SITE INFORMATION

Report Type: Closure Report

General Site Information:	
Site:	PDU #506
Company:	SM Energy Company
Section, Township and Range	Section 35, T19S, R29E Unit Letter - J
Lease Number:	
County:	Eddy County
GPS:	32.61740° N, 104.04565° W
Surface Owner:	Federal
Mineral Owner:	
Directions:	From the intersection of US 62 and Hwy 360 (Potash Mines Road), go west on US 62 exactly 1.3 miles. Turn North onto a paved road and continue North for 2 miles until the caliche road starts. Continue North on the Caliche road for approximatly 4 miles. Turn right onto the caliche road to the east and travel approximatly 0.80 miles. Turn North and travel 0.10 miles and turn right traveling 0.10 miles to the location.

Release Data:	
Date Released:	6/29/2012
Type Release:	Produced Water
Source of Contamination:	Injection Line Pin Failure
Fluid Released:	175 bbls
Fluids Recovered:	70 bbls

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

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

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

TETRA TECH

February 25, 2013

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

Re: Closure Report for the SM Energy Company
Parkway Delaware Unit #506 Well
Injection Line Failure and Release
Unit J, Section 35, Township 19 South, Range 29 East
Eddy County, New Mexico

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by SM Energy Company (SM Energy) to assess an injection line release at the Parkway Delaware Unit #506 Well (PDU #506) located in Unit J, Section 35, Township 19 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.61740°, W 104.04565°. The site location is shown on Figures 1 and 2.

Background

According to the State of New Mexico C-141 Initial Report, the leak was discovered on June 29, 2012. Approximately 175 barrels of produced water were released from an injection line pin failure. Approximately 70 barrels of produced water were recovered. The spill area was scraped with a backhoe and the impacted soil was hauled to Controlled Recovery Inc. (CRI) for disposal. The final C-141 is enclosed in Appendix A.

Hydrology

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.

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

Regulatory

A risk-based evaluation was performed for the Site in accordance with the OCD Guidelines for Remediation of Leaks, Spills and Releases, dated August 13, 1993. The guidelines require a risk-based evaluation of the site to determine recommended remedial action levels (RRAL) for benzene, toluene, ethylbenzene and xylene (collectively referred to as BTEX) and total petroleum hydrocarbons (TPH) in soil. The proposed RRAL for benzene was determined to be 10 parts per million (ppm) or milligrams per kilogram (mg/kg) and 50 ppm for total BTEX (sum of benzene, toluene, ethylbenzene, and xylene). Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Soil Assessment and Results

On July 10, 2012, Tetra Tech personnel collected soils samples from depths ranging from 1' to 8.5' feet below ground surface (bgs), utilizing a hand auger at six locations within the spill area (identified as AH-1, AH-2, AH-3, AH-4, AH-5 and AH-6). Soil sampling stopped in each location when auger refusal occurred. Soil samples were submitted for laboratory analysis of TPH by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. The results of the sampling are summarized in Table 1.

All of the samples analyzed were below the RRAL for both BTEX and TPH. Additionally, results indicate the maximum extent of chloride impact greater than 1,000 mg/Kg extending to 1 foot (AH-1 and AH-2) on the well pad. The remainder of the impact was centered on the reserve pit, where chloride levels were reported greater than 1,000 mg/Kg (AH-4, AH-5 and AH-6) down to 3.5 feet bgs. All sample locations had chloride concentrations that decreased with depth, with the exception of AH-4, which is located in the center of the reserve pit. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The auger-hole locations are shown on Figure 4.

Remediation and Conclusion

On December 6, 2012, Tetra Tech personnel supervised the excavation of the spill area. The spill foot print and final excavation depths of the soil remediation were met as stated in the approved work plan with the following exception. A plastic liner was encountered at 1' below surface on the northeast side of the excavation in the areas of AH-4 and AH-5. A 5' x 15' area in AH-4 and a 5' x 25' area in AH-5 were not excavated to 2' below surface due to the pit liner. The depths of the excavation ranged from 1.0' to 3.0' below surface. Approximately 440 cubic yards were removed and disposed of at Lea Land disposal facility. The excavated area was then backfilled with clean material to grade.

TETRA TECH

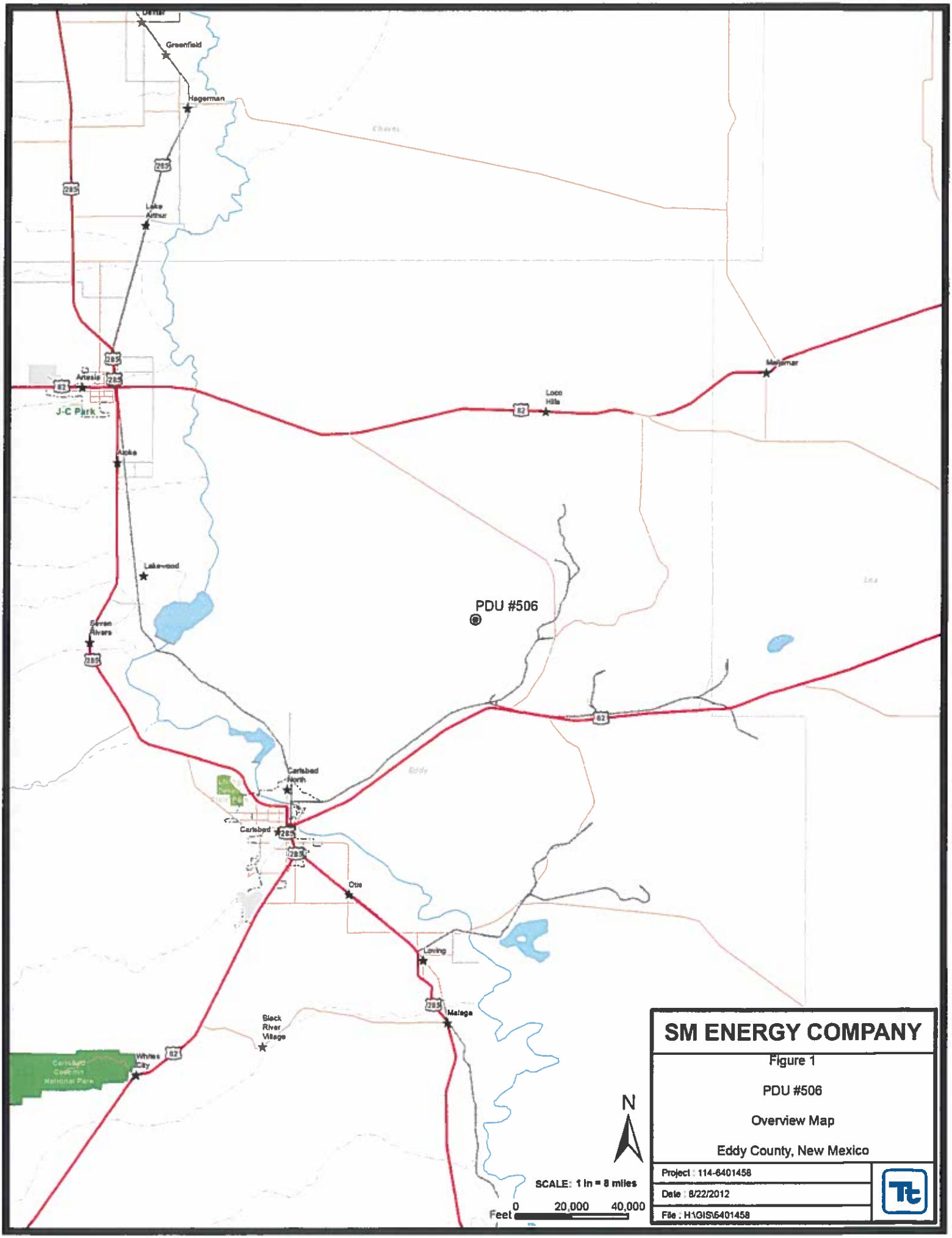
Based on the remediation activities performed at this location, SM Energy requests closure for this site. The C-141 (Final) is included in Appendix A. If you have any questions or comments concerning the remediation activities performed at the site, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH, INC.

