SITE INFORMATION

2RP 3643 Report Type: Work Plan

General Site Information:	
Site:	**Geronimo Tank Battery**
Company:	**SM Energy Company**
Section, Township and Range	**Section 24, T18S, R31E** **Unit Letter - G**
Lease Number:	**API 30-015-524927**
County:	**Eddy County**
GPS:	**32.73376º N, 103.82129º W**
Surface Owner:	**Federal**
Mineral Owner:	
Directions:	From the intersection of Hwy 82 and Shugart Rd (Loco Hills), go south on Shugart Rd exactly 4 miles. Turn to the Southeast on a caliche road and travel southeast for another 4 miles until the road ends. Turn onto the road to the northeast and travel approximatly 1.1 miles to the location.

Release Data:	
Date Released:	3/31/2016
Type Release:	Produced Water
Source of Contamination:	Check valve
Fluid Released:	14.33 bbls
Fluids Recovered:	13 bbls

Official Communication:			
Name:	Zachary Luikens		Ike Tavarez
Company:	SM Energy Company		Tetra Tech
Address:	6301 Holiday Hill Rd. Bldg 1		4000 N Big Spring, Suite 401
P.O. Box			
City:	Midland, Texas		Midland, Texas
Phone number:	(432) 212-3408		(432) 682-4559
Fax:			
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***	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

May 26, 2016

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

Re: Work Plan for SM Energy Company
Geronimo Tank Battery
Unit G, Section 24, Township 18 South, Range 31 East
Eddy County, New Mexico
2RP - 3643

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by SM Energy Company (SM Energy) to assess a spill that occurred the Geronimo Tank Battery located in Unit G, Section 24, Township 18 South, Range 31 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32.73376º, W 103.82129º. 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 March 31, 2016. Approximately 14.33 barrels of produced water was released from a check valve. Approximately 13 barrels of produced water was recovered. The release occurred north of the facility tanks impacted an area measuring approximately 45' x 46' and contained within the bermed facility. The initial C-141 is enclosed in Appendix A.

Groundwater

The New Mexico Office of the State Engineers (NMOSE) Website listed two water wells within 2 miles of the site. The closest well (identified by the NMOSE as CP 00896) did not have any information available. The second closest well (identified by the NMOSE as CP 00672) reported a depth to water of 460 feet. The Geology and Ground-Water Resources of Eddy County, New Mexico (Report 3) showed a well in Section 34 Township 17 South and Range 31 East with a total depth of over 250' and the depth to water for this well was not available. The New Mexico Oil Conservation Division (NMOCD) regional groundwater map for Eddy County shows depth to groundwater in this section at approximately 280 feet. The groundwater details are shown in Appendix

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

B.

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 April 13, 2015, Tetra Tech personnel installed a total of two (2) auger holes and collected soil samples utilizing a hand auger to assess the spill area. 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. Copies of laboratory analysis and chain-of-custody documentation are included in Appendix C. The sampling results are summarized in Table 1. The auger hole locations are shown on Figure 3.

Referring to Table 1, none of the soil samples collected showed any BTEX or TPH concentrations above the RRAL's. The areas of auger holes (AH-1 and AH-2) showed elevated chlorides in the shallow soils (0'-1.5' below surface). The area of auger hole (AH-1) showed a chloride concentration of 2,740 mg/kg at 0'-1'and declined to 83.6 mg/kg at 1-1.5' below surface. The area of auger hole (AH-2) showed chloride concentrations of 5,670 mg/kg at 0'-1' and 3,810 mg/kg at 1'-1.5' below surface. The deeper samples at 2-2.5' and 3-3.5' significantly declined with depth, with chloride concentrations of 659 mg/kg and 229 mg/kg, respectively.

Work Plan

SM Energy proposes to remove the chloride impacted material as highlighted (green) in Table 1 and shown on Figure 4. The area auger hole (AH-1) will be excavated to a depth of approximately 1.0' below surface and the area of auger hole (AH-2) will be excavated to a depth of approximately 1.5' below surface. Once completed, all of the excavated material will be hauled to proper disposal. The excavated areas will be backfilled with clean soil.

The proposed excavation around oil and gas equipment, structures or lines may not be feasible or practicable to be removed due to safely concerns. As such, Tetra Tech will excavate the soils to the maximum extent practicable. Any remaining impact not accessible to be removed will be deferred until abandonment.

Upon completion, a final report will be submitted to the NMOCD. If you have any questions or comments concerning the assessment or the proposed remediation activities for this site, please call me at (432) 682-4559.

