

APPROVED

By Olivia Yu at 10:14 am, Apr 09, 2018

NMOCD approves of the proposed
delineation plan for 1RP-3299.

**1RP-3299
DELINEATION PLAN
Panther Federal #003
Crude Oil Spill
Lea County, New Mexico**

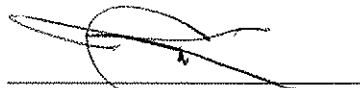
Latitude: N32° 47' 15.43"
Longitude: W-103° 48' 22.60"

LAI Project No. 17-0175-08

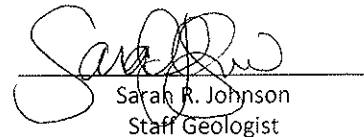
February 20, 2018

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.....	2
2.0 DELINEATION PLAN.....	2
3.0 REMEDIATION PLAN.....	2

Figures

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

Attachments

Attachment A	Initial C-141
Attachment 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 Division (OCD) District 1 for a crude oil spill at the Panther Federal #003 (Site) located in Unit K (NE/4, SW/4), Section 31, Township 17 South, Range 32 East in Lea County New Mexico. The geodetic position is North 32° 47' 15.43" and West 103° 48' 22.60". Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The spill occurred due to a small leak in a flow line, releasing approximately 2 barrels (bbl) of crude oil. No fluid was recovered. The date of occurrence is unknown. The release was contained to the lease road with minor overspray in the pasture on either side of the lease road. The affected area measures approximately 300 square feet. The initial C-141 was submitted on August 16, 2014 and assigned remediation permit number 1RP-3299. Appendix A presents the initial C-141.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,855 feet above mean sea level (msl);
- The surface topography gradually to the southwest;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Kermit soils and dune land, 0 to 12 percent slopes", consisting of 0 to 60 inches of fine sand;
- The geology is Eolian and piedmont deposits (Holocene to middle Pleistocene)- interlayered eolian sands and piedmont-slope deposits;
- Groundwater occurs in the Ogallala formation at approximately 65 feet below ground surface (bgs) (1977);
- According to the New Mexico Office of the State Engineer (OSE) website the nearest freshwater well is located in Unit F (SE/4, NW/4) in Section 4, Township 8 South, Range 32 East approximately 2.09 miles southeast of the Site.

1.3 Recommended Remediation Action Levels

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

Criteria	Result	Score
Depth-to-Groundwater	50 – 99 Feet	10
Wellhead Protection Area	No	0
Distance to Surface Water Body	>1000 Horizontal Feet	0

The following RRAL apply to the release ranking score: 10

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 1,000 mg/Kg

Depth to groundwater between 50 and 99 feet requires vertical delineation of chloride to 600 milligrams per kilogram (mg/Kg) and maintained to a minimum 5 feet farther in depth.

2.0 DELINEATION PLAN

LAI proposes to collect soil samples at three (3) locations within the spill 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 chain of custody and preservation to Xenco Laboratories (Xenco) in Midland, Texas. The upper samples (i.e. 0 to 1 foot) will be analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO) by EPA SW-846 Methods 8021B and 8015M, with additional samples analyzed as needed for delineation. 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

