

**APPROVED**

*By Olivia Yu at 1:08 pm, Mar 08, 2018*

NMOCD approves of the proposed delineation plan for 1RP-4229. See email correspondence for clarification.

**1RP-4229  
DELINEATION PLAN  
W.A. Simpson Tank Battery  
Produced Water Spill  
Lea County, New Mexico**

Latitude: 33.044028  
Longitude: -103.18353

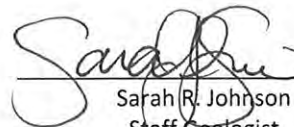
LAI Project No. 17-0175-21

February 15, 2018

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

Prepared by:  
Larson & Associates, Inc.  
507 North Marienfeld Street, Suite 205  
Midland, Texas 79701

  
\_\_\_\_\_  
Mark J. Larson, P.G.  
Certified Professional Geologist #10490

  
\_\_\_\_\_  
Sarah R. Johnson  
Staff Geologist

**This Page Intentionally Left Blank**

## Table of Contents

1.0 INTRODUCTION.....	1
1.1 Background.....	1
1.2 Physical Setting.....	1
1.3 Remediation Action Levels.....	1
2.0 DELINEATION PLAN.....	2
3.0 REMEDIATION PLAN.....	2

## Figures

Figure 1	Topographic Map
Figure 2	Aerial Map Showing Proposed Sample Points

## Appendices

Appendix A	Initial C-141
Appendix B	Photographs

## 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 (OCD) District 1 for a produced water spill at the W.A. Simpson Tank Battery located in Unit I (NE/4, SE/4), Section 3, Township 15 South, Range 37 East in Lea County, New Mexico. The geodetic position is North 33.044028 and West - 103.18353, however the initial C-141 states the incorrect coordinates. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

### 1.1 Background

The spill occurred on March 26, 2017, due to the tank battery overflowing and releasing 25 barrels (bbl) of produced water. Approximately 5 bbl were recovered. The spill measures approximately 2,875 square feet. The initial C-141 was submitted on March 26, 2016 and assigned remediation permit number 1RP-4229. Appendix A presents the initial C-141.

### 1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,815 feet above mean sea level (msl);
- The surface topography slopes gently towards the southeast and southwest;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as “Kimbrough-Lea complex, 0 to 3 percent slopes”, consisting of 0 to 3 inches of gravelly loam, underlain by 3 to 10 inches of loam;
- The geology is in the Ogallala Formation (lower Pliocene to middle Miocene)- Alluvial and eolian deposits, and petrocalcic soils of the northern High Plains;
- Groundwater occurs in the Ogallala formation at approximately 33 feet below ground surface (bgs);
- According to the New Mexico Office of the State Engineer (OSE) website, the nearest fresh water well is located in Unit J (NW/4, SE/4), Section 3, Township 15 South, Range 37 East, approximately 0.15 miles northwest of the Site.

### 1.3 Recommended Remediation Action Levels

Recommended remediation action levels (RRAL) were calculated for benzene, BTEX and TPH based on the following criteria established in “*Guidelines for Remediation of Leaks, Spills and Releases*, pp. 6-7, August 13, 1993”:

Criteria	Result	Score
Depth-to-Groundwater	<50 Feet	20
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0

Depth to groundwater less than 50 feet bgs requires vertical delineation of chloride to 250 milligrams per kilogram (mg/Kg) and maintained a minimum of 10 feet farther in depth.

## **2.0 DELINEATION PLAN**

LAI proposes to collect soil samples at six (6) locations within the contaminated area. The samples will be collected at 1 foot intervals to approximately 4 feet bgs and 2 foot interval 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 at the same depth intervals for horizontal delineation. The soil samples will be delivered under chain of custody and preservation to Xenco Laboratories (Xenco) in Midland, Texas, the upper samples (i.e. 0 to 1) will be analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH) including diesel range organics (DRO), gasoline range organics (GRO) and oil range organics (ORO) by EPA SW-846 Methods 8021B and 8015M. All samples will be analyzed for chloride by EPA Method 300. Pending laboratory reports, further delineation will be performed to reach cleanup or delineation 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

