

APPROVED

By Olivia Yu at 1:58 pm, Apr 04, 2018

NMOCD approves of the
proposed delineation plan
for 1RP-3178.

**1RP-3178
DELINEATION PLAN
Waka Tanka Battery #1 & #2
Produced Water Spill
Chaves County, New Mexico**

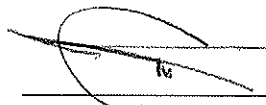
Latitude: N33.15215863°
Longitude: W-103.811651°

LAI Project No. 17-0175-07

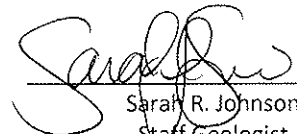
February 20, 2018

Prepared for:
Legacy Reserves Operating, LP
303 West Wall Street, Suite 1300
Midland, Texas 79701

Prepared by:
Larson & Associates, Inc.
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Certified Professional Geologist #10490



Sarah R. Johnson
Staff Geologist

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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this delineation plan on behalf of Legacy Reserves Operating, LP (Legacy) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 for a produced water spill at the Waka Tanka Battery #1 and #2 (Site) located in Unit C (NE/4, NW/4), Section 34, Township 13 South, and Range 31 East in Chaves County, New Mexico. The geodetic position is North 33.15215863° and West -103.811651. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The spill occurred on June 30, 2014, due to a malfunction of a transfer pump causing the release of about 45 barrels (bbl) of produced water. Approximately 40 bbl were recovered. The affected area measured 150 x 60 feet. Upon discovery, all the wells in the vicinity were shut in to allow for repair of the transfer pump. A vacuum truck was brought in and 40 bbl of produced water was recovered. The incident was reported to the OCD District I (verbal communication with Geoffrey Leking). The initial C-141 was submitted to the OCD on July 3, 2014 and assigned remediation permit number 1RP-3718.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 4,265 feet above mean sea level (msl);
- The topography slopes to the southwest with a steep incline in the east;
- There nearest surface water is an arroyo located about 100 feet north of the site;
- The soils are designated as “Ima fine sandy loam, 1 to 5 percent slope” consisting of 0 to 8 inches of fine sandy loam underlain by 8 to 29 inches of fine sandy loam;
- Surface geology is of the Piedmont alluvial deposits from the Holocene to lower Pleistocene, predominantly alluvium lithology;
- Groundwater occurs in the Ogallala formation;
- The nearest fresh water well is located in Unit H (SE/4, SW/4), Section 32, township 15 South Range 31 East about 13 miles southwest of the Site;
- Depth to groundwater is reported at 214.60 feet below ground surface (bgs) (1990).

1.3 Remediation Action Levels

Remediation action levels (RRAL) were calculated for benzene, BTEX, and TPH based on the following criteria established by the OCD in “*Guidelines for Remediation of Leaks, Spills and Releases, August 13, 1993*”:

Criteria	Result	Score
Depth-to-Groundwater	>100 Feet	0
Wellhead Protection Area	No	0
Distance to Surface Water Body	<200 Horizontal Feet	20

The following RRAL apply to the release for ranking score: 20

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 100 mg/Kg

Depth to groundwater greater than 100 feet bgs requires vertical delineation for chloride to 600 milligrams per kilogram (mg/Kg) and maintained a minimum 5 feet farther in depth.

2.0 DELINEATION PLAN

LAI proposes to collect soil samples at three (3) locations within the contaminated area. The samples will be collected at 1 foot intervals to approximately 4 feet bgs and 2 foot intervals to approximately 12 feet bgs using direct push technology (DPT) depending on subsurface conditions. Additional samples will be collected in each cardinal direction (north, south, east and west) of the spill area at the same depth intervals for horizontal delineation. The soil samples will be delivered under preservation and chain of custody to Xenco Laboratories (Xenco) in Midland, Texas. The upper sample (0 to 1 foot) from each location will be analyzed for BTEX and TPH, including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO) by EPA SW-846 Methods 8021B and 8015M, respectively. All samples will be analyzed for chloride by EPA Method 300. Pending laboratory results, further delineation may be required to reach cleanup level standards. Appendix B presents photographs.

