



TETRA TECH



April 19, 2012

*Proposal
to delineate*

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

**Re: Initial Work Plan for the Alamo Permian Resources, LLC., State
32 Tank Battery, Unit J, Section 32, Township 17 South, Range 28
East, Eddy County, New Mexico.**

Mr. Bratcher:

Tetra Tech, Inc. (Tetra Tech) was contacted by Alamo Permian Resources, LLC., (Alamo) to assess a spill from the State 32 Tank Battery, Unit J, Section 32, Township 17 South, Range 28 East, Eddy County, New Mexico (Site). The spill site coordinates are N 32 ° 47' 25", W 104° 11' 43". 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 15, 2012, and released approximately one hundred and thirty (130) barrels of crude oil due to a hole in the oil tank. The spill was contained inside the facility berms and approximately 52.5 barrels of oil was recovered. The initial C-141 form is enclosed in Appendix A.

Groundwater

According to the USGS data, one well is located in Section 22, Township 17 South, Range 28 East, with a reported groundwater depth of 79' below surface. According to the NMOCD groundwater map and data, the groundwater depth in the area is approximately 125' below surface. The closest wells are located in Section 19, Township 17 South, Range 28 East and Section 4, Township 18 South, Range 28 East, with reported depths of 191' and 108', respectively. The groundwater data is shown in Appendix B.

Tetra Tech

1910 North Bz Spring, Midland, TX 79705

Tel 432.682.4559

Fax 432.682.3946

www.tetrattech.com

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2. 1. 1941



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. Based upon the depth to groundwater, the proposed RRAL for TPH is 5,000 mg/kg.

Assessment Work Plan

Tetra Tech personnel will inspect the spill area and collect soil samples using a stainless steel, bucket type hand auger to evaluate the extent of subsurface impact at this site. If a dense formation is encountered and deeper samples cannot be collected, backhoe trenches will be installed to attempt to define the vertical extents for delineation. If the soil impact cannot be defined, boreholes will be installed using an air rotary rig.

Soil samples will be collected at selected depth intervals for field screening and sampling. A head space gas survey will be performed by collecting discrete soil samples and placing a portion of the sample in a clean plastic sample bag and measuring organic vapors using an Organic Vapor Meter (OVM). If utilized, all down hole equipment (i.e., drill rods, drill bits, etc.) will thoroughly decontaminated between each borehole with a high-pressure hot water wash and rinse. Soil cuttings from drilling will be stockpiled adjacent to the well until disposal is arranged.

The samples selected for analysis will be determined from field observation and data. All samples will be collected and preserved in laboratory prepared sample containers with standard QA/QC procedures. All samples will be shipped under proper chain-of-custody control and analyzed within the standard holding times. The soil samples will be analyzed for Total Petroleum Hydrocarbon (TPH) by method 8015 DRO/GRO, Benzene, Toluene, Ethyl benzene, and Xylene (BTEX) by method EPA Method 8021B and chloride by method EPA method 300.