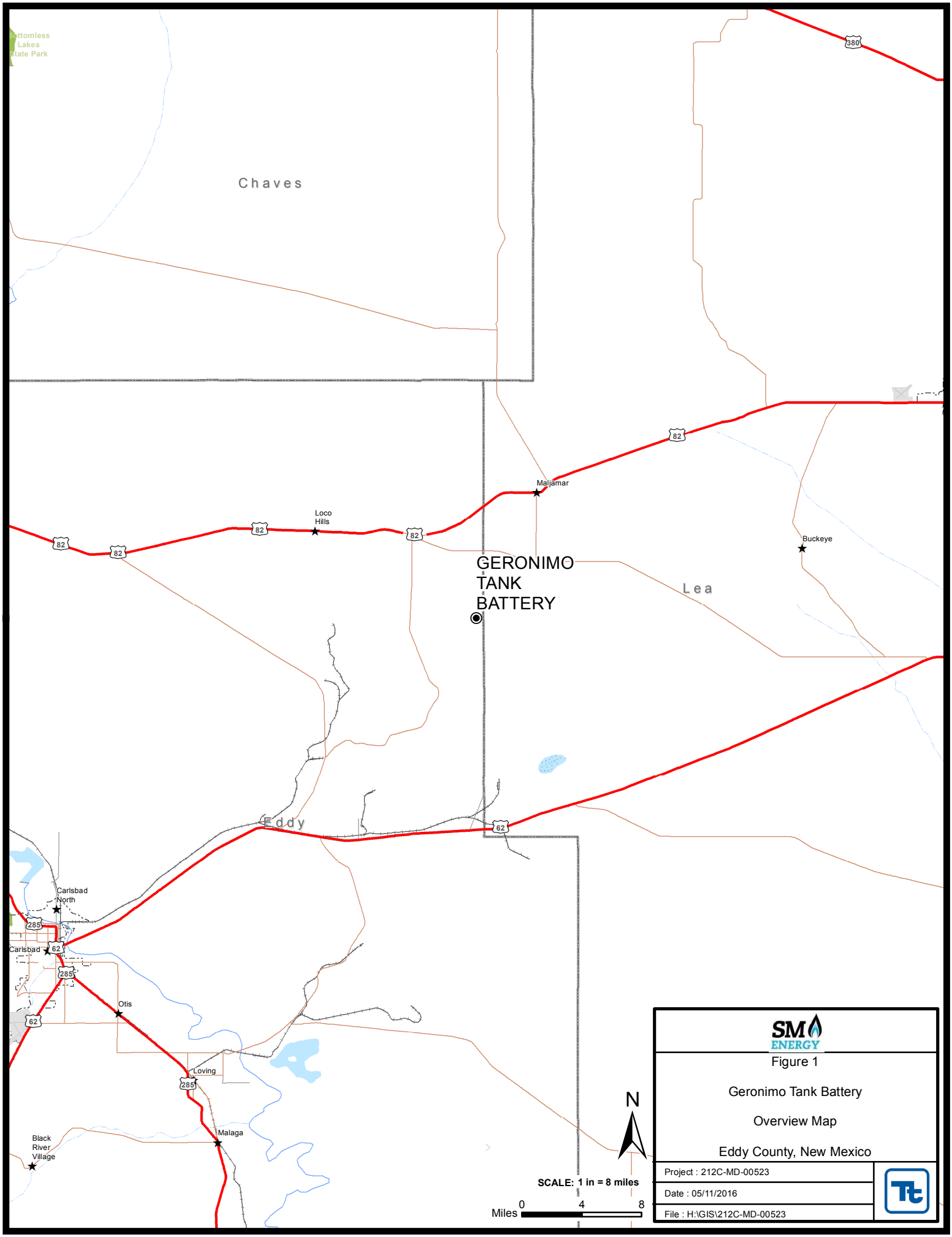
Respectfully submitted,
TETRA TECH

Ike Tavarez, P.G
Senior Project Manager

Clair Gonzales,
Geologist

cc: Zachary Luikens – SM Energy Company
Bob Geries – SM Energy Company
BLM – Shelly Tucker

