REVIEWED
By Olivia Yu at 10:27 am, Oct 24, 2018

1RP-4787
DELINEATION AND REMEDIATION REPORT
NGL Release
Lea County, New Mexico

Latitude: N33° 14' 58.20"
Longitude: W103° 06' 07.73"

LAI Project No. 17-0177-01

August 30, 2018

Prepared for:

Targa Midstream Services, LLC
P.O. Box 1689
Lovington, New Mexico 88260

Prepared by:

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

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

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1.0 INTRODUCTION

This delineation and remediation report is submitted to the New Mexico Oil Conservation Division (OCD) District 1 on behalf of Targa Midstream Services, LLC (Targa) for a natural gas liquids (NGL) release from a 6 inch poly line (Site). The release occurred in Unit J (NW/4, SE/4), Section 28, Township 12 South, Range 38 East, Lea County, New Mexico. The geodetic position is North 33° 14' 58.20" and West 103° 06' 07.73". Figure 1 presents a topographic map.

1.1 Background

On August 5, 2017, Targa was notified of the release which was due to valve failure from corrosion on a 6 inch poly line. The line was isolated, blown down and the valve was removed. Targa estimated approximately 7 barrels (bbl) of NGL and 425 thousand cubic feet (Mcf) of gas was released. Wind dispersed NGL as a mist approximately 2,900 feet north and northwest from the source. NGL was dispersed over an area measuring approximately 1,257,240 square feet or about 28.86 acres. No liquid was recovered. Targa representatives submitted the initial C-141 to the OCD District 1 on August 11, 2017. The OCD assigned the release remediation permit number 1RP-4787 with conditions. Appendix A presents the OCD approved initial C-141.

1.2 Physical Setting

The physical setting is as follows:

- Elevation is approximately 3,825 feet above mean sea level (amsl);
- Topography slopes gently toward the east;
- Surface water accumulates in a low area located southeast of the Site;
- The soils are designated as "Kimbrough-Lea complex" and "Kimbrough Gravelly Loam", consisting of calcareous alluvium derived from reworking the Blackwater Draw (Pleistocene) and Ogallala (Pliocene) formations, in descending order;
- The soil developed over cemented material (caliche);
- The upper geological unit is the Tertiary-age Blackwater Draw and Ogallala formations, in descending order, comprised of very fine to medium-grained quartz sand and gravel, with minor amount of silt and clay with indistinct to massive crossbeds;
- The Ogallala formation is underlain by clay, silty clay, shale and sandstone of the Chinle formation (Triassic) and is about 75 feet thick;
- The nearest fresh water well is located about 900 feet southwest (cross gradient) in Unit L (NW/4, SW/4), Section 28, Township 12 South, Range 38 East;
- The well is used for livestock watering and has a reported depth to groundwater of approximately 18 feet below ground surface (bgs).

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	<50 feet	20
Wellhead Protection Area	Yes	20
Distance to Surface Water Body	<200 Horizontal Feet	20

The following RRAL apply to the release for ranking score: 60

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

The delineation limit for chloride in soil is 250 mg/Kg, plus 10 feet further in depth with concentrations below 250 mg/Kg.

1.4 Initial Soil Samples and Microblaze® Application

August 7, 2017, personnel from Larson & Associates, Inc. (LAI) met at the Site with Targa personnel and the landowner (Jeff Decker) to discuss the release. LAI personnel used a hand trowel to collect surface soil samples at seven (7) locations (S-1 through S-7) beginning near the source (S-1) and terminating about 1,000 feet north and northwest of the source (S-7). The soil samples were collected between ground surface and about 6 inches below ground surface (bgs). The samples were collected in laboratory containers and delivered under preservation and chain of custody to Permian Basin Environmental Lab (PBEL) in Midland, Texas. The laboratory analyzed the samples for BTEX (sum of benzene, toluene, ethylbenzene and xylenes) by EPA SW-846 Method 8021B, total petroleum hydrocarbons (TPH) by Method 8015M including gasoline range organics (GRO), diesel range organics (DRO) and oil range organics (ORO), and chloride by Method 300. Table 1 presents the initial soil sample analytical data summary. Figure 2 presents an aerial map showing the initial soil sample locations.

Benzene and BTEX were below the RRAL in samples S-1 through S-7. TPH exceeded the RRAL in samples of 100 milligrams per kilogram (mg/Kg) in samples S-1 (12,850 mg/Kg), S-2 (3,920 mg/Kg) and S-3 (411.3 mg/Kg). Chloride was above 250 mg/Kg in samples S-1 (2,680 mg/kg) and S-2 (1,640 mg/Kg).

Between August 8 and 25, 2017, LAI personnel treated the spill area with Microblaze microbial amendment. An 8% solution of Microblaze amendment and water was applied to soil and vegetation between the source and sample location S-4. A 6% solution of Microblaze amendment and water was

applied to soil and vegetation between sample locations S-4 and S-7. A 3% solution of Microblaze amendment and water was applied to soil and vegetation over the remaining release area beyond sample location S-7. Figure 3 presents an aerial map of the Microblaze application area.

2.0 RELEASE DELINEATION AND REMEDIATION CONFIRMATION

On August 16, 2017, LAI submitted a delineation plan to OCD District 1, on behalf of Targa, in response to the initial C-141. The delineation plan proposed the following:

- Collect soil samples to delineate TPH and chloride vertically at sample locations S-1, S-2, S-3, S-4 and S-6; and
- Collect soil samples at five (5) locations (S-8 through S-12) outside the release area east, west and south to horizontally delineate the release.

OCD approved the delineation plan on October 16, 2017. Appendix B presents OCD correspondence.

Between October 17, 2017 and December 5, 2017, LAI personnel collected delineation and remediation confirmation soil samples with direct push technology (DPT) at locations S-1 through S-4 and S-6. Soil samples were collected from ground surface to approximately 6 inches bgs to assess bioremediation of hydrocarbons with Microblaze®, from 6 inches to 1 foot bgs and every 1 foot thereafter (i.e., 1 to 2, 2 to 3 feet) until refusal on calcihe which occurred between approximately 2 and 3 feet bgs. The DPT core barrel was equipped with dedicated polyethylene liners to minimize sample cross contamination. Soil samples were collected at locations S-7 through S-24 from ground surface to approximately 6 inches bgs with a stainless steel hand auger. The auger bucket was thoroughly cleaned between samples with a solution of potable water and laboratory grade detergent (Alkonox®) and rinsed with distilled water.

On December 5, 2017, Scarborough Drilling, Inc. (SDI) used an air rotary rig and jam tube sampler to collect deeper soil samples at locations S-1 and S-2 for chloride delineation. Soil samples were collected from S-1 at 5 to 6 feet, 10 to 11 feet, 15 to 16 feet and 20 to 21 feet. Soil samples were collected from S-2 at 5 to 6 feet, 10 to 11 feet and 15 to 16 feet. The borings were plugged with bentonite. The samples were collected in laboratory supplied sample jars that were labeled, preserved and delivered under chain of custody to Permian Basin Environmental Laboratory (PBEL) in Midland, Texas. The laboratory analyzed the samples for TPH by EPA SW-846 Method 8015M, including GRO, DRO and ORO, and chloride by EPA Method 300. Table 2 presents the delineation and remediation confirmation soil sample analytical data summary. Figure 4 presents an aerial map showing the delineation and remediation confirmation sample locations. Appendix C presents the laboratory report.

