SITE INFORMATION

REPORT TYPE: Closure Report 2RP-200

General Site Information:	
Site:	**Parkway Delaware Unit #304 (205 Injection Well)**
Company:	**SM Energy Company**
Section, Township and Range	**35 Township 19S Range 29E**
Unit Letter:	G
Lease Number:	NM-67102
County:	Eddy County
GPS:	N32°.62022 W104°04230
Surface Owner:	BLM
Mineral Owner:	BLM
Directions:	From the intersection of Hwy 62/180 and 360, head north on 360 for 5.6 miles and
	turn left onto carry comb (CR235) go 4.7 mi., turn left for 0.6 mi. to T turn left for 0.7
	mi. to T turn right for 0.4 mi. turn right for 0.4 mi, turn left 0.1 mi to site.

Release Data:	
Date Released:	7/13/2008
Type Release:	Produced water
Source of Contamination:	Injection Well
Fluid Released:	275 BBLS
Fluids Recovered:	80 BBLS

Official Communication:			
Name:	Zachary Luikens		Ike Tavarez
Company:	SM Energy		Tetra Tech
Address:	6301 Holiday Hill Rd. Bldg 1		4000 N. Big Spring St., Ste 401
P.O. Box			
City:	Midland, Texas 79707		Midland, Texas
Phone number:	(432) 688-3138		(432) 682- 4559
Email:	zluikens@sm-energy.com		ike.tavarez@tetratech.com

Ranking Criteria		
Depth to Groundwater:	***Ranking Score***	***Site Data***
<50 ft	20	
50-99 ft	10	
>100 ft.	***0***	*Average Depth >110*
WellHead Protection:	***Ranking Score***	***Site Data***
Water Source <1,000 ft., Private <200 ft.	*20*	*None*
Water Source >1,000 ft., Private >200 ft.	***0***	
Surface Body of Water:	***Ranking Score***	***Site Data***
<200 ft.	*20*	*None*
200 ft - 1,000 ft.	10	*None*
>1,000 ft.	***0***	
Total Ranking Score:	***0***	

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

TETRA TECH

August 18, 2016

Mr. Mike Bratcher
Environmental Engineer Specialist
Oil Conservation Division, District 2
1301 West Grand Avenue
Artesia, NM 88210

Re: Work Plan for the St. Mary Land & Exploration Company, Parkway Delaware Unit #304 (205 Injection Well), Unit G, Section 35, Township 19 South, Range 29 East, Eddy County, New Mexico. (2 RP 200)

Mr. Bratcher:

Tetra Tech was contacted by St. Mary Land & Exploration Company (St. Mary) to assess a spill from the Parkway Delaware Unit #304 (205 Injection Well) located in Unit G, Section 35, Township 19 South, Range 29 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32 .62022 º, W 104.04230 º. 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 July 13, 2008. Approximately 275 barrels of produced water was released from a 2-inch injection lateral line on the wellhead, due to a ball valve failure. The injection well was shut-in and the ball valve and line were repaired. Vacuum trucks were utilized to recover 80 barrels of standing fluids. The initial C-141 is enclosed in Appendix A.

Hydrology

The New Mexico State Engineers Well Report listed one well in Section 34 with an average depth of 60' and wells in Sections 35 and 36, with reported depths of 110' and 115' , respectively. The Geology and Groundwater Resources of Eddy County New Mexico (Report 3) showed one well in Section 3, Township 20 South, Range 29 East, with a reported depth to water of 91' bgs. The well reports are included in Appendix B.

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

According to the Geology and Groundwater Resources of Eddy County, New Mexico (Report 3), the Rustler and Castile formations (Ochoa Series) are present west and east of the Pecos River. The Rustler and Castile formations consist of anhydrite, gypsum, interbedded sandy clay and beds of dolomite. Groundwater from the Castile and Rustler formations west of the Pecos River is historically high in chloride and sulfate concentrations which increase towards the river. The site is located on the east edge of the Rustler formation.

On March 10, 2009, Tetra Tech personnel supervised the installation of a temporary well (TMW-1) to establish groundwater quality and depth at the Site. The well construction log is shown in Appendix C. During the installation, the well drilled dry. The well was drilled through fine grained 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 of 122.93 TOC. During the development of the well, the well purged dry and showed a slow recovery rate. On March 16, 2009, the well was purged dry and allowed to recover, prior to sampling. The groundwater quality showed a chloride concentration of 147 mg/l and sulfate of 1,960 mg/l.

Regulatory

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

Soil Assessment and Results

On July 21, 2008, Tetra Tech personnel installed a total of nine (9) auger holes to assess the spill area. The main spill area measured approximately 60' x 285' south of the release. The spill also migrated across a two track road impacting an area south of the road, approximately 100 x 150'. Auger holes (AH-1 through AH-9) were installed using a stainless steel hand auger to assess the impacted soils. The auger holes were advanced to depths ranging from 3.0' to 10.0' below surface. Deeper samples were not collected in some of the auger holes due to a dense caliche layer formation. The auger hole locations are shown on Figure 3. Select samples were analyzed for TPH analysis by EPA method 8015 modified, BTEX by EPA Method 8021B and chloride by EPA method 300.0. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D.

Referring to Table 1, all of the samples analyzed were below the RRAL for both BTEX and TPH. The chloride concentrations ranged from 229 mg/kg (AH-1 at 8-8.5') to 8,800 mg/kg (AH-2 at 1-1.5') with the chlorides delineated in auger holes AH-1, AH-3, AH-6, and AH-7.

In order to complete delineation of the chlorides at the site, on August 27, 2008, Tetra Tech personnel were onsite to install five (5) boreholes (SB-1 through SB-5) utilizing an air rotary rig. The borings were installed in the vicinity of the auger holes where chloride concentrations were not defined (AH-2, AH-4, AH-5, AH-8, and AH-9). The boreholes were extended to a maximum depth of 30 to 35 feet bgs with samples collected at five foot intervals. The soil boring logs are included in Appendix C. The samples were submitted to the laboratory for analysis of chlorides.

