3.85	106	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2590	mg/Kg	1	2500	<3.85	104	85 - 115	2	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: 93943
Prep Batch: 79640

Date Analyzed: 2012-08-16
QC Preparation: 2012-08-15

Analyzed By: CW
Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	278	mg/Kg	1	250	<14.5	111	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		2	299	mg/Kg	1	250	<14.5	120	70 - 130	7	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	119	126	mg/Kg	1	100	119	126	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94025
Prep Batch: 79710

Date Analyzed: 2012-08-17
QC Preparation: 2012-08-17

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.93	mg/Kg	1	2.00	<0.00365	96	75.4 - 120
Toluene		1	1.90	mg/Kg	1	2.00	<0.00816	95	74.9 - 120
Ethylbenzene		1	1.91	mg/Kg	1	2.00	<0.00560	96	78.1 - 120
Xylene		1	5.72	mg/Kg	1	6.00	0.0168	95	77.3 - 120

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	1.89	mg/Kg	1	2.00	<0.00365	94	75.4 - 120	2	20
Toluene		1	1.85	mg/Kg	1	2.00	<0.00816	92	74.9 - 120	3	20
Ethylbenzene		1	1.88	mg/Kg	1	2.00	<0.00560	94	78.1 - 120	2	20
Xylene		1	5.63	mg/Kg	1	6.00	0.0168	94	77.3 - 120	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.90	1.93	mg/Kg	1	2.00	95	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.90	1.92	mg/Kg	1	2.00	95	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94026
Prep Batch: 79710

Date Analyzed: 2012-08-17
QC Preparation: 2012-08-17

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.4	mg/Kg	1	20.0	<0.359	87	68.9 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.4	mg/Kg	1	20.0	<0.359	87	68.9 - 120	0	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.03	2.00	mg/Kg	1	2.00	102	100	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.91	mg/Kg	1	2.00	97	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94090
Prep Batch: 79758

Date Analyzed: 2012-08-20
QC Preparation: 2012-08-20

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.88	mg/Kg	1	2.00	<0.00365	94	75.4 - 120
Toluene		1	1.81	mg/Kg	1	2.00	<0.00816	90	74.9 - 120
Ethylbenzene		1	1.84	mg/Kg	1	2.00	<0.00560	92	78.1 - 120
Xylene		1	5.54	mg/Kg	1	6.00	<0.00460	92	77.3 - 120

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	1.89	mg/Kg	1	2.00	<0.00365	94	75.4 - 120	0	20
Toluene		1	1.85	mg/Kg	1	2.00	<0.00816	92	74.9 - 120	2	20
Ethylbenzene		1	1.88	mg/Kg	1	2.00	<0.00560	94	78.1 - 120	2	20
Xylene		1	5.65	mg/Kg	1	6.00	<0.00460	94	77.3 - 120	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.94	1.92	mg/Kg	1	2.00	97	96	70 - 130
4-Bromofluorobenzene (4-BFB)	1.84	1.88	mg/Kg	1	2.00	92	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94092
Prep Batch: 79759

Date Analyzed: 2012-08-20
QC Preparation: 2012-08-20

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.83	mg/Kg	1	2.00	<0.00365	92	75.4 - 120
Toluene		1	1.80	mg/Kg	1	2.00	<0.00816	90	74.9 - 120
Ethylbenzene		1	1.79	mg/Kg	1	2.00	<0.00560	89	78.1 - 120
Xylene		1	5.35	mg/Kg	1	6.00	<0.00460	89	77.3 - 120

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	1.80	mg/Kg	1	2.00	<0.00365	90	75.4 - 120	2	20
Toluene		1	1.74	mg/Kg	1	2.00	<0.00816	87	74.9 - 120	3	20
Ethylbenzene		1	1.76	mg/Kg	1	2.00	<0.00560	88	78.1 - 120	2	20
Xylene		1	5.27	mg/Kg	1	6.00	<0.00460	88	77.3 - 120	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.69	1.69	mg/Kg	1	2.00	84	84	70 - 130
4-Bromofluorobenzene (4-BFB)	1.74	1.76	mg/Kg	1	2.00	87	88	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94093
Prep Batch: 79759