The laboratory reported TPH above the reporting limit (RL) initially in the following samples:

- S-1, 0.0 – 0.5' (127 mg/Kg)
- S-2, 0.0 – 0.5' (194.9 mg/Kg)
- S-20, 0.0 – 0.5' (111 mg/Kg)
- S-21, 0.0 – 0.5' (107.3 mg/Kg)

The laboratory results demonstrate that Microblaze® reduced the TPH concentrations at locations S-1, 0.0 to 0.5 feet and S-2, 0.0 to 0.5 feet by about 99.01 percent and 95.03 percent, respectively. Microblaze® reduced the TPH concentration at S-3, 0.0 to 0.5 feet from 411.3 mg/Kg to less than the analytical method reporting limit (29.1 mg/Kg). Soil samples S-20 (111 mg/Kg) and S-21 (107.3 mg/Kg) were collected outside the spray area and reported TPH concentrations slightly above the RRAL (100 mg/Kg).

Chloride decreased at location S-1, 0.0 to 0.5 feet from 2,680 mg/Kg to 617 mg/Kg and S-2, 0.0 to 0.5 feet from 1,640 mg/Kg to 26.3 mg/Kg following treatment with Microblaze®. Chloride was delineated vertically to 250 mg/Kg and maintained for 10 additional feet in depth at locations S-1 and S-2. Chloride was below 250 mg/Kg in the remaining samples except S-12, 0.0 to 0.5 feet (489 mg/Kg) which is the background sample collected south and upwind from the release. Appendix D presents photographs.

3.0 RECOMMENDATION

Based on the reduction in TPH concentrations at S-1 (99.01%) and S-2 (95.03%) and TPH concentrations marginally above the RRAL (100 mg/Kg) in samples S-20 (111 mg/Kg) and S-21 (107.3 mg/Kg), located outside the spray area, Targa recommends no further action for TPH. Chloride was delineated within the release area to 250 mg/Kg plus 10 feet further in depth with concentrations below 250 mg/Kg. Chloride was 489 mg/Kg in the background sample (S-12) located upwind (south) of the release. Targa therefore recommends no further action for chlorides. For these reasons, Targa requests closure for remediation permit number 1RP-4787. Appendix E presents the final C-141.

TABLES

Table 1
1RP-4787
Initial Soil Sample Analytical Data Summary
Targa Midstream Services, LLC, Decker Leak
UL J (NW/4, SE/4), Section 28, Township 12 South, Range 38 East
Lea County, New Mexico

Sample	Collection Date	Depth (Inches)	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C10 (mg/Kg)	>C10 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:			**10**	**50**				**100**	***250**
S-1	08/07/2017	0 - 6	0.0738	**11.9838**	1,650	9,760	1,440	**12,850**	2,680
S-2	08/07/2017	0 - 6	<0.0241	**0.4464**	239	3,120	560	**3,920**	1,640
S-3	08/07/2017	0 - 6	<0.0227	<0.1591	<28.4	345	66.3	**411.3**	96.9
S-4	08/07/2017	0 - 6	<0.0217	<0.1521	<27.2	89.1	<27.2	**89.1**	10.5
S-5	08/07/2017	0 - 6	<0.0217	<0.1521	<27.2	<27.2	<27.2	<27.2	4.72
S-6	08/07/2017	0 - 6	<0.0213	<0.1491	<26.6	36.9	<26.6	**36.9**	7.73
S-7	08/07/2017	0 - 6	<0.0233	<0.1629	<29.1	<29.1	<29.1	<29.1	7.45

Notes: Laboratory analysis performed by Permian Basin Environmental Lab, Midland, Texas, by SW-846 Method 8021B (BTEX), Method 8015M (GRO, DRO and ORO) and Method 300 (chloride).
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
*: OCD delineation limit
Bold and highlighted denotes analyte detected at concentration above the OCD Recommended Remediation Action Level (RRAL)

Table 2
1RP-4787
Delineation and Remediation Soil Sample Analytical Data Summary
Targa Midstream Services, LLC, Decker Leak
UL J (NW/4, SE/4), Section 28, Township 12 South, Range 38 East
Lea County, New Mexico

Sample	Collection Date	Depth (Feet)	Status	C6 - C10 (mg/Kg)	>C10 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							**100**	***250**
S-1	08/07/2017	0.0 - 0.5	Pre Microblaze	1,650	9,760	1,440	**12,850**	2,680
	10/17/2017	0.0 - 0.5	Post Microblaze	<28.7	127	<28.7	**127**	617
	10/17/2017	0.5 - 1.0	Post Microblaze	<29.4	79.9	<29.4	**79.9**	998
	10/17/2017	1.0 - 2.0	In-Situ	<30.1	44.3	<30.1	**44.3**	563
	10/17/2017	2.0 - 3.0	In-Situ	<29.4	76.9	<29.4	**76.9**	208
	12/05/2017	5 - 6	In-Situ	--	--	--	--	13.5
	12/05/2017	10 - 11	In-Situ	--	--	--	--	10.3
	12/05/2017	15 - 16	In-Situ	--	--	--	--	2.56
	12/05/2017	20 - 21	In-Situ	--	--	--	--	<1.09
S-2	08/07/2017	0.0 - 0.5	Pre Microblaze	239	3,120	560	**3,920**	1,640
	10/17/2017	0.0 - 0.5	Post Microblaze	<28.1	160	34.9	**194.9**	26.3
	10/17/2017	0.5 - 1.0	Post Microblaze	<29.1	34.8	<29.1	**34.8**	49.0
	10/17/2017	1.0 - 2.0	In-Situ	<28.7	<28.7	<28.7	<38.7	196
	12/05/2017	5 - 6	In-Situ	--	--	--	--	<1.06
	12/05/2017	10 - 11	In-Situ	--	--	--	--	<1.08
	12/05/2017	15 - 16	In-Situ	--	--	--	--	<1.06
S-3	08/07/2017	0.0 - 0.5	Pre Microblaze	<28.4	345	66.3	**411.3**	96.9
	10/17/2017	0.0 - 0.5	Post Microblaze	<29.1	<29.1	<29.1	<29.1	8.16
	10/17/2017	0.5 - 1.0	Post Microblaze	<29.8	<29.8	<29.8	<29.8	71.2
	10/17/2017	1.0 - 2.0	In-situ	<27.8	<27.8	<27.8	<27.8	50.1
S-4	08/07/2017	0.0 - 0.5	Pre Microblaze	<27.2	89.1	<27.2	**89.1**	10.5
	10/17/2017	0.0 - 0.5	Post Microblaze	<27.8	<27.8	<27.8	<27.8	1.11
	10/17/2017	0.5 - 1.0	Post Microblaze	<27.2	<27.2	<27.2	<27.2	<1.09
	10/17/2017	1.0 - 2.0	In-situ	<28.7	<28.7	<28.7	<28.7	12.0
S-5	08/07/2017	0.0 - 0.5	Pre Microblaze	<27.2	<27.2	<27.2	<27.2	4.72
S-6	08/07/2017	0.0 - 0.5	Pre Microblaze	<26.6	36.9	<26.6	**36.9**	7.73
	10/17/2017	0.0 - 0.5	Post Microblaze	<26.6	<26.6	<26.6	<26.6	<1.06
	10/17/2017	0.5 - 1.0	Post Microblaze	<29.4	<29.4	<29.4	<29.4	<1.18
	10/17/2017	1.0 - 2.0	In-situ	<28.4	<28.4	<28.4	<28.4	<1.14
	10/17/2017	2.0 - 3.0	In-situ	<26.9	<26.9	<26.9	<26.9	<1.08