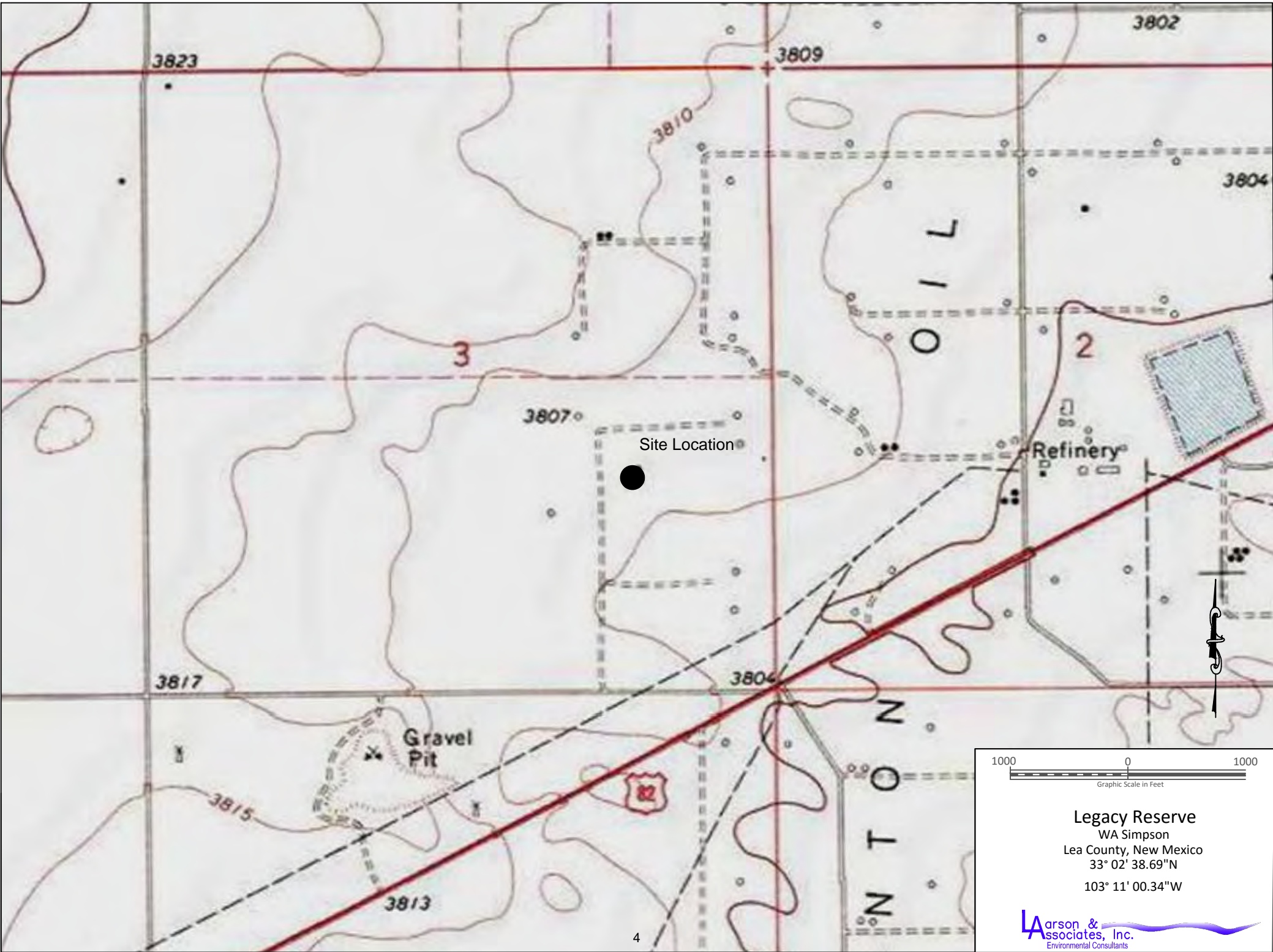


Figure 1 - Topographic Map





Figure 1 - Aerial Map



## **Appendix A**

### **Initial C-141**

04/04/2016 10:26

(FAX)

P.002/004

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

**HOBBS**  
**APR 04 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

#### OPERATOR

☒ Initial Report ☐ Final Report

Name of Company Legacy Reserves	Contact Jesse Garcia
Address P O Box 10848	Telephone No. 432-853-3535
Facility Name W A Simpson	Facility Type Oil
Surface Owner	Mineral Owner
API No. 3002505258	

#### LOCATION OF RELEASE

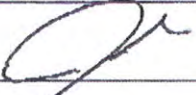

Unit Letter	Section 3	Township 15S	Range 37E	Feet from the 990	North/South Line South	Feet from the 330	East/West Line East	County Lea
-------------	-----------	--------------	-----------	-------------------	------------------------	-------------------	---------------------	------------

Latitude 33.421574 Longitude -103.156097

#### NATURE OF RELEASE

Type of Release Water	Volume of Release 25 bbls	Volume Recovered 5 bbls
Source of Release Battery	Date and Hour of Occurrence 2:00 PM 3/26/16	Date and Hour of Discovery 2:00 PM 3/26/16
Was Immediate Notice Given? <input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Not Required	If YES, To Whom?	
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. * N/A		
Describe Cause of Problem and Remedial Action Taken.* Water tank overflowed , ,picked up excess fluid from ground		
Describe Area Affected and Cleanup Action Taken.* Will clean up location , and replace with clean dirt		

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: 	<b>OIL CONSERVATION DIVISION</b>	
Printed Name: Jesse Garcia	Approved by Environmental Specialist: 	
Title: Foreman	Approval Date: 04/05/2016	Expiration Date: 06/05/2016
E-mail Address: jgarcia@legacyp.com	Conditions of Approval: Discrete site samples only. Delineate and remediate per NMOCD guidelines.	
Date: 3/26/16	Phone: 432-853-3535	Attached <input type="checkbox"/> IRP 4229

\* Attach Additional Sheets If Necessary

nJXK1609647186  
pJXK1609647273

**Appendix B**  
**Photographs**





Site Location



Site Prior to Remediation Viewing North, February 6, 2018



Site Prior to Remediation Viewing Southwest, February 6, 2018



Site Prior to Remediation Viewing East, February 6, 2018





Site Prior to Remediation Viewing East, February 6, 2018



Site Prior to Remediation Viewing West, February 6, 2018



Site Prior to Remediation Viewing South, February 6, 2018



Site Prior to Remediation Viewing West, February 6, 2018