NJXK1528628444
1RP-3906

Mack Energy Corporation

Closure

LEA KG STATE

TB

03/20/2020

State of New Mexico
Oil Conservation Division

Incident ID	nJXK1528628414
District RP	1RP-3906
Facility ID	
Application ID	

Closure

The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: ***Each of the following items must be included in the closure report.***

[X] A scaled site and sampling diagram as described in 19.15.29.11 NMAC

[X] Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)

[NA] Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)

[X] Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD 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 OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD 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. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: MATT BUCKLES Title: ENVIRONMENTAL

Signature: M Buckles Date: JUNE 17, 2019

email: MATTBUCKLES@MEC.COM Telephone: 575-748-1288

OCD Only

Received by: _____ Date: _____

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by: Bradford Billings Date: 03/20/2020

Printed Name: Bradford Billings Title: E.SPEC.A

HRL COMPLIANCE SOLUTIONS
P.O. Box 1708 • Artesia, NM 88211
www.hrlcomp.com

CLOSURE REPORT

Property:

MACK ENERGY CORPORATION
LEA KG STATE TB
LEA COUNTY, NEW MEXICO
UNIT LETTER "I", SECTION 35, TOWNSHIP 17 SOUTH, RANGE 33 EAST
LATITUDE 32.784737° N, LONGITUDE 103.627876° W
API NUMBER: 30-025-39993
1RP – 3906

MAY 2019

Prepared For:

MACK ENERGY CORPORATION
11344 LOVINGTON HIGHWAY
ARTESIA, NM 88210
ATTN: **MR. MATT BUCKLES**

Prepared By:

Natalie Gordon
Project Manager

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ACRONYM LIST

bbl(s)	Barrel(s)
GPS	Global positioning system
NMAC	New Mexico Administrative Code
NM OCD	New Mexico Oil Conservation Division
PW	Produced Water
TB	Tank Battery
USDA	United States Department of Agriculture
USGS	United States Geological Survey

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EXECUTIVE SUMMARY

This report presents the methods and results of the site evaluation and liner inspection conducted at Lea KG State Tank Battery on May 17, 2019. The objective of the site evaluation was to determine if there were any indications of chloride or hydrocarbon impacts outside of the tank battery secondary containment as a result of the release that occurred following a lightning strike on the produced water tank on October 8, 2015. The objective of the liner inspection was to demonstrate the liner integrity and verify that it remained intact and had the ability to contain the release in question. This report is also intended to serve as a final closure report to obtain approval from New Mexico Oil Conservation Division (NM OCD) for closure of the release.

OVERVIEW:

- Lightning struck the produced water tank at Lea KG State in the early morning hours of October 8, 2015, causing the tank to catch on fire and burn down to the level of the water.
- An estimated 18 barrels (bbls) of produced water were released in the secondary containment.
- The well was shut in to stop the release within three hours of the fire.
- Free liquids were recovered to the extent possible resulting in the recovery of 18 bbls produced water.
- Mack Energy Corporation (Mack) filed Form C-141 (Release Notification and Corrective Action) with NM OCD on October 13, 2015 and the release was assigned reference number 1RP-3906.
- Mack contacted HRL Compliance Solutions (HRL) in February 2019 to evaluate the spill and obtain closure from NM OCD.
- HRL conducted a site evaluation and liner inspection on May 17, 2019 in order to verify the liner integrity and prepare this site closure report.

RECOMMENDATION:
Given the location of the spill wholly within the lined secondary containment in addition to the evaluation and discussion captured in Section 2.4 of this report, HRL recommends that no further action be taken in regards to this release. Certification of the liner integrity on form C-141 and a closure report is hereby submitted to NM OCD to obtain closeout of the incident.

1.0 INTRODUCTION

1.1 RELEASE AND INITIAL RESPONSE

On October 8, 2015 at approximately 3:00am, lightning struck the produced water (PW) tank at the Mack Lea KG State Tank Battery (Lea KG) at 32.784737° N 103.627876° W. The lightning strike caused the fiberglass PW tank to burn down to the water level, resulting in a minor release of an estimated 18 barrels (bbls) of produced water into the lined secondary containment. A pumper arrived onsite at 6:10am to shut well production down and stop the release. A vacuum truck was used to recover free liquids. Eighteen (18) bbls of produced water were recovered. An inspection of the secondary containment liner revealed no damage.

Mack submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NM OCD) District I on October 13, 2015. Because the release in its entirety was contained within the secondary containment, there was no evidence of damage to the secondary containment liner, and all 18 bbls of produced water that were estimated to have spilled were recovered, no additional remediation or documentation work to obtain closure was completed at the time of the incident. HRL was contacted by Mack on March 19, 2019 to evaluate the spill at Lea KG and obtain closure from NM OCD per NM regulations governing Releases as outlined in 19.15.29 New Mexico Administrative Code (NMAC).

1.2 PURPOSE OF REPORT

This report, which has been prepared for the exclusive use of Mack Energy Corporation, presents an evaluation of the release incident and environmental conditions at Lea KG on May 17, 2019, by HRL. The objective of the report is to establish that remediation is complete, all applicable regulations are being followed, and to serve as a final closure report to obtain approval from NM OCD for closure of the release that occurred on October 8, 2015.

1.3 SCOPE AND LIMITATIONS

The scope of HRL's services consists of reviewing information related to the release, verification of release stability, confirmation sampling, regulatory liaison, and preparation of this closure report. All work has been performed in accordance with generally accepted professional environmental consulting practices for oil and gas releases in the Permian Basin in New Mexico.

2.0 SITE CHARACTERIZATION

2.1 GENERAL SITE INFORMATION

The following information provides a brief outline of the site location and site conditions.

2.1.1 Site Location

The Lea KG tank battery is located on New Mexico state-owned land in the southeast portion of Section 35, Township 17 South, Range 33 East in west-central Lea County (Figure 1). This location is within the Permian Basin in southeast New Mexico.

2.1.2 Site Description

The Lea KG site is typical for oil and gas exploration and production sites in the northwestern portion of the Permian Basin and southeast New Mexico. It is currently used for oil and gas production and storage. This closure report discusses an area on the pad within the western portion of the tank battery secondary containment immediately around the PW tank. The PW tank is the western-most storage tank in a row of three storage tanks at this site.

The surrounding landscape is comprised of upland plain grassland used almost exclusively for rangeland. It has an arid to semiarid climate and annual mean precipitation ranging between 14-16 inches. Native vegetation is principally various gramas, little bluestem, buffalograss and other grasses with some low-growing wildflowers, hackberry and javelinabrush.