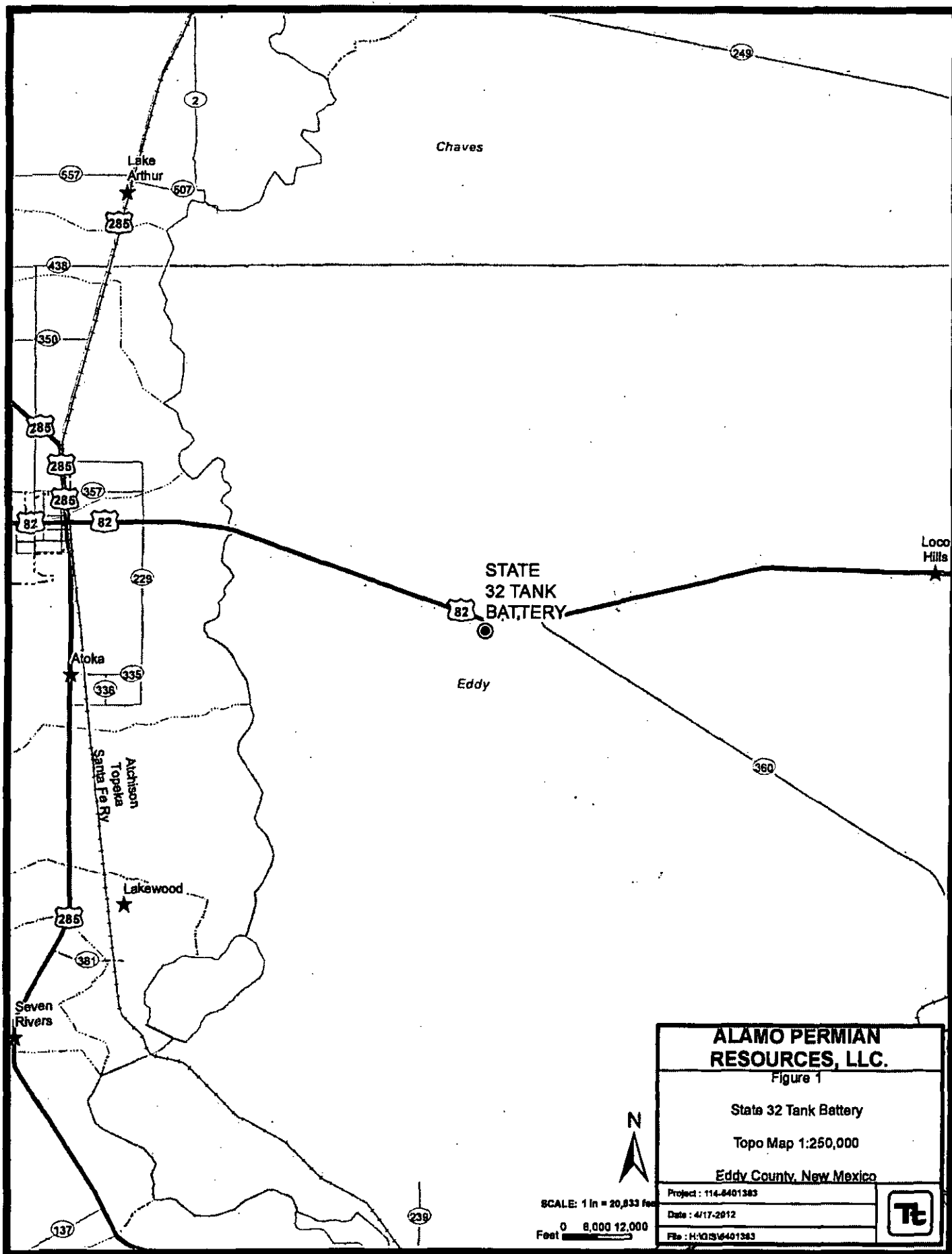
TETRA TECH

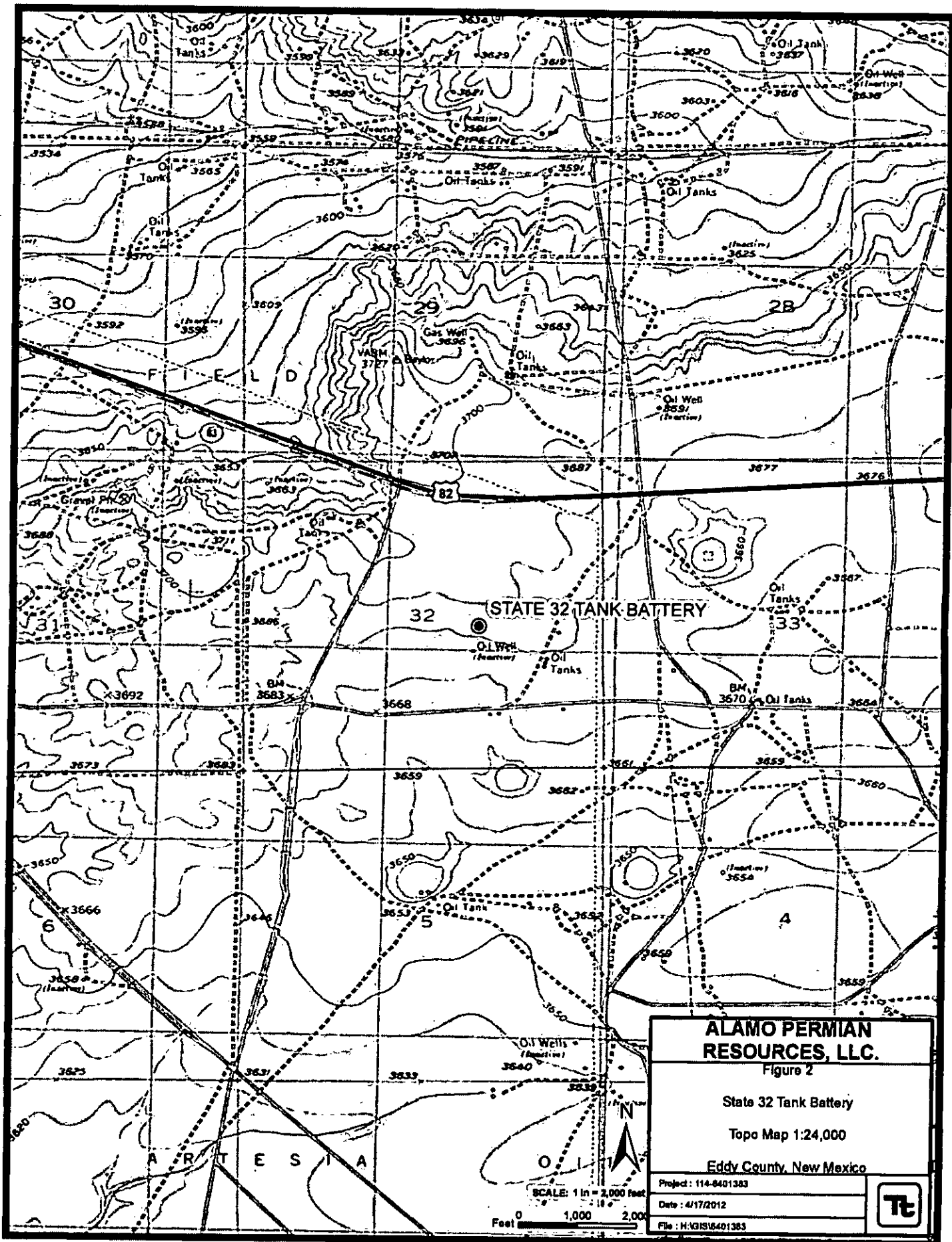
Once the analytical data has been received and reviewed, a remediation work plan will be prepared and submitted to the NMOCD for approval. If you have any questions or comments concerning the proposed work plan, please call me at (432) 682-4559.

Respectfully submitted,
TETRA TECH

Ike Tavarez , PG
Sr. Project Manager

cc: Hollie Lamb -HeLM





Appendix A

Appendix B

Water Well Data
Average Depth to Groundwater (ft)
State 32 Tank Battery
Eddy County, New Mexico

16 South			27 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

16 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	36

16 South			29 East		
6	5	4	3	2	1
7	8	9	10	11	12
18	17	16	15	14 220	13
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 South			27 East		
6	5	4	3	2	1
7	8	9	10	11 54	12
14				50	
18	17	16	15	14	13
111	90	175			
19	20	21	22	23	24
30	29	28	27	26	25
31	32	33	34	35	36

17 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
191			79		
30	29	28	27	26	25
31	32	33	34	35	36

17 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	29 210	28	27	26	25
31	32	33	34	35	36

18 South			27 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	65	32	33	34	35

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

- 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



USGS Home
Contact USGS
Search USGS

National Water Information System: Web Interface

[USGS Water Resources](#)

Data Category:
Groundwater

Geographic Area:
☐ New Mexico

[News](#) updated March, 2012

Groundwater levels for New Mexico

NM

Search Results -- 1 sites found

Search Criteria

site_no list =

• 324855104093101

Minimum number of levels = 1

[Save file of selected sites](#) to local disk for future upload

USGS 324855104093101 17S.28E.22.34242

Available data for this site

Groundwater: Field measurements

Eddy County, New Mexico

Hydrologic Unit Code 13060011

Latitude 32°48'55", Longitude 104°09'31" NAD27

Land-surface elevation 3,578 feet above NGVD29

The depth of the well is 95.00 feet below land surface.