Date Analyzed: 2012-08-20
QC Preparation: 2012-08-20

Analyzed By: MT
Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.8	mg/Kg	1	20.0	<0.359	84	68.9 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.3	mg/Kg	1	20.0	<0.359	86	68.9 - 120	3	20

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 ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.71	1.85	mg/Kg	1	2.00	86	92	70 - 130
4-Bromofluorobenzene (4-BFB)	1.98	1.93	mg/Kg	1	2.00	99	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94157 | Date Analyzed: 2012-08-22 | Analyzed By: MT
Prep Batch: 79811 | QC Preparation: 2012-08-22 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.86	mg/Kg	1	2.00	<0.00332	93	70 - 130
Toluene		1	1.96	mg/Kg	1	2.00	<0.00318	98	70 - 130
Ethylbenzene		1	1.96	mg/Kg	1	2.00	<0.00385	98	70 - 130
Xylene		1	5.69	mg/Kg	1	6.00	0.0133	95	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	1.92	mg/Kg	1	2.00	<0.00332	96	70 - 130	3	20
Toluene		1	2.01	mg/Kg	1	2.00	<0.00318	100	70 - 130	2	20
Ethylbenzene		1	2.03	mg/Kg	1	2.00	<0.00385	102	70 - 130	4	20
Xylene		1	5.91	mg/Kg	1	6.00	0.0133	98	70 - 130	4	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.89	1.89	mg/Kg	1	2.00	94	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.93	mg/Kg	1	2.00	96	96	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 94163 | Date Analyzed: 2012-08-22 | Analyzed By: MT
Prep Batch: 79813 | QC Preparation: 2012-08-22 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	17.9	mg/Kg	1	20.0	<0.359	89	68.9 - 120

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	18.2	mg/Kg	1	20.0	<0.359	91	68.9 - 120	2	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	2.05	2.08	mg/Kg	1	2.00	102	104	70 - 130
4-Bromofluorobenzene (4-BFB)	1.97	1.99	mg/Kg	1	2.00	98	99	70 - 130

Matrix Spike (MS-1) Spiked Sample: 306463

QC Batch: 93873
Prep Batch: 79581

Date Analyzed: 2012-08-14
QC Preparation: 2012-08-13

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	255	mg/Kg	1	250	<14.5	102	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		2	249	mg/Kg	1	250	<14.5	100	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	101	101	mg/Kg	1	100	101	101	70 - 130

Matrix Spike (MS-1) Spiked Sample: 306513

QC Batch: 93903
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2580	mg/Kg	5	2500	<19.2	103	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			2720	mg/Kg	5	2500	<19.2	109	78.9 - 121	5	20

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

Matrix Spike (MS-1) Spiked Sample: 306523

QC Batch: 93904
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2330	mg/Kg	5	2500	<19.2	93	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			2430	mg/Kg	5	2500	<19.2	97	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: 306528

QC Batch: 93905
Prep Batch: 79556

Date Analyzed: 2012-08-13
QC Preparation: 2012-08-13

Analyzed By: AR
Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2530	mg/Kg	5	2500	25.3	100	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			2620	mg/Kg	5	2500	25.3	104	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: 306548

QC Batch: 93943
Prep Batch: 79640

Date Analyzed: 2012-08-16
QC Preparation: 2012-08-15

Analyzed By: CW
Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	295	mg/Kg	1	250	<14.5	118	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	Qr,Qs	Qr,Qs 2	718	mg/Kg	1	250	<14.5	287	70 - 130	84	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	126	153	mg/Kg	1	100	126	153	70 - 130

Matrix Spike (xMS-1) Spiked Sample:

QC Batch: 94025
Prep Batch: 79710

Date Analyzed: 2012-08-17
QC Preparation: 2012-08-17

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.85	mg/Kg	1	2.00	<0.00365	92	37.6 - 142
Toluene		1	1.96	mg/Kg	1	2.00	<0.00816	98	38.6 - 153
Ethylbenzene		1	2.09	mg/Kg	1	2.00	<0.00560	104	36.7 - 172
Xylene		1	6.28	mg/Kg	1	6.00	<0.00460	105	36.7 - 173