Table 2
1RP-4787
Delineation and Remediation Soil Sample Analytical Data Summary
Targa Midstream Services, LLC, Decker Leak
UL J (NW/4, SE/4), Section 28, Township 12 South, Range 38 East
Lea County, New Mexico

Sample	Collection Date	Depth (Inches)	Status	C6 - C10 (mg/Kg)	>C10 - C28 (mg/Kg)	>C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
RRAL:							100	*250
S-7	08/07/2017	0.0 - 0.5	Post Microblaze	<29.1	<29.1	<29.1	<29.1	7.45
S-8	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.9	<26.9	<26.9	<26.9	3.02
S-9	10/20/2017	0.0 - 0.5	Outside Spray Area	<25.5	<25.5	<25.5	<25.5	5.33
S-10	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.3	<26.3	<26.3	<26.3	2.68
S-11	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.3	<26.3	<26.3	<26.3	3.73
S-12	10/20/2017	0.0 - 0.5	Background/Upwind	<26.6	<26.6	<26.6	<26.6	**489**
S-13	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.9	<26.9	<26.9	<26.9	3.06
S-14	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.3	<26.3	<26.3	<26.3	3.21
S-15	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.0	<26.0	<26.0	<26.0	4.60
S-16	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.3	<26.3	<26.3	<26.3	2.35
S-17	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.3	<26.3	<26.3	<26.3	2.56
S-18	10/20/2017	0.0 - 0.5	Outside Spray Area	<26.6	<26.6	<26.6	<26.6	3.35
S-19	10/20/2017	0.0 - 0.5	Outside Spray Area	<27.2	55.2	41.8	**97.0**	2.47
S-20	10/20/2017	0.0 - 0.5	Outside Spray Area	<27.5	71.9	40.0	**111**	<1.10
S-21	10/20/2017	0.0 - 0.5	Outside Spray Area	<27.8	70.3	37.0	**107.3**	<1.11
S-22	10/20/2017	0.0 - 0.5	Post Microblaze	<26.6	<26.6	<26.6	<26.6	<1.06
S-23	10/20/2017	0.0 - 0.5	Post Microblaze	<26.3	<26.3	<26.3	<26.3	<1.05
S-24	10/20/2017	0.0 - 0.5	Post Microblaze	<26.9	<26.9	<26.9	<26.9	<1.08

Table 2
1RP-4787
Delineation and Remediation Soil Sample Analytical Data Summary
Targa Midstream Services, LLC, Decker Leak
UL J (NW/4, SE/4), Section 28, Township 12 South, Range 38 East
Lea County, New Mexico

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas, by SW-846 Method 8015M (TPH) and Method 300 (chloride).
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
*: OCD delineation limit
Bold and highlighted denotes analyte detected at concentration above the OCD Recommended Remediation Action Level (RRAL)

FIGURES

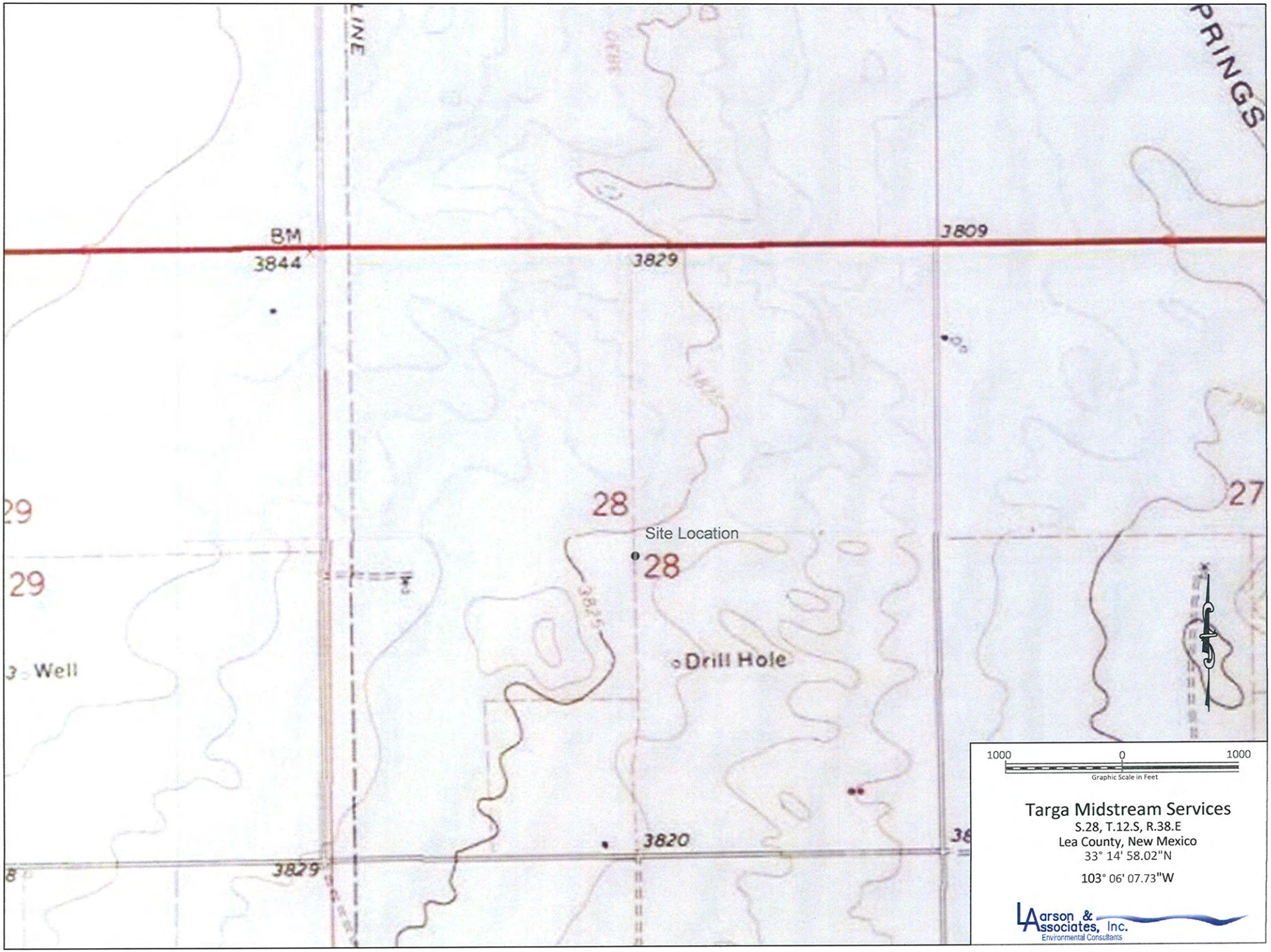

Figure 1 - Topographic Map

Figure 2 - **Aerial Map** Showing Release Area and Initial Soil Sample Locations

Figure 3 - Aerial Map Showing Microblaze Application

Figure 4 - Aerial Map Showing Delineation and Remediation Confirmation Soil Sample Locations