This well is completed in the Alluvium, Bolson Deposits and Other Surface Deposits (110AVMB) local aquifer.

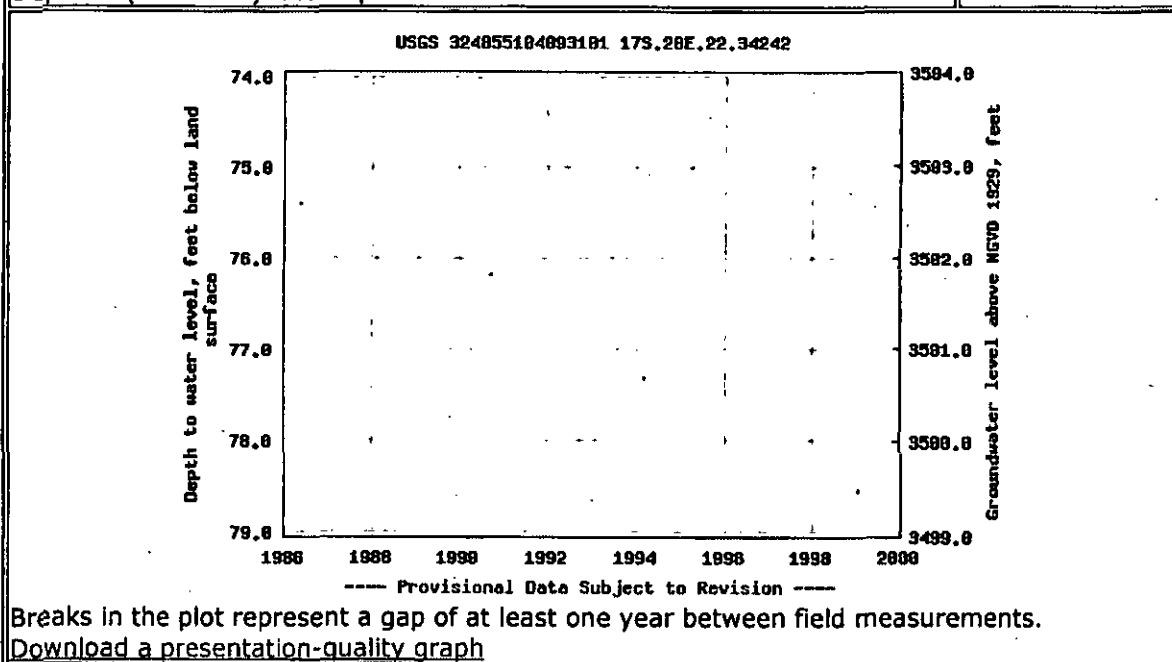
Output formats

[Table of data](#)

[Tab-separated data](#)

[Graph of data](#)

[Reselect period](#)



[Questions about sites/data?](#)

[Data Tips](#)



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

(quarters are 1=NW 2=NE 3=SW 4=SE)
(quarters are smallest to largest) (NAD83 UTM in meters)

No records found.

PLSS Search:

Township: 17S Range: 28E

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

4/16/12 8:43 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



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	Code	Subbasin	County	Q 6	Q 4	Q 15	Sec	Tws	Rng	X	Depth Y	Depth Well	Water Column
<u>L_01142_POD1</u>		L	LE	2	4	15	18S	28E	578921	3623453*	80		
<u>L_01150_POD1</u>		L	LE	1	1	35	18S	28E	579344	3619433*	135	65	70
<u>RA_09588</u>			ED	1	2	33	18S	28E	576976	3619384*	300		
											Average Depth to Water:	65 feet	
											Minimum Depth:	65 feet	
											Maximum Depth:	65 feet	

Record Count: 3

PLSS Search:

Township: 18S Range: 28E

*UTM location was derived from PLSS - see Help

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4/16/12 8:39 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