Figures



SM ENERGY

Figure 1

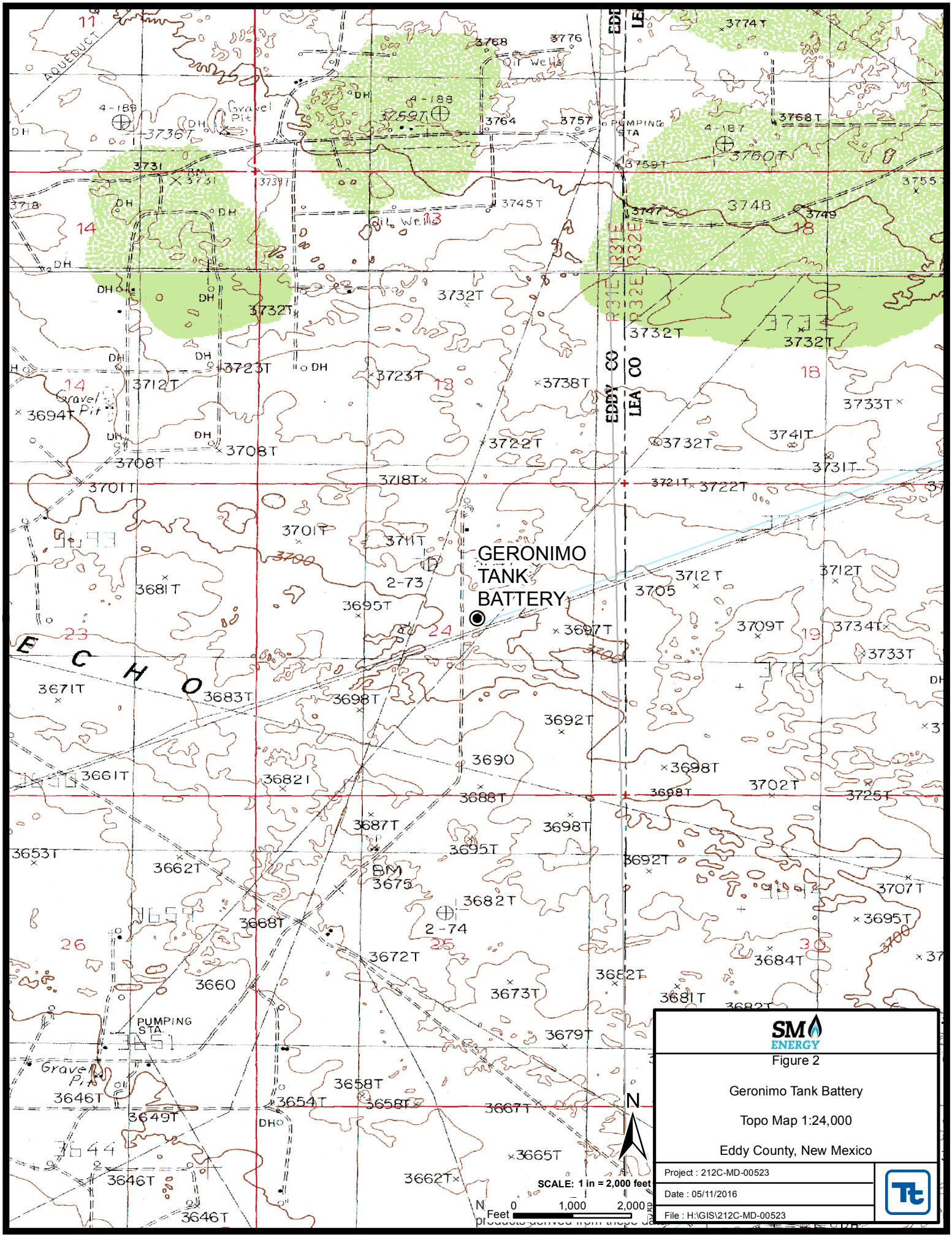
Geronimo Tank Battery

Overview Map

Eddy County, New Mexico

Project : 212C-MD-00523	
Date : 05/11/2016	
File : H:\GIS\212C-MD-00523	

Mapped By: Isabel Marmolejo



SM ENERGY

Figure 2

Geronimo Tank Battery

Topo Map 1:24,000

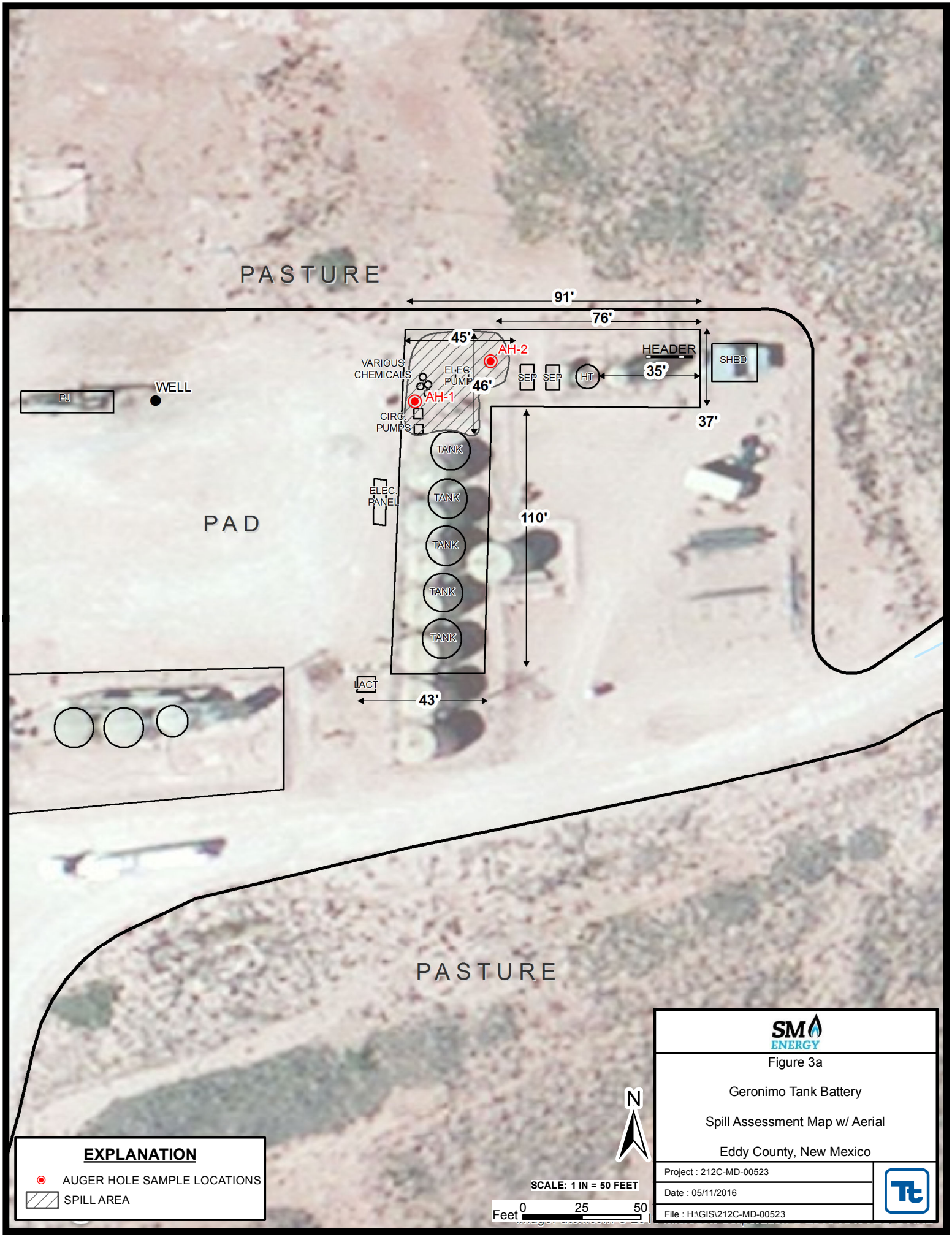
Eddy County, New Mexico

Project : 212C-MD-00523

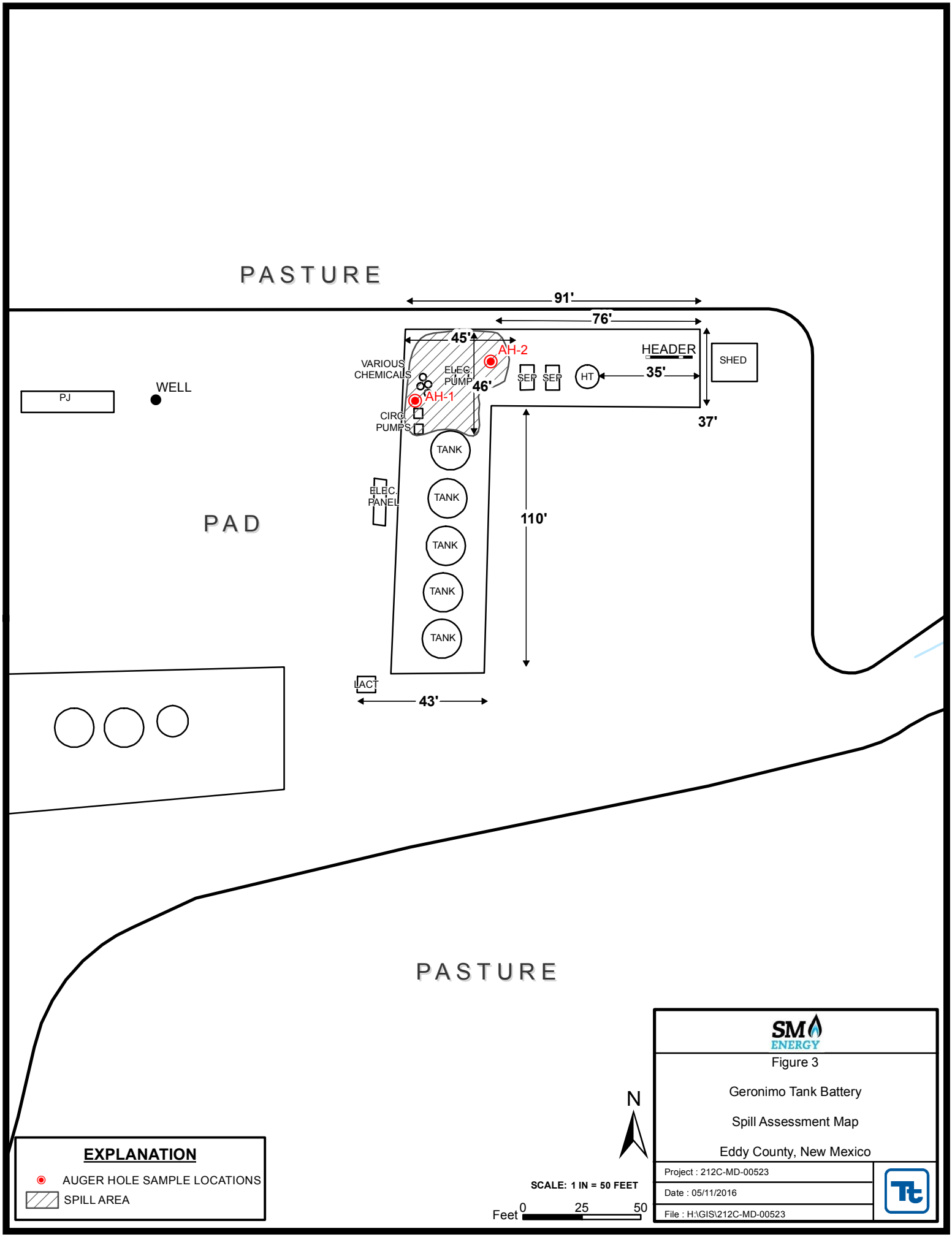
Date : 05/11/2016

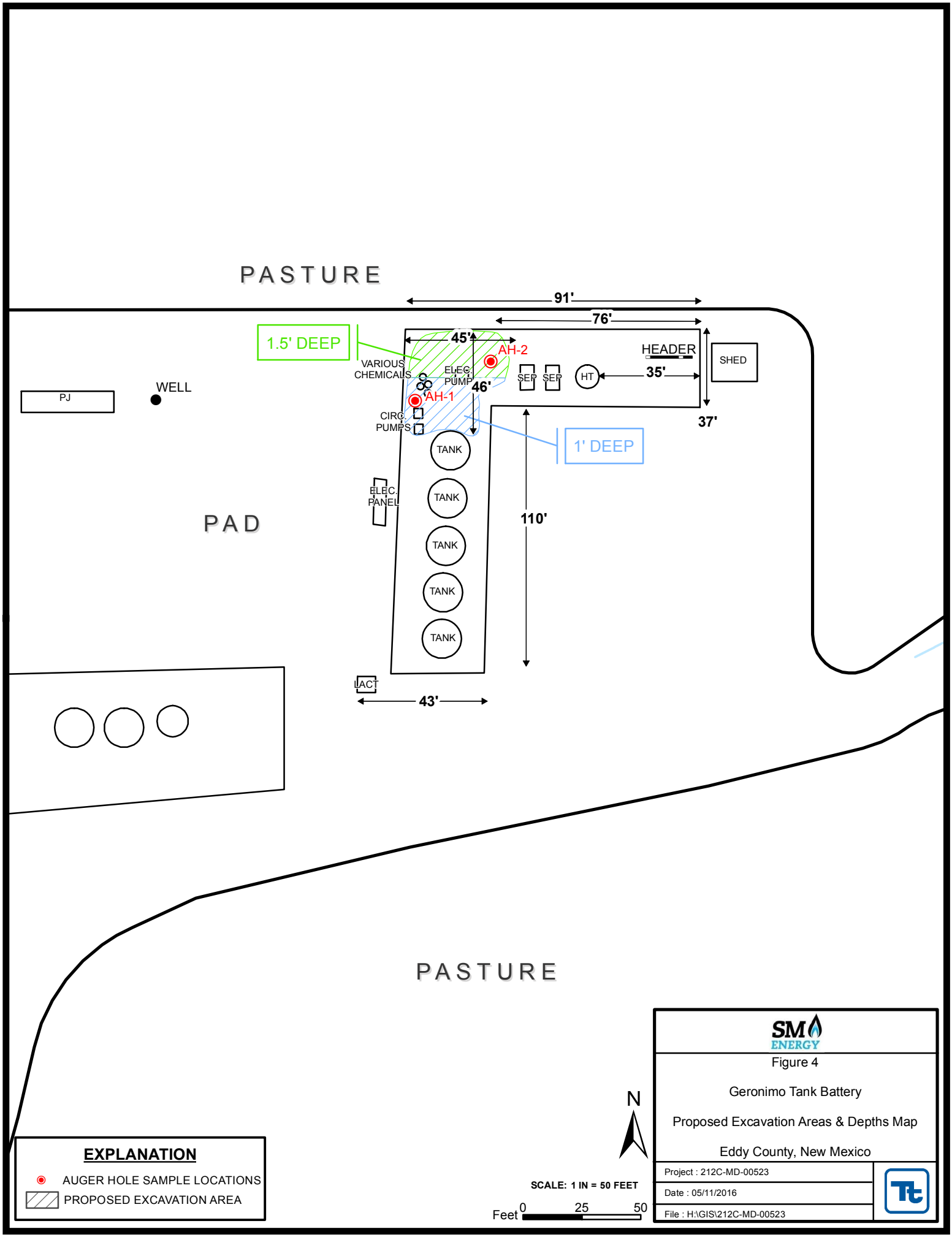
File : H:\GIS\212C-MD-00523

Mapped By: Isabel Marmolejo



Mapped By: Isabel Marmolejo


PASTURE
91'
76'
45'
AH-2
HEADER
SHED
VARIOUS CHEMICALS
ELEC. PUMP
46'
SEP
SEP
HT
35'
PJ
WELL
AH-1
CIRC. PUMPS
37'
TANK
ELEC. PANEL
TANK
PAD
110'
TANK
TANK
TANK
LACT
43'
PASTURE
N
EXPLANATION
AUGER HOLE SAMPLE LOCATIONS
SPILL AREA
SCALE: 1 IN = 50 FEET
Feet 0 25 50
SM ENERGY
Figure 3
Geronimo Tank Battery
Spill Assessment Map
Eddy County, New Mexico
Project : 212C-MD-00523
Date : 05/11/2016
File : H:\GIS\212C-MD-00523
Mapped By: Isabel Marmolejo



Mapped By: Isabel Marmolejo

Tables

Table 1
SM Energy
Geronimo Tank Battery
Eddy County, New Mexico

Sample ID	Sample Date	Sample Depth (ft)	Soil Status		TPH (mg/kg)			Benzene (mg/kg)	Toluene (mg/kg)	Ethlybenzene (mg/kg)	Xylene (mg/kg)	Total BTEX (mg/kg)	Chloride (mg/kg)
			In-Situ	Removed	GRO	DRO	Total						
AH-1	4/13/2016	0-1	X		<15.0	1,250	1,250	<0.00150	<0.00200	<0.00200	<0.00200	<0.00150	**2,740**
	"	1-1.5	X		-	-	-	-	-	-	-	-	83.6
	"	2-2.5	X		-	-	-	-	-	-	-	-	59.4
	"	3-3.5	X		-	-	-	-	-	-	-	-	50.9
	"	4-4.5	X		-	-	-	-	-	-	-	-	424
	"	5-5.5	X		-	-	-	-	-	-	-	-	509
	"	6-6.5	X		-	-	-	-	-	-	-	-	163
	"	7-7.5	X		-	-	-	-	-	-	-	-	191
	"	8-8.5	X		-	-	-	-	-	-	-	-	246
	"	9-9.5	X		-	-	-	-	-	-	-	-	266
	"	10-10.5	X		-	-	-	-	-	-	-	-	166
AH-2	4/13/2016	0-1	X		<15.0	1,230	1,230	<0.00149	<0.00198	<0.00198	<0.00198	<0.00149	**5,670**
	"	1-1.5	X		-	-	-	-	-	-	-	-	**3,810**