Tom Elliott
Staff Scientist

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

FIGURES



SM ENERGY COMPANY

Figure 1

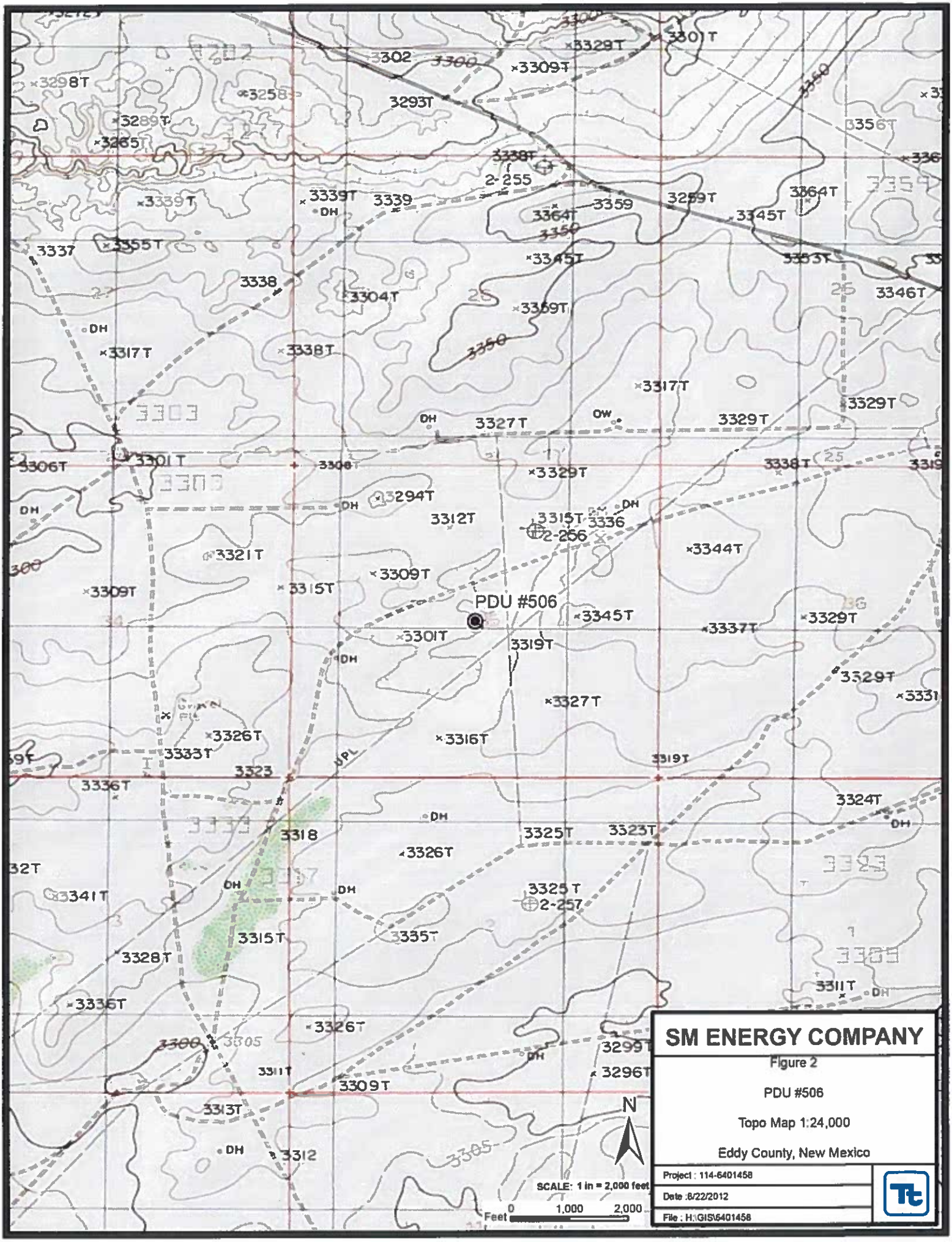
PDU #506

Overview Map

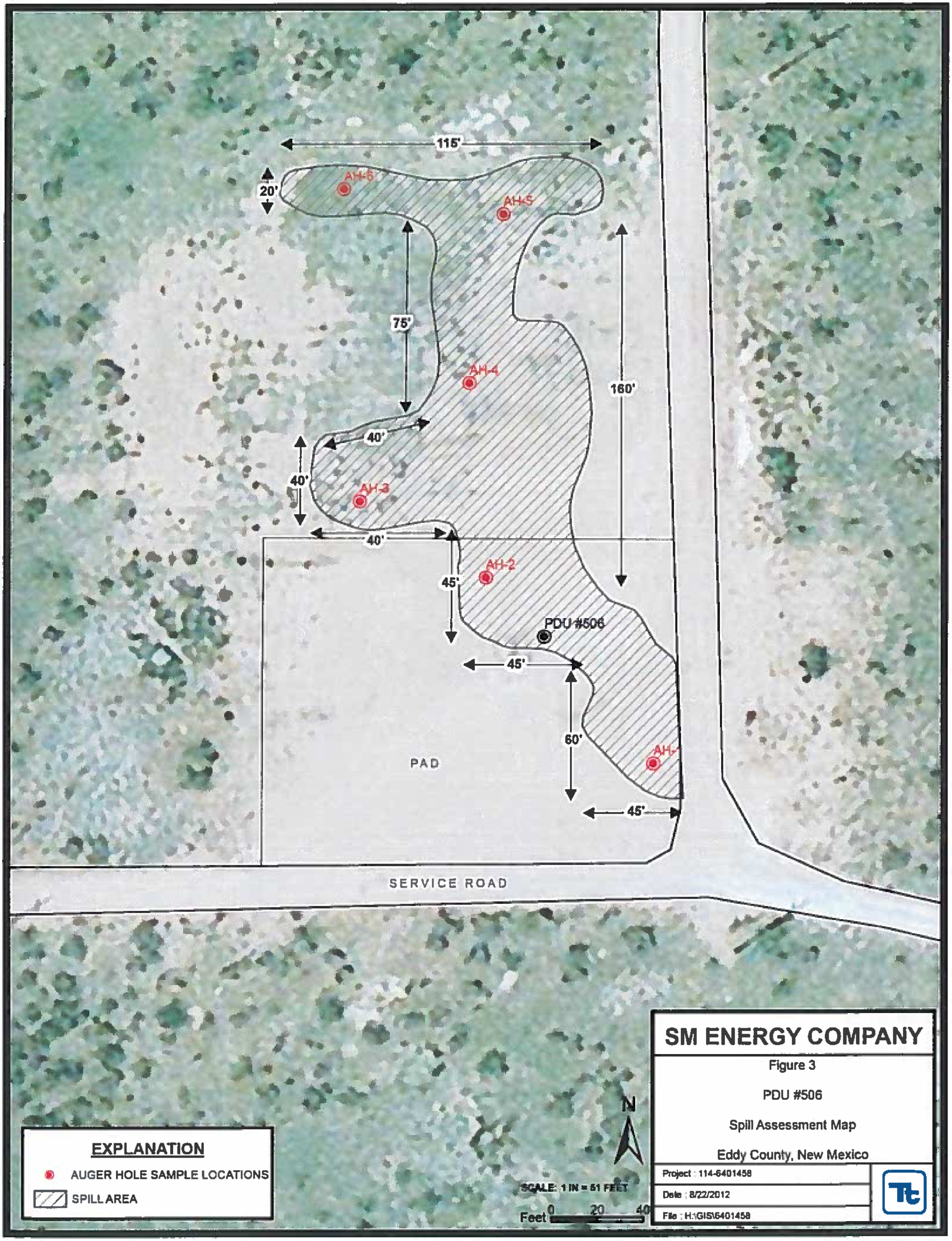
Eddy County, New Mexico

Project : 114-6401458	
Date : 8/22/2012	
File : H:\GIS\6401458	

Drawn By: Isabel Manriquez



Drawn By: Isabel Marrokin



SM ENERGY COMPANY

Figure 3

PDU #506

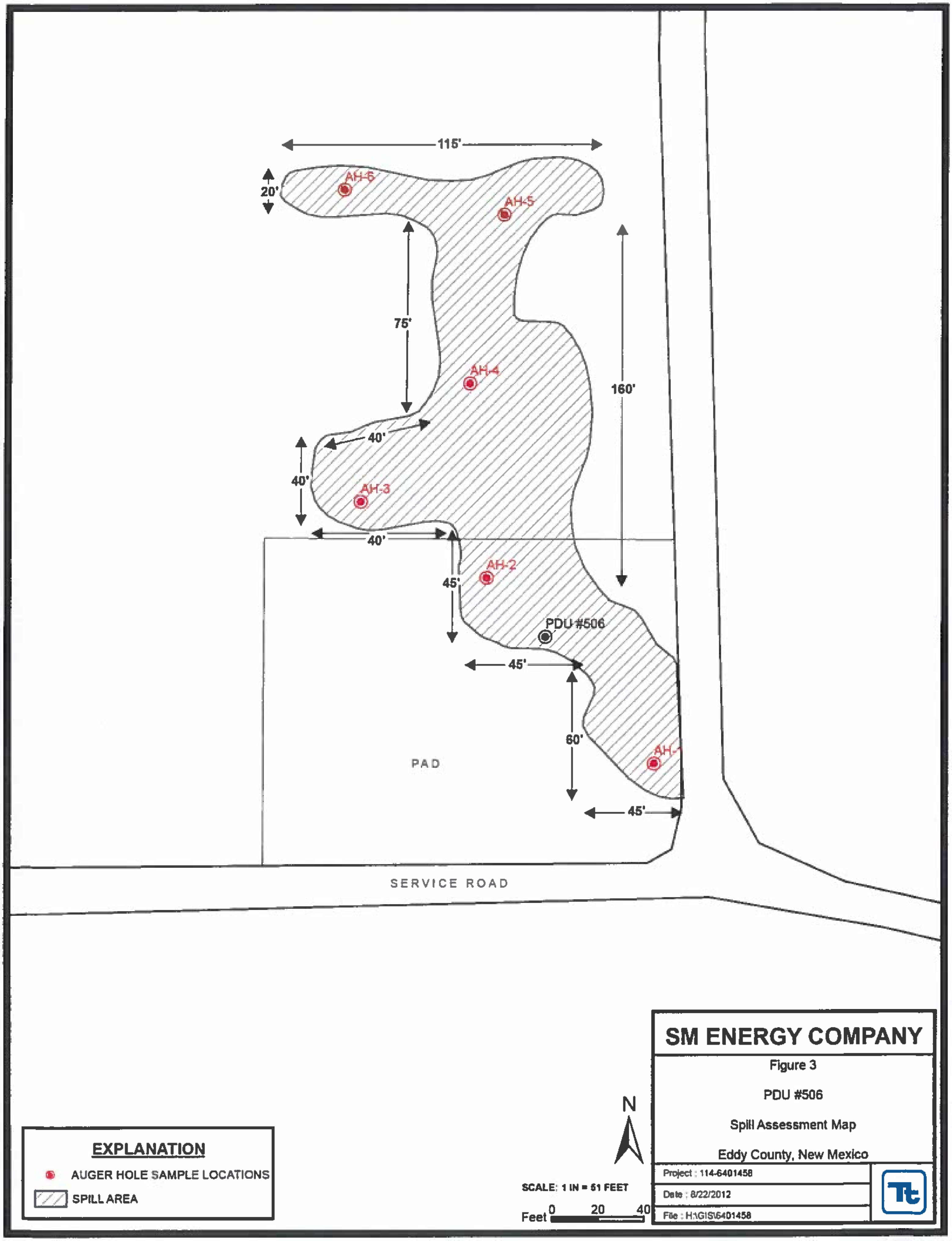
Spill Assessment Map

Eddy County, New Mexico

Project : 114-6401458

Date : 8/22/2012

File : H:\GIS\6401458



SM ENERGY COMPANY

Figure 3

PDU #506

Spill Assessment Map

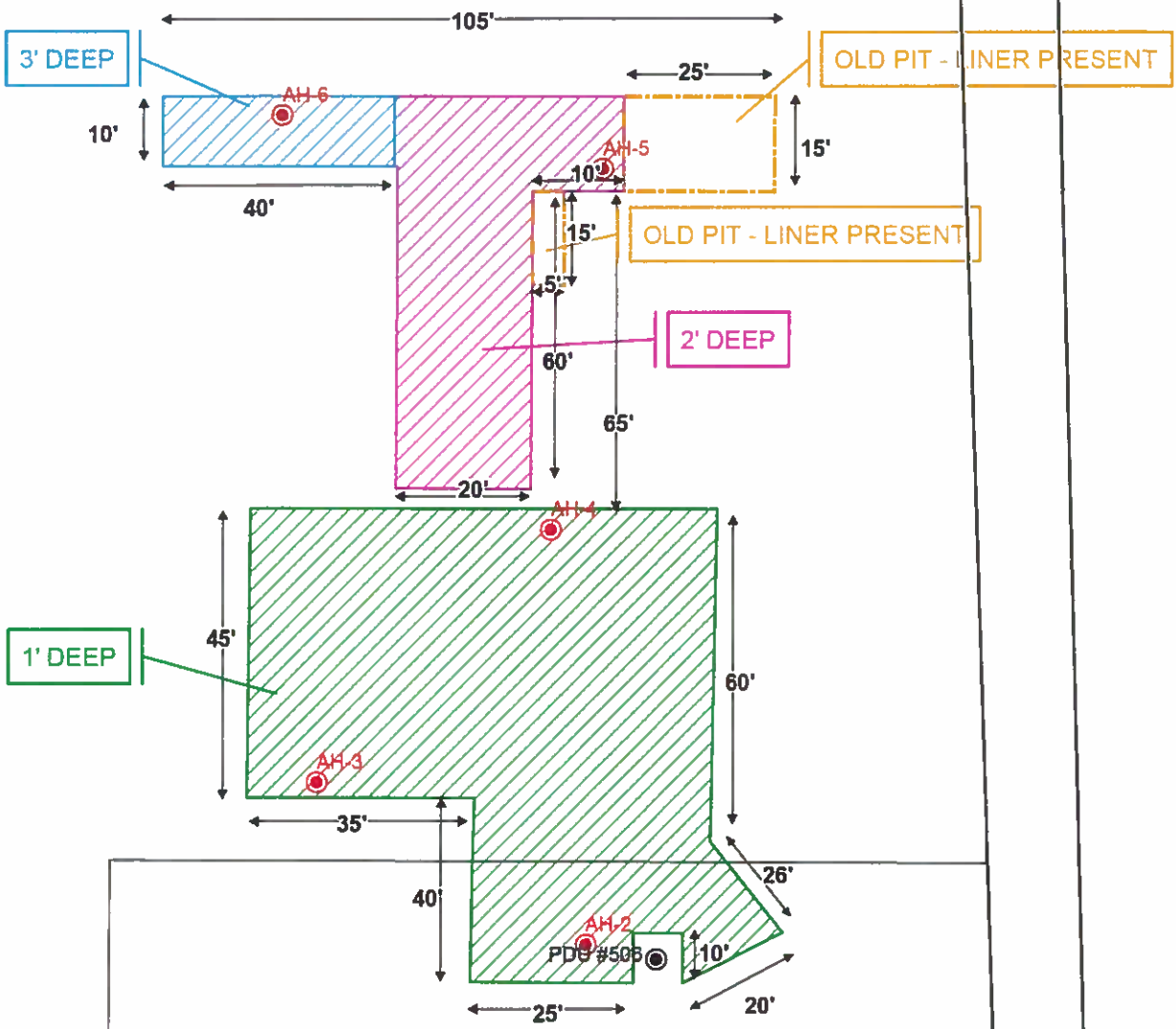
Eddy County, New Mexico

Project : 114-6401458

Date : 8/22/2012

File : H:\GIS\6401458

Drawn By: Isabel Manrique



PAD

AH-1

SERVICE ROAD

N

EXPLANATION

AUGER HOLE SAMPLE LOCATIONS

EXCAVATED AREAS

SCALE: 1 IN = 37 FEET

Feet 0 20 40

SM ENERGY COMPANY

Figure 4

PDU #506

Excavation Areas & Depths Map

Eddy County, New Mexico

Project : 114-6401458

Date : 9/28/2012

File : H:\GIS\6401458

Drawn By: Isabel Mezcolejo

TABLES

Table 1
SM Energy
Parkway Delaware 506
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB 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	7/10/2012	0-1	-	X		6.88	<50.0	6.88	<0.0200	<0.0200	<0.0200	0.0282	0.0282	791
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	<20.0
AH-2	7/12/2012	0-1	-		X	<2.00	218	218	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	9,830
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	43.8
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	24.3
AH-3	7/12/2012	0-1	-		X	42.7	427	470	<0.100	<0.100	<0.100	0.112	0.112	8,040
	"	1-1.5	-	X		-	-	-	-	-	-	-	-	127
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	92.5
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	278
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	58.2

Table 1
SM Energy
Parkway Delaware 506
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB 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-4	7/12/2012	0-1	-		X	<2.00	109	109	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	3,480
	"	1-1.5	-		X	-	-	-	-	-	-	-	-	3,140
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	1,740
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	1,460
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	945
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	2,340
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	1,140
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	2,060
AH-5	7/12/2012	0-1	-		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	5,390
	"	1-1.5	-		X	-	-	-	-	-	-	-	-	1,640
	"	2-2.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	<20.0
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	92.4
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	107
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	136
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	38.9
	"	8-8.5	-	X		-	-	-	-	-	-	-	-	54.0

Table 1
SM Energy
Parkway Delaware 506
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	BEB 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-6	7/12/2012	0-1	-		X	<2.00	<50.0	<50.0	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	6,760
	"	1-1.5	-		X	-	-	-	-	-	-	-	-	6,090
	"	2-2.5	-		X	-	-	-	-	-	-	-	-	3,660
	"	3-3.5	-	X		-	-	-	-	-	-	-	-	290
	"	4-4.5	-	X		-	-	-	-	-	-	-	-	407
	"	5-5.5	-	X		-	-	-	-	-	-	-	-	201
	"	6-6.5	-	X		-	-	-	-	-	-	-	-	299
	"	7-7.5	-	X		-	-	-	-	-	-	-	-	506

BEB Below Excavation Bottom

(--) Not Analyzed

Excavated Material

PHOTOGRAPHS

SM Energy Company
PDU #506
Eddy County, New Mexico

TETRA TECH

View Northwest– Excavation of AH-2.

View East – Excavation of AH-3.

SM Energy Company
PDU #506
Eddy County, New Mexico

TETRA TECH

View South– Excavation of AH-4.

View West – Excavation of AH-5 and AH-6.

SM Energy Company
PDU #506
Eddy County, New Mexico

TETRA TECH

View North – Backfill

View North – Backfill

APPENDIX A

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

OPERATOR

☐ Initial Report ☒ Final Report

Name of Company	SM Energy Company	Contact	Vickie Martinez
Address	3300 N "A" ST BLDG 7-200 Midland, TX 79705	Telephone No.	(432) 688-1709
Facility Name	PDU 506	Facility Type	Well

Surface Owner: BLM	Mineral Owner: BLM	Lease No. (API#) 30-015-27464

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	35	19S	29E	2635	South	2640	East	Eddy

Latitude N 32.61740° **Longitude** W 104.04565°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 175 bbls	Volume Recovered 70 bbls
Source of Release: 1.50'' OD Centron FG INJ Line Pin	Date and Hour of Occurrence 6/29/2012 6:00 A.M.	Date and Hour of Discovery Same
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Mike Bratcher and Jim Amos	
By Whom? Bill Hearne	Date and Hour 6/29/2012 10:37 P.M.	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