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.80	mg/Kg	1	2.00	<0.00365	90	37.6 - 142	3	20
Toluene		1	1.88	mg/Kg	1	2.00	<0.00816	94	38.6 - 153	4	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Ethylbenzene		1	2.04	mg/Kg	1	2.00	<0.00560	102	36.7 - 172	2	20
Xylene		1	6.13	mg/Kg	1	6.00	<0.00460	102	36.7 - 173	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)	2.00	1.92	mg/Kg	1	2	100	96	70 - 130
4-Bromofluorobenzene (4-BFB)	2.00	1.89	mg/Kg	1	2	100	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 306506

QC Batch: 94026
Prep Batch: 79710

Date Analyzed: 2012-08-17
QC Preparation: 2012-08-17

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	23.4	mg/Kg	1	20.0	4.92	92	68.9 - 120

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	21.7	mg/Kg	1	20.0	4.92	84	68.9 - 120	8	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.69	1.66	mg/Kg	1	2	84	83	70 - 130
4-Bromofluorobenzene (4-BFB)	2.23	2.13	mg/Kg	1	2	112	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 306704

QC Batch: 94090
Prep Batch: 79758

Date Analyzed: 2012-08-20
QC Preparation: 2012-08-20

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.83	mg/Kg	1	2.00	<0.00365	92	37.6 - 142
Toluene		1	1.94	mg/Kg	1	2.00	<0.00816	97	38.6 - 153

continued ...

matrix spikes continued ...

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Ethylbenzene		1	2.03	mg/Kg	1	2.00	<0.00560	102	36.7 - 172
Xylene		1	6.06	mg/Kg	1	6.00	<0.00460	101	36.7 - 173

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.81	mg/Kg	1	2.00	<0.00365	90	37.6 - 142	1	20
Toluene		1	1.93	mg/Kg	1	2.00	<0.00816	96	38.6 - 153	0	20
Ethylbenzene		1	2.05	mg/Kg	1	2.00	<0.00560	102	36.7 - 172	1	20
Xylene		1	6.14	mg/Kg	1	6.00	<0.00460	102	36.7 - 173	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.98	1.98	mg/Kg	1	2	99	99	70 - 130
4-Bromofluorobenzene (4-BFB)	1.92	1.91	mg/Kg	1	2	96	96	70 - 130

Matrix Spike (xMS-1) Spiked Sample:

QC Batch: 94092
Prep Batch: 79759

Date Analyzed: 2012-08-20
QC Preparation: 2012-08-20

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.82	mg/Kg	1	2.00	<0.00365	91	37.6 - 142
Toluene		1	1.88	mg/Kg	1	2.00	<0.00816	94	38.6 - 153
Ethylbenzene		1	2.02	mg/Kg	1	2.00	<0.00560	101	36.7 - 172
Xylene		1	6.03	mg/Kg	1	6.00	<0.00460	100	36.7 - 173

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Benzene		1	1.72	mg/Kg	1	2.00	<0.00365	86	37.6 - 142	6	20
Toluene		1	1.79	mg/Kg	1	2.00	<0.00816	90	38.6 - 153	5	20
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00560	94	36.7 - 172	7	20
Xylene		1	5.64	mg/Kg	1	6.00	<0.00460	94	36.7 - 173	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)	1.95	1.76	mg/Kg	1	2	98	88	70 - 130

continued ...

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
4-Bromofluorobenzene (4-BFB)	1.86	1.75	mg/Kg	1	2	93	88	70 - 130

Matrix Spike (xMS-1) Spiked Sample:

QC Batch: 94093
Prep Batch: 79759

Date Analyzed: 2012-08-20
QC Preparation: 2012-08-20

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	13.9	mg/Kg	1	20.0	<0.359	70	68.9 - 120

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	14.7	mg/Kg	1	20.0	<0.359	74	68.9 - 120	6	20

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

Surrogate			MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	Qsr	Qsr	1.39	1.57	mg/Kg	1	2	70	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.86	1.93	mg/Kg	1	2	93	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 306327

QC Batch: 94157
Prep Batch: 79811

Date Analyzed: 2012-08-22
QC Preparation: 2012-08-22

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.98	mg/Kg	1	2.00	<0.00332	99	70 - 130
Toluene		1	2.13	mg/Kg	1	2.00	<0.00318	106	70 - 130
Ethylbenzene		1	2.26	mg/Kg	1	2.00	<0.00385	113	70 - 130
Xylene		1	6.42	mg/Kg	1	6.00	0.0146	107	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	2.00	mg/Kg	1	2.00	<0.00332	100	70 - 130	1	20

continued ...

matrix spikes continued ...