	"	2-2.5	X		-	-	-	-	-	-	-	-	659
	"	3-3.5	X		-	-	-	-	-	-	-	-	229
	"	4-4.5	X		-	-	-	-	-	-	-	-	234
	"	5-5.5	X		-	-	-	-	-	-	-	-	203
	"	6-6.5	X		-	-	-	-	-	-	-	-	360
	"	7-7.5	X		-	-	-	-	-	-	-	-	234
	"	8-8.5	X		-	-	-	-	-	-	-	-	276
	"	9-9.5	X		-	-	-	-	-	-	-	-	254
	"	10-10.5	X		-	-	-	-	-	-	-	-	400

Proposed Excavation Depth

(-) Not Analyzed

Photos

SM Energy Company
Geronimo Tank Battery
Eddy County, New Mexico

View North – Area of AH-1

View South – Area of AH-1

SM Energy Company
Geronimo Tank Battery
Eddy County, New Mexico

View East – Area of AH-2

View West – Area of AH-2

Appendix A

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

NM OIL CONSERVATION
ARTESIA DISTRICT
APR 11 2016
RECEIVED

State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 South St. Francis Dr.
Santa Fe, NM 87505

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

nAB1610356566

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company SM ENERGY COMPANY 154903	Contact LISA HUNT
Address 6301 Holiday Hill Rd. Bldg 1 Midland, TX 79707	Telephone No. (432) 848-4833
Facility Name Geronimo Battery	Facility Type Battery

Surface Owner BLM	Mineral Owner	API No. 3001524927

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
G	24	18S	31E	2310	N	2310	E	Eddy

Latitude 32.734005 **Longitude**

NATURE OF RELEASE

Type of Release Produced water	Volume of Release 14.33 BBLS	Volume Recovered 13 BBLS
Source of Release Check valve	Date and Hour of Occurrence 3/31/16	Date and Hour of Discovery 3/31/16 7:30 AM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
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.*
While making his rounds, the lease operator discovered that the 1/4" plug on a check valve located on the discharge of the produced water transfer pump had failed and was causing a spray of produced water to be released into the bermed portion of the battery.