2.1.3 Topography

Lea KG is located at an elevation of approximately 4,118 feet above sea level on flat upland plains.

2.1.4 Geology

According to the United States Department of Agriculture (USDA) Web Soil Survey, the majority of the surface soil geology at the Lea KG State TB site is Kimbrough gravelly loam consisting of shallow well-drained soils comprised principally of gravelly loam with some fine sandy loam over cemented material (calcium carbonate). The soil profile is moderately alkaline with low moisture and moderate permeability and zero to three percent slopes.

2.1.5 Surface Water

There is no surface water located at Lea KG. The nearest significant watercourse as defined in Subsection P of 19.15.17.7 NMAC is an intermittent stream located 5.3 miles east-southeast from the horizontal boundary of the release.

2.1.6 Groundwater

Depth-to-groundwater at the release site is estimated to be 122 feet below ground surface as determined using the NM State Engineer's Office water column report. See Appendix B for additional information pertaining to the depth-to-groundwater determination.

2.1.7 Known Water Sources

There are no known water sources within a half mile of the release, including private and domestic water sources, such as wells, springs, and other sources of fresh water extraction.

2.1.8 Oil and Gas Production/Transfer/Storage Equipment

The release occurred around the PW water tank in the west side of the tank battery secondary containment. There are a total of three tanks and two heater treaters located within this secondary containment. Approximately 50 feet to the south of the tank battery secondary containment is the pumpjack. The heater treaters within the eastern portion of the secondary containment, and the equipment outside of the secondary containment, were not affected by the release.

2.2 INVESTIGATION METHODS

The following information discusses the actions performed at Lea KG as part of the evaluation and closure activities conducted on May 17, 2019.

2.2.1 Soil Sampling

No soil sampling was conducted at Lea KG following vacuum removal of the free liquids because the spill was contained within the lined secondary containment where there is no soil. An approximately 8" thick layer of pea gravel is spread throughout the containment.

2.2.2 Liner Inspection and Verification

Around the replaced PW tank in randomly-selected locations, a total of 12 potholes were dug in the gravel to expose the liner of the secondary containment. Following appropriate and timely notice to the respective OCD office, the liner was visually inspected for cracks, tears, cuts, and other signs of damage to verify that the liner remained intact and had the ability to contain the release, as required by Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC.

2.3 INVESTIGATION RESULTS

Every exposed section of liner that was investigated appeared to be in good shape with no tears, cracks, or signs of damage. The liner did not appear faded or sun-damaged in any of the visually-inspected areas, including along the top of the berm that surrounds the secondary containment where parts of the liner were exposed through the gravel. The depth of gravel on the floor of the secondary containment structure varied between six and ten inches deep and the minimum height of the top edge of the berm was 30 inches above the gravel surface inside the containment area. The liner appeared intact throughout and its integrity was not compromised as a result of the release that occurred on October 8, 2015. Nor does the liner appear to have been affected by time and normal wear and tear that has occurred at the site since the release incident.

2.4 EVALUATION OF DATA AND DISCUSSION

This section evaluates the investigation results in respect to NM OCD site closure requirements and/or guidelines.

2.4.1 Lea KG State Tank Battery

The site evaluation and liner inspection conducted on May 17, 2019 was conducted under NM OCD guidance found in Subparagraph (a) of Paragraph (5) of Subsection A in 19.15.29.11 NMAC. The inspection confirmed that the spill was contained within the secondary containment and it revealed no damage or integrity issues with the secondary containment liner. No free liquids remained in the lined secondary containment area and there were no indications of adverse conditions on or near the site.

3.0 RISK ASSESSMENT

3.1 POTENTIAL RECEPTOR EVALUATION

No potential receptors were identified either on- or off-site based on the following findings:

3.1.1 Human Receptors

There are ongoing oil and gas production operations at the site; however, HRL does not believe there is contamination at the site significant enough pose a threat to human health so long as existing health and safety guidelines are followed by site personnel. There is no threat to human health for offsite human receptors due to the fact that the release was entirely contained within the secondary containment.

3.1.2 Ecological Receptors

There are no ecological receptors identified which may be threatened by the release that occurred within the secondary containment. Offsite, there are no ecological receptors identified which may be threatened by the minimal presence of hydrocarbons and chlorides within the secondary containment of this pad.

3.1.3 Wells and Surface Water

There are no potable wells, non-potable wells, or surface bodies on- nor offsite that are close enough to be threatened by this release. Groundwater is at a significant depth below ground surface such that it is not expected to be affected by any chlorides that remain in the lined secondary containment area, even in the event that the chlorides could escape the containment area.

4.0 REMEDIATION ASSESSMENT

4.1 REMEDIATION DRIVERS AND CLEANUP OBJECTIVES

Clear remediation drivers and objectives are required to establish the framework within which potential remedial technologies are evaluated and compared. The remediation driver for this site is compliance with NM OCD regulations and directives to receive closure for the Lea KG location. Cleanup objectives are media-specific goals that are protective of human health and

the environment and were achieved to meet regulatory requirements as outlined in 19.15.29.11 NMAC.

4.2 RECOMMENDATION

Given the location of the spill, the producer's immediate removal of free liquids from the secondary containment area following the release, and based on the success of the liner verification, HRL suggests that no additional remedial action is required to address this spill. The presence of any contaminants-of-concern at the site resulting from the above-referenced spill, are wholly contained within the lined secondary containment. There is no anticipated risk to human, biological, or hydrological receptors at the Lea KG State TB location.

5.0 CLOSURE

Due to the reasons outlined in Section 4.2 above, HRL recommends that Incident 1RP-3906 be closed. All liner certification requirements as set forth in Subsection A of 19.15.29.12 NMAC and any closure requirements set forth in Subsection E of 19.15.29.12 have been met. Photos included in Appendix B of this report demonstrate the liner certification assertions. Mack Energy Corporation certifies that all information in this report and the attachments is correct and that Mack has complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NM OCD requirements to obtain closure on the release at the Lea KG State TB site.

6.0 REFERENCES

National Soil Survey Center, Natural Resources Conservation Service, United States Department of Agriculture. Field Book for Describing and Sampling Soils. Available online at the following link: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS. Accessed [05/21/2019].

Releases, Oil Conservation Commission, 19.15.29 NMAC (08/04/2018).

State Engineer, New Mexico Office of the State Engineer. New Mexico Water Rights Reporting System. Available online at the following: http://nmwrrs.ose.state.nm.us/waterColumn.html. Accessed [05/21/2019].

Soil Survey Staff, Natural Resources Conservation Service, United States Department of Agriculture. Web Soil Survey. Available online at the following link: https://websoilsurvey.sc.egov.usda.gov/. Accessed [05/21/2019].