1.50'' OD Centron FG INJ Line Pin Failure.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech personnel inspected the site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. The site was then brought up to surface grade with clean backfill material. Tetra Tech prepared a closure report and submitted to NMOCD for review.

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the NMOCD marked as "Final Report" does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to ground water, surface water, human health or the environment. In addition, NMOCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Aaron Hale	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Aaron.Hale@TetraTech.com	Conditions of Approval:	Attached ☐
Date: Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

APPENDIX B

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**

Water Well Data
Average Depth to Groundwater (ft)
SM Energy - Parkway Delaware Unit #506 Well

18 South 28 East

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

19 South 28 East

6	5	4	3	2	1
7	8	9 265	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

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

18 South 29 East

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

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

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

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 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 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

88 New Mexico State Engineers Well Reports
105 USGS Well Reports
90 Geology and Groundwater Conditions in Southern Lea, County, NM (Report 6)
Geology and Groundwater Resources of Eddy County, NM (Report 3)
34 NMOCD - Groundwater Data
123 Field water level - Temporary Wells installed to establish depth to water

APPENDIX C

TRACEANALYSIS, INC.

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

Certifications

WBE HUB NCTRCA DBE NELAP DoD LELAP Kansas Oklahoma ISO 17025

Analytical and Quality Control Report

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

Report Date: July 23, 2012

Work Order: 12071601

Project Location: Eddy Co., NM
Project Name: SME/PDU 506
Project Number: 114-6401458

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
303721	AH-1 0-1'	soil	2012-07-10	00:00	2012-07-13
303722	AH-1 1-1.5'	soil	2012-07-10	00:00	2012-07-13
303723	AH-1 2-2.5'	soil	2012-07-10	00:00	2012-07-13
303724	AH-1 3-3.5'	soil	2012-07-10	00:00	2012-07-13
303725	AH-2 0-1'	soil	2012-07-12	00:00	2012-07-13
303726	AH-2 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303727	AH-2 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303728	AH-2 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303729	AH-2 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303730	AH-2 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303731	AH-2 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303732	AH-3 0-1'	soil	2012-07-12	00:00	2012-07-13
303733	AH-3 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303734	AH-3 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303735	AH-3 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303736	AH-3 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303737	AH-3 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303738	AH-4 0-1'	soil	2012-07-12	00:00	2012-07-13

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
303739	AH-4 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303740	AH-4 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303741	AH-4 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303742	AH-4 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303743	AH-4 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303744	AH-4 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303745	AH-4 7-7.5'	soil	2012-07-12	00:00	2012-07-13
303746	AH-5 0-1'	soil	2012-07-12	00:00	2012-07-13
303747	AH-5 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303748	AH-5 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303749	AH-5 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303750	AH-5 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303751	AH-5 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303752	AH-5 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303753	AH-5 7-7.5'	soil	2012-07-12	00:00	2012-07-13
303754	AH-6 0-1'	soil	2012-07-12	00:00	2012-07-13
303755	AH-6 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303756	AH-6 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303757	AH-6 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303758	AH-6 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303759	AH-6 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303760	AH-6 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303761	AH-6 7-7.5'	soil	2012-07-12	00:00	2012-07-13
303762	AH-5 8-8.5'	soil	2012-07-12	00:00	2012-07-13

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.