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Toluene		1	2.12	mg/Kg	1	2.00	<0.00318	106	70 - 130	0	20
Ethylbenzene		1	2.18	mg/Kg	1	2.00	<0.00385	109	70 - 130	4	20
Xylene		1	6.39	mg/Kg	1	6.00	0.0146	106	70 - 130	0	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.99	1.94	mg/Kg	1	2	100	97	70 - 130
4-Bromofluorobenzene (4-BFB)	1.98	1.92	mg/Kg	1	2	99	96	70 - 130

Matrix Spike (MS-1) Spiked Sample: 306910

QC Batch: 94163
Prep Batch: 79813

Date Analyzed: 2012-08-22
QC Preparation: 2012-08-22

Analyzed By: MT
Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	19.9	mg/Kg	1	20.0	1.92	90	68.9 - 120

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	21.1	mg/Kg	1	20.0	1.92	96	68.9 - 120	6	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.88	1.82	mg/Kg	1	2	94	91	70 - 130
4-Bromofluorobenzene (4-BFB)	2.44	2.36	mg/Kg	1	2	122	118	70 - 130

Calibration Standards

Standard (CCV-1)

QC Batch: 93873 Date Analyzed: 2012-08-14 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	264	106	80 - 120	2012-08-14

Standard (CCV-2)

QC Batch: 93873 Date Analyzed: 2012-08-14 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	260	104	80 - 120	2012-08-14

Standard (CCV-3)

QC Batch: 93873 Date Analyzed: 2012-08-14 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	272	109	80 - 120	2012-08-14

Standard (CCV-1)

QC Batch: 93903 Date Analyzed: 2012-08-13 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	2012-08-13

Standard (CCV-2)

QC Batch: 93903 Date Analyzed: 2012-08-13 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	2012-08-13

Standard (CCV-1)

QC Batch: 93904 Date Analyzed: 2012-08-13 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	2012-08-13

Standard (CCV-2)

QC Batch: 93904 Date Analyzed: 2012-08-13 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.2	99	85 - 115	2012-08-13

Standard (CCV-1)

QC Batch: 93905 Date Analyzed: 2012-08-13 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	99.0	99	85 - 115	2012-08-13

Standard (CCV-2)

QC Batch: 93905 Date Analyzed: 2012-08-13 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	2012-08-13

Standard (CCV-1)

QC Batch: 93943 Date Analyzed: 2012-08-16 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	297	119	80 - 120	2012-08-16

Standard (CCV-2)

QC Batch: 93943 Date Analyzed: 2012-08-16 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	248	99	80 - 120	2012-08-16

Standard (CCV-3)

QC Batch: 93943 Date Analyzed: 2012-08-16 Analyzed By: CW

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
DRO		2	mg/Kg	250	270	108	80 - 120	2012-08-16

Standard (CCV-1)

QC Batch: 94025 Date Analyzed: 2012-08-17 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0956	96	80 - 120	2012-08-17
Toluene		1	mg/kg	0.100	0.0938	94	80 - 120	2012-08-17
Ethylbenzene		1	mg/kg	0.100	0.0956	96	80 - 120	2012-08-17
Xylene		1	mg/kg	0.300	0.286	95	80 - 120	2012-08-17

Standard (CCV-2)

QC Batch: 94025 Date Analyzed: 2012-08-17 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0943	94	80 - 120	2012-08-17
Toluene		1	mg/kg	0.100	0.0926	93	80 - 120	2012-08-17
Ethylbenzene		1	mg/kg	0.100	0.0929	93	80 - 120	2012-08-17
Xylene		1	mg/kg	0.300	0.277	92	80 - 120	2012-08-17

Standard (CCV-3)

QC Batch: 94025 Date Analyzed: 2012-08-17 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0950	95	80 - 120	2012-08-17
Toluene		1	mg/kg	0.100	0.0978	98	80 - 120	2012-08-17
Ethylbenzene		1	mg/kg	0.100	0.0954	95	80 - 120	2012-08-17
Xylene		1	mg/kg	0.300	0.286	95	80 - 120	2012-08-17

Standard (CCV-1)