Referring to Table 1, analytical results indicate the maximum extent of chloride impact greater than 1,000 mg/kg extended to 2.0' to 4.0' at, AH-3, AH-6 and AH-7, 6.0'-9.0' at AH-1, AH-2 (SB-5), AH-5 (SB-4), and AH-8 (SB-2), and to 13.0' to 18.0' at AH-4 (SB-3) and AH-9 (SB-1). All samples had chloride concentrations that decreased with depth. The soil boring logs are included in Appendix C. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix D. The results of the sampling are summarized in Table 1. The borehole locations are shown on Figure 3.

Remediation

On July 27, 2009, Tetra Tech personnel met with the NMOCD in Artesia to discuss the corrective action for the site. As discussed during the onsite meeting, the excavation depths range from 2.0' to 6.0' below surface.

The areas of SB-1, SB-2, SB-3, and SB-4 were excavated to 4.0'-4.5' and lined with a 40 mil liner at 4.0' below surface. The area of SB-5 was excavated to 6.0' below surface. Once the areas were excavated to the appropriate depths, and the liner placed, the area was backfilled with clean soil and brought to surface grade. The excavation depths and liner placement are shown on Table 1 and Figure 4.

Based on the remediation activities performed, SM Energy requests closure of the site. The final C-141 is included in Appendix A. If you require any additional information or have any questions or comments, please call at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez, P.G.
Senior Project Manager