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

☐ Initial Report ☒ Final Report

Name of Company Targa Midstream Services	Contact: Randy Duncan
Address PO Box: P.O. Box 1689, Lovington, NM 88260	Telephone No. (575)631-7065
Facility Name: Saunders Plant	Facility Type: Gas gathering line

Surface Owner: Jeff Decker	Mineral Owner State	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
C, G	28	12S	38E					Lea

Latitude: Longitude:

NATURE OF RELEASE

Type of Release: Gas and pipeline liquids	Volume of Release:: 7 BBLS of liquid, 425 mcf gas	Volume Recovered: NA
Source of Release: 6" poly pipeline	Date and Hour of Occurrence: 8/5/2017, 7:30 PM	Date and Hour of Discovery 8/5/2017, 7:30 PM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

RECEIVED
By Olivia Yu at 2:35 pm, Aug 11, 2017

Describe Cause of Problem and Remedial Action Taken.*

Targa's 6" poly pipeline was discovered leaking as the result of external corrosion on a 2" valve. The line was isolated, blown down and a new valve installed. The line was put back in service.

Describe Area Affected and Cleanup Action Taken.*

The leak caused hydrocarbon spraying over the affected area. The area affected is being determined and delineated by Larson and Associates.

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: Randy A. Duncan	OIL CONSERVATION DIVISION
Printed Name: Randy Duncan	Approved by Environmental Specialist: DMJ
Title: Plant Manager	Approval Date: 8/11/2017 Expiration Date:
E-mail Address: rduncan@targaresources.com	Conditions of Approval: see attached directive Attached ☑
Date: 8/9/2017 Phone: (575) 631-7065	

* Attach Additional Sheets If Necessary

fOY1722353253 1RP-4787 nOY1722353505 pOY1722353426

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _8/10/2017_ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number _1RP-4787__ 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 _9/11/2017_. 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_6 thru C_{36}), 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_6 thru C_{36}), 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
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

APPENDIX B

OCD Communications

Mark Larson

From: Yu, Olivia, EMNRD [Olivia.Yu@state.nm.us]
Sent: Monday, October 16, 2017 10:52 AM
To: Mark Larson
Cc: 'Higginbotham, Christina'; 'Wrangham, Calvin W.'; 'Duncan, Randy'; 'England, Ralph E.'; 'Klein, Cindy D.'
Subject: RE: 1RP-4787 - Delineation Plan for NGL Release
Attachments: approved_1RP-4787 - Delination Pan, NGL Release, Lea County, New Mexico, August 16, 2017.pdf; 1RP4787_approvedFigure 2 - Aerial Map Showing Soil Sample Locations.pdf

Dear Mr. Larson:

NMOCD approved of the additional delineation and sampling of the overspray area for 1RP-4787. Please see attachments for your records.

Thanks,

Olivia Yu
Environmental Specialist
NMOCD, District I
Olivia.yu@state.nm.us
575-393-6161 x113

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Mark Larson [mailto:Mark@laenvironmental.com]
Sent: Monday, October 2, 2017 3:59 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: 'Higginbotham, Christina' <chigginbotham@targaresources.com>; 'Wrangham, Calvin W.' <CalvinWrangham@targaresources.com>; 'Duncan, Randy' <RDuncan@targaresources.com>; 'England, Ralph E.' <REngland@targaresources.com>; 'Klein, Cindy D.' <CynthiaKlein@targaresources.com>
Subject: Re: 1RP-4787 - Delineation Plan for NGL Release

Olivia,
This message is submitted to the New Mexico Oil Conservation Division (OCD on behalf of Targa Midstream Services, LLC (Targa) in response to your request for additional information pertaining to delineation samples from the overspray are for 1RP-4787. Please find the attached exhibit showing proposed locations for collecting confirmation soil samples (0 to 6 inches) from the overspray area north of S-7. The samples will be analyzed for total petroleum hydrocarbons (TPH) including gasoline range organics (GRO) diesel range organics and oil range organics (ORO) by EPA WSW-846 Method 8015M and chloride by Method 300. Please contact Christina Higginbotham with Targa at (713) 584-1396 or email chigginbotham@targaresources.com or me if you have questions or if we are approved the proceed.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

LArson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Friday, September 22, 2017 12:29 PM
To: Mark Larson
Cc: 'Higginbotham, Christina'; 'Wrangham, Calvin W.'; 'Duncan, Randy'; 'Klein, Cindy D.'; 'England, Ralph E.'
Subject: RE: Re: 1RP-4787 - Delineation Plan for NGL Release

Dear Mr. Larson:

Please address this concern regarding the delineation/release characterization workplan for 1RP-4787. What is the rationale for absence of sample locations north of S-7? If this is overspray area, NMOCD still requires verification that soil in this area are within permissible limits. Laboratory analyses of surface soil samples (0-6") representative of the overspray area are required.

Thanks,
Olivia

From: Mark Larson [mailto:Mark@laenvironmental.com]
Sent: Wednesday, September 20, 2017 3:43 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: 'Higginbotham, Christina' <chigginbotham@targaresources.com>; 'Wrangham, Calvin W.' <CalvinWrangham@targaresources.com>; 'Duncan, Randy' <RDuncan@targaresources.com>; 'Klein, Cindy D.' <CynthiaKlein@targaresources.com>; 'England, Ralph E.' <REngland@targaresources.com>
Subject: FW: Re: 1RP-4787 - Delineation Plan for NGL Release

Hello Olivia,

I'm following up on the attached delineation plan that was submitted for 1RP-4787 on August 17, 2017. Please contact me if you have questions.
Mark

From: Mark Larson
Sent: Thursday, August 17, 2017 4:55 PM
To: 'Yu, Olivia, EMNRD'
Cc: 'Higginbotham, Christina'; 'Wrangham, Calvin W.'; 'Duncan, Randy'; 'Klein, Cindy D.'; 'REngland@targaresources.com'
Subject: Re: 1RP-4787 - Delineation Plan for NGL Release

Olivia,
Larson & Associates, Inc. (LAI), on behalf of Targa Midstream Services, LLC (Targa), submits the attached document as the plan to delineate the release of natural gas liquids (NGL) from a 6 inch poly line in connection with 1RP-4787. LAI initiated remediation by application of Microblaze® microbial amendment to reduce hydrocarbons staining on vegetation and soil. The document presents the laboratory analysis of initial surface soil samples collected on August 7, 2017. Please contact Christina Higginbotham with Targa at (713) 584-1396 or email chigginbotham@targaresources.com or me if you have questions or if we arre approved the proceed.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

APPROVED
By Olivia Yu at 9:38 am, Oct 16, 2017

NMOCD approved of the proposed additional delineation for 1RP-4787.