Michael Abel

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

Report Contents

Case Narrative

Samples for project SME/PDU 506 were received by TraceAnalysis, Inc. on 2012-07-13 and assigned to work order 12071601. Samples for work order 12071601 were received intact at a temperature of 4.8 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	78957	2012-07-17 at 14:57	93123	2012-07-17 at 14:57
BTEX	S 8021B	79057	2012-07-20 at 16:07	93245	2012-07-20 at 16:07
Chloride (Titration)	SM 4500-Cl B	78955	2012-07-17 at 12:43	93166	2012-07-18 at 16:04
Chloride (Titration)	SM 4500-Cl B	78955	2012-07-17 at 12:43	93167	2012-07-18 at 16:05
Chloride (Titration)	SM 4500-Cl B	78955	2012-07-17 at 12:43	93168	2012-07-18 at 16:05
Chloride (Titration)	SM 4500-Cl B	78994	2012-07-18 at 08:58	93257	2012-07-19 at 16:36
Chloride (Titration)	SM 4500-Cl B	78994	2012-07-18 at 08:58	93258	2012-07-19 at 16:37
TPH DRO - NEW	S 8015 D	78968	2012-07-17 at 16:30	93140	2012-07-18 at 19:00
TPH GRO	S 8015 D	78957	2012-07-17 at 14:57	93124	2012-07-17 at 14:57
TPH GRO	S 8015 D	79057	2012-07-20 at 16:07	93244	2012-07-20 at 16:07

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 12071601 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: 303721 - AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93123	Date Analyzed:	2012-07-17	Analyzed By:	MT
Prep Batch:	78957	Sample Preparation:	2012-07-17	Prepared By:	MT

Parameter	Flag	Cert	Result	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		1	**0.0282**		mg/Kg	1	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.84	mg/Kg	1	2.00	92	70 - 130
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	70 - 130

Sample: 303721 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93166	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Result	Units	Dilution	RL
Chloride				**791**	mg/Kg	5	4.00

Sample: 303721 - AH-1 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			155	mg/Kg	1	100	155	49.3 - 157.5

Sample: 303721 - AH-1 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93124	Date Analyzed:	2012-07-17	Analyzed By:	MT
Prep Batch:	78957	Sample Preparation:	2012-07-17	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO [1]	B	1	**6.88**	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			1.85	mg/Kg	1	2.00	92	70 - 130

Sample: 303722 - AH-1 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93166	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303723 - AH-1 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93166	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

continued ...

sample 303723 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL

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

Sample: 303724 - AH-1 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93166	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303725 - AH-2 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	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)			1.99	mg/Kg	1	2.00	100	70 - 130
4-Bromofluorobenzene (4-BFB)			2.00	mg/Kg	1	2.00	100	70 - 130

Sample: 303725 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93166	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**9830**	mg/Kg	10	4.00

Sample: 303725 - AH-2 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		3	**218**	mg/Kg	1	50.0

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	QSR	QSR		168	mg/Kg	1	100	168	49.3 - 157.5

Sample: 303725 - AH-2 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.87	mg/Kg	1	2.00	94	70 - 130
4-Bromofluorobenzene (4-BFB)			2.10	mg/Kg	1	2.00	105	70 - 130

Sample: 303726 - AH-2 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93166	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303727 - AH-2 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**43.8**	mg/Kg	5	4.00

Sample: 303728 - AH-2 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303729 - AH-2 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303730 - AH-2 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303731 - AH-2 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**24.3**	mg/Kg	5	4.00

Sample: 303732 - AH-3 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Benzene [2]	U	1	<0.100	mg/Kg	5	0.0200
Toluene	U	1	<0.100	mg/Kg	5	0.0200
Ethylbenzene	U	1	<0.100	mg/Kg	5	0.0200

continued ...

sample 303732 continued ...

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Xylene	B	1	**0.112**	mg/Kg	5	0.0200

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.80	mg/Kg	5	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			1.98	mg/Kg	5	2.00	99	70 - 130

Sample: 303732 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**8040**	mg/Kg	10	4.00

Sample: 303732 - AH-3 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
DRO		2	**427**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	167	mg/Kg	1	100	167	49.3 - 157.5

Sample: 303732 - AH-3 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO		1	**42.7**	mg/Kg	5	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.56	mg/Kg	5	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			2.18	mg/Kg	5	2.00	109	70 - 130

Sample: 303733 - AH-3 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**127**	mg/Kg	5	4.00

Sample: 303734 - AH-3 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**92.5**	mg/Kg	5	4.00

Sample: 303735 - AH-3 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**278**	mg/Kg	5	4.00

Sample: 303736 - AH-3 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93167	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

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

Sample: 303737 - AH-3 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**58.2**	mg/Kg	5	4.00

Sample: 303738 - AH-4 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	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

continued ...

sample 303738 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.09	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.03	mg/Kg	1	2.00	102	70 - 130

Sample: 303738 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
Chloride			**3480**	mg/Kg	10	4.00

Sample: 303738 - AH-4 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

Parameter	Flag	Cert	Result	RL Units	Dilution	RL
DRO		2	**109**	mg/Kg	1	50.0

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane			157	mg/Kg	1	100	157	49.3 - 157.5

Sample: 303738 - AH-4 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.96	mg/Kg	1	2.00	98	70 - 130
4-Bromofluorobenzene (4-BFB)			2.17	mg/Kg	1	2.00	108	70 - 130

Sample: 303739 - AH-4 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3140**	mg/Kg	10	4.00

Sample: 303740 - AH-4 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1740**	mg/Kg	10	4.00

Sample: 303741 - AH-4 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1460**	mg/Kg	10	4.00

Sample: 303742 - AH-4 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**945**	mg/Kg	5	4.00

Sample: 303743 - AH-4 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2340**	mg/Kg	10	4.00

Sample: 303744 - AH-4 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1140**	mg/Kg	10	4.00

Sample: 303745 - AH-4 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**2060**	mg/Kg	10	4.00

Sample: 303746 - AH-5 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	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)			2.04	mg/Kg	1	2.00	102	70 - 130
4-Bromofluorobenzene (4-BFB)			2.01	mg/Kg	1	2.00	100	70 - 130

Sample: 303746 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93168	Date Analyzed:	2012-07-18	Analyzed By:	AR
Prep Batch:	78955	Sample Preparation:	2012-07-17	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**5390**	mg/Kg	10	4.00

Sample: 303746 - AH-5 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

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

Surrogate		Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr		169	mg/Kg	1	100	169	49.3 - 157.5

Sample: 303746 - AH-5 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<2.00	mg/Kg	1	2.00

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.93	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

Sample: 303747 - AH-5 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**1640**	mg/Kg	10	4.00

Sample: 303748 - AH-5 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303749 - AH-5 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303750 - AH-5 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**92.4**	mg/Kg	5	4.00

Sample: 303751 - AH-5 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

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

Sample: 303752 - AH-5 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**136**	mg/Kg	5	4.00

Sample: 303753 - AH-5 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**38.9**	mg/Kg	5	4.00

Sample: 303754 - AH-6 0-1'

Laboratory:	Lubbock				
Analysis:	BTEX	Analytical Method:	S 8021B	Prep Method:	S 5035
QC Batch:	93245	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	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

continued ...

sample 303754 continued ...

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			2.07	mg/Kg	1	2.00	104	70 - 130
4-Bromofluorobenzene (4-BFB)			2.02	mg/Kg	1	2.00	101	70 - 130

Sample: 303754 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6760**	mg/Kg	10	4.00

Sample: 303754 - AH-6 0-1'

Laboratory:	Midland				
Analysis:	TPH DRO - NEW	Analytical Method:	S 8015 D	Prep Method:	N/A
QC Batch:	93140	Date Analyzed:	2012-07-18	Analyzed By:	CW
Prep Batch:	78968	Sample Preparation:	2012-07-17	Prepared By:	CW

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

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
n-Tricosane	Qsr	Qsr	161	mg/Kg	1	100	161	49.3 - 157.5

Sample: 303754 - AH-6 0-1'

Laboratory:	Lubbock				
Analysis:	TPH GRO	Analytical Method:	S 8015 D	Prep Method:	S 5035
QC Batch:	93244	Date Analyzed:	2012-07-20	Analyzed By:	MT
Prep Batch:	79057	Sample Preparation:	2012-07-20	Prepared By:	MT

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
GRO	U	1	<2.00	mg/Kg	1	2.00

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)			2.10	mg/Kg	1	2.00	105	70 - 130

Sample: 303755 - AH-6 1-1.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**6090**	mg/Kg	10	4.00

Sample: 303756 - AH-6 2-2.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93257	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**3660**	mg/Kg	10	4.00

Sample: 303757 - AH-6 3-3.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**290**	mg/Kg	5	4.00

Sample: 303758 - AH-6 4-4.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**407**	mg/Kg	5	4.00

Sample: 303759 - AH-6 5-5.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**201**	mg/Kg	5	4.00

Sample: 303760 - AH-6 6-6.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**299**	mg/Kg	5	4.00

Sample: 303761 - AH-6 7-7.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**506**	mg/Kg	5	4.00

Sample: 303762 - AH-5 8-8.5'

Laboratory:	Midland				
Analysis:	Chloride (Titration)	Analytical Method:	SM 4500-Cl B	Prep Method:	N/A
QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	Sample Preparation:	2012-07-18	Prepared By:	AR