cc: Zach Luikens – SM Energy
Jim Amos - BLM

Figures

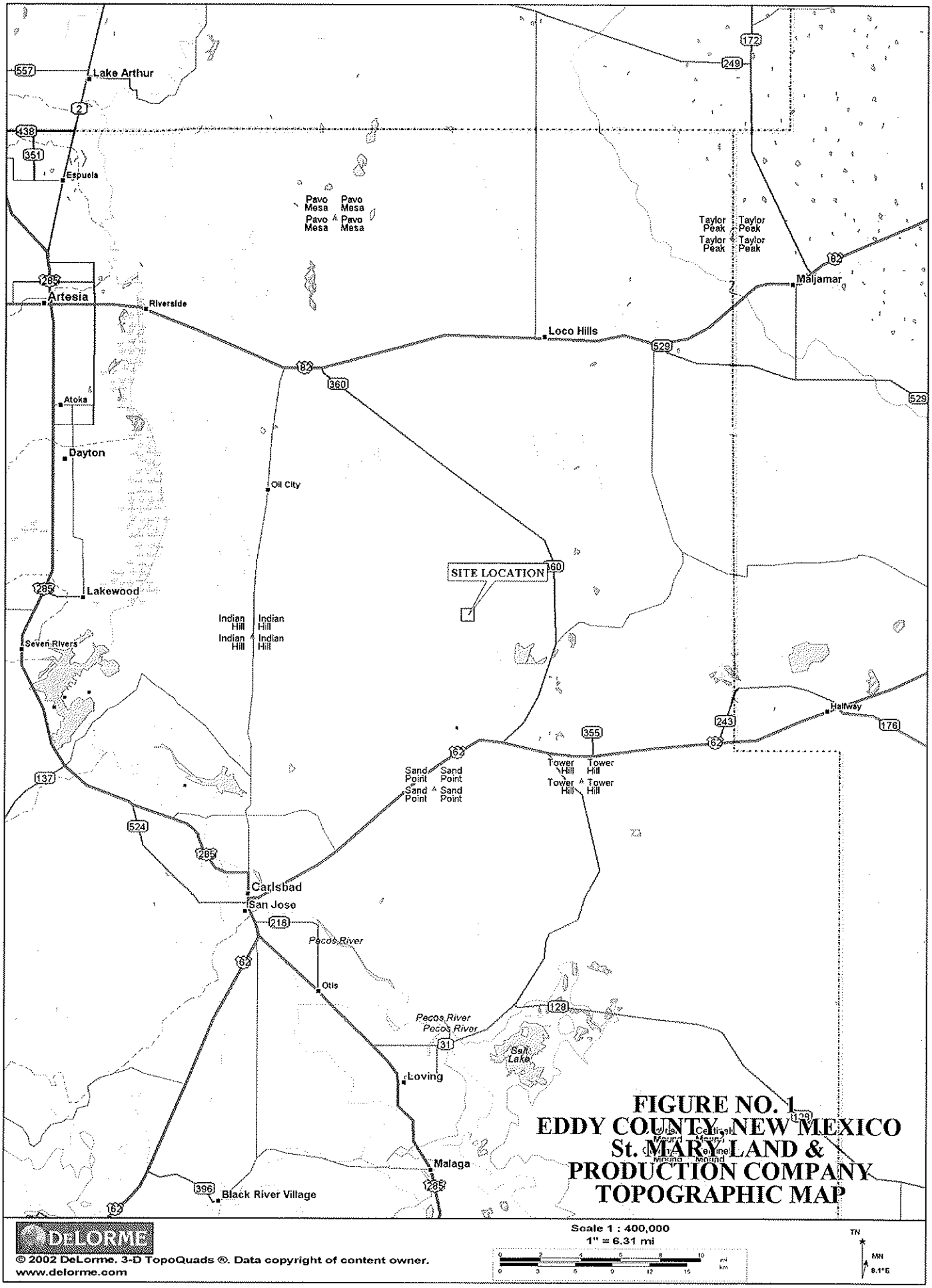


FIGURE NO. 1
EDDY COUNTY, NEW MEXICO
St. MARY LAND & PRODUCTION COMPANY
TOPOGRAPHIC MAP

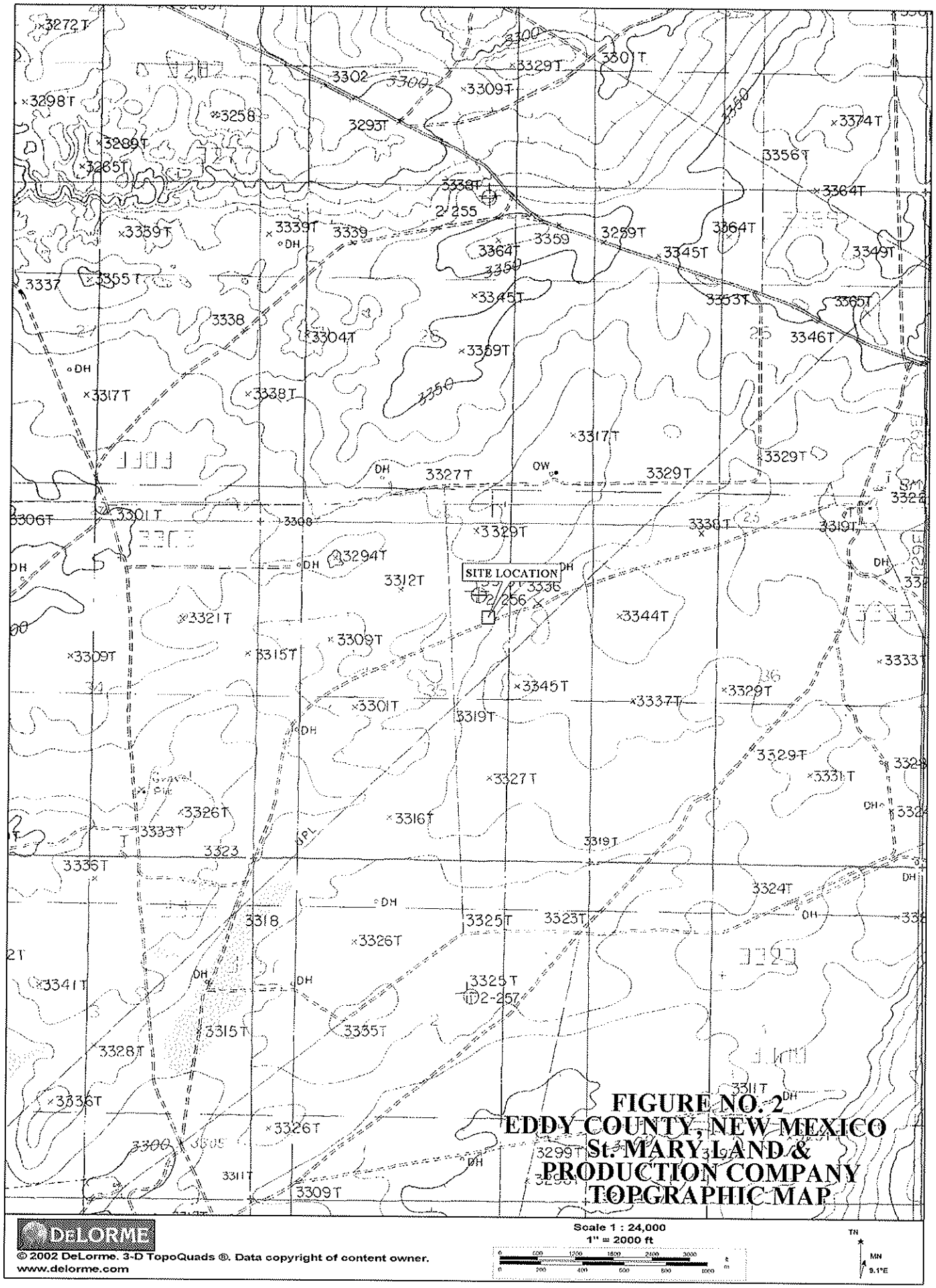
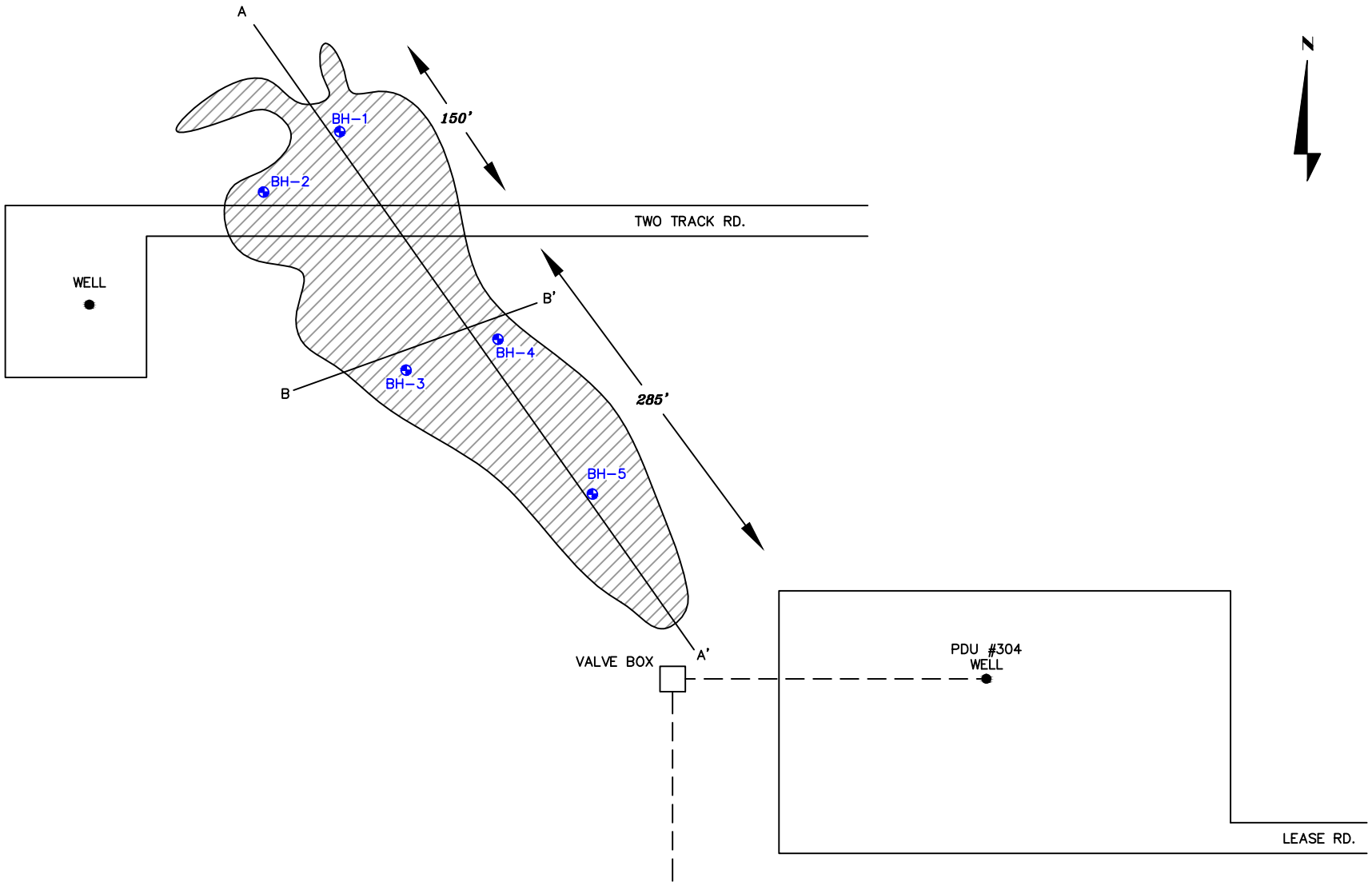