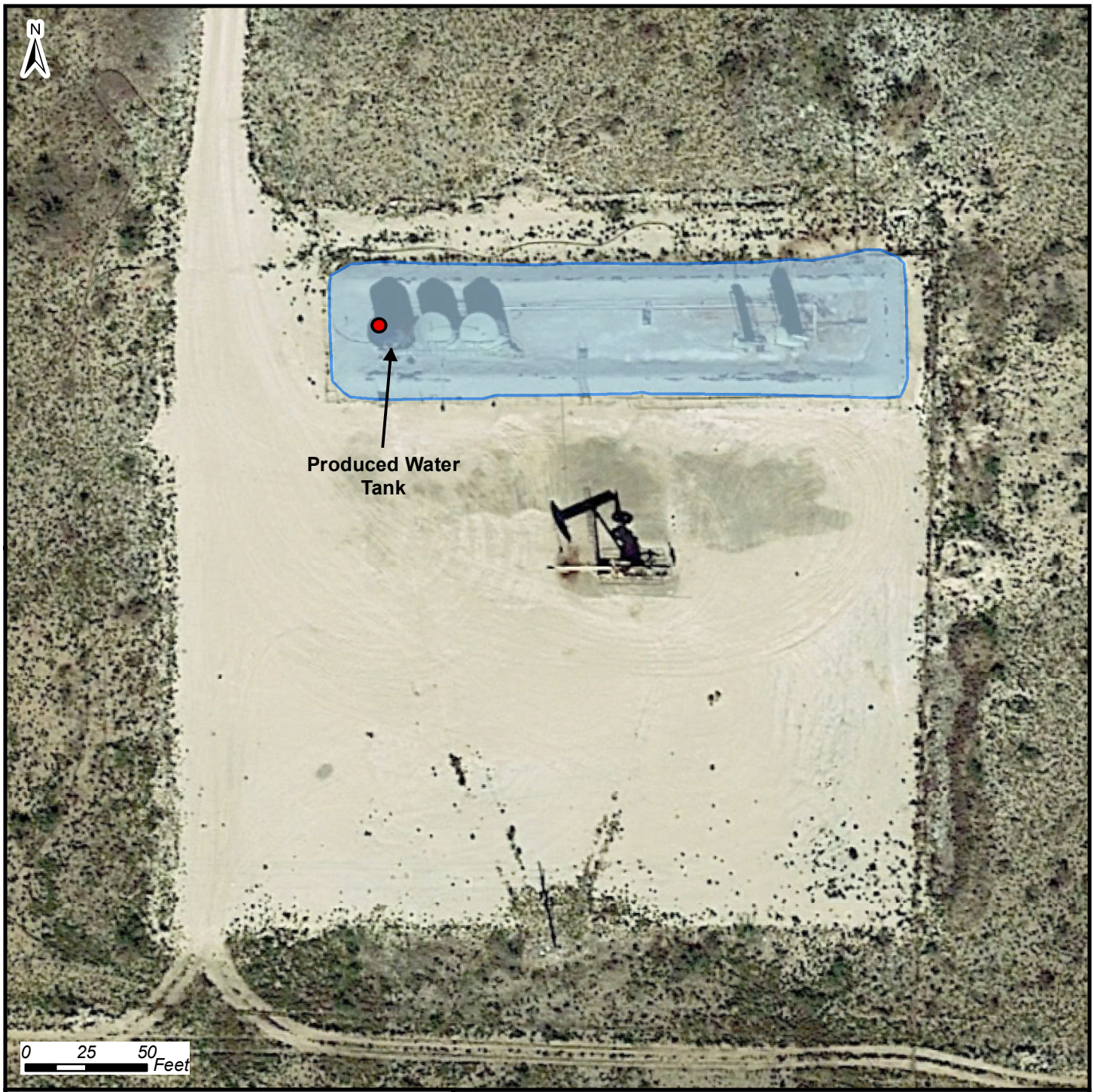
Photograph 1: Lea KG State Tank Battery Secondary Containment

Photograph 2: Lea KG State New Produced Water Tank and Clean Secondary Containment

Photograph 3: Exposed Liner via Potholing

Photograph 4: Multiple Potholes to Inspect Liner

Photograph 5: Exposed Liner on the Secondary Containment Berm



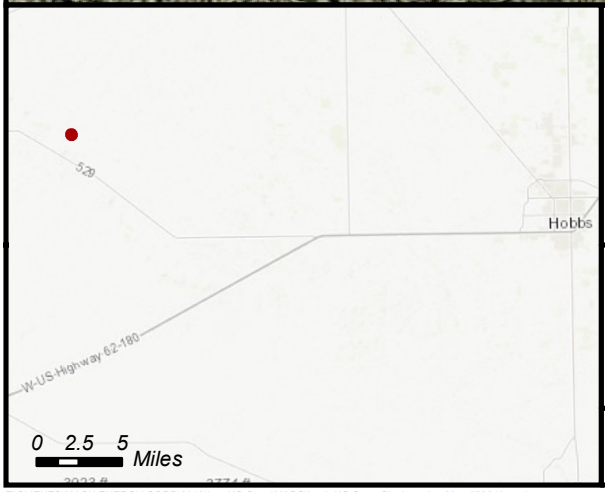


Figure 1: Site Location Map

MACK Energy Corporation

Lea KG State

32.784737 -103.627876
Section 35, Township 17 South, Range 33 East

Mapped Features

- Point of Release
- Secondary Containment

HRL COMPLIANCE SOLUTIONS

Author: A. Asay
Revision: 0
Date: 5/23/2019

T:\CLIENTS\MACK ENERGY CORP\2019\Lea KG State\MAPS\Leah KG State Site Location Map 052319.mxd

Appendix A: Initial C-141

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

X Initial Report ☐ Final Report

Name of Company MACK ENERGY CORPORATION	Contact MATT BUCKLES
Address PO BOX 960 ARTESIA, NM 88211-0960	Telephone No. 575-748-1288
Facility Name Lea KG State TB	Facility Type TANK BATTERY

Surface Owner NMSLO	Mineral Owner MACK ENERGY CORP	API No. 30-025-39993

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
I	35	17S	33E	330	SOUTH	990	EAST	LEA

Latitude 32.784737 **Longitude** -103.627876

NATURE OF RELEASE

Type of Release PRODUCED WATER	Volume of Release 18BBLS	Volume Recovered 18BBLS
Source of Release PRODUCED WATER TANK	Date and Hour of Occurrence 10/8/15 3:00AM APROX.	Date and Hour of Discovery 10/8/15 6:10AM
Was Immediate Notice Given? ☐ Yes X No ☐ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes X No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By JKeyes at 7:57 am, Oct 13, 2015

Describe Cause of Problem and Remedial Action Taken.*
LIGHTNING STRIKE TO WATER TANK, PUMPER DROVE TO LOCATION AND SHUT DOWN WELL.