Describe Area Affected and Cleanup Action Taken.*
Approximately 70'x25' bermed area. Vacuum truck driver picked up standing fluid and placed the fluid into the PW tank. The affected soil inside the battery will be blended with fresh soil. (*)

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: Lisa Hunt

Printed Name: Lisa Hunt

Title: Regulatory Technician

E-mail Address: Lhunt@sm-energy.com

Date: Phone:

OIL CONSERVATION DIVISION

Approved by Environmental Specialist: Signed By

Approval Date: 4/12/16 Expiration Date: N/A

Conditions of Approval: Remediation per O.C.D. Rules & Guidelines SUBMIT REMEDIATION PROPOSAL NO LATER THAN: 5/13/16 Attached ☐

2RP-3643

* Attach Additional Sheets If Necessary

(*) Blending is not Approved

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
SM Energy - Geronimo Battery
Eddy County, New Mexico

17 South 30 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20 80	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34 271	35	36

17 South 32 East

6	5	4 82 Maljamar	3 175	2 60	1 225
7	8	9	10 132	11 70 88	12 120
18	17	16	15	14	13
19	20	21	22	23	24
30 180 dry	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 44	24
30	29	28	27	26	25
31	32	33	34	35	36

18 South 31 East

6	5	4	3	2	1
7	8	9	10	11	12 400
18	17	16	15 98	14 317	13
19	20	21	22	23	24 SITE
30	29	28	27	26	25
31	32	33	34	35 261	36

18 South 32 East

6	5	4 65	3	2	1
7 460 82	8	9	10	11	12
18	17	16 84	15	14	13
19	20 164	21	22 429	23	24
30	29	28	27	26	25
31	32	33	34 117	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

19 South 31 East

6	5 SITE	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14	13
19	20	21	22	23	24
30	29	28 180	27	26	25
31	32	33 101	34	35	36 130

19 South 32 East

6	5	4	3	2	1
7	8 365	9	10	11	12
18	17	16	15	14	13 135 dry
19 102	20 345	21	22	23	24
30	29	28	27	26	25
31	32	33	34 250	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 Tetra Tech installed temporary wells and field water level

143 NMOCD Groundwater map well location

Appendix C

Analytical Report 528518

for

Tetra Tech- Midland

Project Manager: Ike Tavarez

Geronimo Tank Battery

212C-MD-00523

26-APR-16

Collected By: Client

1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab code: TX00122):
Texas (T104704215-15-19), Arizona (AZ0765), Florida (E871002), Louisiana (03054)
Oklahoma (9218)

Xenco-Dallas (EPA Lab code: TX01468): Texas (T104704295)
Xenco-Odessa (EPA Lab code: TX00158): Texas (T104704400)
Xenco-San Antonio: Texas (T104704534-15-1)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona(AZ0757)
Xenco-Phoenix Mobile (EPA Lab code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (EPA Lab Code: GA00046):
Florida (E87429), North Carolina (483), South Carolina (98015), Kentucky (85), DoD (L10-135)
Texas (T104704477), Louisiana (04176), USDA (P330-07-00105)

Xenco-Lakeland: Florida (E84098)

26-APR-16

Project Manager: **Ike Tavarez**
Tetra Tech- Midland
4000 N. Big Spring Suite 401
Midland, TX 79705

Reference: XENCO Report No(s): **528518**
Geronimo Tank Battery
Project Address: Eddy Co. NM

Ike Tavarez:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the XENCO Report Number(s) 528518. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by XENCO Laboratories. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 528518 will be filed for 60 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting XENCO Laboratories to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

Kelsey Brooks
Project Manager

Sample Cross Reference 528518

Tetra Tech- Midland, Midland, TX

Geronimo Tank Battery

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
AH-1 0-1	S	04-13-16 00:00	0 - 1 ft	528518-001
AH-1 1-1.5	S	04-13-16 00:00	1 - 1.5 ft	528518-002
AH-1 2-2.5	S	04-13-16 00:00	2 - 2.5 ft	528518-003
AH-1 3-3.5	S	04-13-16 00:00	3 - 3.5 ft	528518-004
AH-1 4-4.5	S	04-13-16 00:00	4 - 4.5 ft	528518-005
AH-1 5-5.5	S	04-13-16 00:00	5 - 5.5 ft	528518-006
AH-1 6-6.5	S	04-13-16 00:00	6 - 6.5 ft	528518-007
AH-1 7-7.5	S	04-13-16 00:00	7 - 7.5 ft	528518-008
AH-1 8-8.5	S	04-13-16 00:00	8 - 8.5 ft	528518-009
AH-1 9-9.5	S	04-13-16 00:00	9 - 9.5 ft	528518-010
AH-1 10-10.5	S	04-13-16 00:00	10 - 10.5 ft	528518-011
AH-2 0-1	S	04-13-16 00:00	0 - 1 ft	528518-012
AH-2 1-1.5	S	04-13-16 00:00	1 - 1.5 ft	528518-013
AH-2 2-2.5	S	04-13-16 00:00	2 - 2.5 ft	528518-014
AH-2 3-3.5	S	04-13-16 00:00	3 - 3.5 ft	528518-015
AH-2 4-4.5	S	04-13-16 00:00	4 - 4.5 ft	528518-016
AH-2 5-5.5	S	04-13-16 00:00	5 - 5.5 ft	528518-017
AH-2 6-6.5	S	04-13-16 00:00	6 - 6.5 ft	528518-018
AH-2 7-7.5	S	04-13-16 00:00	7 - 7.5 ft	528518-019
AH-2 8-8.5	S	04-13-16 00:00	8 - 8.5 ft	528518-020
AH-2 9-9.5	S	04-13-16 00:00	9 - 9.5 ft	528518-021
AH-2 10-10.5	S	04-13-16 00:00	10 - 10.5 ft	528518-022

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analysis Summary 528518

Tetra Tech- Midland, Midland, TX

Project Name: Geronimo Tank Battery

Project Id: 212C-MD-00523
Contact: Ike Tavarez
Project Location: Eddy Co. NM

Date Received in Lab: Thu Apr-14-16 09:45 am
Report Date: 26-APR-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	528518-001		528518-002		528518-003		528518-004		528518-005		528518-006	
	Field Id:	AH-1 0-1		AH-1 1-1.5		AH-1 2-2.5		AH-1 3-3.5		AH-1 4-4.5		AH-1 5-5.5	
	Depth:	0-1 ft		1-1.5 ft		2-2.5 ft		3-3.5 ft		4-4.5 ft		5-5.5 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00	
BTEX by EPA 8021B	***Extracted:***	Apr-18-16 13:30											
	Analyzed:	Apr-18-16 15:57											
	Units/RL:	mg/kg	RL										
Benzene		ND	0.00150										
Toluene		ND	0.00200										
Ethylbenzene		ND	0.00200										
m,p-Xylenes		ND	0.00200										
o-Xylene		ND	0.00299										
Total Xylenes		ND	0.00200										
Total BTEX		ND	0.00150										
Inorganic Anions by EPA 300/300.1	***Extracted:***	Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00	
	Analyzed:	Apr-19-16 15:29		Apr-19-16 16:30		Apr-19-16 16:50		Apr-19-16 17:10		Apr-19-16 17:31		Apr-19-16 18:31	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2740	200	83.6	10.0	59.4	2.00	50.9	10.0	424	20.0	509	20.0
TPH By SW8015 Mod	***Extracted:***	Apr-18-16 16:00											
	Analyzed:	Apr-18-16 22:46											
	Units/RL:	mg/kg	RL										
C6-C10 Gasoline Range Hydrocarbons		ND	15.0										
C10-C28 Diesel Range Hydrocarbons		1250	15.0										
C28-C35 Oil Range Hydrocarbons		ND	15.0										
Total TPH		1250	15.0										