1RP-4787
DELINEATION PLAN
NGL Release

Lea County, New Mexico

Latitude: N33° 14' 58.20"
Longitude: W103° 06' 07.73"

LAI Project No. 17-0177-01

August 16, 2017

Prepared for:

Targa Midstream Services, LLC
P.O. Box 1689
Lovington, New Mexico 88260

Prepared by:

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

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

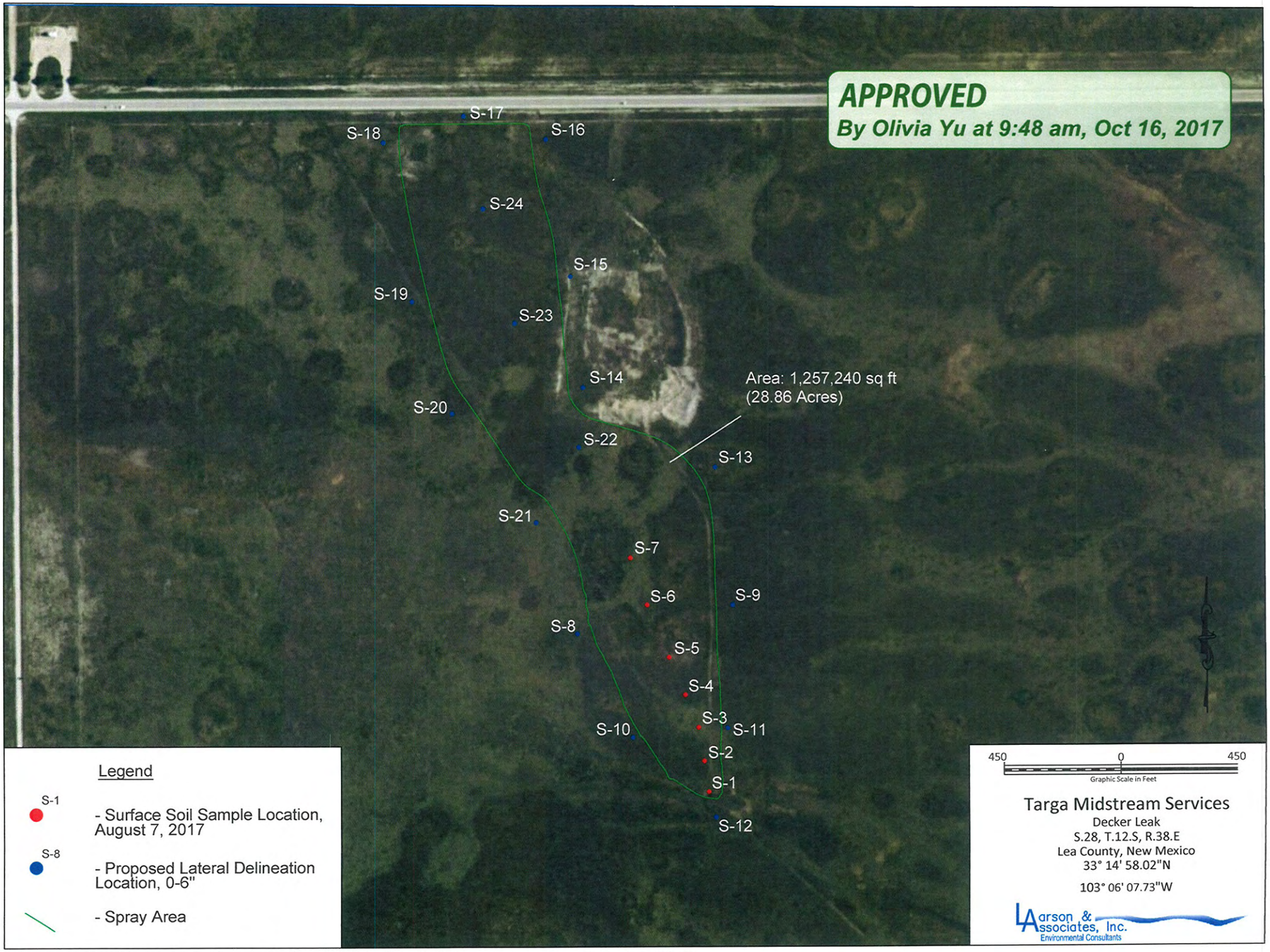

Figure 2 - Aerial Map Showing Spray Area and Surface Soil Sample Location, August 7, 2017

Mark Larson

From: Yu, Olivia, EMNRD [Olivia.Yu@state.nm.us]
Sent: Friday, September 22, 2017 12:29 PM
To: Mark Larson
Cc: 'Higginbotham, Christina'; 'Wrangham, Calvin W.'; 'Duncan, Randy'; 'Klein, Cindy D.'; 'England, Ralph E.'
Subject: RE: Re: 1RP-4787 - Delineation Plan for NGL Release

Dear Mr. Larson:

Please address this concern regarding the delineation/release characterization workplan for 1RP-4787. What is the rationale for absence of sample locations north of S-7? If this is overspray area, NMOCD still requires verification that soil in this area are within permissible limits. Laboratory analyses of surface soil samples (0-6") representative of the overspray area are required.

Thanks,
Olivia

From: Mark Larson [mailto:Mark@laenvironmental.com]
Sent: Wednesday, September 20, 2017 3:43 PM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: 'Higginbotham, Christina' <chigginbotham@targaresources.com>; 'Wrangham, Calvin W.' <CalvinWrangham@targaresources.com>; 'Duncan, Randy' <RDuncan@targaresources.com>; 'Klein, Cindy D.' <CynthiaKlein@targaresources.com>; 'England, Ralph E.' <REngland@targaresources.com>
Subject: FW: Re: 1RP-4787 - Delineation Plan for NGL Release

Hello Olivia,
I'm following up on the attached delineation plan that was submitted for 1RP-4787 on August 17, 2017. Please contact me if you have questions.
Mark

From: Mark Larson
Sent: Thursday, August 17, 2017 4:55 PM
To: 'Yu, Olivia, EMNRD'
Cc: 'Higginbotham, Christina'; 'Wrangham, Calvin W.'; 'Duncan, Randy'; 'Klein, Cindy D.'; 'REngland@targaresources.com'
Subject: Re: 1RP-4787 - Delineation Plan for NGL Release

Olivia,
Larson & Associates, Inc. (LAI), on behalf of Targa Midstream Services, LLC (Targa), submits the attached document as the plan to delineate the release of natural gas liquids (NGL) from a 6 inch poly line in connection with 1RP-4787. LAI initiated remediation by application of Microblaze® microbial amendment to reduce hydrocarbons staining on vegetation and soil. The document presents the laboratory analysis of initial surface soil samples collected on August 7, 2017. Please contact Christina Higginbotham with Targa at (713) 584-1396 or email chigginbotham@targaresources.com or me if you have questions or if we arre approved the proceed.

Respectfully,

Mark J. Larson, P.G.
President/Sr. Project Manager
507 N. Marienfeld St., Suite 205
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

Mark Larson

Subject: FW: [EXTERNAL] RE: C-141, Targa Midstream Scvs, Saunders Plt. 8-5-17.pdf
Attachments: 1RP4787.pdf

From: Yu, Olivia, EMNRD [mailto:Olivia.Yu@state.nm.us]
Sent: Friday, August 11, 2017 3:05 PM
To: Klein, Cindy S.
Cc: Duncan, Randy; agroves@slo.state.nm.us
Subject: [EXTERNAL] RE: C-141, Targa Midstream Scvs, Saunders Plt. 8-5-17.pdf

Dear Ms. Klein:

Note: Please provide the GPS coordinates of the beginning and the end of the release location in C & G of Section 28- T12S- R38E.