Parameter	Flag	Cert	RL Result	Units	Dilution	RL
Chloride			**54.0**	mg/Kg	5	4.00

Method Blanks

Method Blank (1) QC Batch: 93123

QC Batch: 93123 | Date Analyzed: 2012-07-17 | Analyzed By: MT
Prep Batch: 78957 | QC Preparation: 2012-07-17 | 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)			1.93	mg/Kg	1	2.00	96	70 - 130
4-Bromofluorobenzene (4-BFB)			1.96	mg/Kg	1	2.00	98	70 - 130

Method Blank (1) QC Batch: 93124

QC Batch: 93124 | Date Analyzed: 2012-07-17 | Analyzed By: MT
Prep Batch: 78957 | QC Preparation: 2012-07-17 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	1.21	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.79	mg/Kg	1	2.00	90	70 - 130
4-Bromofluorobenzene (4-BFB)			2.08	mg/Kg	1	2.00	104	70 - 130

Method Blank (1) QC Batch: 93140

QC Batch: 93140 | Date Analyzed: 2012-07-18 | Analyzed By: CW
Prep Batch: 78968 | QC Preparation: 2012-07-17 | 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			107	mg/Kg	1	100	107	52 - 160.8

Method Blank (1) QC Batch: 93166

QC Batch: 93166 Date Analyzed: 2012-07-18 Analyzed By: AR
Prep Batch: 78955 QC Preparation: 2012-07-17 Prepared By: AR

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

Method Blank (1) QC Batch: 93167

QC Batch: 93167 Date Analyzed: 2012-07-18 Analyzed By: AR
Prep Batch: 78955 QC Preparation: 2012-07-17 Prepared By: AR

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

Method Blank (1) QC Batch: 93168

QC Batch: 93168 Date Analyzed: 2012-07-18 Analyzed By: AR
Prep Batch: 78955 QC Preparation: 2012-07-17 Prepared By: AR

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

Method Blank (1) QC Batch: 93244

QC Batch: 93244 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

Parameter	Flag	Cert	MDL Result	Units	RL
GRO		1	<0.359	mg/Kg	2

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.55	mg/Kg	1	2.00	78	70 - 130
4-Bromofluorobenzene (4-BFB)			1.83	mg/Kg	1	2.00	92	70 - 130

Method Blank (1) QC Batch: 93245

QC Batch: 93245 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | 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	0.0121	mg/Kg	0.02

Surrogate	Flag	Cert	Result	Units	Dilution	Spike Amount	Percent Recovery	Recovery Limits
Trifluorotoluene (TFT)			1.63	mg/Kg	1	2.00	82	70 - 130
4-Bromofluorobenzene (4-BFB)			1.74	mg/Kg	1	2.00	87	70 - 130

Method Blank (1) QC Batch: 93257

QC Batch: 93257 | Date Analyzed: 2012-07-19 | Analyzed By: AR
Prep Batch: 78994 | QC Preparation: 2012-07-18 | Prepared By: AR

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

Method Blank (1) QC Batch: 93258

QC Batch:	93258	Date Analyzed:	2012-07-19	Analyzed By:	AR
Prep Batch:	78994	QC Preparation:	2012-07-18	Prepared By:	AR

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

Laboratory Control Spikes

Laboratory Control Spike (LCS-1)

QC Batch: 93123 | Date Analyzed: 2012-07-17 | Analyzed By: MT
Prep Batch: 78957 | QC Preparation: 2012-07-17 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.91	mg/Kg	1	2.00	<0.00365	96	75.4 - 120
Toluene		1	1.88	mg/Kg	1	2.00	<0.00816	94	74.9 - 120
Ethylbenzene		1	1.90	mg/Kg	1	2.00	<0.00560	95	78.1 - 120
Xylene		1	5.73	mg/Kg	1	6.00	<0.00460	96	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	1	20
Toluene		1	1.88	mg/Kg	1	2.00	<0.00816	94	74.9 - 120	0	20
Ethylbenzene		1	1.89	mg/Kg	1	2.00	<0.00560	94	78.1 - 120	0	20
Xylene		1	5.67	mg/Kg	1	6.00	<0.00460	94	77.3 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.90	1.88	mg/Kg	1	2.00	95	94	70 - 130
4-Bromofluorobenzene (4-BFB)	1.89	1.86	mg/Kg	1	2.00	94	93	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93124 | Date Analyzed: 2012-07-17 | Analyzed By: MT
Prep Batch: 78957 | QC Preparation: 2012-07-17 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	20.1	mg/Kg	1	20.0	1.21	100	68.9 - 120

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

continued ...

control spikes continued ...

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	20.3	mg/Kg	1	20.0	1.21	102	68.9 - 120	1	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.74	1.74	mg/Kg	1	2.00	87	87	70 - 130
4-Bromofluorobenzene (4-BFB)	2.08	2.07	mg/Kg	1	2.00	104	104	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93140 | Date Analyzed: 2012-07-18 | Analyzed By: CW
Prep Batch: 78968 | QC Preparation: 2012-07-17 | Prepared By: CW

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		2	213	mg/Kg	1	250	<14.5	85	62 - 128.3

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	224	mg/Kg	1	250	<14.5	90	62 - 128.3	5	20

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

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
n-Tricosane	122	126	mg/Kg	1	100	122	126	58.6 - 149.6

Laboratory Control Spike (LCS-1)

QC Batch: 93166 | Date Analyzed: 2012-07-18 | Analyzed By: AR
Prep Batch: 78955 | QC Preparation: 2012-07-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2580	mg/Kg	1	2500	<3.85	103	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			2680	mg/Kg	1	2500	<3.85	107	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: 93167 | Date Analyzed: 2012-07-18 | Analyzed By: AR
Prep Batch: 78955 | QC Preparation: 2012-07-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2490	mg/Kg	1	2500	<3.85	100	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2590	mg/Kg	1	2500	<3.85	104	85 - 115	4	20

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

Laboratory Control Spike (LCS-1)

QC Batch: 93168 | Date Analyzed: 2012-07-18 | Analyzed By: AR
Prep Batch: 78955 | QC Preparation: 2012-07-17 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2470	mg/Kg	1	2500	<3.85	99	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			2560	mg/Kg	1	2500	<3.85	102	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: 93244 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.4	mg/Kg	1	20.0	<0.359	82	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	16.0	mg/Kg	1	20.0	<0.359	80	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)	1.68	1.49	mg/Kg	1	2.00	84	74	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.89	mg/Kg	1	2.00	97	94	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93245 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.82	mg/Kg	1	2.00	<0.00365	91	75.4 - 120
Toluene		1	1.76	mg/Kg	1	2.00	<0.00816	88	74.9 - 120
Ethylbenzene		1	1.74	mg/Kg	1	2.00	<0.00560	87	78.1 - 120
Xylene		1	5.25	mg/Kg	1	6.00	0.0121	88	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	1.78	mg/Kg	1	2.00	<0.00365	89	75.4 - 120	2	20
Toluene		1	1.77	mg/Kg	1	2.00	<0.00816	88	74.9 - 120	1	20
Ethylbenzene		1	1.76	mg/Kg	1	2.00	<0.00560	88	78.1 - 120	1	20
Xylene		1	5.26	mg/Kg	1	6.00	0.0121	88	77.3 - 120	0	20

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

continued ...

control spikes continued ...

Surrogate	LCS Result	LCSD Result	Units	Dil.	Spike Amount	LCS Rec.	LCSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.71	1.58	mg/Kg	1	2.00	86	79	70 - 130
4-Bromofluorobenzene (4-BFB)	1.79	1.75	mg/Kg	1	2.00	90	88	70 - 130

Laboratory Control Spike (LCS-1)

QC Batch: 93257 | Date Analyzed: 2012-07-19 | Analyzed By: AR
Prep Batch: 78994 | QC Preparation: 2012-07-18 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2610	mg/Kg	1	2500	<3.85	104	85 - 115

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

Param	F	C	LCSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2520	mg/Kg	1	2500	<3.85	101	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: 93258 | Date Analyzed: 2012-07-19 | Analyzed By: AR
Prep Batch: 78994 | QC Preparation: 2012-07-18 | Prepared By: AR

Param	F	C	LCS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2580	mg/Kg	1	2500	<3.85	103	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			2700	mg/Kg	1	2500	<3.85	108	85 - 115	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: 303336

QC Batch: 93123 | Date Analyzed: 2012-07-17 | Analyzed By: MT
Prep Batch: 78957 | QC Preparation: 2012-07-17 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.71	mg/Kg	1	2.00	<0.00365	86	37.6 - 142
Toluene		1	1.83	mg/Kg	1	2.00	<0.00816	92	38.6 - 153
Ethylbenzene		1	1.95	mg/Kg	1	2.00	<0.00560	98	36.7 - 172
Xylene		1	5.89	mg/Kg	1	6.00	<0.00460	98	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	1.70	mg/Kg	1	2.00	<0.00365	85	37.6 - 142	1	20
Toluene		1	1.80	mg/Kg	1	2.00	<0.00816	90	38.6 - 153	2	20
Ethylbenzene		1	1.92	mg/Kg	1	2.00	<0.00560	96	36.7 - 172	2	20
Xylene		1	5.79	mg/Kg	1	6.00	<0.00460	96	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)	1.87	1.90	mg/Kg	1	2	94	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.84	1.85	mg/Kg	1	2	92	92	70 - 130

Matrix Spike (MS-1) Spiked Sample: 303336

QC Batch: 93124 | Date Analyzed: 2012-07-17 | Analyzed By: MT
Prep Batch: 78957 | QC Preparation: 2012-07-17 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.7	mg/Kg	1	20.0	<0.359	84	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	17.2	mg/Kg	1	20.0	<0.359	86	70 - 130	3	20

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

continued ...

matrix spikes continued ...