Describe Area Affected and Cleanup Action Taken.*
BURNED FIBERGLASS TANK DOWN TO WATER LEVEL. MINIMAL SPILL WITHIN CONTAINMENT. NO DAMAGE TO CONTAINMENT LINER. PRODUCTION SHUT DOWN WITHIN THREE HOURS. ESTIMATED RELEASE OF 18 BBLS. WATER RECOVERED USING VACUUM TRUCK.

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: Matt Buckles

Printed Name: MATT BUCKLES

Title: ENVIRONMENTAL

E-mail Address: mattbuckles@mec.com

Date: 10/9/2015 Phone: 575-748-1288

OIL CONSERVATION DIVISION

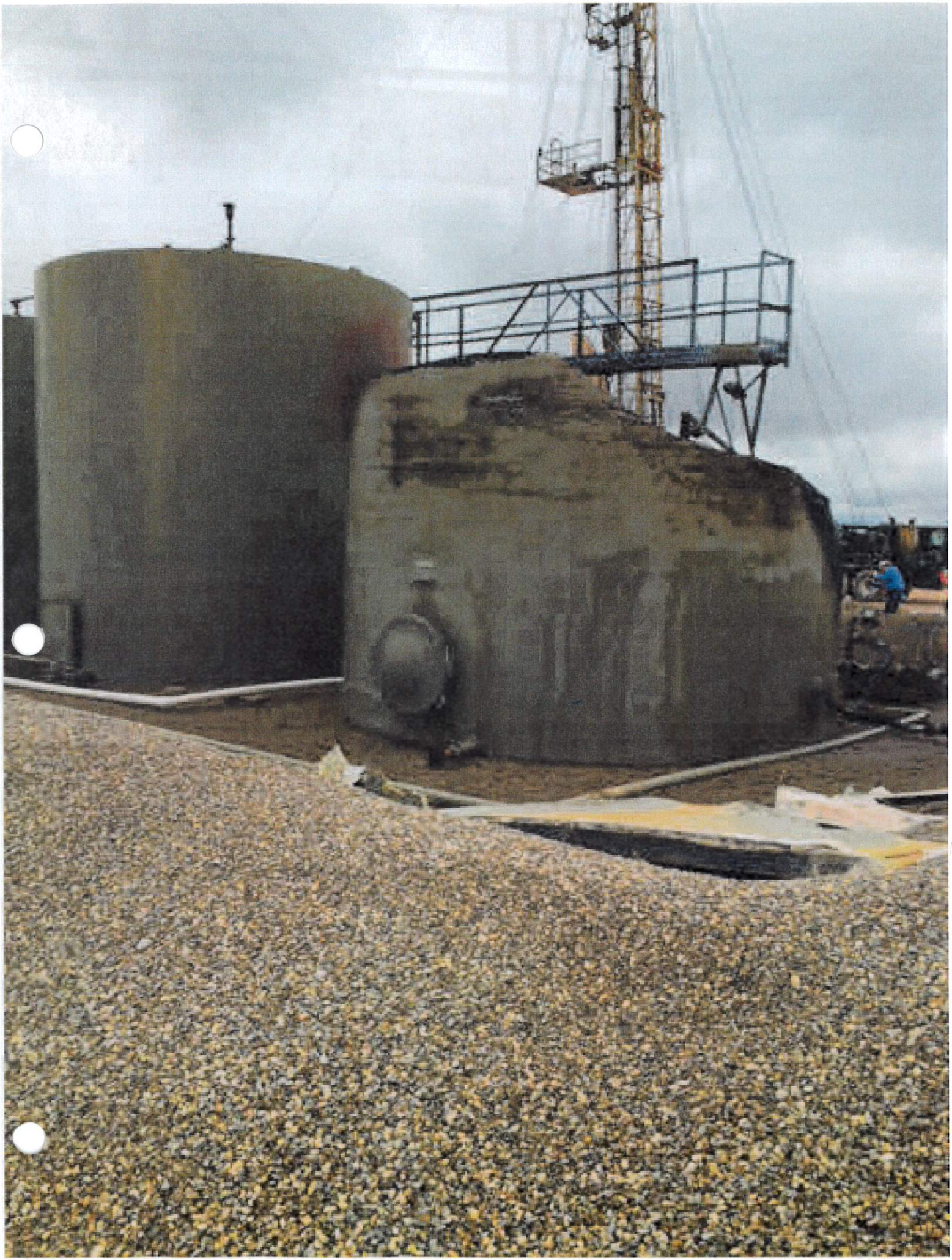
Approved by Environmental Specialist: James Keyes

Approval Date: 10/13/2015 Expiration Date: 12/13/2015

Conditions of Approval:
Discrete site samples required. Delineate and remediate per NMOCD guidelines.
Geotagged photos of remediation required.

Attached ☐
1RP 3906
pJXK1528628537
nJXK1528628444

* Attach Additional Sheets If Necessary



Appendix B: Depth-to-Groundwater Report

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	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 05055		L	LE	3	3	4	35	17S	33E	628042	3628259*	451	233	150	83
L 05096		L	LE	3	3	4	35	17S	33E	628042	3628259*	451	233	150	83
L 04363		L	LE	1	2	3	35	17S	33E	627634	3628855*	1047	226	160	66

Average Depth to Water: **153 feet**

Minimum Depth: **150 feet**

Maximum Depth: **160 feet**

Record Count: 3

UTMNAD83 Radius Search (in meters):

