

**APPROVED**

**By Olivia Yu at 7:32 am, Apr 20, 2018**

NMOCD approves of the proposed delineation for 1RP-4977. Delineation and remediation levels for chlorides are 600 mg/kg.

**1RP-4977  
DELINEATION PLAN  
Natural Gas Release  
8" North of Monument Plant  
Lea County, New Mexico**

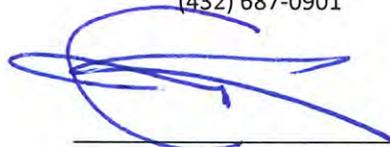
Latitude: N32.644148°  
Longitude: W-103.280712°

LAI Project No. 18-0124-01

March 22, 2018

Prepared for:  
Targa Midstream Services, LLC  
P.O. Box 1689  
Lovington, New Mexico 88260  
(575) 369-3221

Prepared by:  
Larson & Associates, Inc.  
507 North Marienfeld Street, Suite 205  
Midland, Texas 79701  
(432) 687-0901



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

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## **1.0 INTRODUCTION**

Larson & Associates, Inc. (LAI) has prepared this delineation plan on behalf of Targa Midstream Services, LLC (Targa) for a natural gas release from an 8 inch diameter steel pipeline. The release occurred in Unit L (NW/4, SW/4), Section 20, Township 19 South, Range 37 East in Lea County, New Mexico, approximately 3 miles northeast of the Monument Gas Plant. The geodetic position is North 32.644148° and West -103.280712°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

### **1.1 Background**

The spill occurred on February 11, 2018, due to corrosion of the 8 inch steel line. Approximately 52 linear feet of steel line was replaced with 8 inch coated steel pipe. Approximately 36.45 thousand cubic feet (MCF) of natural gas was released along with a small amount of liquid. No fluid was recovered. Targa excavated contaminated soil which was disposed at a New Mexico Oil Conservation Division (OCD) approved landfarm. The release was verbally reported to the OCD District 1, on February 12, 2018. The initial C-141 was submitted to the OCD on February 21, 2018. The release was assigned remediation permit number 1RP-4977. Appendix A presents the initial C-141.

### **1.2 Physical Setting**

The physical setting is as follows:

- The surface elevation is approximately 3,655 feet above mean sea level (msl);
- The topography slopes towards the southeast;
- The release occurred near the headwater of an unnamed drainage that flows to the southeast;
- The soils are designated as "Kimbrough-Lea Complex, dry, 0 to 3 percent slopes", consisting of about 3 inches of gravelly loam, underlain by about 10 inches of loam, and cemented material (caliche) to greater than 80 inches.;
- The surface geology is Holocene to mid-Pleistocene age piedmont alluvial deposits consisting of sand and silt deposited from reworking the underlying Ogallala Formation (Tertiary) consisting of sand, silt clay and gravel;
- An unconformity occurs at the lower contact between the Ogallala formation and underlying Chinle formation (Triassic) consisting mainly of mudstone, shale, sandstone and siltstone;
- The average depth to groundwater based on Office of the State Engineer (OSE) records is approximately 21 feet below ground surface (bgs);
- The nearest fresh water well is located about 0.25 miles east of the Site in Unit K (NE/4, SW/4), Section 20, Township 19 South, Range 37 East.

### **1.3 Recommended Remediation Action Levels**

The recommended 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, pp.6-7, August 13, 1993*":

<b>Criteria</b>	<b>Result</b>	<b>Score</b>
Depth-to-Groundwater	50 Feet	20
Wellhead Protection Area	>1,000 Horizontal Feet	0
Distance to Surface Water Body	200 – 1,000 Horizontal Feet	10

The following RRAL apply to the release ranking score: 30

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

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

## 2.0 DELINEATION PLAN

LAI proposes to collect soil samples at seven (7) locations within the spill area shown on Figure 3. 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 a National Environmental Laboratory Accreditation Program (NELAP) accredited laboratory. The laboratory will analyze the upper samples (i.e., 0 to 1 and 1 to 2 feet bgs) for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (C6–C12), diesel range organics (>C12–C28) and oil range organics (>C28-C35) by EPA SW-846 Methods 8021B and 8015M, respectively. Additional samples will be collected and analyzed, as necessary, for delineation. All soil samples will be analyzed for chloride by EPA Method 300. Pending laboratory results, further delineation may be required to reach cleanup level standards. Figure 3 presents a site map showing proposed soil sample locations.