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 528518

Tetra Tech- Midland, Midland, TX

Project Name: Geronimo Tank Battery

Project Id: 212C-MD-00523
Contact: Ike Tavarez
Project Location: Eddy Co. NM

Date Received in Lab: Thu Apr-14-16 09:45 am
Report Date: 26-APR-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	528518-007		528518-008		528518-009		528518-010		528518-011		528518-012	
	Field Id:	AH-1 6-6.5		AH-1 7-7.5		AH-1 8-8.5		AH-1 9-9.5		AH-1 10-10.5		AH-2 0-1	
	Depth:	6-6.5 ft		7-7.5 ft		8-8.5 ft		9-9.5 ft		10-10.5 ft		0-1 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00	
BTEX by EPA 8021B	***Extracted:***											Apr-18-16 13:30	
	Analyzed:											Apr-18-16 16:12	
	Units/RL:											mg/kg	RL
Benzene												ND	0.00149
Toluene												ND	0.00198
Ethylbenzene												ND	0.00198
m,p-Xylenes												ND	0.00198
o-Xylene												ND	0.00298
Total Xylenes												ND	0.00198
Total BTEX												ND	0.00149
Inorganic Anions by EPA 300/300.1	***Extracted:***	Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00	
	Analyzed:	Apr-19-16 18:52		Apr-19-16 19:12		Apr-19-16 19:32		Apr-19-16 19:53		Apr-19-16 20:13		Apr-19-16 21:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		163	10.0	191	10.0	246	20.0	266	20.0	166	10.0	5670	400
TPH By SW8015 Mod	***Extracted:***											Apr-18-16 16:00	
	Analyzed:											Apr-18-16 23:08	
	Units/RL:											mg/kg	RL
C6-C10 Gasoline Range Hydrocarbons												ND	15.0
C10-C28 Diesel Range Hydrocarbons												1230	15.0
C28-C35 Oil Range Hydrocarbons												ND	15.0
Total TPH												1230	15.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 528518

Tetra Tech- Midland, Midland, TX

Project Name: Geronimo Tank Battery

Project Id: 212C-MD-00523
Contact: Ike Tavarez
Project Location: Eddy Co. NM

Date Received in Lab: Thu Apr-14-16 09:45 am
Report Date: 26-APR-16
Project Manager: Kelsey Brooks

Analysis Requested													
	Lab Id:	528518-013		528518-014		528518-015		528518-016		528518-017		528518-018	
	Field Id:	AH-2 1-1.5		AH-2 2-2.5		AH-2 3-3.5		AH-2 4-4.5		AH-2 5-5.5		AH-2 6-6.5	
	Depth:	1-1.5 ft		2-2.5 ft		3-3.5 ft		4-4.5 ft		5-5.5 ft		6-6.5 ft	
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00	
Inorganic Anions by EPA 300/300.1	***Extracted:***	Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00		Apr-19-16 09:00	
	Analyzed:	Apr-19-16 21:34		Apr-19-16 22:35		Apr-19-16 22:55		Apr-19-16 23:15		Apr-19-16 23:36		Apr-19-16 23:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		3810	400	659	40.0	229	10.0	234	10.0	203	10.0	360	20.0

Kelsey Brooks
Project Manager

Certificate of Analysis Summary 528518

Tetra Tech- Midland, Midland, TX

Project Name: Geronimo Tank Battery

Project Id: 212C-MD-00523
Contact: Ike Tavarez
Project Location: Eddy Co. NM

Date Received in Lab: Thu Apr-14-16 09:45 am
Report Date: 26-APR-16
Project Manager: Kelsey Brooks

Analysis Requested											
	Lab Id:	528518-019		528518-020		528518-021		528518-022			
	Field Id:	AH-2 7-7.5		AH-2 8-8.5		AH-2 9-9.5		AH-2 10-10.5			
	Depth:	7-7.5 ft		8-8.5 ft		9-9.5 ft		10-10.5 ft			
	Matrix:	SOIL		SOIL		SOIL		SOIL			
	Sampled:	Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00		Apr-13-16 00:00			
Inorganic Anions by EPA 300/300.1	***Extracted:***	Apr-19-16 09:00		Apr-19-16 09:00		Apr-21-16 18:00		Apr-21-16 18:00			
	Analyzed:	Apr-20-16 00:16		Apr-20-16 00:36		Apr-22-16 12:29		Apr-22-16 12:42			
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL		
Chloride		234	20.0	276	20.0	254	10.0	400	20.0		

Kelsey Brooks
Project Manager

Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

+ NELAC certification not offered for this compound.

***** (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation

Form 2 - Surrogate Recoveries

Project Name: Geronimo Tank Battery

Work Orders : 528518, 528518 **Project ID:** 212C-MD-00523

Lab Batch #: 992630 **Sample:** 528518-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/18/16 15:57

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 992630 **Sample:** 528518-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/18/16 16:12

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0294	0.0300	98	80-120	
4-Bromofluorobenzene	0.0304	0.0300	101	80-120	

Lab Batch #: 992652 **Sample:** 528518-001 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/18/16 22:46

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	124	100	124	70-135	
o-Terphenyl	56.8	50.0	114	70-135	

Lab Batch #: 992652 **Sample:** 528518-012 / SMP **Batch:** 1 **Matrix:** Soil

Units: mg/kg **Date Analyzed:** 04/18/16 23:08

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	111	99.8	111	70-135	
o-Terphenyl	50.6	49.9	101	70-135	

Lab Batch #: 992630 **Sample:** 707820-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 15:23

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0295	0.0300	98	80-120	
4-Bromofluorobenzene	0.0312	0.0300	104	80-120	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Geronimo Tank Battery

Work Orders : 528518, 528518 **Project ID:** 212C-MD-00523

Lab Batch #: 992652 **Sample:** 707840-1-BLK / BLK **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 20:09

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	110	100	110	70-135	
o-Terphenyl	52.2	50.0	104	70-135	

Lab Batch #: 992630 **Sample:** 707820-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 14:01

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0299	0.0300	100	80-120	
4-Bromofluorobenzene	0.0315	0.0300	105	80-120	

Lab Batch #: 992652 **Sample:** 707840-1-BKS / BKS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 20:31

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	122	100	122	70-135	
o-Terphenyl	56.4	50.0	113	70-135	