QC Batch: 94026 Date Analyzed: 2012-08-17 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.872	87	80 - 120	2012-08-17

Standard (CCV-2)

QC Batch: 94026 | Date Analyzed: 2012-08-17 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.884	88	80 - 120	2012-08-17

Standard (CCV-1)

QC Batch: 94090 | Date Analyzed: 2012-08-20 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0928	93	80 - 120	2012-08-20
Toluene		1	mg/kg	0.100	0.0904	90	80 - 120	2012-08-20
Ethylbenzene		1	mg/kg	0.100	0.0903	90	80 - 120	2012-08-20
Xylene		1	mg/kg	0.300	0.274	91	80 - 120	2012-08-20

Standard (CCV-2)

QC Batch: 94090 | Date Analyzed: 2012-08-20 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0934	93	80 - 120	2012-08-20
Toluene		1	mg/kg	0.100	0.0918	92	80 - 120	2012-08-20
Ethylbenzene		1	mg/kg	0.100	0.0914	91	80 - 120	2012-08-20
Xylene		1	mg/kg	0.300	0.272	91	80 - 120	2012-08-20

Standard (CCV-3)

QC Batch: 94090 | Date Analyzed: 2012-08-20 | Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0921	92	80 - 120	2012-08-20

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Toluene		1	mg/kg	0.100	0.0902	90	80 - 120	2012-08-20
Ethylbenzene		1	mg/kg	0.100	0.0923	92	80 - 120	2012-08-20
Xylene		1	mg/kg	0.300	0.276	92	80 - 120	2012-08-20

Standard (CCV-1)

QC Batch: 94092 Date Analyzed: 2012-08-20 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0923	92	80 - 120	2012-08-20
Toluene		1	mg/kg	0.100	0.0901	90	80 - 120	2012-08-20
Ethylbenzene		1	mg/kg	0.100	0.0882	88	80 - 120	2012-08-20
Xylene		1	mg/kg	0.300	0.264	88	80 - 120	2012-08-20

Standard (CCV-2)

QC Batch: 94092 Date Analyzed: 2012-08-20 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0928	93	80 - 120	2012-08-20
Toluene		1	mg/kg	0.100	0.0903	90	80 - 120	2012-08-20
Ethylbenzene		1	mg/kg	0.100	0.0899	90	80 - 120	2012-08-20
Xylene		1	mg/kg	0.300	0.271	90	80 - 120	2012-08-20

Standard (CCV-3)

QC Batch: 94092 Date Analyzed: 2012-08-20 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0902	90	80 - 120	2012-08-20

continued ...

standard continued ...

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Toluene		1	mg/kg	0.100	0.0865	86	80 - 120	2012-08-20
Ethylbenzene		1	mg/kg	0.100	0.0863	86	80 - 120	2012-08-20
Xylene		1	mg/kg	0.300	0.257	86	80 - 120	2012-08-20

Standard (CCV-1)

QC Batch: 94093 Date Analyzed: 2012-08-20 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.853	85	80 - 120	2012-08-20

Standard (CCV-2)

QC Batch: 94093 Date Analyzed: 2012-08-20 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.906	90	80 - 120	2012-08-20

Standard (CCV-3)

QC Batch: 94093 Date Analyzed: 2012-08-20 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.806	80	80 - 120	2012-08-20

Standard (CCV-1)

QC Batch: 94157 Date Analyzed: 2012-08-22 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0959	96	80 - 120	2012-08-22
Toluene		1	mg/kg	0.100	0.0999	100	80 - 120	2012-08-22
Ethylbenzene		1	mg/kg	0.100	0.100	100	80 - 120	2012-08-22
Xylene		1	mg/kg	0.300	0.293	98	80 - 120	2012-08-22

Standard (CCV-2)

QC Batch: 94157 Date Analyzed: 2012-08-22 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0963	96	80 - 120	2012-08-22
Toluene		1	mg/kg	0.100	0.103	103	80 - 120	2012-08-22
Ethylbenzene		1	mg/kg	0.100	0.101	101	80 - 120	2012-08-22
Xylene		1	mg/kg	0.300	0.293	98	80 - 120	2012-08-22

Standard (CCV-3)