3.0 REMEDIATION PLAN

Legacy will include a remediation plan in the delineation report to be submitted to the OCD upon receipt of the laboratory report.

Figures

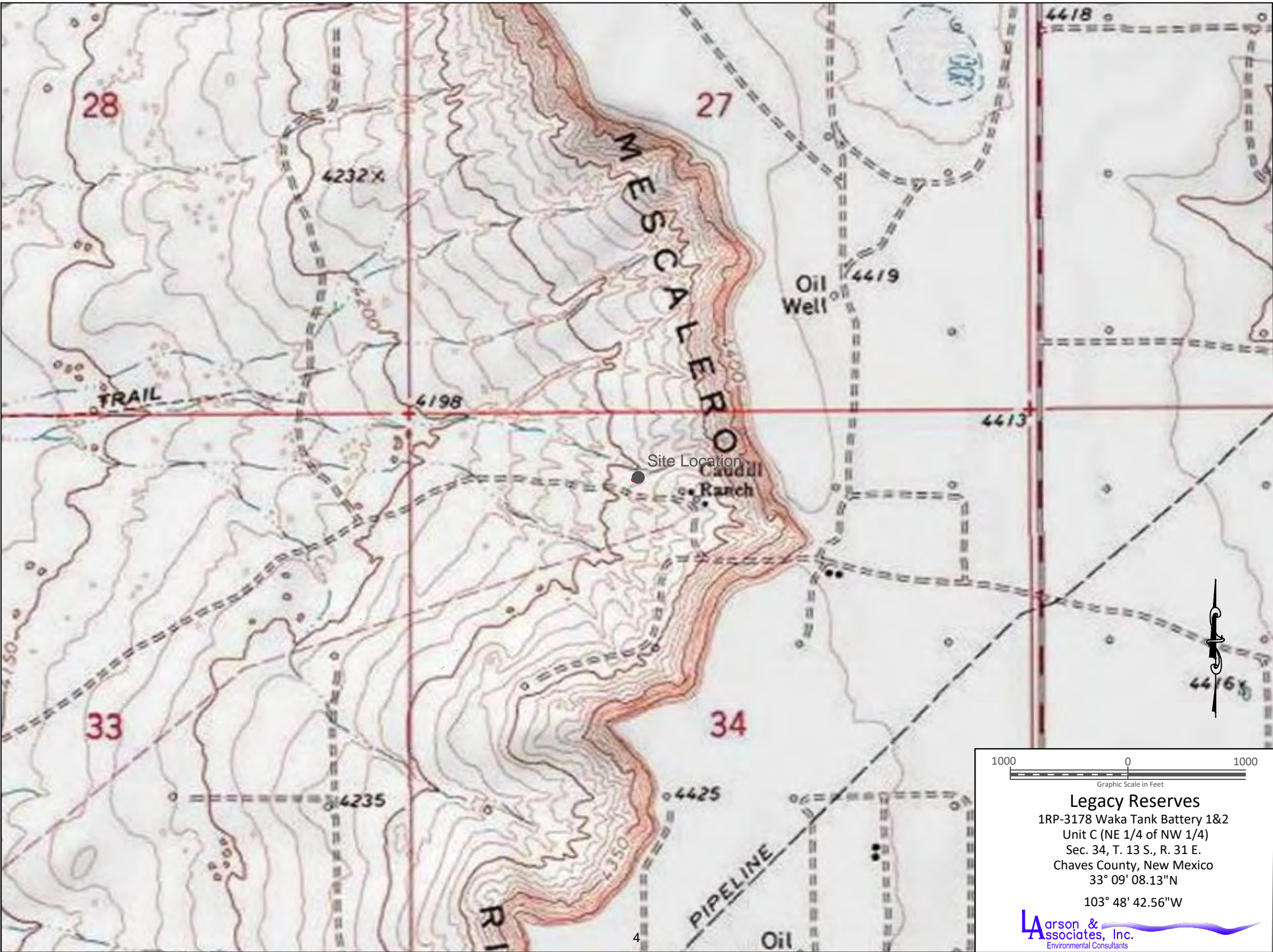


Figure 1 - Topographic Map



Legend

- Spill Area
- Proposed Sample Location

100 0 100
Graphic Scale in Feet

Legacy Reserves

1RP-3178 Waka Tank Battery 1&2

Unit C (NE 1/4 of NW 1/4)

Sec. 34, T. 13 S., R. 31 E.

Chaves County, New Mexico

33° 09' 08.13"N

103° 48' 42.56"W

Larson & Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Map

Appendix A
Initial C-141

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

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

HOBBS OCD

JUL 15 2014

Form C-141
Revised October 10, 2003

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

RECEIVED

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company : Legacy Reserves Operating, LP	Contact : Freddie Gibbs
Address : 303 W. Wall St. Ste 1300, Midland, TX 79701	Telephone No. : 432-221-6369
Facility Name : WAKA TANKA Battery 1 & 2	Facility Type: Battery

Surface Owner : BLM	Mineral Owner:	Lease No. : 080128
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LOCATION OF RELEASE

30-005-21075

Unit Letter C	Section 34	Township 13S	Range 31E	Feet from the	North/South Line	Feet from the	East/West Line	County: CHAVES
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Latitude 33.152158631 N Longitude -103.811651268 W

NATURE OF RELEASE

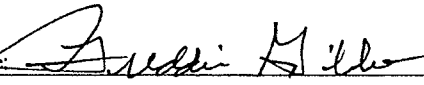
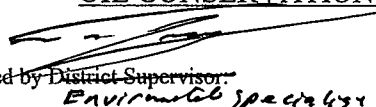
Type of Release : Produced Fluids	Volume of Release : 45 bbls	Volume Recovered: 40 bbls
Source of Release : Transfer Pump Malfunctioned	Date and Hour of Occurrence: 6/30/14	Date and Hour of Discovery: 6/30/14