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	Code	Subbasin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Depth Well	Depth Water	Water Column
<u>RA 03714</u>			CH	4	4	2	08	18S	27E	568212	3625253*	381		
<u>RA 03917</u>			LE	4	1	2	10	18S	27E	569019	3625660*	130	50	80
<u>RA 04048</u>			LE	1	4	4	14	18S	27E	570841	3623030*	2096		
<u>RA 04211</u>			CH	3	1	28	18S	27E	568512	3620562*	120	100	20	
<u>RA 04298</u>			ED	1	2	19	18S	27E	564082	3622523*	92			
<u>RA 05524</u>			ED	2	4	33	18S	27E	567721	3618532*	90	49	41	
<u>RA 05860</u>			ED	3	4	31	18S	27E	564094	3618090*	305	65	240	
<u>RA 05664</u>			ED	4	1	33	18S	27E	566914	3618936*		145		
<u>RA 06091</u>			ED	1	2	3	29	18S	27E	565211	3620222*	90	17	73
Average Depth to Water:												71 feet		
Minimum Depth:												17 feet		
Maximum Depth:												145 feet		

Record Count: 9

PLSS Search:

Township: 18S Range: 27E

*UTM location was derived from PLSS - see Help

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4/16/12 8:40 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER



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	Code	Subbasin	County	Q 1	Q 2	Q 3	Q 4	Sec	Twp	Rng	X	Y	Depth Well	Depth Water	Water Column
<u>RA 01493</u>			ED	2	1	27	17S	27E			588468	3630529*	876		
<u>RA 01716 (D)</u>	O		ED	4	4	3	18	17S	27E		566953	3632420*	1220	175	1045
<u>RA 01716 S</u>			ED	4	4	3	18	17S	27E		566953	3632420*	1200		
<u>RA 02966</u>			ED	4	4	4	05	17S	27E		566117	3635707*	80	30	50
<u>RA 03279</u>			ED	3	2	07	17S	27E			564020	3635011*	250	14	236
<u>RA 03661</u>			ED	3	2	3	32	17S	27E		565186	3628038*	330	140	190
<u>RA 03664</u>			CH	3	2	3	32	17S	27E		565186	3628038*	400	100	300
<u>RA 03694</u>			ED		4	17	17S	27E			565854	3632721*	300	90	210
<u>RA 03816</u>			CH		4	17	17S	27E			565854	3632721*	945	931	14
<u>RA 04114</u>			LE	4	4	3	16	17S	27E		566953	3632420*	1042	260	782
<u>RA 04153</u>			CH	4	4	3	16	17S	27E		566953	3632420*	1220	175	1045
<u>RA 04320</u>			ED		3	17	17S	27E			565053	3632719*	120	50	70
<u>RA 04554</u>			ED		1	23	17S	27E			569859	3631947*	220	40	180
<u>RA 04561</u>			ED		4	2	26	17S	27E		570871	3630142*	250		
<u>RA 04786</u>			ED	4	3	2	18	17S	27E		564133	3633277*	138	111	27
<u>RA 06531</u>			ED	4	1	4	17	17S	27E		565747	3632821*	200		
<u>RA 06560</u>			CH	2	1	2	20	17S	27E		565757	3632217*	133	80	53
<u>RA 06635</u>			ED	2	2	2	18	17S	27E		564531	3633852*	325	60	265
<u>RA 07774</u>			ED	3	2	1	11	17S	27E		569933	3635251*	100	50	50
<u>RA 07844</u>			ED	3	4	3	16	17S	27E		566753	3632420*	1300	180	1120
<u>RA 07844 EXPL</u>			ED		4	3	16	17S	27E		566854	3632521*	1300	180	1120
<u>RA 08623</u>			ED	1	1	3	17	17S	27E		564745	3633019*	348	80	288
<u>RA 11691 POD1</u>			ED	2	1	4	17	17S	27E		565800	3633029	150	0	150

Average Depth to Water: 143 feet

Minimum Depth: 0 feet

Maximum Depth: 931 feet

Record Count: 23

PLSS Search:

Township: 17S Range: 27E

*UTM location was derived from PLSS - see Help

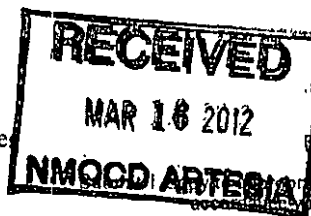
The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