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.65	1.62	mg/Kg	1	2	82	81	70 - 130
4-Bromofluorobenzene (4-BFB)	2.12	2.10	mg/Kg	1	2	106	105	70 - 130

Matrix Spike (MS-1) Spiked Sample: 303708

QC Batch: 93140 | Date Analyzed: 2012-07-18 | Analyzed By: CW
Prep Batch: 78968 | QC Preparation: 2012-07-17 | Prepared By: CW

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
DRO		3	236	mg/Kg	1	250	<14.5	94	45.5 - 127

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		3	240	mg/Kg	1	250	<14.5	96	45.5 - 127	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	120	115	mg/Kg	1	100	120	115	45.4 - 145.8

Matrix Spike (MS-1) Spiked Sample: 303726

QC Batch: 93166 | Date Analyzed: 2012-07-18 | Analyzed By: AR
Prep Batch: 78955 | QC Preparation: 2012-07-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2640	mg/Kg	5	2500	<19.2	106	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2770	mg/Kg	5	2500	<19.2	111	79.4 - 120.6	5	20

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

Matrix Spike (MS-1) Spiked Sample: 303736

QC Batch: 93167 | Date Analyzed: 2012-07-18 | Analyzed By: AR
Prep Batch: 78955 | QC Preparation: 2012-07-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			2590	mg/Kg	5	2500	<19.2	104	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			2710	mg/Kg	5	2500	<19.2	108	79.4 - 120.6	4	20

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

Matrix Spike (MS-1) Spiked Sample: 303746

QC Batch: 93168 | Date Analyzed: 2012-07-18 | Analyzed By: AR
Prep Batch: 78955 | QC Preparation: 2012-07-17 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			8270	mg/Kg	10	2500	5390	115	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			8360	mg/Kg	10	2500	5390	119	79.4 - 120.6	1	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: 303804

QC Batch: 93244 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
GRO		1	16.3	mg/Kg	1	20.0	<0.359	82	70 - 130

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
GRO		1	16.5	mg/Kg	1	20.0	<0.359	82	70 - 130	1	20

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

Surrogate	MS Result	MSD Result	Units	Dil.	Spike Amount	MS Rec.	MSD Rec.	Rec. Limit
Trifluorotoluene (TFT)	1.64	1.63	mg/Kg	1	2	82	82	70 - 130
4-Bromofluorobenzene (4-BFB)	2.09	2.11	mg/Kg	1	2	104	106	70 - 130

Matrix Spike (MS-1) Spiked Sample: 303804

QC Batch: 93245 | Date Analyzed: 2012-07-20 | Analyzed By: MT
Prep Batch: 79057 | QC Preparation: 2012-07-20 | Prepared By: MT

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Benzene		1	1.71	mg/Kg	1	2.00	<0.00365	86	37.6 - 142
Toluene		1	1.83	mg/Kg	1	2.00	<0.00816	92	38.6 - 153
Ethylbenzene		1	1.94	mg/Kg	1	2.00	<0.00560	97	36.7 - 172
Xylene		1	5.87	mg/Kg	1	6.00	<0.00460	98	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	1.68	mg/Kg	1	2.00	<0.00365	84	37.6 - 142	2	20
Toluene		1	1.81	mg/Kg	1	2.00	<0.00816	90	38.6 - 153	1	20
Ethylbenzene		1	1.92	mg/Kg	1	2.00	<0.00560	96	36.7 - 172	1	20
Xylene		1	5.81	mg/Kg	1	6.00	<0.00460	97	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)	1.90	1.90	mg/Kg	1	2	95	95	70 - 130
4-Bromofluorobenzene (4-BFB)	1.94	1.89	mg/Kg	1	2	97	94	70 - 130

Matrix Spike (MS-1) Spiked Sample: 303756

QC Batch: 93257 | Date Analyzed: 2012-07-19 | Analyzed By: AR
Prep Batch: 78994 | QC Preparation: 2012-07-18 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			6440	mg/Kg	10	2500	3660	111	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			6600	mg/Kg	10	2500	3660	118	79.4 - 120.6	2	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: 303766

QC Batch: 93258 | Date Analyzed: 2012-07-19 | Analyzed By: AR
Prep Batch: 78994 | QC Preparation: 2012-07-18 | Prepared By: AR

Param	F	C	MS Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit
Chloride			3030	mg/Kg	5	2500	123	116	79.4 - 120.6

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

Param	F	C	MSD Result	Units	Dil.	Spike Amount	Matrix Result	Rec.	Rec. Limit	RPD	RPD Limit
Chloride			3130	mg/Kg	5	2500	123	120	79.4 - 120.6	3	20

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

Calibration Standards

Standard (CCV-1)

QC Batch: 93123 Date Analyzed: 2012-07-17 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	0.0946	95	80 - 120	2012-07-17
Toluene		1	mg/kg	0.100	0.0934	93	80 - 120	2012-07-17
Ethylbenzene		1	mg/kg	0.100	0.0957	96	80 - 120	2012-07-17
Xylene		1	mg/kg	0.300	0.288	96	80 - 120	2012-07-17

Standard (CCV-2)

QC Batch: 93123 Date Analyzed: 2012-07-17 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	0.0936	94	80 - 120	2012-07-17
Toluene		1	mg/kg	0.100	0.0926	93	80 - 120	2012-07-17
Ethylbenzene		1	mg/kg	0.100	0.0930	93	80 - 120	2012-07-17
Xylene		1	mg/kg	0.300	0.277	92	80 - 120	2012-07-17

Standard (CCV-3)

QC Batch: 93123 Date Analyzed: 2012-07-17 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	0.0927	93	80 - 120	2012-07-17
Toluene		1	mg/kg	0.100	0.0914	91	80 - 120	2012-07-17
Ethylbenzene		1	mg/kg	0.100	0.0916	92	80 - 120	2012-07-17
Xylene		1	mg/kg	0.300	0.274	91	80 - 120	2012-07-17

Standard (CCV-1)

QC Batch: 93124 Date Analyzed: 2012-07-17 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	1.11	111	80 - 120	2012-07-17

Standard (CCV-2)

QC Batch: 93124 Date Analyzed: 2012-07-17 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	0.900	90	80 - 120	2012-07-17

Standard (CCV-3)

QC Batch: 93124 Date Analyzed: 2012-07-17 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	0.975	98	80 - 120	2012-07-17

Standard (CCV-1)

QC Batch: 93140 Date Analyzed: 2012-07-18 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	212	85	80 - 120	2012-07-18

Standard (CCV-2)

QC Batch: 93140 Date Analyzed: 2012-07-18 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	262	105	80 - 120	2012-07-18

Standard (CCV-3)

QC Batch: 93140 Date Analyzed: 2012-07-18 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	266	106	80 - 120	2012-07-18

Standard (CCV-4)

QC Batch: 93140 Date Analyzed: 2012-07-18 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	253	101	80 - 120	2012-07-18

Standard (CCV-1)

QC Batch: 93166 Date Analyzed: 2012-07-18 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	2012-07-18

Standard (CCV-2)

QC Batch: 93166 Date Analyzed: 2012-07-18 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	99.6	100	85 - 115	2012-07-18

Standard (CCV-1)

QC Batch: 93167 Date Analyzed: 2012-07-18 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	2012-07-18

Standard (CCV-2)

QC Batch: 93167 Date Analyzed: 2012-07-18 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	2012-07-18

Standard (CCV-1)

QC Batch: 93168 Date Analyzed: 2012-07-18 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	2012-07-18

Standard (CCV-2)

QC Batch: 93168 Date Analyzed: 2012-07-18 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	99.3	99	85 - 115	2012-07-18

Standard (CCV-1)

QC Batch: 93244 Date Analyzed: 2012-07-20 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	0.850	85	80 - 120	2012-07-20

Standard (CCV-2)

QC Batch: 93244 Date Analyzed: 2012-07-20 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	0.810	81	80 - 120	2012-07-20

Standard (CCV-3)

QC Batch: 93244 Date Analyzed: 2012-07-20 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	0.805	80	80 - 120	2012-07-20

Standard (CCV-1)

QC Batch: 93245 Date Analyzed: 2012-07-20 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	0.0913	91	80 - 120	2012-07-20
Toluene		1	mg/kg	0.100	0.0895	90	80 - 120	2012-07-20
Ethylbenzene		1	mg/kg	0.100	0.0888	89	80 - 120	2012-07-20
Xylene		1	mg/kg	0.300	0.267	89	80 - 120	2012-07-20

Standard (CCV-2)

QC Batch: 93245 Date Analyzed: 2012-07-20 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	0.0868	87	80 - 120	2012-07-20
Toluene		1	mg/kg	0.100	0.0849	85	80 - 120	2012-07-20
Ethylbenzene		1	mg/kg	0.100	0.0838	84	80 - 120	2012-07-20
Xylene		1	mg/kg	0.300	0.251	84	80 - 120	2012-07-20

Standard (CCV-3)

QC Batch: 93245 Date Analyzed: 2012-07-20 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	0.0845	84	80 - 120	2012-07-20
Toluene		1	mg/kg	0.100	0.0811	81	80 - 120	2012-07-20
Ethylbenzene		1	mg/kg	0.100	0.0808	81	80 - 120	2012-07-20
Xylene		1	mg/kg	0.300	0.243	81	80 - 120	2012-07-20

Standard (CCV-1)

QC Batch: 93257 Date Analyzed: 2012-07-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	100	100	85 - 115	2012-07-19

Standard (CCV-2)

QC Batch: 93257 Date Analyzed: 2012-07-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.8	100	85 - 115	2012-07-19

Standard (CCV-1)

QC Batch: 93258 Date Analyzed: 2012-07-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	101	101	85 - 115	2012-07-19

Standard (CCV-2)

QC Batch: 93258 Date Analyzed: 2012-07-19 Analyzed By: AR

Param	Flag	Cert	Units	CCVs True Conc.	CCVs Found Conc.	CCVs Percent Recovery	Percent Recovery Limits	Date Analyzed
Chloride			mg/Kg	100	99.3	99	85 - 115	2012-07-19

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
Jh	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 weighed out of 48-hr preservation time.
2 Dilution due to hydrocarbons.