The 1RP for this incident is

4787	8/11/2017	A	Targa Midstream Srvcs.	Saunders Plant		12S-38E-28C&G	8/5/2017

Please note that a release characterization/delineation workplan as detailed in the attachment must be approved by NMOCD BEFORE any remediation work.

Thanks,

Olivia Yu
Environmental Specialist
NMOCD, District I
Olivia.yu@state.nm.us
575-393-6161 x113

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

From: Klein, Cindy S. [mailto:CynthiaKlein@targaresources.com]
Sent: Thursday, August 10, 2017 9:36 AM
To: Yu, Olivia, EMNRD <Olivia.Yu@state.nm.us>
Cc: Duncan, Randy <RDuncan@targaresources.com>
Subject: C-141, Targa Midstream Scvs, Saunders Plt. 8-5-17.pdf

Ms. Yu,

Please find attached a C-141 for pipeline leak that occurred on August 5, 2017. Please let me know if you have any questions.

Thank You,
Cindy Klein

TARGA

Cindy Klein · **Targa Midstream Services LLC** · **ES&H Supervisor**
Saunders Gas Plant, Lovington NM | Office: 575.396.3221 Ext. 238 | Cell: 575.631.7093 | Fax: 575.396.7702
email: cklein@targaresources.com

APPENDIX C

Laboratory Report

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Decker Leak
Project Number: 17-0177-01
Location:

Lab Order Number: 7J23004

NELAP/TCEQ # T104704516-16-7

Report Date: 10/30/17

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Decker Leak Project Number: 17-0177-01 Project Manager: Mark Larson	Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-8	7J23004-01	Soil	10/20/17 12:30	10-23-2017 09:08
S-9	7J23004-02	Soil	10/20/17 11:20	10-23-2017 09:08
S-10	7J23004-03	Soil	10/20/17 12:30	10-23-2017 09:08
S-11	7J23004-04	Soil	10/20/17 11:10	10-23-2017 09:08
S-12	7J23004-05	Soil	10/20/17 11:00	10-23-2017 09:08
S-13	7J23004-06	Soil	10/20/17 11:30	10-23-2017 09:08
S-14	7J23004-07	Soil	10/20/17 11:35	10-23-2017 09:08
S-15	7J23004-08	Soil	10/20/17 11:45	10-23-2017 09:08
S-16	7J23004-09	Soil	10/20/17 12:10	10-23-2017 09:08
S-17	7J23004-10	Soil	10/20/17 13:20	10-23-2017 09:08
S-18	7J23004-11	Soil	10/20/17 12:15	10-23-2017 09:08
S-19	7J23004-12	Soil	10/20/17 12:50	10-23-2017 09:08
S-20	7J23004-13	Soil	10/20/17 12:55	10-23-2017 09:08
S-21	7J23004-14	Soil	10/20/17 13:05	10-23-2017 09:08
S-22	7J23004-15	Soil	10/20/17 11:40	10-23-2017 09:08
S-23	7J23004-16	Soil	10/20/17 11:50	10-23-2017 09:08
S-24	7J23004-17	Soil	10/20/17 12:00	10-23-2017 09:08

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-8

7J23004-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.02**	1.08	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*118 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*133 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-9

7J23004-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**5.33**	1.02	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	25.5	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	25.5	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	25.5	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*113 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*126 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Total Petroleum Hydroearbon C6-C35	ND	25.5	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-10

7J23004-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.68**	1.05	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*114 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*131 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydroearbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.	Project: Deeker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-11

7J23004-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.73**	1.05	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*112 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*128 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-12

7J23004-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**489**	1.06	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*109 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*125 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Decker Leak
Project Number: 17-0177-01
Project Manager: Mark Larson

Fax: (432) 687-0456

S-13

7J23004-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.06**	1.08	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*118 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*134 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-14

7J23004-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.21**	1.05	mg/kg dry	1	P7J2505	10/25/17	10/25/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*109 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*125 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**4.60**	1.04	mg/kg dry	1	P7J2505	10/25/17	10/26/17	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.0	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.0	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*121 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.35**	1.05	mg/kg dry	1	P7J2505	10/25/17	10/26/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*127 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*144 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-10 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.56**	1.05	mg/kg dry	1	P7J2505	10/25/17	10/26/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*117 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*134 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.35**	1.06	mg/kg dry	1	P7J2505	10/25/17	10/26/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7J2313	10/23/17	10/24/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*111 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*128 %*	*70-130*		*P7J2313*	*10/23/17*	*10/24/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	10/23/17	10/24/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.47**	1.09	mg/kg dry	1	P7J2505	10/25/17	10/26/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.2	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
>C12-C28	**55.2**	27.2	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
>C28-C35	**41.8**	27.2	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*116 %*	*70-130*		*P7J2313*	*10/23/17*	*10/26/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*130 %*	*70-130*		*P7J2313*	*10/23/17*	*10/26/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**96.9**	27.2	mg/kg dry	1	[CALC]	10/23/17	10/26/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-13 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.10	mg/kg dry	1	P7J2603	10/26/17	10/26/17	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
>C12-C28	**71.0**	27.5	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
>C28-C35	**40.0**	27.5	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*118 %*	*70-130*		*P7J2313*	*10/23/17*	*10/26/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*133 %*	*70-130*		*P7J2313*	*10/23/17*	*10/26/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**111**	27.5	mg/kg dry	1	[CALC]	10/23/17	10/26/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.11	mg/kg dry	1	P7J2603	10/26/17	10/26/17	EPA 300.0	
% Moisture	**10.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.8	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
>C12-C28	**70.3**	27.8	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
>C28-C35	**37.0**	27.8	mg/kg dry	1	P7J2313	10/23/17	10/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*118 %*	*70-130*		*P7J2313*	*10/23/17*	*10/26/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*135 %*	*70-130*		*P7J2313*	*10/23/17*	*10/26/17*	*TPH 8015M*	*S-GC*
Total Petroleum Hydrocarbon C6-C35	**107**	27.8	mg/kg dry	1	[CALC]	10/23/17	10/26/17	calc	

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P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P7J2603	10/26/17	10/26/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*88.6 %*	*70-130*		*P7J2408*	*10/24/17*	*10/26/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*98.1 %*	*70-130*		*P7J2408*	*10/24/17*	*10/26/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	10/24/17	10/26/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.05	mg/kg dry	1	P7J2603	10/26/17	10/26/17	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.3	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*85.1 %*	*70-130*		*P7J2408*	*10/24/17*	*10/26/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*94.9 %*	*70-130*		*P7J2408*	*10/24/17*	*10/26/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	10/24/17	10/26/17	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