4/16/12 8:42 AM

WATER COLUMN/ AVERAGE
DEPTH TO WATER

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

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



Form C-141
Revised August 8, 2011
District Office in
Santa Fe, NM 87505

Release Notification and Corrective Action

nMLB1208654631 *274841* OPERATOR ☒ Initial Report ☐ Final Report

Name of Company	ALAMO PERMIAN RESOURCES, LLC	Contact	STEVEN MASTIN
Address	415 W. WALL ST. SUITE 500	Telephone No.	432 557 5847
Facility Name	STATE 32 BATTERY	Facility Type	BATTERY
Surface Owner	STATE	Mineral Owner	STATE
		API No.	30-015-01655; 30-015-01656

LOCATION OF RELEASE

ST 32 #2 015-01656

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
J	32	17S	28E	1980	S	1980	E	EDDY

Latitude 32.7789400 Longitude -104.1792300

NATURE OF RELEASE

Type of Release: OIL	Volume of Release: EST 124 bbls	Volume Recovered: 52 bbls
Source of Release: TANK	Date and Hour of Occurrence: 3/15/12	Date and Hour of Discovery: 3/15/12
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? <i>NMOC NOTIFIED 3/15/12 @ 2:19 PM</i> STEVEN MASTIN	
By Whom? RICKY RODRIGUEZ	Date and Hour 3/15/12 1:00 P.M.	
Was a Watercourse Reached? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

Describe Cause of Problem and Remedial Action Taken.*

Cause of problem: HOLE IN TANK 66012

Remedial Action Taken: VAC TRUCK DISBATCHED TO LOCATION TO RECOVER AS MUCH OF THE SPILL AS POSSIBLE

Describe Area Affected and Cleanup Action Taken.*

THE SPILL WAS CONTAINED WITHIN THE BERM; 52 BBLS OF OIL WAS RECOVERED

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to NMOC 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 NMOC 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, NMOC 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: <i>Carie Stoker</i>	OIL CONSERVATION DIVISION	
Printed Name: CARIE STOKER	Signed By <i>M. L. Brannan</i>	
Title: REGULATORY COORDINATOR	Approved by Environmental Specialist:	
E-mail Address: cstoker@alamoresources.com	Approval Date: MAR 26 2012	Expiration Date:
Date: 03/16/2012 Phone: 432 664 7659	Conditions of Approval: Remediation per OCD Rules & Guidelines. SUBMIT REMEDIATION PROPOSAL NOT LATER THAN: 4/26/2012	Attached <input type="checkbox"/>

* Attach Additional Sheets If Necessary

JRP-1069

SITE INFORMATION

Report Type: Initial Work Plan

General Site Information:

Site:	State 32 Tank Battery
Company:	Alamo Permian Resources, LLC.
Section, Township and Range	Section 32 T17S R28E
Lease Number:	API-30-015-00169
County:	Eddy County
GPS:	32° 47' 25" 104° 11' 43"
Surface Owner:	State
Mineral Owner:	
Directions:	From intersection of Highway 82 and Illinois Camp Road, go south 0.3 miles on Illinois Camp Road, turn left (east) into lease road and go 0.1 miles and turn right (south), go 0.1 miles to tank battery

Release Data:

Date Released:	3/15/2012
Type Release:	crude oil
Source of Contamination:	hole in tank
Fluid Released:	130 barrels
Fluids Recovered:	52.5 barrels

Official Communication:

Name:	Steven Mastin	Ike Tavaréz
Company:	Alamo Permian Resources, LLC.	Tetra Tech
Address:	415 W. Wall St. Suite 500	1910 N. Big Spring
P.O. Box		
City:	Midland Texas	Midland, Texas
Phone number:	(432) 557-5847	(432) 682-4559
Fax:		
Email:		ike.tavarez@tetrattech.com

Ranking Criteria

Depth to Groundwater:	Ranking Score	Site Data
<50 ft	20	
50-99 ft	10	
>100 ft.	0	>100

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