Easting (X): 628493.58 **Northing (Y):** 3628256.5 **Radius:** 2000

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

5/22/19 11:23 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	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 05055		L	LE	3	3	4	35	17S	33E	628042	3628259*	451	233	150	83
L 05096		L	LE	3	3	4	35	17S	33E	628042	3628259*	451	233	150	83
L 04363		L	LE	1	2	3	35	17S	33E	627634	3628855*	1047	226	160	66
L 04734		L	LE		3	3	31	17S	34E	630555	3628397*	2066	186	135	51
L 02687		L	LE		2	2	36	17S	33E	630137	3629598*	2121			
L 06997		L	LE		1	3	06	18S	34E	630571	3627192*	2334	225	140	85
CP 00072 POD5		CP	LE	2	1	4	11	18S	33E	628219	3625573	2696	100	64	36
CP 00072 POD4		CP	LE	1	4	2	10	18S	33E	626865	3626028*	2760	70		
L 04898		L	LE		4	3	06	18S	34E	630937	3626796*	2846	185	150	35
CP 01417 POD1		CP	LE				11	18S	33E	627036	3625738	2909	120	54	66
CP 00072 POD2		CP	LE			4	11	18S	33E	628386	3625344	2914	90		
L 01002 POD1		L	LE	2	1	2	06	18S	34E	631419	3628107*	2929	158		
L 11232		L	LE	2	3	4	31	17S	34E	631413	3628508*	2930	235	140	95
CP 00701		CP	LE		1	3	11	18S	33E	627373	3625534*	2944	100		
L 01697 POD2		L	LE	4	4	3	30	17S	34E	630986	3629911*	2991	240	140	100
L 01695	R	L	ED	4	4	2	25	17S	33E	630220	3630704*	2995	230	137	93
CP 00701 POD2		CP	LE	4	1	3	11	18S	33E	627472	3625433*	3002	100		
CP 00072 POD1		CP	LE	2	3	4	11	18S	33E	628284	3625242*	3021	85		
L 04649		L	LE	1	1	3	03	18S	33E	625644	3627213*	3034	100	45	55
CP 00072 POD6		CP	LE	2	4	4	11	18S	33E	628603	3625179	3078	100	61	39
L 01696 S3		L	LE	2	4	3	30	17S	34E	630986	3630111*	3106	232	168	64
L 05063		L	LE	1	2	2	06	18S	34E	631621	3628114*	3130	170	110	60
L 08288		L	LE	3	3	3	12	18S	33E	628890	3625054*	3226	79	60	19
CP 00072 POD3		CP	LE	2	4	4	10	18S	33E	627076	3625223*	3348	70		
CP 00623 POD1		CP	LE	1	1	1	13	18S	33E	628895	3624852*	3428	82	60	22
L 01696	R	L	LE	4	4	1	30	17S	34E	630974	3630716*	3493	240	149	91
L 02878 POD2		L	LE		4	4	12	18S	33E	630196	3625175	3520	220	220	0
L 06347		L	LE		4	4	12	18S	33E	630196	3625175*	3520	170	130	40
CP 00769 POD1		CP	LE	1	1	2	13	18S	33E	629699	3624866*	3598	115	70	45
L 13406 POD1		L	LE	4	4	4	12	18S	33E	630279	3625061	3660	220		
L 02898		L	LE		3	3	07	18S	34E	630598	3625182*	3725	204	150	54
CP 00623 POD2		CP	LE	1	2	1	13	18S	33E	629243	3624542	3788	100		
L 03133		L	LE	3	1	3	23	17S	33E	627188	3631868*	3840	230		

CP 00546 POD1		CP	LE	2	2	4	09	18S	33E	625464	3625597*	4031	90	70	20
L 01697	R	L	LE	4	4	2	30	17S	34E	631778	3630729*	4111	252	138	114
L 07018		L	LE				05	18S	34E	632746	3627417*	4334	236	105	131
CP 00758 POD1		CP	LE			3	04	18S	33E	624345	3626886*	4369	250		
L 03713		L	LE	3	4	1	28	17S	33E	624391	3630617*	4733	210		
L 10040		L	LE		3	3	08	18S	34E	632170	3625205*	4777	215	145	70
L 01881		L	LE	3	3	3	13	17S	33E	628778	3633100*	4851	242		
L 14159 POD1		L	LE	3	1	3	28	17S	33E	624030	3630169	4856	298	165	133
L 01880		L	LE	3	4	3	13	17S	33E	629181	3633106*	4897	245		
L 04953		L	LE	4	3	3	08	18S	34E	632269	3625104*	4918	200	150	50

Average Depth to Water: **122 feet**

Minimum Depth: **45 feet**

Maximum Depth: **220 feet**

Record Count: 43

UTMNAD83 Radius Search (in meters):

Easting (X): 628493.58 **Northing (Y):** 3628256.5 **Radius:** 5000

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

5/22/19 11:24 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	POD Sub-basin	County	Q 64	Q 16	Q 4	Sec	Tws	Rng	X	Y	Distance	Depth Well	Depth Water	Water Column
L 05055		L	LE	3	3	4	35	17S	33E	628042	3628259*	451	233	150	83
L 05096		L	LE	3	3	4	35	17S	33E	628042	3628259*	451	233	150	83
L 04363		L	LE	1	2	3	35	17S	33E	627634	3628855*	1047	226	160	66
L 04734		L	LE		3	3	31	17S	34E	630555	3628397*	2066	186	135	51
L 02687		L	LE		2	2	36	17S	33E	630137	3629598*	2121			
L 06997		L	LE		1	3	06	18S	34E	630571	3627192*	2334	225	140	85
CP 00072 POD5		CP	LE	2	1	4	11	18S	33E	628219	3625573	2696	100	64	36
CP 00072 POD4		CP	LE	1	4	2	10	18S	33E	626865	3626028*	2760	70		
L 04898		L	LE		4	3	06	18S	34E	630937	3626796*	2846	185	150	35
CP 01417 POD1		CP	LE				11	18S	33E	627036	3625738	2909	120	54	66
CP 00072 POD2		CP	LE			4	11	18S	33E	628386	3625344	2914	90		
L 01002 POD1		L	LE	2	1	2	06	18S	34E	631419	3628107*	2929	158		
L 11232		L	LE	2	3	4	31	17S	34E	631413	3628508*	2930	235	140	95
CP 00701		CP	LE		1	3	11	18S	33E	627373	3625534*	2944	100		
L 01697 POD2		L	LE	4	4	3	30	17S	34E	630986	3629911*	2991	240	140	100
L 01695	R	L	ED	4	4	2	25	17S	33E	630220	3630704*	2995	230	137	93
CP 00701 POD2		CP	LE	4	1	3	11	18S	33E	627472	3625433*	3002	100		
CP 00072 POD1		CP	LE	2	3	4	11	18S	33E	628284	3625242*	3021	85		
L 04649		L	LE	1	1	3	03	18S	33E	625644	3627213*	3034	100	45	55
CP 00072 POD6		CP	LE	2	4	4	11	18S	33E	628603	3625179	3078	100	61	39
L 01696 S3		L	LE	2	4	3	30	17S	34E	630986	3630111*	3106	232	168	64
L 05063		L	LE	1	2	2	06	18S	34E	631621	3628114*	3130	170	110	60
L 08288		L	LE	3	3	3	12	18S	33E	628890	3625054*	3226	79	60	19
CP 00072 POD3		CP	LE	2	4	4	10	18S	33E	627076	3625223*	3348	70		
CP 00623 POD1		CP	LE	1	1	1	13	18S	33E	628895	3624852*	3428	82	60	22
L 01696	R	L	LE	4	4	1	30	17S	34E	630974	3630716*	3493	240	149	91
L 02878 POD2		L	LE		4	4	12	18S	33E	630196	3625175	3520	220	220	0
L 06347		L	LE		4	4	12	18S	33E	630196	3625175*	3520	170	130	40
CP 00769 POD1		CP	LE	1	1	2	13	18S	33E	629699	3624866*	3598	115	70	45
L 13406 POD1		L	LE	4	4	4	12	18S	33E	630279	3625061	3660	220		
L 02898		L	LE		3	3	07	18S	34E	630598	3625182*	3725	204	150	54
CP 00623 POD2		CP	LE	1	2	1	13	18S	33E	629243	3624542	3788	100		
L 03133		L	LE	3	1	3	23	17S	33E	627188	3631868*	3840	230		