FIGURE NO. 2
EDDY COUNTY, NEW MEXICO
St. MARY LAND & PRODUCTION COMPANY
TOPOGRAPHIC MAP



NOT TO SCALE

FIGURE NO. 4

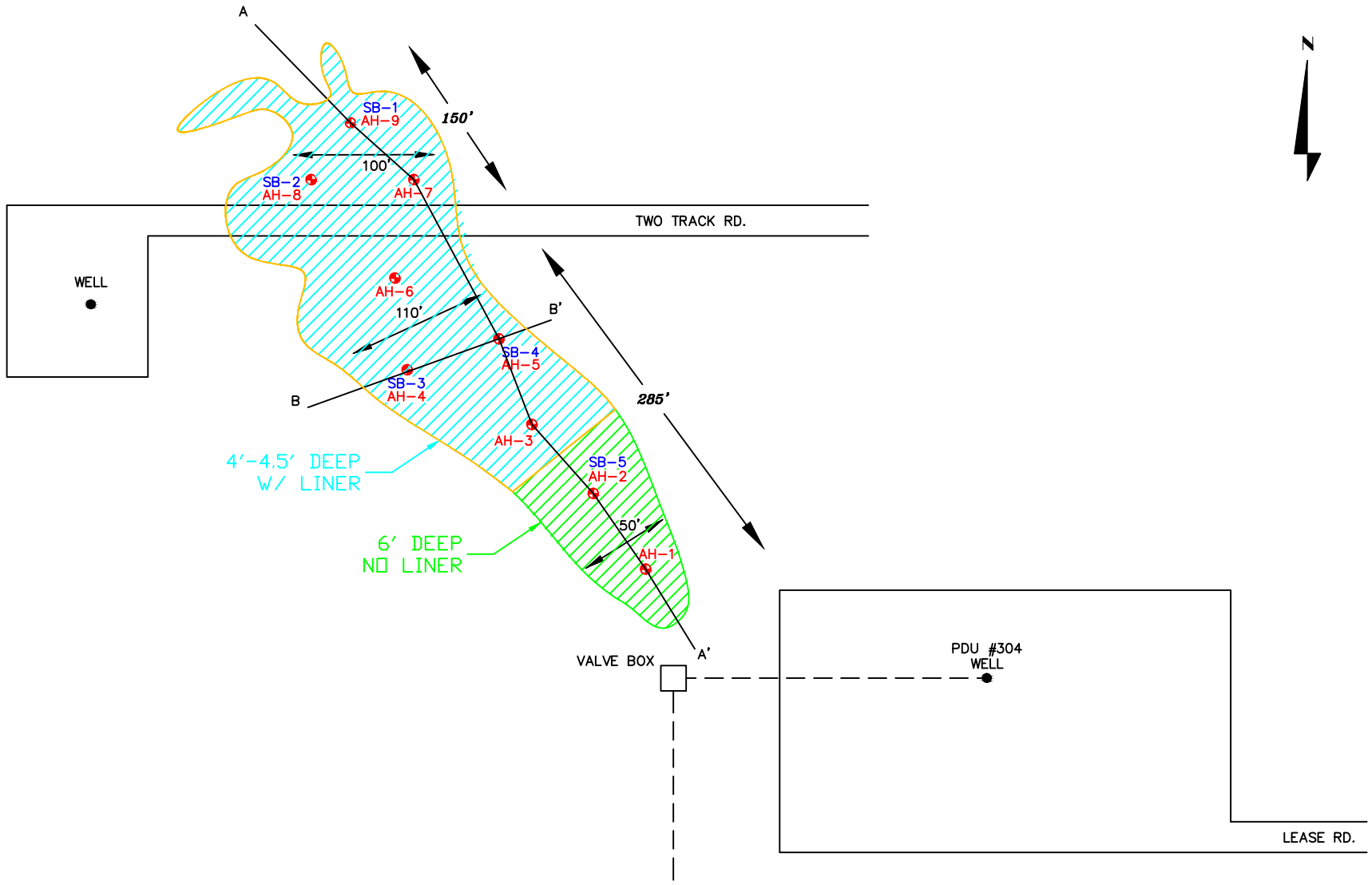
EDDY COUNTY, NEW MEXICO

ST. MARY LAND
& EXPLORATION COMPANY

PARKWAY DELAWARE
INJECTION LINE LEAK

DATE: 8/12/08
DWN. BY: JJ
FILE: H:\ST. MARY\3562

TETRA TECH, INC.
MIDLAND, TEXAS



NOT TO SCALE

FIGURE NO. 4

EDDY COUNTY, NEW MEXICO

ST. MARY LAND
& EXPLORATION COMPANY

PARKWAY DELAWARE
INJECTION LINE LEAK

DATE: 8/12/08
DWN. BY: JJ
FILE: H:\ST. MARY\3562

TETRA TECH, INC.
MIDLAND, TEXAS

Tables

Table 1
St. Mary Land & Production Company
Parkway Delaware Injection Line Leak
Eddy County, New Mexico