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7J23004-17 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.08	mg/kg dry	1	P7J2603	10/26/17	10/26/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7J2403	10/24/17	10/24/17	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P7J2408	10/24/17	10/26/17	TPH 8015M	
Surrogate: 1-Chlorooctane		*89.7 %*	*70-130*		*P7J2408*	*10/24/17*	*10/26/17*	*TPH 8015M*	
Surrogate: o-Terphenyl		*97.7 %*	*70-130*		*P7J2408*	*10/24/17*	*10/26/17*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	10/24/17	10/26/17	calc	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Decker Leak
Project Number: 17-0177-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7J2403 - * DEFAULT PREP *** **										
Blank (P7J2403-BLK1)				Prepared & Analyzed: 10/24/17						
% Moisture	ND	0.1	%							
Blank (P7J2403-BLK2)				Prepared & Analyzed: 10/24/17						
% Moisture	ND	0.1	%							
Duplicate (P7J2403-DUP1)	Source: 7J23002-09			Prepared & Analyzed: 10/24/17						
% Moisture	8.0	0.1	%		9.0			11.8	20	
Duplicate (P7J2403-DUP2)	Source: 7J23002-36			Prepared & Analyzed: 10/24/17						
% Moisture	11.0	0.1	%		10.0			9.52	20	
Duplicate (P7J2403-DUP3)	Source: 7J23004-03			Prepared & Analyzed: 10/24/17						
% Moisture	4.0	0.1	%		5.0			22.2	20	R2
Duplicate (P7J2403-DUP4)	Source: 7J23006-05			Prepared & Analyzed: 10/24/17						
% Moisture	4.0	0.1	%		5.0			22.2	20	R2
Batch P7J2505 - * DEFAULT PREP *** **										
LCS (P7J2505-BS1)				Prepared & Analyzed: 10/25/17						
Chloride	413	1.00	mg/kg wet	400		103	80-120			
LCS Dup (P7J2505-BSD1)				Prepared & Analyzed: 10/25/17						
Chloride	416	1.00	mg/kg wet	400		104	80-120	0.761	20	
Duplicate (P7J2505-DUP1)	Source: 7J19018-02			Prepared & Analyzed: 10/25/17						
Chloride	938	28.4	mg/kg dry		937			0.0910	20	

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Midland TX, 79710	Project Manager: Mark Larson	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7J2505 - * DEFAULT PREP *****										
Duplicate (P7J2505-DUP2)	Source: 7J23004-03			Prepared & Analyzed: 10/25/17						
Chloride	2.79	1.05	mg/kg dry		2.68			3.85	20	
Matrix Spike (P7J2505-MS1)	Source: 7J19018-02			Prepared & Analyzed: 10/25/17						
Chloride	3380	28.4	mg/kg dry	2270	937	107	80-120			
Batch P7J2603 - * DEFAULT PREP *****										
Blank (P7J2603-BLK1)				Prepared & Analyzed: 10/26/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7J2603-BS1)				Prepared & Analyzed: 10/26/17						
Chloride	427	1.00	mg/kg wet	400		107	80-120			
LCS Dup (P7J2603-BSD1)				Prepared & Analyzed: 10/26/17						
Chloride	426	1.00	mg/kg wet	400		106	80-120	0.190	20	
Duplicate (P7J2603-DUP1)	Source: 7J23004-13			Prepared & Analyzed: 10/26/17						
Chloride	ND	1.10	mg/kg dry		ND				20	
Duplicate (P7J2603-DUP2)	Source: 7J24001-06			Prepared & Analyzed: 10/26/17						
Chloride	5860	29.8	mg/kg dry		5730			2.21	20	
Matrix Spike (P7J2603-MS1)	Source: 7J23004-13			Prepared & Analyzed: 10/26/17						
Chloride	1190	1.10	mg/kg dry	1100	ND	108	80-120			

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7J2313 - General Preparation (GC)										
Blank (P7J2313-BLK1)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*124*		"	*100*		*124*	*70-130*			
Surrogate: o-Terphenyl	*71.6*		"	*50.0*		*143*	*70-130*			*S-GC*
LCS (P7J2313-BS1)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	1200	25.0	mg/kg wet	1000		120	75-125			
>C12-C28	1170	25.0	"	1000		117	75-125			
Surrogate: 1-Chlorooctane	*124*		"	*100*		*124*	*70-130*			
Surrogate: o-Terphenyl	*69.5*		"	*50.0*		*139*	*70-130*			*S-GC*
LCS Dup (P7J2313-BSD1)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	1220	25.0	mg/kg wet	1000		122	75-125	1.76	20	
>C12-C28	1190	25.0	"	1000		119	75-125	1.86	20	
Surrogate: 1-Chlorooctane	*128*		"	*100*		*128*	*70-130*			
Surrogate: o-Terphenyl	*70.7*		"	*50.0*		*141*	*70-130*			*S-GC*
Calibration Blank (P7J2313-CCB1)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	13.0		mg/kg wet							
>C12-C28	10.6		"							
Surrogate: 1-Chlorooctane	*122*		"	*100*		*122*	*70-130*			
Surrogate: o-Terphenyl	*69.8*		"	*50.0*		*140*	*70-130*			*S-GC*
Calibration Blank (P7J2313-CCB2)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	12.8		mg/kg wet							
>C12-C28	14.1		"							
Surrogate: 1-Chlorooctane	*122*		"	*100*		*122*	*70-130*			
Surrogate: o-Terphenyl	*70.0*		"	*50.0*		*140*	*70-130*			*S-GC*

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7J2313 - General Preparation (GC)										
Calibration Check (P7J2313-CCV1)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	556	25.0	mg/kg wet	500		111	85-115			
>C12-C28	501	25.0	"	500		100	85-115			
Surrogate: 1-Chlorooctane	*115*		"	*100*		*115*	*70-130*			
Surrogate: o-Terphenyl	*61.9*		"	*50.0*		*124*	*70-130*			
Calibration Check (P7J2313-CCV2)				Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	529	25.0	mg/kg wet	500		106	85-115			
>C12-C28	507	25.0	"	500		101	85-115			
Surrogate: 1-Chlorooctane	*114*		"	*100*		*114*	*70-130*			
Surrogate: o-Terphenyl	*64.0*		"	*50.0*		*128*	*70-130*			
Calibration Check (P7J2313-CCV3)				Prepared: 10/23/17 Analyzed: 10/25/17						
C6-C12	563	25.0	mg/kg wet	500		113	85-115			
>C12-C28	570	25.0	"	500		114	85-115			
Surrogate: 1-Chlorooctane	*123*		"	*100*		*123*	*70-130*			
Surrogate: o-Terphenyl	*64.0*		"	*50.0*		*128*	*70-130*			
Matrix Spike (P7J2313-MS1)		**Source: 7J20002-03**		Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	1210	30.9	mg/kg dry	1230	13.2	96.7	75-125			
>C12-C28	1130	30.9	"	1230	20.9	90.1	75-125			
Surrogate: 1-Chlorooctane	*137*		"	*123*		*111*	*70-130*			
Surrogate: o-Terphenyl	*79.1*		"	*61.7*		*128*	*70-130*			
Matrix Spike Dup (P7J2313-MSD1)		**Source: 7J20002-03**		Prepared: 10/23/17 Analyzed: 10/24/17						
C6-C12	1180	30.9	mg/kg dry	1230	13.2	94.9	75-125	1.94	20	
>C12-C28	1130	30.9	"	1230	20.9	90.2	75-125	0.0799	20	
Surrogate: 1-Chlorooctane	*146*		"	*123*		*118*	*70-130*			
Surrogate: o-Terphenyl	*73.3*		"	*61.7*		*119*	*70-130*			