CP 00546 POD1		CP	LE	2	2	4	09	18S	33E	625464	3625597*	4031	90	70	20
L 01697	R	L	LE	4	4	2	30	17S	34E	631778	3630729*	4111	252	138	114
L 07018		L	LE				05	18S	34E	632746	3627417*	4334	236	105	131
CP 00758 POD1		CP	LE			3	04	18S	33E	624345	3626886*	4369	250		
L 03713		L	LE	3	4	1	28	17S	33E	624391	3630617*	4733	210		
L 10040		L	LE		3	3	08	18S	34E	632170	3625205*	4777	215	145	70
L 01881		L	LE	3	3	3	13	17S	33E	628778	3633100*	4851	242		
L 14159 POD1		L	LE	3	1	3	28	17S	33E	624030	3630169	4856	298	165	133
L 01880		L	LE	3	4	3	13	17S	33E	629181	3633106*	4897	245		
L 04953		L	LE	4	3	3	08	18S	34E	632269	3625104*	4918	200	150	50
L 01882		L	LE	4	3	4	13	17S	33E	629785	3633112*	5024	245		
L 01884		L	LE	1	4	3	13	17S	33E	629181	3633306*	5096	250		
L 01883		L	LE	4	4	4	13	17S	33E	630189	3633119*	5149	260	147	113
L 03436		L	LE		1	4	18	18S	34E	631230	3623771	5254	170	125	45
L 07429		L	LE	1	1	1	19	18S	34E	630523	3623272*	5381	149	105	44
L 01880 S2		L	LE	2	1	3	13	17S	33E	628972	3633702*	5466	235	151	84
L 11049		L	LE		3	1	20	17S	34E	632056	3632445*	5498	250	140	110
L 13049 POD1		L	LE	2	2	2	29	17S	33E	623782	3631207*	5559	244	204	40
L 06131		L	LE	3	1	2	08	18S	33E	623241	3626167*	5652	194	100	94
L 09891		L	LE		4	4	16	17S	33E	625264	3633144*	5858	190		
L 04226		L	LE	4	4	4	18	17S	34E	631741	3633143*	5867	166		
CP 00691		CP	LE	4	4	2	24	18S	33E	630327	3622662*	5887	215	195	20
L 09978		L	LE	1	3	1	18	17S	34E	630476	3634015	6090	198	160	38
L 04333		L	LE		1	1	13	17S	33E	628862	3634407*	6161	217	165	52
L 01880 S		L	LE	4	3	3	12	17S	33E	628955	3634708*	6467	259	115	144
L 13526 POD1		L	LE	2	2	1	20	18S	34E	632769	3623271	6567	196	106	90
L 02875		L	LE		2	2	20	17S	33E	623662	3632717*	6575	250	190	60
L 03616 S6		L	LE	4	4	3	21	17S	34E	634177	3631573*	6580	232	105	127
L 11044		L	LE		4	2	18	17S	34E	631629	3634049*	6586	150		
L 14139 POD1		L	LE	3	1	2	18	17S	34E	631180	3634389	6694	230	138	92
L 09752		L	LE	3	1	2	20	18S	34E	632968	3623188	6760	179	130	49
L 13909 POD1		L	LE	4	1	4	31	17S	33E	621735	3628514	6763	240	240	0
L 04624		L	LE		1	1	21	17S	34E	633659	3632876*	6929	186	170	16
L 03398		L	LE		2	2	28	17S	34E	634888	3631285*	7075	242	125	117
L 07696		L	LE	3	3	2	17	17S	34E	632735	3633968*	7114	200	160	40
L 10345 POD2		L	LE		2	3	20	18S	34E	632620	3622393*	7169	130	120	10
L 10346		L	LE			3	20	18S	34E	632425	3622187*	7231	130		
L 10436		L	LE			3	20	18S	34E	632425	3622187*	7231	120	80	40
L 05374		L	LE		2	2	16	18S	34E	634994	3624840*	7343	192	105	87
L 14136 POD1		L	LE	3	3	2	12	17S	33E	629604	3635569	7396	245	141	104
L 05882		L	LE		1	4	16	18S	34E	634605	3624030*	7430	230	110	120
L 06172		L	LE		3	3	08	17S	34E	632019	3634860*	7485	202	140	62