Sample ID	Soils Status		Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
	Insitu	Removed			DRO	GRO	Total					
AH-1		X	7/21/2008	0-1	393.0	2.09	395.09	<0.001	<0.001	<0.001	0.0324	3,620
		X		1-1.5	-	-	-	-	-	-	-	4,740
		X		2-2.5	-	-	-	-	-	-	-	6,650
		X		4-4.5	-	-	-	-	-	-	-	4,860
		X		6-6.5	-	-	-	-	-	-		4,920
	X			8-8.5	-	-	-	-	-	-	-	229
AH-2		X	7/21/2008	0-1	<50.0	1.27	1.27	<0.001	<0.001	<0.001	<0.001	6,970
		X		1-1.5	-	-	-	-	-	-	-	8,800
		X		2-2.5	-	-	-	-	-	-	-	8,620
		X		4-4.5	-	-	-	-	-	-	-	2,870
		X		6-6.5	-	-	-	-	-	-	-	3,930
	X			8-8.5	-	-	-	-	-	-	-	1,250
SB-5 (AH-2)	X		8/27/2008	9-10	-	-	-	-	-	-	-	1,840
	X			13-15	-	-	-	-	-	-	-	<100
	X			18-20	-	-	-	-	-	-	-	<100
	X			23-25	-	-	-	-	-	-	-	<100
	X			28-30	-	-	-	-	-	-	-	<100
AH-3		X	7/21/2008	0-1	<50.0	1.21	1.21	<0.001	<0.001	<0.001	<0.001	6,680
		X		1-1.5	-	-	-	-	-	-	-	8,160
		X		2-2.5	-	-	-	-	-	-	-	8,400
		X		3-3.5	-	-	-	-	-	-	-	237

(-) Not Analyzed

Liner Installation (4.0' below surface)

Excavation Depths

Table 1
St. Mary Land & Production Company
Parkway Delaware Injection Line Leak
Eddy County, New Mexico

Sample ID	Soils Status		Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
	Insitu	Removed			DRO	GRO	Total					
AH-4		X	7/21/2008	0-1	242.0	5.96	247.96	<0.001	<0.001	<0.001	<0.001	5,950
		X		1-1.5	-	-	-	-	-	-	-	5,230
		X		2-2.5	-	-	-	-	-	-	-	5,140
		X		4-4.5	-	-	-	-	-	-	-	5,570
		X		6-6.5	-	-	-	-	-	-	-	6,080
	X			8-8.5	-	-	-	-	-	-	-	4,750
	X			10-10.5	-	-	-	-	-	-	-	6,080
SB-3 (AH-4)	X		8/27/2008	13-15	-	-	-	-	-	-	-	2,180
	X			18-20	-	-	-	-	-	-	-	1,390
	X			23-25	-	-	-	-	-	-	-	211
	X			28-30	-	-	-	-	-	-	-	121
AH-5		X	7/21/2008	0-1	<50.0	1.94	1.94	<0.001	<0.001	<0.001	<0.001	6,490
		X		1-1.5	-	-	-	-	-	-	-	5,910
		X		2-2.5	-	-	-	-	-	-	-	5,060
		X		4-4.5	-	-	-	-	-	-	-	6,280
		X		6-6.5	-	-	-	-	-	-	-	5,540
	X			7-7.5	-	-	-	-	-	-	-	2,190
SB-4 (AH-5)	X		8/27/2008	8-10	-	-	-	-	-	-	-	4,840
	X			13-15	-	-	-	-	-	-	-	748
	X			18-20	-	-	-	-	-	-	-	263
	X			23-25	-	-	-	-	-	-	-	<100
	X			28-30	-	-	-	-	-	-	-	133
	X			33-35	-	-	-	-	-	-	-	<100

(-) Not Analyzed

Liner Installation (4.0' below surface)

Excavation Depths

Table 1
St. Mary Land & Production Company
Parkway Delaware Injection Line Leak
Eddy County, New Mexico

Sample ID	Soils Status		Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
	Insitu	Removed			DRO	GRO	Total					
AH-6		X	7/21/2008	0-1	<50.0	1.21	1.13	-	-	-	-	6,620
		X		1-1.5	-	-	-	-	-	-	-	6,060
		X		2-2.5	-	-	-	-	-	-	-	5,450
		X		4-4.5	-	-	-	-	-	-	-	4,300
	X			5-5.5	-	-	-	-	-	-	-	475
AH-7		X	7/21/2008	0-1	<50.0	<1.0	<50.0	-	-	-	-	5,830
		X		1-1.5	-	-	-	-	-	-	-	3,980
		X		2-2.5	-	-	-	-	-	-	-	2,390
		X		3-3.5	-	-	-	-	-	-	-	584
AH-8		X	7/21/2008	0-1	<50.0	1.08	1.08	-	-	-	-	5,560
		X		1-1.5	-	-	-	-	-	-	-	6,240
		X		2-2.5	-	-	-	-	-	-	-	6,760
		X		4-4.5	-	-	-	-	-	-	-	2,070
SB-2 (AH-8)		X	8/27/2008	3-5	-	-	-	-	-	-	-	5,630
	X			8-10	-	-	-	-	-	-	-	3,160
	X			13-15	-	-	-	-	-	-	-	979
	X			18-20	-	-	-	-	-	-	-	311
	X			23-25	-	-	-	-	-	-	-	<100
	X			28-30	-	-	-	-	-	-	-	<100

(-) Not Analyzed

Liner Installation (4.0' below surface)

Excavation Depths

Table 1
St. Mary Land & Production Company
Parkway Delaware Injection Line Leak
Eddy County, New Mexico