## 3.0 REMEDIATION PLAN

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

## Figures

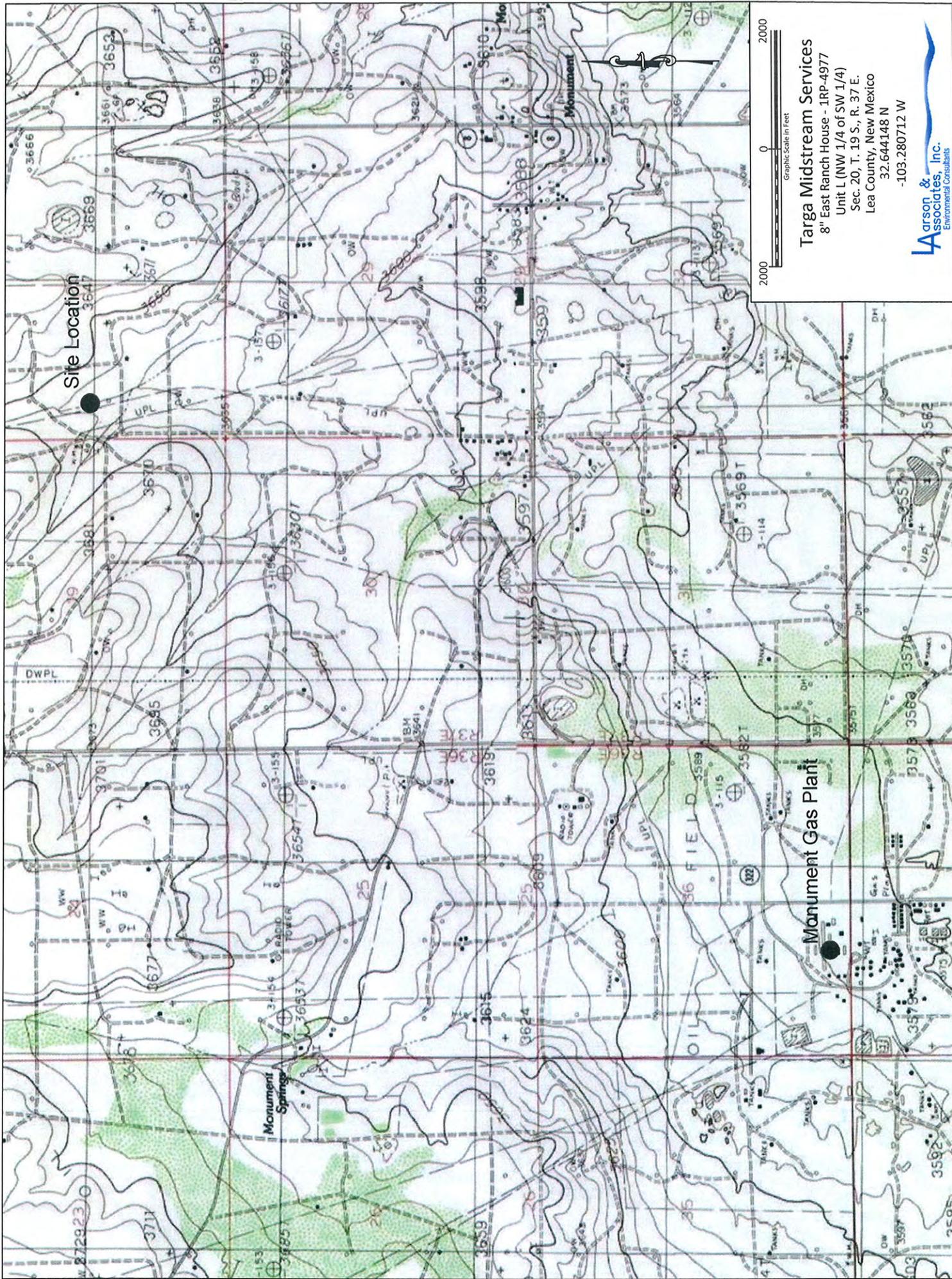
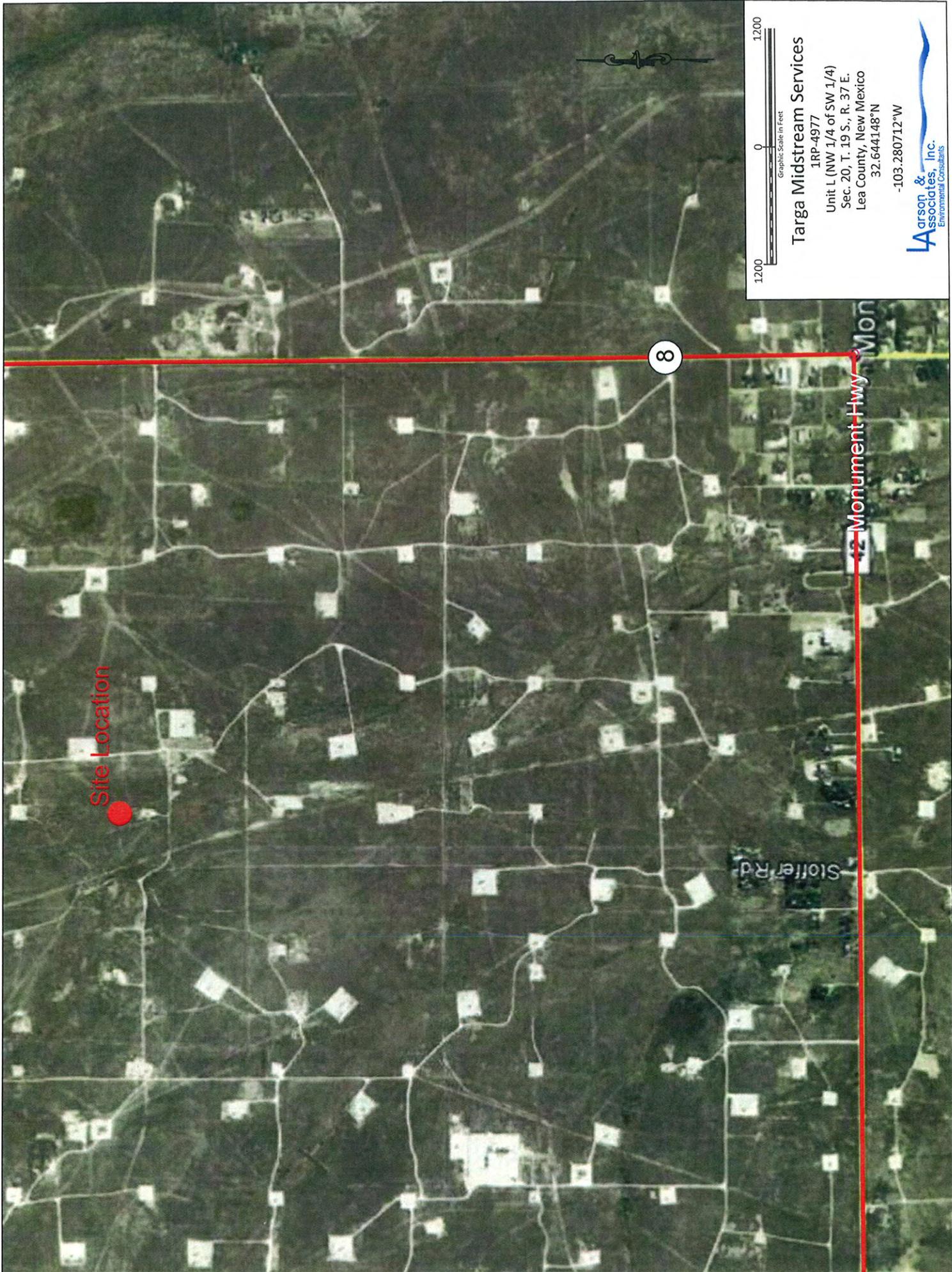