L 01880 S3	L	LE	1	4	1	12	17S	33E	629148	3635720*	7492	268	155	113
L 06897	L	LE	3	4	2	21	17S	34E	634768	3632392*	7514	176	118	58
L 03616 S3	L	LE	2	2	4	21	17S	34E	634974	3632189*	7580	242	121	121
L 02724 S3	L	LE		3	4	34	17S	34E	636137	3628487*	7646	210	95	115
L 05883	L	LE		3	4	34	17S	34E	636137	3628487*	7646	244	93	151
L 05881	L	LE		1	1	15	18S	34E	635395	3624846*	7698	230	110	120
L 03622	L	LE				17	17S	33E	623053	3633703*	7698	226	180	46
L 13211 POD1	L	LE	4	3	4	16	18S	34E	634629	3623592	7706	140		
CP 01584 POD1	CP	LE	2	1	3	30	18S	34E	630654	3620788	7774	500		
L 02724 POD10	L	LE	1	4	4	27	17S	34E	635884	3630725	7792	250	164	86
L 07638	L	LE	2	2	4	07	17S	34E	631710	3635356*	7794	206	140	66
L 04768	L	LE		2	2	17	17S	34E	633233	3634478*	7821	190	90	100
L 03749	L	LE		3	3	09	17S	33E	624036	3634734*	7863	230	160	70
L 05355	L	LE		1	2	10	18S	34E	636173	3626469*	7884	186	110	76
L 08100	L	LE	3	4	4	34	17S	34E	636439	3628393*	7946	135	80	55
L 14337 POD1	L	LE	3	3	4	35	16S	33E	627983	3636226	7985	237	156	81
L 03528 S2	L	LE	1	3	3	09	17S	33E	623935	3634833*	8001	262	180	82
L 02724 S	L	LE	4	4	3	22	17S	34E	635739	3631673	8010	242	110	132
L 02724 POD9	L	LE	4	4	3	22	17S	34E	635785	3631601*	8021	240	170	70
L 03616 S5	L	LE	4	3	1	22	17S	34E	635370	3632398*	8027	245	138	107
CP 01582 POD1	CP	LE	2	1	2	29	18S	34E	633167	3621715	8039	180	180	0
L 03782	L	LE	4	4	4	02	17S	33E	628532	3636311*	8054	183	151	32
L 05876	L	LE	3	1	4	10	18S	34E	636085	3625563*	8055	230	110	120
L 06896	L	LE	1	1	4	16	17S	34E	634349	3633792*	8057	182	125	57
L 13563 POD1	L	LE	4	4	4	20	18S	34E	633506	3621920	8078	200		
L 10212	L	LE		4	4	02	17S	33E	628433	3636412*	8155	273	168	105
L 06760	L	LE	1	1	1	22	17S	34E	635163	3633000*	8184	162	98	64
L 07226	L	LE		4	4	27	17S	34E	636516	3630106*	8232	130		
L 07227	L	LE		4	4	27	17S	34E	636516	3630106*	8232	125		
RA 11937 POD1	RA	LE	1	4	1	19	17S	33E	621244	3632281	8292	95		
L 02724 S2	L	LE	4	4	4	27	17S	34E	636615	3630005*	8307	234	108	126
RA 11936 POD1	RA	LE	1	4	1	19	17S	33E	621246	3632321	8310	92		
L 01696 S	L	LE			2	27	17S	34E	636302	3631105*	8311	243	106	137
RA 11957 POD1	RA	LE	3	4	1	19	17S	33E	621177	3632200	8311	55		
L 03616 S4	L	LE		4	1	22	17S	34E	635674	3632507*	8344	244	105	139
L 05875	L	LE		4	2	10	18S	34E	636581	3626073*	8376	230	110	120
L 06107	L	LE	4	3	4	22	17S	34E	636188	3631608*	8392	190	105	85
L 09832	L	LE		3	3	06	17S	34E	630449	3636447*	8420	200		
L 02724	L	LE	2	2	3	27	17S	34E	636773	3630702	8632	245	108	137
L 12974 POD1	L	LE	3	4	3	18	17S	33E	621233	3632940	8640	140	130	10
L 04038	L	LE		1	4	08	17S	33E	623226	3635124*	8655	245	173	72

L 03528	L	LE	3	4	4	04	17S	33E	625120	3636261*	8686	265	158	107
L 07222	L	LE		4	4	22	17S	34E	636492	3631717*	8714	125	125	0
L 02770	L	LE			2	18	17S	33E	621836	3634093*	8853	216	179	37
L 02770 S2	L	LE	2	2	3	18	17S	33E	621338	3633583*	8920	214	184	30
L 02770 S3	L	LE	2	2	3	18	17S	33E	621338	3633583*	8920	220	202	18
L 06698	L	LE	1	4	3	26	17S	34E	637221	3630219*	8945	160	100	60
L 03795	L	LE		1	1	26	17S	34E	636901	3631321*	8948	230	100	130
L 05788 POD15	L	LE	4	2	1	02	18S	34E	637451	3627998*	8961	240		
L 05788 POD4	L	LE	4	2	1	02	18S	34E	637451	3627998*	8961	240	98	142
L 05788 POD19	L	LE	2	4	1	02	18S	34E	637459	3627796*	8977	240	98	142
L 02722 S3	L	LE		4	3	02	18S	34E	637374	3626892*	8984			
L 02724 POD8	L	LE	4	4	1	35	17S	34E	637432	3629213*	8989	240	212	28
L 05788 POD10	L	LE	4	4	1	02	18S	34E	637459	3627596*	8989	240	100	140
L 05788 POD17	L	LE	4	4	1	02	18S	34E	637459	3627596*	8989	240	97	143
L 03726	L	LE	1	2	2	18	17S	33E	621930	3634400*	8990	208	188	20
L 03750	L	LE		4	1	01	17S	33E	629228	3637230*	9003	180	150	30
L 02724 S5	L	LE	4	4	1	35	17S	34E	637470	3629262	9032	235	140	95
L 05885	L	LE		2	1	11	18S	34E	637380	3626489*	9060	230	110	120
L 01613 S2	L	LE	2	3	3	11	18S	34E	637095	3625374*	9071	220	99	121
L 09831	L	LE		4	2	01	17S	33E	630034	3637246*	9120	200		
L 03528 S3	L	LE	4	4	1	03	17S	33E	626111	3637078*	9137	271	155	116
L 01391 POD7	L	LE	2	2	2	08	17S	33E	623670	3636047	9163	280	172	108
L 02722 S	L	LE	3	1	2	02	18S	34E	637654	3628004*	9163	236	70	166
L 05788 POD14	L	LE	3	1	2	02	18S	34E	637654	3628004*	9163	240	97	143
L 05788 POD18	L	LE	3	1	2	02	18S	34E	637654	3628004*	9163	240	97	143
L 05788 POD21	L	LE	3	1	2	02	18S	34E	637654	3628004*	9163	240	96	144
L 05788 POD20	L	LE	1	3	2	02	18S	34E	637662	3627802*	9179	240	96	144
L 05788 POD7	L	LE	1	3	2	02	18S	34E	637662	3627802*	9179	240		
L 05032	L	LE		4	1	26	17S	34E	637310	3630926*	9211	140	80	60
L 03012	L	LE		4	1	03	17S	33E	626012	3637179*	9261	210	155	55
L 07860	L	LE		1	4	35	17S	34E	637741	3628919*	9271	240	120	120
L 03454	L	LE		2	2	30	18S	33E	622200	3621422*	9290	100	35	65
L 09750	L	LE		3	3	22	18S	34E	635440	3622029*	9329	200		
L 02499 POD3	L	LE	1	1	1	27	18S	34E	635252	3621814	9336	180	121	59
L 05039	L	LE		1	2	35	17S	34E	637730	3629725*	9352	165	95	70
L 05335	L	LE		1	2	35	17S	34E	637730	3629725*	9352	160	95	65
L 05788 POD3	L	LE	2	1	2	02	18S	34E	637854	3628204*	9360	240	97	143
L 05788	L	LE	4	1	2	02	18S	34E	637854	3628004*	9363	230	97	133
L 05788 POD12	L	LE	4	1	2	02	18S	34E	637854	3628004*	9363	240	94	146
L 05788 POD13	L	LE	4	1	2	02	18S	34E	637854	3628004*	9363	240	95	145
L 05788 POD11	L	LE	2	3	2	02	18S	34E	637862	3627802*	9379	240	95	145