Sample ID	Soils Status		Date Sampled	Sample Depth (ft)	TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Chloride (mg/kg)
	Insitu	Removed			DRO	GRO	Total					
AH-9		X	7/21/2008	0-1	<50.0	<1.0	<50.0	-	-	-	-	6,280
		X		1-1.5	-	-	-	-	-	-	-	7,280
		X		2-2.5	-	-	-	-	-	-	-	6,120
		X		4-4.5	-	-	-	-	-	-	-	4,340
	X			6-6.5	-	-	-	-	-	-	-	4,380
	X			8-8.5	-	-	-	-	-	-	-	6,790
	X			10-10.5	-	-	-	-	-	-	-	1,270
SB-1 (AH-9)	X		8/27/2008	13-15	-	-	-	-	-	-	-	1,320
	X			18-20	-	-	-	-	-	-	-	280
	X			23-25	-	-	-	-	-	-	-	<100
	X			28-30	-	-	-	-	-	-	-	<100

(-) Not Analyzed

Liner Installation (4.0' below surface)

Excavation Depths

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

JUL 16 2008
OCD-ARTESIA

Form C-141
Revised October 10, 2003

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

Release Notification and Corrective Action

i SEB0819849612
nSEB0819849476 154903

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company ST. MARY LAND & EXPLORATION	Contact TOM MORROW
Address 3300 N. A. ST. BLDG 7, SUITE 200, MIDLAND TX 79705	Telephone No. 432-688-1773
Facility Name PDU 304 30-015-29503	Facility Type INJECTION WELL

Surface Owner BLM	Mineral Owner BLM	Lease No. NM - 67102

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	35	19S	29E	1485	NORTH	1485	EAST	EDDY

Latitude_____ **Longitude**_____

NATURE OF RELEASE

Type of Release PRODUCED WATER	Volume of Release 275 BBLS	Volume Recovered 80 BBLS
Source of Release 2" INJ. LATERAL LINE & 2" BALL VALVE	Date and Hour of Occurrence 7/13/08 (MORNING ??)	Date and Hour of Discovery 7/13/08 10:00 AM
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? OCD (VOICEMAIL 104) @ 1:34 PM JIM AMOS W/BLM @ 1:50 PM	
By Whom? BILL HEARNE	Date and Hour 7/13/08 (SEE ABOVE TIMES)	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*
CAUSE: BALL VALVE FAILURE ON 2" INJECTION LATERAL LINE ON THE **PDU 205 INJ. WELL .**
REMEDIAL ACTION TAKEN: SHUT IN **PDU 205 INJ WELL** & PICKED UP STANDING FLUID AND MAKE REPAIRS TO BALLVALVE & LINE.

Describe Area Affected and Cleanup Action Taken.*
AFFECTED AREA: 435' X 125' PASTURE LAND
CLEANUP ACTION: PICKED UP ALL STANDING FLUID, WAITING ON ORDERS FROM BLM/OCD AND HIGHLANDER ENVIRONMENTAL EVALUATION BEFORE FUTHER CLEANUP ACTION AND REMEDIATION IS TAKEN.

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: Donna Huddleston

Printed Name: Donna Huddleston

Title: Production Tech

E-mail Address: dhuddleston@stmaryland.com

Date: 07/14/08 Phone: 432-688-1789

OIL CONSERVATION DIVISION

Approved by District Supervisor: TGum by SB

Approval Date: 7-16-08 Expiration Date:

Conditions of Approval:
SEE ATTACHED STIPULATIONS

Attached ☑ 2RP-200

* Attach Additional Sheets If Necessary

SEB0819850075

New Mexico Energy, Minerals and Natural Resources Department

Bill Richardson
Governor

Joanna Prukop
Cabinet Secretary
Reese Fullerton
Deputy Cabinet Secretary

Mark Fesmire
Division Director
Oil Conservation Division

CERTIFIED MAIL—Return Receipt Requested
7007 2680 0001 6451 2698

July 16, 2008

St. Mary Land & Exploration
ATTN: Tom Morrow
3300 N. A. St., Bldg 7, Suite 200
Midland, TX 79705

RE: Parkway Delaware Unit 304 30-015-29503
G-35-19S-29E Eddy County, New Mexico
2RP- 200

Dear Operator:

This office is in receipt of your C-141 regarding the produced water release at this facility.

NMOCD Rule 19.15.3.116 states in part "...The responsible person must complete **division approved corrective action** for releases which endanger public health or the environment. Releases will be addressed in accordance with a **remediation plan** submitted to and approved by the division or with an abatement plan submitted in accordance with Section 19 of 19.15.1 NMAC."

Information and tools for proper corrective action may be found in the Environmental Handbook on our web site at the following link: http://www.emnrd.state.nm.us/ocd/documents/7C_spill1.pdf

The following actions are **required** to be addressed in the **remediation plan**:

- Determine the horizontal and vertical delineation of the spill by sampling.
- Prepare a sketch of the site indicating where and at what depths the samples were taken.
- Submit laboratory results of sampling as well as the proposed remediation with the plan.

Remediation requirements may be subject to other federal, state, and local laws or regulations.

Within 30 days, **on or before August 18, 2008,** completion of a remediation work plan should be finalized and submitted to the Division summarizing all actions taken or to be taken to mitigate environmental damage related to the leak, spill or release for approval.

Please be advised that NMOCD acceptance and/or approval of documents or work plans 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 and/or approval of documents or work plans do not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

If I may be of further assistance with this matter or should you have any questions, please feel free to contact me.