Figure 1 - Topographic Map



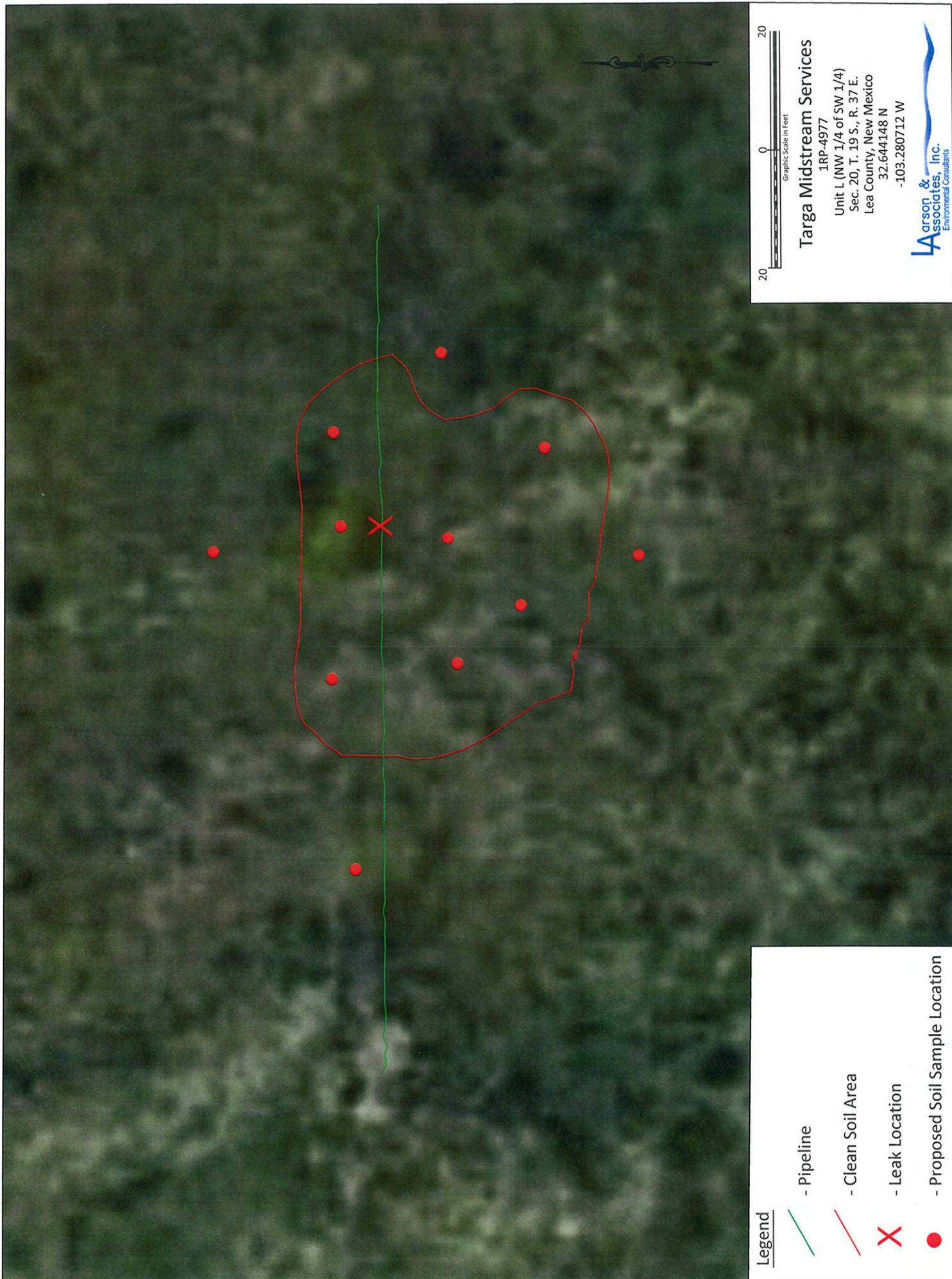


1200  
0  
1200  
Graphic Scale in Feet

**Targa Midstream Services**  
1RP-4977  
Unit L (NW 1/4 of SW 1/4)  
Sec. 20, T. 19 S., R. 37 E.  
Lea County, New Mexico  
32.644148°N  
-103.280712°W

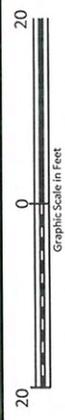
**Larson & Associates, Inc.**  
Environmental Consultants

Figure 2 - Aerial Map



**Legend**

- Pipeline
- Clean Soil Area
- Leak Location
- Proposed Soil Sample Location



**Targa Midstream Services**  
 IRP-4977  
 Unit L (NW 1/4 of SW 1/4)  
 Sec. 20, T. 19 S., R. 37 E.  
 Lea County, New Mexico  
 32.644148 N  
 -103.280712 W

**Larson & Associates, Inc.**  
 Environmental Consultants

Figure 3 - Aerial Map and Proposed Soil Sample Locations

**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

Form C-141  
Revised October 10, 2003  
Submit 2 Copies to appropriate  
District Office in accordance  
with Rule 116 on back  
side of form