L 05788 POD16	L	LE	2	3	2	02	18S	34E	637862	3627802*	9379	240	96	144
L 05788 POD6	L	LE	2	3	2	02	18S	34E	637862	3627802*	9379	240	94	146
L 05788 POD9	L	LE	2	3	2	02	18S	34E	637862	3627802*	9379	250	95	155
L 03616 S7	L	LE	2	2	2	22	17S	34E	636573	3633023*	9380	236	90	146
L 09987	L	LE			4	15	17S	34E	636266	3633520*	9386	205	60	145
L 04935	L	LE		2	1	02	17S	33E	627614	3637606*	9390	204	162	42
L 02770 S	L	LE			4	07	17S	33E	621825	3634898*	9411	227	182	45
L 06876	L	LE	4	4	2	06	17S	34E	631676	3637166*	9460	191	120	71
L 05842	L	LE			4	35	17S	34E	637948	3628716*	9465	240	95	145
L 04531	L	LE		1	3	14	18S	34E	637016	3624067*	9496	125	100	25
CP 00813 POD1	CP	LE			1	33	18S	33E	624441	3619644*	9518	300		
L 02722 S2	L	LE	3	2	2	02	18S	34E	638057	3628011*	9566	228	89	139
L 05788 POD2	L	LE	3	2	2	02	18S	34E	638057	3628011*	9566	240	98	142
L 05788 POD5	L	LE	3	2	2	02	18S	34E	638057	3628011*	9566	240	94	146
L 05788 POD8	L	LE	3	2	2	02	18S	34E	638057	3628011*	9566	240	95	145
L 01613	L	LE	3	1	4	11	18S	34E	637696	3625589*	9581	211	85	126
L 06932	L	LE	3	4	3	10	17S	34E	635536	3634820*	9626	180	101	79
L 01391 POD8	L	LE	2	2	1	08	17S	33E	622915	3636122	9643	274	145	129
L 06029	L	LE		4	4	35	17S	34E	638150	3628523*	9660	230	102	128
L 06031	L	LE		2	2	02	18S	34E	638158	3628112*	9665	230	102	128
L 09775	L	LE	1	2	3	14	18S	34E	637249	3624084	9698	183	110	73
L 03527 S2	L	LE	3	4	3	35	16S	33E	627508	3637911*	9704	275	138	137
L 05788 POD22	L	LE	4	2	2	02	18S	34E	638257	3628011*	9766			
L 03527 S	L	LE	1	1	3	36	16S	33E	628715	3638131*	9876	250	160	90
L 13634 POD1	L	LE	3	3	1	27	18S	34E	635352	3621122	9895	182	152	30
L 03527 S3	L	LE	2	3	3	35	16S	33E	627305	3638104*	9918	240	155	85
L 04899	L	LE	2	4	4	26	17S	34E	638226	3630235*	9931	135	85	50
L 02724 S4	L	LE	3	3	3	36	17S	34E	638451	3628429*	9958	230	140	90
L 06115	L	LE	1	1	1	01	18S	34E	638460	3628217*	9966	230	110	120
L 02722	L	LE	3	1	1	01	18S	34E	638460	3628017*	9969	229	105	124
L 04122	L	LE		2	3	07	17S	33E	621216	3635093*	9985	249	214	35
L 04949	L	LE		4	2	26	17S	34E	638115	3630942*	9989	158	102	56
L 05008	L	LE		4	2	26	17S	34E	638115	3630942*	9989	160	89	71

Average Depth to Water: **124 feet**

Minimum Depth: **35 feet**

Maximum Depth: **240 feet**

Record Count: 190

UTMNAD83 Radius Search (in meters):

Easting (X): 628493.58 **Northing (Y):** 3628256.5 **Radius:** 10000

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

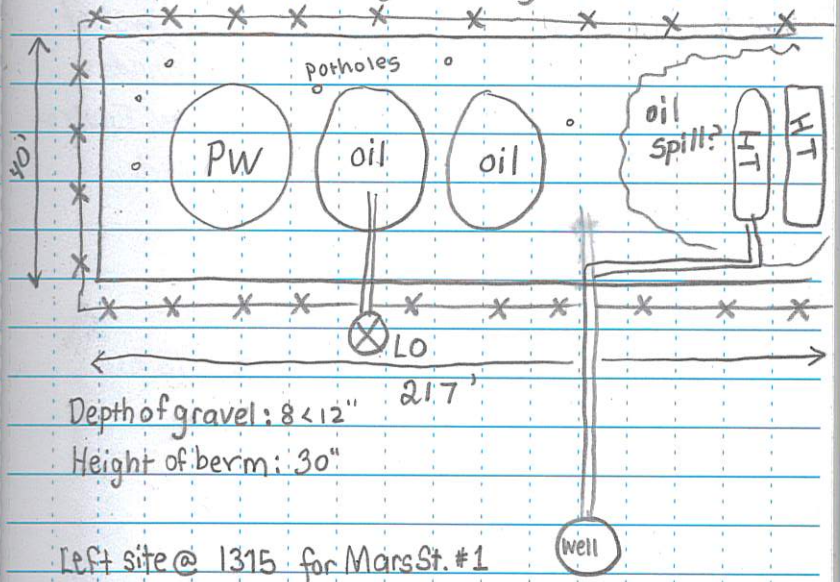
5/22/19 11:24 AM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix C: Field Notes

17 May 2019 Mack Energy - Lea KG State #10

Left office @ 1100 + 15 min truck prep.
Arrived onsite @ 1230 (52 miles) ↴ ea. way
Equipment: 4-gas, Trimble, Camera
Conditions: Hot & windy ~85°F S. winds @ 10-15 mph
Description: Release occurred when lightening caused PW tank to catch fire and burn down to level of water. Incident caught early & production shut down. Approx. 18 bbls PW all in containment, which is lined. Western-most tank (has been replaced).
Check liner integrity: Yes w/ Photos? Y
Dimensions of tank battery secondary containment



Depth of gravel: 8 < 12"
Height of berm: 30"

Left site @ 1315 for Mars St. #1

Scale: 1 square = _____