Sincerely,

Sherry Bonham
NMOCD District II, Artesia
(505) 748-1283 ext 109
E-mail: sherry.bonham@state.nm.us

Cc: James Amos, BLM

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**	Contact **Zachary Luikens**
Address **6301 Holiday Hill Rd, Bldg 1 Midland, TX 79707**	Telephone No. (432) 688-3138
Facility Name PDU 304	Facility Type **Injection Well**

Surface Owner: BLM	Mineral Owner	Lease No. NM 67102

LOCATION OF RELEASE

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

Latitude N 32.62022° **Longitude** W 104.04230°

NATURE OF RELEASE

Type of Release: Produced Water	Volume of Release 275 bbls	Volume Recovered 80 bbls
Source of Release: 2" Injection later line & ball valve	Date and Hour of Occurrence 7/13/08	Date and Hour of Discovery 7/13/08 10:00 am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? OCD Voicemail 7/13/08 1:34 pm **Jim Amos – BLM 7/13/08 1:50 pm**	
By Whom? Bill Hearne	Date and Hour See above	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse. N/A	

If a Watercourse was Impacted, Describe Fully.*

N/A

Describe Cause of Problem and Remedial Action Taken.*

Ball valve failure on a 2" injection later line for the PDU 205 injection well resulted in the release of 275 bbls of produced water. The PDU 205 injection well was shut in, all standing fluid was recovered, and repairs were made to the ball valve and line.

Describe Area Affected and Cleanup Action Taken.*

Tetra Tech inspected site and collected samples to define spills extent. Soil that exceeded RRAL was removed and hauled away for proper disposal. Site was then brought up to surface grade with clean backfill material. Tetra Tech prepared 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: Ike Tavarez	Approved by District Supervisor:	
Title: Project Manager	Approval Date:	Expiration Date:
E-mail Address: Ike.Tavarez@TetraTech.com	Conditions of Approval:	Attached ☐
Date: 8/19/16 Phone: (432) 682-4559		

* Attach Additional Sheets If Necessary

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
St Mary Land & Exploration Co. - Parkway Delaware Unit #205 - Injection Line Spill

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

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

18 South 30 East

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

19 South 28 East

6	5	4	3	2	1
7	8	9 265	10	11	12
18 91	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

19 South 29 East

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

19 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30 90	29	28	27	26	25
31 115	32	33	34	35	36

20 South 28 East

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

20 South 29 East

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

20 South 30 East

6	5 3.5	4	3 6	2	1
7	8	9	10	11	12
18	17	16 29	15	14	13
19	20 29	21 150	22	23	24
30	29	28	27	26	25
31	32 170	33 191	34	35	36

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

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 19S Range: 29E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) ○ Non-Domestic ○ Domestic
◉ All

POD / Surface Data Report | Avg Depth to Water Report
Water Column Report

Clear Form | iWATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 07/16/2008

								(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	19S	29E	34				1	60	60	60
CP	19S	29E	35				1	110	110	110
CP	19S	29E	36				1	115	115	115

Record Count: 3

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 19S Range: 30E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

POD / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | iWATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 07/16/2008

							(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	19S	30E	30				1	90	90	90
CP	19S	30E	31				1	115	115	115

Record Count: 2

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 20S Range: 30E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) ○ Non-Domestic ○ Domestic
◉ All

POD / Surface Data Report | Avg Depth to Water Report
Water Column Report

Clear Form | iWATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 07/16/2008

(Depth Water in Feet)

Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	20S	30E	21				1	150	150	150
CP	20S	30E	32				1	170	170	170
CP	20S	30E	33				2	187	195	191

Record Count: 4

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 20S Range: 28E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) ○ Non-Domestic ○ Domestic
◉ All

POD / Surface Data Report | Avg Depth to Water Report
Water Column Report

Clear Form | iWATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 07/16/2008

								(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	20S	28E	31				1	115	115	115
CP	20S	28E	33				4	27	30	29

Record Count: 5

New Mexico Office of the State Engineer
POD Reports and Downloads

Township: 19S Range: 28E Sections:

NAD27 X: Y: Zone: Search Radius:

County: Basin: Number: Suffix:

Owner Name: (First) (Last) Non-Domestic Domestic All

POD / Surface Data Report | Avg Depth to Water Report | Water Column Report

Clear Form | iWATERS Menu | Help

AVERAGE DEPTH OF WATER REPORT 07/16/2008

							(Depth Water in Feet)		
Bsn	Tws	Rng	Sec	Zone	X	Y	Wells	Min	Max	Avg
CP	19S	28E	09				2	265	265	265
CP	19S	28E	18				1	91	91	91

Record Count: 3

Appendix C

SAMPLE LOG

Boring/Well: **SB-1**
Project Number: **3562**
Client: **St. Mary Land and Exploration**
Site Location: **Parkway Delaware #205**
Location: **Eddy County, New Mexico**
Total Depth **30**
Date Installed: **08/27/08**

DEPTH (in feet)	OVM	SAMPLE DESCRIPTION
13-15	--	Tan medium/coarse sand
18-20	--	Tan medium/coarse sand
23-25	--	Tan fine grain well sorted sand
28-30	--	Tan fine grain well sorted sand

Boring completed at 30 feet bgs

SAMPLE LOG

Boring/Well: **SB-2**
Project Number: **3562**
Client: **St. Mary Land and Exploration**
Site Location: **Parkway Delaware #205**
Location: **Eddy County, New Mexico**
Total Depth **30**
Date Installed: **08/27/08**

DEPTH (in feet)	OVM	CHLORIDES (Field) (in mg/Kg)	SAMPLE DESCRIPTION
3-5	--	--	Dark gray/brown clay
8-10	--	--	Dark brown fine grain sand
13-15	--	--	Light brown fine grain sand
18-20	--	--	Tan fine grain well sorted sand
23-25	--	--	Tan well sorted fine grain sand
28-30	--	--	Tan well sorted fine grain sand

Boring completed at 30 feet bgs

SAMPLE LOG

Boring/Well: **SB-3**
Project Number: **3562**
Client: **St. Mary Land and Exploration**
Site Location: **Parkway Delaware #205**
Location: **Eddy County, New Mexico**
Total Depth **30**
Date Installed: **08/27/08**

DEPTH (in feet)	OVM	CHLORIDES (Field) (in mg/Kg)	SAMPLE DESCRIPTION
13-15	--	--	Tan fine grain well sorted sand
18-20	--	--	Tan fine grain well sorted sand
23-25	--	--	Tan fine grain well sorted sand
28-30	--	--	Tan fine grain well sorted sand