QC Batch: 94157 Date Analyzed: 2012-08-22 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Benzene		1	mg/kg	0.100	0.0942	94	80 - 120	2012-08-22
Toluene		1	mg/kg	0.100	0.0978	98	80 - 120	2012-08-22
Ethylbenzene		1	mg/kg	0.100	0.0999	100	80 - 120	2012-08-22
Xylene		1	mg/kg	0.300	0.284	95	80 - 120	2012-08-22

Standard (CCV-1)

QC Batch: 94163 Date Analyzed: 2012-08-22 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.851	85	80 - 120	2012-08-22

Standard (CCV-2)

QC Batch: 94163 Date Analyzed: 2012-08-22 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.834	83	80 - 120	2012-08-22

Standard (CCV-3)

QC Batch: 94163 Date Analyzed: 2012-08-22 Analyzed By: MT

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
GRO		1	mg/Kg	1.00	0.867	87	80 - 120	2012-08-22

Appendix

Report Definitions

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

Laboratory Certifications

C	Certifying Authority	Certification Number	Laboratory Location
-	NCTRCA	WFWB384444Y0909	TraceAnalysis
-	DBE	VN 20657	TraceAnalysis
-	HUB	1752439743100-86536	TraceAnalysis
-	WBE	237019	TraceAnalysis
1	NELAP	T104704219-12-8	Lubbock
2	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

Result Comments

1 Sample dilution due to hydrocarbons.
2 Sample dilution due to hydrocarbons.
3 Low surrogate recovery due to matrix interference.

4 Sample dilution due to hydrocarbons.
5 Sample dilution due to hydrocarbons.
6 Low surrogate recovery due to matrix interference.

Attachments

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

Analysis Request of Chain of Custody Record

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

.6°C

CLIENT NAME: SM Energy

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-640-482

PROJECT NAME: SM Energy - POW Treat #2
Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
306505	8/9		S		X	AH-1 (0-1')	1				X		X	X											X				
506						AH-1 (1'-1.5')	1				X														X				
507						AH-1 (2'-2.5')	1				X														X				
508						AH-1 (3'-3.5')	1				X														X				
509						AH-1 (4'-4.5')	1				X														X				
510						AH-2 (0-1')	1				X		X	X											X				
511						AH-2 (1'-1.5')	1				X														X				
512						AH-2 (2-2.5')	1				X														X				
513						AH-2 (3-3.5')	1				X														X				
514	↓		↓		↓	AH-3 (0-1')	1				X		X	X											X				

ANALYSIS REQUEST
(Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: 10 Aug 2012 Time: 1356

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) Mary Kyers W / Braden Harris Date: 8/9/12

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

AIRBILL #:

OTHER:

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

RECEIVED BY: (Signature) L. Hernandez
DATE: 8/10/12 TIME: 13:50

TETRA TECH CONTACT PERSON: Aaron Hale

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: ok & intact

REMARKS: Run deeper sample if TPH exceed AH6-0-1-Not rec- delete & use AH6 1-1.5

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

Midland-All Run deeper samples if benzene exceeds 10mg/kg or Total BTEX exceeds 50/mg/kg for TPH/B per Aaron Hale 8/10

Analysis Request of Chain of Custody Record

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

.6°C

CLIENT NAME: SM Energy

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6401482

PROJECT NAME: SM Energy - POW Tract #2

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
515	8/9		S		X	AH-3 (1'-1.5')	1				X														X				
516						AH-3 (2'-2.5')	1				X														X				
517						AH-3 (3'-3.5')	1				X														X				
518						AH-4 (0-1')	1				X		X	X											X				
519						AH-4 (1'-1.5')	1				X														X				
520						AH-4 (2'-2.5')	1				X														X				
521						AH-4 (3'-3.5')	1				X														X				
522						AH-5 (0-1')	1				X		X	X											X				
523						AH-5 (1'-1.5')	1				X														X				
524						AH-5 (2'-2.5')	1				X														X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: / Time:	RECEIVED BY: (Signature)	Date: / Time:
RELINQUISHED BY: (Signature)	Date: 10 Aug 2012 Time: 1350	RECEIVED BY: (Signature)	Date: / Time:
RELINQUISHED BY: (Signature)	Date: / Time:	RECEIVED BY: (Signature)	Date: / Time:

SAMPLED BY: (Print & Initial) Moises Kujawski / Brandon Hernandez Date: 8/5/12 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

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

RECEIVED BY: (Signature) A. Hernandez
DATE: 8/10/12 TIME: 13:50

SAMPLE CONDITION WHEN RECEIVED:

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.