Lab Batch #: 992630 **Sample:** 707820-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 14:17

SURROGATE RECOVERY STUDY

BTEX by EPA 8021B

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1,4-Difluorobenzene	0.0316	0.0300	105	80-120	
4-Bromofluorobenzene	0.0330	0.0300	110	80-120	

Lab Batch #: 992652 **Sample:** 707840-1-BSD / BSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 20:53

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod

Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	121	100	121	70-135	
o-Terphenyl	51.8	50.0	104	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

Form 2 - Surrogate Recoveries

Project Name: Geronimo Tank Battery

Work Orders : 528518, 528518 **Project ID:** 212C-MD-00523

Lab Batch #: 992652 **Sample:** 528552-001 S / MS **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 21:37

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	116	99.8	116	70-135	
o-Terphenyl	46.3	49.9	93	70-135	

Lab Batch #: 992652 **Sample:** 528552-001 SD / MSD **Batch:** 1 **Matrix:** Solid

Units: mg/kg **Date Analyzed:** 04/18/16 22:00

SURROGATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Amount Found [A]	True Amount [B]	Recovery %R [D]	Control Limits %R	Flags
1-Chlorooctane	118	99.9	118	70-135	
o-Terphenyl	48.3	50.0	97	70-135	

* Surrogate outside of Laboratory QC limits
** Surrogates outside limits; data and surrogates confirmed by reanalysis
*** Poor recoveries due to dilution
Surrogate Recovery [D] = 100 * A / B
All results are based on MDL and validated for QC purposes.

BS / BSD Recoveries

Project Name: Geronimo Tank Battery

Work Order #: 528518, 528518 **Project ID:** 212C-MD-00523

Analyst: PJB **Date Prepared:** 04/18/2016 **Date Analyzed:** 04/18/2016

Lab Batch ID: 992630 **Sample:** 707820-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

BTEX by EPA 8021B Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Benzene	<0.00150	0.100	0.0934	93	0.100	0.0965	97	3	70-130	35	
Toluene	<0.00200	0.100	0.0922	92	0.100	0.0951	95	3	70-130	35	
Ethylbenzene	<0.00200	0.100	0.0942	94	0.100	0.0975	98	3	71-129	35	
m,p-Xylenes	<0.00200	0.200	0.192	96	0.200	0.199	100	4	70-135	35	
o-Xylene	<0.00300	0.100	0.0967	97	0.100	0.101	101	4	71-133	35	

Analyst: MNR **Date Prepared:** 04/19/2016 **Date Analyzed:** 04/19/2016

Lab Batch ID: 992884 **Sample:** 707897-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<2.00	50.0	53.6	107	50.0	53.0	106	1	90-110	20	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

BS / BSD Recoveries

Project Name: Geronimo Tank Battery

Work Order #: 528518, 528518 **Project ID:** 212C-MD-00523

Analyst: MNR **Date Prepared:** 04/21/2016 **Date Analyzed:** 04/21/2016

Lab Batch ID: 992935 **Sample:** 708011-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

Inorganic Anions by EPA 300/300.1 Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
Chloride	<2.00	50.0	50.4	101	50.0	49.9	100	1	90-110	20	

Analyst: ARM **Date Prepared:** 04/18/2016 **Date Analyzed:** 04/18/2016

Lab Batch ID: 992652 **Sample:** 707840-1-BKS **Batch #:** 1 **Matrix:** Solid

Units: mg/kg

BLANK /BLANK SPIKE / BLANK SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Blank Sample Result [A]	Spike Added [B]	Blank Spike Result [C]	Blank Spike %R [D]	Spike Added [E]	Blank Spike Duplicate Result [F]	Blk. Spk Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	1000	807	81	1000	826	83	2	70-135	35	
C10-C28 Diesel Range Hydrocarbons	<15.0	1000	890	89	1000	926	93	4	70-135	35	

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|
Blank Spike Recovery [D] = 100*(C)/[B]
Blank Spike Duplicate Recovery [G] = 100*(F)/[E]
All results are based on MDL and Validated for QC Purposes

Form 3 - MS Recoveries

Project Name: Geronimo Tank Battery

Work Order #: 528518

Lab Batch #: 992884 **Project ID:** 212C-MD-00523

Date Analyzed: 04/19/2016 **Date Prepared:** 04/19/2016 **Analyst:** MNR

QC- Sample ID: 528518-001 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	2740	5000	7640	98	80-120	

Lab Batch #: 992884

Date Analyzed: 04/19/2016 **Date Prepared:** 04/19/2016 **Analyst:** MNR

QC- Sample ID: 528518-011 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	166	250	371	82	80-120	

Lab Batch #: 992935

Date Analyzed: 04/21/2016 **Date Prepared:** 04/21/2016 **Analyst:** MNR

QC- Sample ID: 528808-010 S **Batch #:** 1 **Matrix:** Soil

Reporting Units: mg/kg

Inorganic Anions by EPA 300	MATRIX / MATRIX SPIKE RECOVERY STUDY					
Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	%R [D]	Control Limits %R	Flag
Chloride	692	1000	1640	95	80-120	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B
Relative Percent Difference [E] = 200*(C-A)/(C+B)
All Results are based on MDL and Validated for QC Purposes

BRL - Below Reporting Limit

Form 3 - MS / MSD Recoveries

Project Name: Geronimo Tank Battery

Work Order # : 528518 **Project ID:** 212C-MD-00523

Lab Batch ID: 992652 **QC- Sample ID:** 528552-001 S **Batch #:** 1 **Matrix:** Solid

Date Analyzed: 04/18/2016 **Date Prepared:** 04/18/2016 **Analyst:** ARM

Reporting Units: mg/kg

MATRIX SPIKE / MATRIX SPIKE DUPLICATE RECOVERY STUDY

TPH By SW8015 Mod Analytes	Parent Sample Result [A]	Spike Added [B]	Spiked Sample Result [C]	Spiked Sample %R [D]	Spike Added [E]	Duplicate Spiked Sample Result [F]	Spiked Dup. %R [G]	RPD %	Control Limits %R	Control Limits %RPD	Flag
C6-C10 Gasoline Range Hydrocarbons	<15.0	998	897	90	999	878	88	2	70-135	35	
C10-C28 Diesel Range Hydrocarbons	53.2	998	946	89	999	938	89	1	70-135	35	

Matrix Spike Percent Recovery [D] = 100*(C-A)/B

Matrix Spike Duplicate Percent Recovery [G] = 100*(F-A)/E

Relative Percent Difference RPD = 200*|(C-F)/(C+F)|

ND = Not Detected, J = Present Below Reporting Limit, B = Present in Blank, NR = Not Requested, I = Interference, NA = Not Applicable

N = See Narrative, EQL = Estimated Quantitation Limit, NC = Non Calculable - Sample amount is > 4 times the amount spiked.