Boring completed at 30 feet bgs

SAMPLE LOG

Boring/Well: **SB-4**
Project Number: **3562**
Client: **St. Mary Land and Exploration**
Site Location: **Parkway Delaware #205**
Location: **Eddy County, New Mexico**
Total Depth **35**
Date Installed: **08/27/08**

DEPTH (in feet)	OVM	CHLORIDES (Field) (in mg/Kg)	SAMPLE DESCRIPTION
8-10	--	--	Tan fine grain sandy limestone
13-15	--	--	Tan fine grain sand intermixed with gypsum
18-20	--	--	Tan fine grain sand intermixed with gypsum
23-25	--	--	Reddish/tan fine grain sand intermixed with gypsum
28-30	--	--	Reddish/tan fine grain sand intermixed with gypsum
33-35	--	--	Reddish/tan fine grain sand intermixed with gypsum

Boring completed at 35 feet bgs

SAMPLE LOG

Boring/Well: **SB-5**
Project Number: **3562**
Client: **St. Mary Land and Exploration**
Site Location: **Parkway Delaware #205**
Location: **Eddy County, New Mexico**
Total Depth **30**
Date Installed: **08/27/08**

DEPTH (in feet)	OVM	CHLORIDES (Field) (in mg/Kg)	SAMPLE DESCRIPTION
8-10	--	--	Tan fine grain sand intermixed with gypsum
13-15	--	--	Tan fine grain sand intermixed with gypsum
18-20	--	--	Tan fine grain sand intermixed with gypsum
23-25	--	--	Tan fine grain sand intermixed with gypsum
28-30	--	--	Reddish/tan fine grain sand

Boring completed at 30 feet bgs

Appendix D

Summary Report

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

Report Date: March 25, 2009

Work Order: 9031330

Project Location: Eddy Co, NM
Project Name: St. Mary/PDU 304 (205 Inj. Well)
Project Number: 3562

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
190255	Water Well (Sec. 35, T195-R29E)	water	2009-03-12	14:20	2009-03-13

Sample: 190255 - Water Well (Sec. 35, T195-R29E)

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		**88.0**	mg/L as CaCo3	4.00
Total Alkalinity		**88.0**	mg/L as CaCo3	4.00
Dissolved Calcium		**796**	mg/L	1.00
Chloride		**1730**	mg/L	2.50
Hardness (by ICP)		**2570**	mg eq CaCO3/L	0.00
Dissolved Potassium		**19.8**	mg/L	1.00
Dissolved Magnesium		**142**	mg/L	1.00
Dissolved Sodium		**820**	mg/L	1.00
pH		**7.50**	s.u.	0.00
Sulfate		**1750**	mg/L	2.50
Total Dissolved Solids		**5440**	mg/L	10.0

4031330

Analysis Request of Chain of Custody Record

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

PAGE: 1 OF: 1

CLIENT NAME: ST Mary Land & Explor.

SITE MANAGER: IKE Tavarez

PROJECT NO.:

PROJECT NAME: ST Mary / PDH 304(205) 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
90255	3-12-09	2:20 pm	W		✓	Waterwell (Section 35, T19S, R29E)	1				✓	✓

ANALYSIS REQUEST (Circle or Specify Method No.)

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	X Major Ions, TDS, pH		
																	X		

RELINQUISHED BY: (Signature) Date: 3/13/09 Time: 1330
RECEIVED BY: (Signature) Lindsay Webb Date: 3/13/09 Time: 1530

RELINQUISHED BY: (Signature) Date: Time:
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: Trace
ADDRESS:
CITY: STATE: ZIP:
CONTACT: PHONE:
RECEIVED BY: (Signature)
DATE: TIME:

SAMPLE CONDITION WHEN RECEIVED: 8.4

REMARKS: Alkalinity, pH, TDS-Midland Ca, Chloride, Hardness, K, Mg, Na, SO4-Lubbock

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: March 31, 2009

Work Order: 9031724

Project Location: Eddy Co, NM
Project Name: St. Mary/PDU 304 (205 Inj. Well)
Project Number: 3562

Sample	Description	Matrix	Date Taken	Time Taken	Date Received
190478	TMW-1	water	2009-03-16	14:45	2009-03-17

Sample: 190478 - TMW-1

Param	Flag	Result	Units	RL
Hydroxide Alkalinity		<1.00	mg/L as CaCo3	1.00
Carbonate Alkalinity		<1.00	mg/L as CaCo3	1.00
Bicarbonate Alkalinity		**118**	mg/L as CaCo3	4.00
Total Alkalinity		**118**	mg/L as CaCo3	4.00
Dissolved Calcium		**400**	mg/L	1.00
Chloride		**147**	mg/L	0.500
Hardness (by ICP)		**1610**	mg eq CaCO3/L	0.00
Dissolved Potassium		**8.57**	mg/L	1.00
Dissolved Magnesium		**148**	mg/L	1.00
Dissolved Sodium		**63.0**	mg/L	1.00
pH		**7.86**	s.u.	0.00
Sulfate		**1960**	mg/L	0.500
Total Dissolved Solids		**2690**	mg/L	10.0

9031724

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 1

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

CLIENT NAME: St. Mary's

SITE MANAGER: Ike Tavarez

PROJECT NO.: 15-640 3562

PROJECT NAME: St. Mary's / DPU 304 Eddy Co NM

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. TX1005 (Ext. to C35)	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Vr Pd Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC.MS Vol. 8240/8260/624	GC.MS Semi. Vol. 8270/625	PCB's 8080/608	Pest. 808/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS					
190478	3/16/2009	1445	W		X	TMW-1	1				i																	X						

ANALYSIS REQUEST (Circle or Specify Method No.)

RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
Jeffrey Kindley	March 17, 2009	1440	Lindsey Welch	3/17/09	14:40
RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:
RELINQUISHED BY: (Signature)	Date:	Time:	RECEIVED BY: (Signature)	Date:	Time:

SAMPLED BY: (Print & Initial) Robert Cobbs Jr. Date: 3/16/09 Time: 15:10

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS: Alkalinity, Chloride, pH TDS SO4 - Midland Na, Mg, K, Ca, Hardness - Lubbock

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