Analysis Request of Chain of Custody Record

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

.6°C

CLIENT NAME: SM Energy
SITE MANAGER: Aaron Hale
PROJECT NO.: 114-640148.2
PROJECT NAME: SM Energy - POW Treat #2

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
525	8/9		S		X	AH-5 (3'-3.5')	1				X	X												X				
						AH-6 (0-1')	1				X	X	X	X										X					
526						AH-6 (1'-1.5')	1				X	X	X	X										X					
527						AH-6 (2'-2.5')	1				X	X												X					
528	↓		↓		↓	AH-6 (3'-3.5')	1				X	X												X					

RELINQUISHED BY: (Signature) Date: Time:
RELINQUISHED BY: (Signature) Date: 12 Aug 2012 Time: 1350
RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) Marcus Kujawski / Brandon Hamilton Date: 8/9/12
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) A Hernandez
DATE: 8/10/12 TIME: 13:50

TETRA TECH CONTACT PERSON: Aaron Hale
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS:
AH-6 @ 0-1' not received - deleted as per A Hale 8/10/12 -
Run BTEX / TPH on AH-6 1-1.5 to replace

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

Analysis Request of Chain of Custody Record

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

.6°C

CLIENT NAME: SM Energy

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-640/482

PROJECT NAME: SM Energy - POW Tract #2 Eddy Co, NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
306505	8/9		S		X	AH-1 (0-1')	1				X		X	X											X				
506						AH-1 (1'-1.5')	1				X			X											X				
507						AH-1 (2'-2.5')	1				X														X				
508						AH-1 (3'-3.5')	1				X														X				
509						AH-1 (4'-4.5')	1				X														X				
510						AH-2 (0-1')	1				X			X											X				
511						AH-2 (1'-1.5')	1				X			X											X				
512						AH-2 (2'-2.5')	1				X														X				
513						AH-2 (3'-3.5')	1				X														X				
514						AH-3 (0-1')	1				X			X											X				

RELINQUISHED BY: (Signature) Date: Time:

RELINQUISHED BY: (Signature) Date: 10 Aug 2012 Time: 1356

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) Marty Kyger W / Braden Harris Date: 8/9/12

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

AIRBILL #: AUG 23 2012

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

RECEIVED BY: (Signature) L. Hernandez
DATE: 8/10/12 TIME: 13:50

TETRA TECH CONTACT PERSON: Aaron Hale

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 6° Intact

REMARKS: Run deeper sample if TPH exceed AH6-0-1-Not rec- delete & use AH6 1-1.5 for TPH/B

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

Midland-All Run deeper samples if benzene exceeds 10mg/kg or Total BTEX exceeds 50/mg/kg Per Aaron Hale 8/10/12

1RP01033

Analysis Request of Chain of Custody Record

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

.6°C

CLIENT NAME: SM Energy

SITE MANAGER: Aaron Hale

PROJECT NO.: 114-6401482

PROJECT NAME: SM Energy - POU Tract #2

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
515	8/9		S		X	AH-3 (1'-1.5')	1				X		X	X											X				
516						AH-3 (2'-2.5')	1				X														X				
517						AH-3 (3'-3.5')	1				X														X				
518						AH-4 (0-1')	1				X		X	X											X				
519						AH-4 (1'-1.5')	1				X		X	X											X				
520						AH-4 (2'-2.5')	1				X														X				
521						AH-4 (3'-3.5')	1				X														X				
522						AH-5 (0-1')	1				X		X	X											X				
523						AH-5 (1'-1.5')	1				X														X				
524						AH-5 (2'-2.5')	1				X														X				

RELINQUISHED BY: (Signature) Date: Time:

RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) Marcus Kujawski / Brandon Hankins Date: 8/9/12 Time:

RELINQUISHED BY: (Signature) Date: 10 Aug 2012 Time: 1350

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:

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

RECEIVED BY: (Signature) A. Hernandez
DATE: 8/10/12 TIME: 13:50

TETRA TECH CONTACT PERSON: Aaron Hale

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

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.