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? NMOCD/Geoffrey Leking	
By Whom?	Date and Hour :	
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.* The transfer pump failed causing a release of 45 barrels of mixed fluids. All wells were shut in and the transfer pump was repaired. A vac truck was immediately called and recovered 40 barrels of fluid. Talon/LPE was contacted for initial site assessment and to generate a work plan.

Describe Area Affected and Cleanup Action Taken.* The area inside the facility containment was impacted, measuring approximately 150-feet long by 60-feet wide. The fluid breached the containment in 2 places. The west flow path was down the raven measuring approximately 150-feet long and ranging from 50-feet to 1-4 feet wide. The north flow path measures approximately 300-feet by 1-2 feet wide from the northwest corner of the location fence.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Freddie Gibbs	Approved by District Supervisor:  Environmental Specialist	
Title: Production Superintendent	Approval Date: 7-15-14	Expiration Date: 9-18-14
E-mail Address: fgibbs@legacyp.com	Conditions of Approval: Site Samples required	Attached <input type="checkbox"/>
Date: 7/3/2014 Phone: 432-221-6369		7-14-3178

* Attach Additional Sheets If Necessary

Delimited & remediated as
per NMOCD guides.
Submit final C-141 by
9-18-14

0910 240974
N70 1419 649933
N70 1419 650276

JUL 15 2014

Appendix " **Photographs**



Location Sign



Site Prior to Remediation Viewing Northwest, September 11, 2017



Site Prior to Remediation Viewing North, September 11, 2017



Site Prior to Remediation Viewing East, September 11, 2017



Site Prior to Remediation Viewing South, September 11, 2017



Site Prior to Remediation Viewing South, September 11, 2017