Attachments

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

12071601

5de

Analysis Request of Chain of Custody Record

PAGE: | OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy | SITE MANAGER: Ike Tavarez

PROJECT NO.: 114-640 14458 | PROJECT NAME: PDU 506 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 TX1005 (Ext. to C35)	TPH 8015 MOD.	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. 8080/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
303721	7/10/12		S		X	AH-1 (0'-1')	1	N			X	X	X	X												X				
722						AH-1 (1'-1.5')																				X				
723						AH-1 (2'-2.5')																				X				
724	↓		↓		↓	AH-1 (3-3.5')	↓	↓			↓	↓														X				
725	7/12/12		S		X	AH-2 (0'-1')	1	N			X	X	X	X												X				
726						AH-2 (1'-1.5')																				X				
727						AH-2 (2'-2.5')																				X				
728						AH-2 (3-3.5')																				X				
729						AH-2 (4'-4.5')																				X				
730	↓		↓		↓	AH-2 (5'-5.5')	↓	↓	↓		↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	↓	X	↓	↓	↓	↓

RELINQUISHED BY: (Signature)	Date: 7/13/12 Time: 8:30	RECEIVED BY: (Signature)	Date: 7/13/12 Time: 15:00
RELINQUISHED BY: (Signature)	Date: 7/16/12 Time: 10:00	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) Marcos / Mora Date: Time:

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

TETRA TECH CONTACT PERSON: Ike Tavarez Results by:

RUSH Charges Authorized: Yes No

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

SAMPLE CONDITION WHEN RECEIVED: 4.8° Midland-DLOH

REMARKS: RUSH deeper depths if TPH exceeds 1,000 mg/kg. AH-1 (8-8.5) added 7/16/12 - I.T.

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

Rushed BTEX GRO RUSH deeper samples if benzene exceed 10 mg/kg or total BTEX exceed 50 mg/kg.

506

12071601

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401458
PROJECT NAME: PDU 506

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	Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
731	7/12/12		S		X	AH-2 (6'-6.5')	1	N			X	X													X			
732						AH-3 (0'-1')							X	X											X			
733						AH-3 (1'-1.5')																			X			
734						AH-3 (2'-2.5')																			X			
735						AH-3 (3'-3.5')																			X			
736						AH-3 (4'-4.5')																			X			
737						AH-3 (5'-5.5')																			X			
738						AH-4 (0'-1')							X	X											X			
739						AH-4 (1'-1.5')																			X			
740						AH-4 (2'-2.5')																			X			

RELINQUISHED BY: (Signature) Date: 7/13/12 Time: 1450
RECEIVED BY: (Signature) Date: 7/13/12 Time: 1510

RELINQUISHED BY: (Signature) Date: 7/13/12 Time: 1810
RECEIVED BY: (Signature) Date: Time:

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

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

SAMPLE CONDITION WHEN RECEIVED: 4.8°
REMARKS:

SAMPLED BY: (Print & Initial) Date: Time:

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

TETRA TECH CONTACT PERSON:

Results by:

RUSH Charges Authorized: Yes No

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

506 1207601

Analysis Request of Chain of Custody Record

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

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-640458
PROJECT NAME: PDU 506

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. 8240/8250/624	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
741	7/12/12		S		X	AH-4 (3'-3.5')	1	N			X	X												X				
742						AH-4 (4'-4.5')																		X				
743						AH-4 (5'-5.5')																		X				
744						AH-4 (6'-6.5')																		X				
745						AH-4 (7'-7.5')																		X				
746						AH-5 (0'-1')							X	X										X				
747						AH-5 (1'-1.5')																		X				
748						AH-5 (2'-2.5')																		X				
749						AH-5 (3'-3.5')																		X				
750						AH-5 (4'-4.5')																		X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature) Date: 7/13/12 Time: 1500 — RECEIVED BY: (Signature) Date: 7/13/12 Time: 15:08
RELINQUISHED BY: (Signature) Date: 7/14/12 Time: 8:30 — RECEIVED BY: (Signature) Date: Time:
RELINQUISHED BY: (Signature) Date: Time: — RECEIVED BY: (Signature) Date: Time:

SAMPLED BY: (Print & Initial) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:
TETRA TECH CONTACT PERSON: Results by:
RUSH Charges Authorized: Yes No

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

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.

504e

1207/601

Analysis Request of Chain of Custody Record

PAGE: 4 OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 1/4-640/458
PROJECT NAME: POW 506 Edy w. 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	Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
751	7/12/12		S		X	AH-5 (5'-5.5')	1	Y			X	X												X				
752						AH-5 (6'-6.5')																		X				
753						AH-5 (7'-7.5')																		X				
754						AH-6 (0'-1')								X	X									X				
755						AH-6 (1'-1.5')																		X				
756						AH-6 (2'-2.5')																		X				
757						AH-6 (3'-3.5')																		X				
758						AH-6 (4'-4.5')																		X				
759						AH-6 (5'-5.5')																		X				
760						AH-6 (6'-6.5')																		X				

RELINQUISHED BY: (Signature) Date: 7/13/12 Time: 1500
RECEIVED BY: (Signature) Date: 7/13/12 Time: 15:00
RELINQUISHED BY: (Signature) Date: 7/13/12 Time: 16:00
RECEIVED BY: (Signature) Date: Time:
RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLED BY: (Print & Initial) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS
AIRBILL #:
OTHER:
TETRA TECH CONTACT PERSON: KF Tavarez
Results by:
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 48°
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.

506 12071601

Analysis Request of Chain of Custody Record

PAGE: 5 OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-64458
PROJECT NAME: POW 506

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
761	7/12/12		S		X	AH-6 (7-7.5)	1	N			X	X													X				
762						AH 5 8-8.5																			X				

RELINQUISHED BY: (Signature) Date: 7/13/12 Time: 1500
RECEIVED BY: (Signature) Date: 7/13/12 Time: 15:00
SAMPLED BY: (Print & Initial) Date: Time:

RELINQUISHED BY: (Signature) Date: 7/14/12 Time: 7:00
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS
AIRBILL #:
OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON:
Results by:

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

SAMPLE CONDITION WHEN RECEIVED: 4.8°
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.

506

1207116C1

Analysis Request of Chain of Custody Record

PAGE: | OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-640458
PROJECT NAME: PDU 506 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 Cr 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
303721	7/10/12		S		X	AH-1 (0'-1')	1	N			X	X	X	X											X				
722						AH-1 (1'-1.5')																			X				
723						AH-1 (2'-2.5')																			X				
724						AH-1 (3-3.5')																			X				
725	7/12/12		S		X	AH-2 (0'-1')	1	N			X	X	X	X											X				
726						AH-2 (1'-1.5')																			X				
727						AH-2 (2'-2.5')																			X				
728						AH-2 (3'-3.5')																			X				
729						AH-2 (4'-4.5')																			X				
730						AH-2 (5'-5.5')																			X				

RELINQUISHED BY: (Signature) — Date: 7/13/12 Time: 9:00
RECEIVED BY: (Signature) — Date: 7/13/12 Time: 15:00
SAMPLED BY: (Print & Initial) Marcos / MoGa — Date: Time:

RELINQUISHED BY: (Signature) — Date: 7/16/12 Time: 10:00
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS LS HAND DELIVERED UPS — AIRBILL #: EN 992031 — OTHER:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
TETRA TECH CONTACT PERSON: Ike Tavarez — Results by:

RECEIVING LABORATORY: Xenco
ADDRESS: CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 7/17/12 TIME: 9:05
RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED: 4 C° Midland-Dock
REMARKS: Rush deeper samples if TPH exceeds 1,000 mg/kg. AH5 (8'-8.5') added 7/16/12 - IT

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

Rushed BTEX 7/18/12 Rush deeper samples if benzene exceed 10 mg/kg or total BTEX exceed 50 mg/kg.

506 120716C1

Analysis Request of Chain of Custody Record

PAGE: 2 OF: 5

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

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401458
PROJECT NAME: PDU 506

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. 8240/8260/824	GC.MS Semi. Vol. 8270/625	PCB's 8080/808	Pest. 808/608	Chlorides	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
731	7/12/12		S		X	AH-2 (6'-6.5')	1	N			X	X												X				
732						AH-3 (0'-1')							X	X										X				
733						AH-3 (1'-1.5')																		X				
734						AH-3 (2'-2.5')																		X				
735						AH-3 (3'-3.5')																		X				
736						AH-~~3~~4 (4'-4.5')																		X				
737						AH-~~3~~5 (5'-5.5')																		X				
738						AH-4 (0'-1')							X	X										X				
739						AH-4 (1'-1.5')																		X				
740						AH-4 (2'-2.5')																		X				

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date: 7/13/12 Time: 1400	RECEIVED BY: (Signature)	Date: 7/16/12 Time: 15:00
RELINQUISHED BY: (Signature)	Date: 7/16/12 Time: 10:00	RECEIVED BY: (Signature)	Date: Time:
RELINQUISHED BY: (Signature)	Date: Time:	RECEIVED BY: (Signature)	Date: Time:

SAMPLED BY: (Print & Initial) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:
TETRA TECH CONTACT PERSON: 4.1/4.0
Results by:
RUSH Charges Authorized: Yes No

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Dianna Ward Traci Lubbock
DATE: 7/17/12 TIME: 9:05

SAMPLE CONDITION WHEN RECEIVED: 4°C
REMARKS: LS ZN 902031

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

506 1207/601

Analysis Request of Chain of Custody Record

PAGE: 3 OF: 5

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

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6401458
PROJECT NAME: PDU 506

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
741	7/12/12		S		X	AH-4 (3'-3.5')	1	N			X	X													X				
742	↓		↓		↓	AH-4 (4'-4.5')	↓	↓			↓	↓													✓				
743	↓		↓		↓	AH-4 (5'-5.5')	↓	↓			↓	↓													✓				
744	↓		↓		↓	AH-4 (6-6.5')	↓	↓			↓	↓													✓				
745	↓		↓		↓	AH-4 (7'-7.5')	↓	↓			↓	↓													✓				
746	↓		↓		↓	AH-5 (0-1')	↓	↓			↓	↓	X	X											✓				
747	↓		↓		↓	AH-5 (1'-1.5')	↓	↓			↓	↓													✓				
748	↓		↓		↓	AH-5 (2-2.5')	↓	↓			↓	↓													✓				
749	↓		↓		↓	AH-5 (3'-3.5')	↓	↓			↓	↓													X				
750	↓		↓		↓	AH-5 (4-4.5')	↓	↓			↓	↓													X				

RELINQUISHED BY: (Signature) [signature] Date: 7/13/12 Time: 1500
RECEIVED BY: (Signature) [signature] Date: 7/13/12 Time: 15:08
SAMPLED BY: (Print & Initial) Date: Time:

RELINQUISHED BY: (Signature) [signature] Date: 7/16/12 Time:
RECEIVED BY: (Signature) Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS AIRBILL #: OTHER:

RELINQUISHED BY: (Signature) Date: Time:
RECEIVED BY: (Signature) Date: Time:
TETRA TECH CONTACT PERSON:
Results by:

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 7/17/12 TIME: 9:05

L5902031 (2W)

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:
REMARKS:
4.1 | 4.0

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

5046 1207/601

Analysis Request of Chain of Custody Record

PAGE: 4 OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-640458
PROJECT NAME: POW SDR 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 / TX1005 (Ext. to C35)	TPH 8015 Mod.	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
751	7/12/12		S		X	AH-5 (5'-5.5')	1	N			X	X												X				
752						AH-5 (6'-6.5')																		X				
753						AH-5 (7'-7.5')																		X				
754						AH-6 (0'-1')							X	X										X				
755						AH-6 (1'-1.5')																		X				
756						AH-6 (2'-2.5')																		X				
757						AH-6 (3'-3.5')																		X				
758						AH-6 (4'-4.5')																		X				
759						AH-6 (5'-5.5')																		X				
760						AH-6 (6'-6.5')																		X				

RELINQUISHED BY: (Signature) — Date: 7/12/12 Time: 1500 — RECEIVED BY: (Signature) — Date: 7/13/12 Time: 5:00
RELINQUISHED BY: (Signature) — Date: 7/16 Time: 10:00 — RECEIVED BY: (Signature) — Date: Time:
RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:
TETRA TECH CONTACT PERSON: KKF Tavarez — Results by: — RUSH Charges Authorized: Yes No

RECEIVING LABORATORY: Xenco
ADDRESS: CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 7/17/12 TIME: 9:05

SAMPLE CONDITION WHEN RECEIVED: 4°C
REMARKS: LSN902031 4.1/40

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

506 1207601

Analysis Request of Chain of Custody Record

PAGE: 5 OF: 5

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

ANALYSIS REQUEST
(Circle or Specify Method No.)

CLIENT NAME: SM Energy
SITE MANAGER: Ike Tavarez
PROJECT NO.: 114-6404458
PROJECT NAME: POW 506

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE
761	7/12/12		S		X	AH-6 (7-7.5)	1	N			X	X
762						AH 5 8-8.5						

BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 608/808	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
												X				
												X				

RELINQUISHED BY: (Signature) — Date: 7/13/12 Time: 1505 — RECEIVED BY: (Signature) — Date: 7/13/12 Time: 15:00
RELINQUISHED BY: (Signature) — Date: 7/14/12 Time: 10:00 — RECEIVED BY: (Signature) — Date: Time:
RELINQUISHED BY: (Signature) — Date: Time: — RECEIVED BY: (Signature) — Date: Time:

SAMPLED BY: (Print & Initial) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:
TETRA TECH CONTACT PERSON: — Results by:
RUSH Charges Authorized: Yes No

RECEIVING LABORATORY:
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature) Brenda Ward
DATE: 7/17/12 TIME: 9105

SAMPLE CONDITION WHEN RECEIVED: 4.8
REMARKS: LS ZN 902031 4.1/40

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

Summary Report

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

Report Date: July 23, 2012

Work Order: 12071601

Project Location: Eddy Co., NM
Project Name: SME/PDU 506
Project Number: 114-6401458

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
303721	AH-1 0-1'	soil	2012-07-10	00:00	2012-07-13
303722	AH-1 1-1.5'	soil	2012-07-10	00:00	2012-07-13
303723	AH-1 2-2.5'	soil	2012-07-10	00:00	2012-07-13
303724	AH-1 3-3.5'	soil	2012-07-10	00:00	2012-07-13
303725	AH-2 0-1'	soil	2012-07-12	00:00	2012-07-13
303726	AH-2 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303727	AH-2 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303728	AH-2 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303729	AH-2 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303730	AH-2 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303731	AH-2 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303732	AH-3 0-1'	soil	2012-07-12	00:00	2012-07-13
303733	AH-3 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303734	AH-3 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303735	AH-3 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303736	AH-3 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303737	AH-3 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303738	AH-4 0-1'	soil	2012-07-12	00:00	2012-07-13
303739	AH-4 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303740	AH-4 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303741	AH-4 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303742	AH-4 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303743	AH-4 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303744	AH-4 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303745	AH-4 7-7.5'	soil	2012-07-12	00:00	2012-07-13
303746	AH-5 0-1'	soil	2012-07-12	00:00	2012-07-13
303747	AH-5 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303748	AH-5 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303749	AH-5 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303750	AH-5 4-4.5'	soil	2012-07-12	00:00	2012-07-13

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
303751	AH-5 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303752	AH-5 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303753	AH-5 7-7.5'	soil	2012-07-12	00:00	2012-07-13
303754	AH-6 0-1'	soil	2012-07-12	00:00	2012-07-13
303755	AH-6 1-1.5'	soil	2012-07-12	00:00	2012-07-13
303756	AH-6 2-2.5'	soil	2012-07-12	00:00	2012-07-13
303757	AH-6 3-3.5'	soil	2012-07-12	00:00	2012-07-13
303758	AH-6 4-4.5'	soil	2012-07-12	00:00	2012-07-13
303759	AH-6 5-5.5'	soil	2012-07-12	00:00	2012-07-13
303760	AH-6 6-6.5'	soil	2012-07-12	00:00	2012-07-13
303761	AH-6 7-7.5'	soil	2012-07-12	00:00	2012-07-13
303762	AH-5 8-8.5'	soil	2012-07-12	00:00	2012-07-13

	BTEX				TPH DRO - NEW	TPH GRO
Sample - Field Code	Benzene (mg/Kg)	Toluene (mg/Kg)	Ethylbenzene (mg/Kg)	Xylene (mg/Kg)	DRO (mg/Kg)	GRO (mg/Kg)
303721 - AH-1 0-1'	<0.0200	<0.0200	<0.0200	**0.0282**	<50.0	**6.88** [1]
303725 - AH-2 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**218**	<2.00
303732 - AH-3 0-1'	<0.100 [2]	<0.100	<0.100	**0.112**	**427**	**42.7**
303738 - AH-4 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	**109**	<2.00
303746 - AH-5 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00
303754 - AH-6 0-1'	<0.0200	<0.0200	<0.0200	<0.0200	<50.0	<2.00

Sample: 303721 - AH-1 0-1'

Param	Flag	Result	Units	RL
Chloride		**791**	mg/Kg	4

Sample: 303722 - AH-1 1-1.5'

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

Sample: 303723 - AH-1 2-2.5'

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

Sample: 303724 - AH-1 3-3.5'

[1] Sample weighed out of 48-hr preservation time.
[2] Dilution due to hydrocarbons.

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

Sample: 303725 - AH-2 0-1'

Param	Flag	Result	Units	RL
Chloride		**9830**	mg/Kg	4

Sample: 303726 - AH-2 1-1.5'

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

Sample: 303727 - AH-2 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**43.8**	mg/Kg	4

Sample: 303728 - AH-2 3-3.5'

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

Sample: 303729 - AH-2 4-4.5'

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

Sample: 303730 - AH-2 5-5.5'

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

Sample: 303731 - AH-2 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**24.3**	mg/Kg	4

Sample: 303732 - AH-3 0-1'

Param	Flag	Result	Units	RL
Chloride		**8040**	mg/Kg	4

Sample: 303733 - AH-3 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**127**	mg/Kg	4

Sample: 303734 - AH-3 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**92.5**	mg/Kg	4

Sample: 303735 - AH-3 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**278**	mg/Kg	4

Sample: 303736 - AH-3 4-4.5'

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

Sample: 303737 - AH-3 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**58.2**	mg/Kg	4

Sample: 303738 - AH-4 0-1'

Param	Flag	Result	Units	RL
Chloride		**3480**	mg/Kg	4

Sample: 303739 - AH-4 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**3140**	mg/Kg	4

Sample: 303740 - AH-4 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**1740**	mg/Kg	4

Sample: 303741 - AH-4 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**1460**	mg/Kg	4

Sample: 303742 - AH-4 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**945**	mg/Kg	4

Sample: 303743 - AH-4 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**2340**	mg/Kg	4

Sample: 303744 - AH-4 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**1140**	mg/Kg	4

Sample: 303745 - AH-4 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**2060**	mg/Kg	4

Sample: 303746 - AH-5 0-1'

Param	Flag	Result	Units	RL
Chloride		**5390**	mg/Kg	4

Sample: 303747 - AH-5 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**1640**	mg/Kg	4

Sample: 303748 - AH-5 2-2.5'

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

Sample: 303749 - AH-5 3-3.5'

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

Sample: 303750 - AH-5 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**92.4**	mg/Kg	4

Sample: 303751 - AH-5 5-5.5'

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

Sample: 303752 - AH-5 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**136**	mg/Kg	4

Sample: 303753 - AH-5 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**38.9**	mg/Kg	4

Sample: 303754 - AH-6 0-1'

Param	Flag	Result	Units	RL
Chloride		**6760**	mg/Kg	4

Sample: 303755 - AH-6 1-1.5'

Param	Flag	Result	Units	RL
Chloride		**6090**	mg/Kg	4

Sample: 303756 - AH-6 2-2.5'

Param	Flag	Result	Units	RL
Chloride		**3660**	mg/Kg	4

Sample: 303757 - AH-6 3-3.5'

Param	Flag	Result	Units	RL
Chloride		**290**	mg/Kg	4

Sample: 303758 - AH-6 4-4.5'

Param	Flag	Result	Units	RL
Chloride		**407**	mg/Kg	4

Sample: 303759 - AH-6 5-5.5'

Param	Flag	Result	Units	RL
Chloride		**201**	mg/Kg	4

Sample: 303760 - AH-6 6-6.5'

Param	Flag	Result	Units	RL
Chloride		**299**	mg/Kg	4

Sample: 303761 - AH-6 7-7.5'

Param	Flag	Result	Units	RL
Chloride		**506**	mg/Kg	4

Sample: 303762 - AH-5 8-8.5'

Param	Flag	Result	Units	RL
Chloride		**54.0**	mg/Kg	4