**Release Notification and Corrective Action**

**Initial only**

**OPERATOR**

Initial Report  Final Report

Name of Company: Targa Midstream Services, L.P.	Contact: Chris Price
Address: P.O. Box 67, Monument, NM 88265	Telephone No.: 575.393.2534, ext. 227
Facility Name: Monument Plant	Facility Type:
Surface Owner: Jimmy Cooper	Mineral Owner
Lease No.: N/A	

**LOCATION OF RELEASE**

Unit Letter	20	19S	37E	Feet from the	North/South Line	Feet from the	East/West Line	County
L								Lea

Latitude 32.644148 Longitude -103.280712

**NATURE OF RELEASE**

Type of Release: Natural gas from a 8" steel pipeline	Volume of Release: 36.45 MCF	Volume Recovered: None
Source of Release: 8" steel pipeline	Date and Hour of Occurrence: February 11, 2018 3:00 PM	Date and Hour of Discovery: February 12, 2018 3:00 PM
Was Immediate Notice Given? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Not Required	If YES, To Whom? Voicemail to Ms. Olivia Yu	
By Whom? Cindy Klein	Date and Hour: 2/12/18, 03:55 PM	
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.\* NA

**RECEIVED**  
By Olivia Yu at 9:11 am, Feb 26, 2018

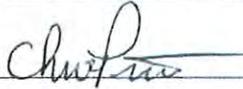
Describe Cause of Problem and Remedial Action Taken.\*

Targa was notified of a pipeline leak on an 8" steel pipeline north of the Targa Monument Plant. Targa responded immediately to the notification and the 8" steel line was isolated.

Describe Area Affected and Cleanup Action Taken.\*

Internal corrosion caused the leak on the 8" steel pipeline. The pipeline was isolated and a 52' section was replaced with 8" coated steel pipe. Contaminated soil was removed and taken to an OCD approved land farm.

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: Chris Price	Approved by District Supervisor: 	
Title: Area Manager	Approval Date: 2/26/2018	Expiration Date:
E-mail Address: CPrice@targaresources.com	Conditions of Approval: see attached directive	Attached <input checked="" type="checkbox"/>
Date: 2/21/2018 Phone: (575) 394-2534, ext. 227		

\* Attach Additional Sheets If Necessary

fOY1805733867

1RP-4977

nOY1805734034

pOY1805734313

Operator/Responsible Party,

The OCD has received the form C-141 you provided on 2/23/2018 regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number 1RP-4977 has been assigned. **Please refer to this case number in all future correspondence.**

It is the Division's obligation under both the Oil & Gas Act and Water Quality Act to provide for the protection of public health and the environment. Our regulations (19.15.29.11 NMAC) state the following,

*The responsible person shall complete division-approved corrective action for releases that endanger public health or the environment. The responsible person shall address releases in accordance with a remediation plan submitted to and approved by the division or with an abatement plan submitted in accordance with 19.15.30 NMAC. [emphasis added]*

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District 1 office in Hobbs on or before 3/26/2018. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

The goals of a characterization effort are: 1) determination of the lateral and vertical extents along with the magnitude of soil contamination. 2) determine if groundwater or surface waters have been impacted. 3) If groundwater or surface waters have been impacted, what are the extents and magnitude of that impact. 4) The characterization of any other adverse impacts that may have occurred (examples: impacts on vegetation, impacts on wildlife, air quality, loss of use of property, etc.). To meet these goals as quickly as possible, the following items must, at a minimum, be addressed in the release characterization workplan and subsequent reporting:

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C<sub>6</sub> thru C<sub>36</sub>), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

- Nominal detection limits for field and laboratory analyses must be provided.

- Composite sampling is not generally allowed.

- Field screening and assessment techniques are acceptable (headspace, titration, EC [include algorithm for validation purposes], EM, etc.), but the sampling and assay procedures must be clearly defined. Copies of field notes are highly desirable. A statistically significant set of split samples must be submitted for confirmatory laboratory analysis, including the laterally farthest and vertically deepest sets of soil samples. Make sure there are at least two soil samples submitted

for laboratory analysis from each borehole or test pit (highest observed contamination and deepest depth investigated). Copies of the actual laboratory results must be provided including chain of custody documentation.

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.
- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.
- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

**Nothing herein should be interpreted to preclude emergency response actions or to imply immediate remediation by removal cannot proceed as warranted. Nonetheless, characterization of impacts and confirmation of the effectiveness of remedial efforts must still be provided to the OCD before any release incident will be closed.**

**Jim Griswold**

OCD Environmental Bureau Chief  
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Santa Fe, New Mexico 87505  
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jim.griswold@state.nm.us