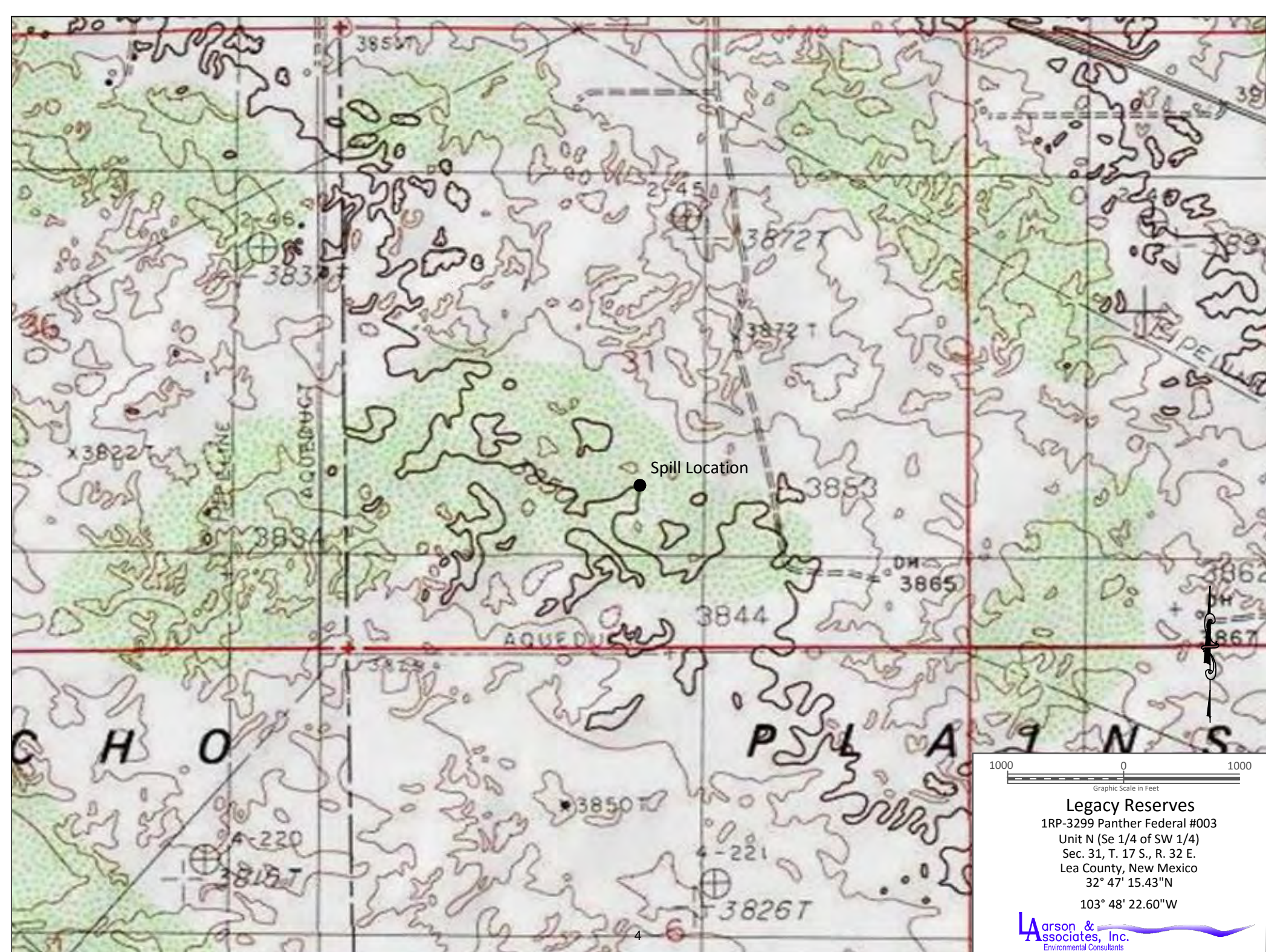
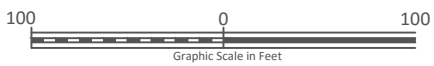


Figure 1 - Topographic Map



Legend

- Spill Area
- Proposed Sample Location



Legacy Reserves
1RP-3299 Panther Federal #003
Unit N (Se 1/4 of SW 1/4)
Sec. 31, T. 17 S., R. 32 E.
Lea County, New Mexico
32° 47' 15.43"N
103° 48' 22.60"W



Figure 2 - Aerial Map

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

HOBBS OCD

Form C-141
SEP 02 2014 Revised August 8, 2011

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

RECEIVED

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☒ Final Report

Name of Company - Legacy Reserves Operating, LP	Contact - Brian Cunningham
Address - 303 W. Wall St. Midland, TX 79701	Telephone No. - 432-234-9450
Facility Name - Panther Federal No. 003	Facility Type - Flow Line

Surface Owner - Federal	Mineral Owner - Federal	API No. 30-025-36324
-------------------------	-------------------------	----------------------

LOCATION OF RELEASE

Unit Letter K	Section 31	Township 17S	Range 32E	Feet from the 1650	North/South Line South	Feet from the 1650	East/West Line West	County Lea
------------------	---------------	-----------------	--------------	-----------------------	---------------------------	-----------------------	------------------------	---------------

Latitude 32° 47' 15.48" Longitude - 103° 48' 29.60"

NATURE OF RELEASE

Type of Release - Hydrocarbon	Volume of Release - 2 bbl	Volume Recovered - 0
Source of Release - Flow Line	Date and Hour of Occurrence -	Date and Hour of Discovery
Was Immediate Notice Given? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input 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.*

Describe Cause of Problem and Remedial Action Taken.*

The flow line was damaged and a small leak began. A truck noticed the leak and called a pumper. The flow line was immediately shut down and repaired.

Describe Area Affected and Cleanup Action Taken.*

The affected area is mainly a lease road with light-moderate spray in the pasture on both sides of the lease road. Legacy intends to remove the affected soil and dispose of it. Legacy will replace with clean soil appropriate for the surrounding area. The affected area is approximately 300 ft².

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: <u>Brian Cunningham</u>	OIL CONSERVATION DIVISION	
Printed Name: <u>Brian Cunningham</u>	Approved by Environmental Specialist:	
Title: <u>Production Foreman</u>	Approval Date: <u>09-02-14</u>	Expiration Date: <u>—</u>
E-mail Address: <u>bcunningham@legacylp.com</u>	Conditions of Approval: <u>Remediate site as per NMOCD</u>	Attached <input type="checkbox"/> <u>IRP-3299</u>
Date: <u>8/26/14</u>	Phone: <u>432-234-9450</u>	

* Attach Additional Sheets If Necessary

SEP 05 2014

0910 240974
NTO 19 24 550997
PTO 14 24 551121

Appendix " **Photographs**



Site Prior to Remediation Viewing East, September 11, 2017



Site Prior to Remediation Viewing South, September 11, 2017



Site Prior to Remediation Viewing West, September 11, 2017