Sample Duplicate Recovery

Project Name: Geronimo Tank Battery

Work Order #: 528518

Lab Batch #: 992884 **Project ID:** 212C-MD-00523
Date Analyzed: 04/19/2016 16:09 **Date Prepared:** 04/19/2016 **Analyst:** MNR
QC- Sample ID: 528518-001 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1 Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	2740	3070	11	20	

Lab Batch #: 992884
Date Analyzed: 04/19/2016 20:53 **Date Prepared:** 04/19/2016 **Analyst:** MNR
QC- Sample ID: 528518-011 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1 Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	166	166	0	20	

Lab Batch #: 992935
Date Analyzed: 04/22/2016 00:08 **Date Prepared:** 04/21/2016 **Analyst:** MNR
QC- Sample ID: 528808-010 D **Batch #:** 1 **Matrix:** Soil
Reporting Units: mg/kg

Inorganic Anions by EPA 300/300.1 Analyte	SAMPLE / SAMPLE DUPLICATE RECOVERY				
	Parent Sample Result [A]	Sample Duplicate Result [B]	RPD	Control Limits %RPD	Flag
Chloride	692	711	3	20	

Spike Relative Difference RPD 200 * | (B-A)/(B+A) |
All Results are based on MDL and validated for QC purposes.
BRL - Below Reporting Limit

528518

Analysis Request of Chain of Custody Record

PAGE: 1 OF: 3

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.: 212C-MD-00523 ~~00213~~ MAW

PROJECT NAME: Geronimo Tank Battery
Eddy Co, NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 8015 MOD. (Ext. to C35) TX1005	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
	4-13-16		S		X	AH-1 0-1	1	N			X		X	X											X				
						1-1.5																			X				
						2-2.5																			X				
						3-3.5																			X				
						4-4.5																			X				
						5-5.5																			X				
						6-6.5																			X				
						7-7.5																			X				
						8-8.5																			X				
						9-9.5																			X				

RELINQUISHED BY: (Signature) Cole Pence — Date: 4-14-16 Time: 9:45
RECEIVED BY: (Signature) — Date: 4-14-16 Time: 9:45
SAMPLED BY: (Print & Initial) Cole Pence CP — Date: 4-13-16 Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

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

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

SAMPLE CONDITION WHEN RECEIVED:

REMARKS: If TPH exceeds 5,000 mg/kg, run deeper samples. If benzene exceeds 10, run deeper samples. If total ~~BTEX~~ BTEX exceeds 50 run deeper samples.

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

Temp: 2.4 IR ID:R-8
C/F:0
Corrected Temp: 2.4°C

528518

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.: 212c-MD-00523 ~~00273~~

PROJECT NAME: Geronimo Tank Battery
Eddy Co. NM

ANALYSIS REQUEST (Circle or Specify Method No.)

LAB I.D. NUMBER	DATE	TIME	MATRIX	COMP.	GRAB	SAMPLE IDENTIFICATION	NUMBER OF CONTAINERS	FILTERED (Y/N)	PRESERVATIVE METHOD: HCL	HNO3	ICE	NONE	BTEX 8021B	TPH 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
	4-13-16		S		X	AH-1 10-10.5	1	N			X															X				
						AH-2 0-1							X	X												X				
						1-1.5																				X				
						2-2.5																				X				
						3-3.5																				X				
						4-4.5																				X				
						5-5.5																				X				
						6-6.5																				X				
						7-7.5																				X				
						8-8.5																				X				

RELINQUISHED BY: (Signature) Cole Pence — Date: 4-14-16 Time: 9:45
RECEIVED BY: (Signature) — Date: 4-14-16 Time: 9:45
SAMPLED BY: (Print & Initial) Cole Pence CP — Date: 4-13-16 Time:

RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS — AIRBILL #: OTHER:

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

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

TETRA TECH CONTACT PERSON: Ike Tavarez

Results by:

RUSH Charges Authorized: Yes No

SAMPLE CONDITION WHEN RECEIVED:

REMARKS: If TPH exceeds 5,000 mg/kg, run deeper samples, If Benzene exceeds 10 run deeper samples. If total BTEX exceeds 50, run deeper samples

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

Temp: 2.4° IR ID:R-8
C/F:0
Corrected Temp: 2.4°C

528518

Analysis Request of Chain of Custody Record

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.: 00523 212C-MD-00013 mAN

PROJECT NAME: Gerorimo Tank Battery
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. (Ext. to C35)	TPH TX1005	PAH 8270	RCRA Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Metals Ag As Ba Cd Cr Pb Hg Se	TCLP Volatiles	TCLP Semi Volatiles	RCI	GC/MS Vol. 8240/8260/8624	GC/MS Semi. Vol. 8270/8625	PCB's 8082/608	Pest. 8081/608	Chloride	Gamma Spec.	Alpha Beta (Air)	PLM (Asbestos)	Major Anions/Cations, pH, TDS
	4-13-16		S		X	AH-2 9-9.5	1	N			X															X				
	↓		↓		↓	10-10.5	↓	↓			↓															X				

RELINQUISHED BY: (Signature) Cole Pence — Date: 4-14-16 Time: 9:45
RECEIVED BY: (Signature) — Date: 4-14-16 Time: 9:45
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RELINQUISHED BY: (Signature) — Date: Time:
RECEIVED BY: (Signature) — Date: Time:
SAMPLE SHIPPED BY: (Circle) FEDEX BUS HAND DELIVERED UPS
AIRBILL #:
OTHER:

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

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

SAMPLE CONDITION WHEN RECEIVED:

REMARKS: If TPH exceeds 5,000 mg/kg run deeper samples, If Benzene exceeds 10 run deeper samples, If total BTEX exceeds 50 run deeper samples

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

Temp: 2.4 °C IR ID: R-8
C/F: 0
Corrected Temp: 2.4°C

XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In

Client: Tetra Tech- Midland

Date/ Time Received: 04/14/2016 09:45:00 AM

Work Order #: 528518

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.4
#2 *Shipping container in good condition?	**N/A**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seal present on shipping container/ cooler?	**N/A**
#5 *Custody Seals intact on shipping container/ cooler?	**N/A**
#6 Custody Seals intact on sample bottles?	**N/A**
#7 *Custody Seals Signed and dated?	**N/A**
#8 *Chain of Custody present?	**Yes**
#9 Sample instructions complete on Chain of Custody?	**Yes**
#10 Any missing/extra samples?	**No**
#11 Chain of Custody signed when relinquished/ received?	**Yes**
#12 Chain of Custody agrees with sample label(s)?	**Yes**
#13 Container label(s) legible and intact?	**Yes**
#14 Sample matrix/ properties agree with Chain of Custody?	**Yes**
#15 Samples in proper container/ bottle?	**Yes**
#16 Samples properly preserved?	**Yes**
#17 Sample container(s) intact?	**Yes**
#18 Sufficient sample amount for indicated test(s)?	**Yes**
#19 All samples received within hold time?	**Yes**
#20 Subcontract of sample(s)?	**No**
#21 VOC samples have zero headspace (less than 1/4 inch bubble)?	**N/A**
#22 <2 for all samples preserved with HNO3,HCL, H2SO4? Except for samples for the analysis of HEM or HEM-SGT which are verified by the analysts.	**N/A**
#23 >10 for all samples preserved with NaAsO2+NaOH, ZnAc+NaOH?	**N/A**

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by: Mary Alexis Negron
Mary Negron
Date: 04/14/2016

Checklist reviewed by: Kelsey Brooks
Kelsey Brooks
Date: 04/15/2016