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Decker Leak
Project Number: 17-0177-01
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7J2408 - General Preparation (GC)										
Blank (P7J2408-BLK1)				Prepared: 10/24/17 Analyzed: 10/25/17						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*102*		"	*100*		*102*	*70-130*			
Surrogate: o-Terphenyl	*56.9*		"	*50.0*		*114*	*70-130*			
LCS (P7J2408-BS1)				Prepared: 10/24/17 Analyzed: 10/25/17						
C6-C12	1000	25.0	mg/kg wet	1000		100	75-125			
>C12-C28	959	25.0	"	1000		95.9	75-125			
Surrogate: 1-Chlorooctane	*123*		"	*100*		*123*	*70-130*			
Surrogate: o-Terphenyl	*60.5*		"	*50.0*		*121*	*70-130*			
LCS Dup (P7J2408-BSD1)				Prepared: 10/24/17 Analyzed: 10/25/17						
C6-C12	928	25.0	mg/kg wet	1000		92.8	75-125	7.90	20	
>C12-C28	935	25.0	"	1000		93.5	75-125	2.51	20	
Surrogate: 1-Chlorooctane	*126*		"	*100*		*126*	*70-130*			
Surrogate: o-Terphenyl	*58.3*		"	*50.0*		*117*	*70-130*			
Calibration Blank (P7J2408-CCB1)				Prepared: 10/24/17 Analyzed: 10/25/17						
C6-C12	15.2		mg/kg wet							
>C12-C28	9.00		"							
Surrogate: 1-Chlorooctane	*107*		"	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*62.4*		"	*50.0*		*125*	*70-130*			
Calibration Check (P7J2408-CCV1)				Prepared: 10/24/17 Analyzed: 10/25/17						
C6-C12	563	25.0	mg/kg wet	500		113	85-115			
>C12-C28	570	25.0	"	500		114	85-115			
Surrogate: 1-Chlorooctane	*123*		"	*100*		*123*	*70-130*			
Surrogate: o-Terphenyl	*64.0*		"	*50.0*		*128*	*70-130*			

Larson & Associates, Inc.	Project: Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7J2408 - General Preparation (GC)										
Calibration Check (P7J2408-CCV2)				Prepared: 10/24/17 Analyzed: 10/26/17						
C6-C12	525	25.0	mg/kg wet	500		105	85-115			
>C12-C28	488	25.0	"	500		97.6	85-115			
Surrogate: 1-Chlorooctane	*121*		"	*100*		*121*	*70-130*			
Surrogate: o-Terphenyl	*62.8*		"	*50.0*		*126*	*70-130*			
Calibration Check (P7J2408-CCV3)				Prepared: 10/24/17 Analyzed: 10/26/17						
C6-C12	526	25.0	mg/kg wet	500		105	85-115			
>C12-C28	511	25.0	"	500		102	85-115			
Surrogate: 1-Chlorooctane	*129*		"	*100*		*129*	*70-130*			
Surrogate: o-Terphenyl	*63.8*		"	*50.0*		*128*	*70-130*			
Matrix Spike (P7J2408-MS1)		**Source: 7J24009-21**		Prepared: 10/24/17 Analyzed: 10/26/17						
C6-C12	4610	137	mg/kg dry	1100	5290	NR	75-125			
>C12-C28	1340	137	"	1100	669	60.9	75-125			
Surrogate: 1-Chlorooctane	*111*		"	*110*		*101*	*70-130*			
Surrogate: o-Terphenyl	*48.7*		"	*54.9*		*88.7*	*70-130*			
Matrix Spike Dup (P7J2408-MSD1)		**Source: 7J24009-21**		Prepared: 10/24/17 Analyzed: 10/26/17						
C6-C12	4600	137	mg/kg dry	1100	5290	NR	75-125	NR	20	
>C12-C28	1310	137	"	1100	669	58.6	75-125	3.85	20	
Surrogate: 1-Chlorooctane	*114*		"	*110*		*104*	*70-130*			
Surrogate: o-Terphenyl	*52.4*		"	*54.9*		*95.4*	*70-130*			

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
R2	The RPD exceeded the acceptance limit.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: _____ Date: 10/30/2017

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTOD

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 10/23/17 PAGE 1 OF 2

PO #: _____ LAB WORK ORDER #: 17J23004

PROJECT LOCATION OR NAME: DECKER LEAK

LAI PROJECT #: 17-0177-01 COLLECTOR: GF

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ | TPH 1006 ☐ | GASOLINE MOD 8015 ☒ | DIESEL - MOD 8015 ☒ | VOC 8260 ☐ | SVOC 8270 ☐ | PAH 8270 ☐ | HOLDPAH ☐ | 8081 PESTICIDES ☐ | 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ | TCLP VOC ☐ | TCLP - PEST ☐ | HERB ☐ | Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ | OTHER LIST ☐ | LEAD - TOTAL ☐ | D.W. 200.8 ☐ | TCLP ☐ | RCI ☐ | TOX ☐ | FLASHPOINT ☐ | TDS ☐ | TSS ☐ | % MOISTURE ☐ | CYANIDE ☐ | pH ☐ | HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ | PECHLORATE ☐ | CHLORIDE ☒ 300 | ANIONS ☐ | ALKALINITY ☐ | 8021 ☒ 020

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	FIELD NOTES
S-8	1	10/20	12:30	S	1				X		
S-9	2		11:20								
S-10	3		12:30								
S-11	4		11:10								
S-12	5		11:00								
S-13	6		11:30								
S-14	7		11:35								
S-15	8		11:45								
S-16	9		12:10								
S-17	10		1:20								
S-18	11		12:15								
S-19	12		12:50								
S-20	13		12:55								
S-21	14		1:05								
S-22	15		11:40								
TOTAL											

RELINQUISHED BY:(Signature) DATE/TIME 10/23/17 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 10-23-17 908 RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: -3.8 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED NCFCI

CHAIN-OF-CUSTOD

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 10/23/17 PAGE 2 OF 2

PO #: LAB WORK ORDER #:

PROJECT LOCATION OR NAME: DECKER LEAK

LAI PROJECT #: 17-0177-01 COLLECTOR: GF

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: NM

S=SOIL P=PAINT
W=WATER SL=SLUDGE
A=AIR OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 | DIESEL - MOD 8015 | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ | 300.0

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015	DIESEL - MOD 8015	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	300.0	FIELD NOTES
S-23	16	10/20	11:50	S	1				X				X	X															X		
S-24	17	10/20	12:00	S	1				X				X	X															X		
TOTAL																															

RELINQUISHED BY:(Signature) DATE/TIME 10/23/17 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME 10-23-17 908 RECEIVED BY: (Signature)

TURN AROUND TIME
NORMAL ☒
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: -3.6 THERM #:
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL #
☒ HAND DELIVERED

frozen

PERMIAN BASIN
ENVIRONMENTAL LAB, LP
1400 Rankin Hwy
Midland, TX 79701

PBELAB

Analytical Report

Prepared for:

Mark Larson
Larson & Associates, Inc.
P.O. Box 50685
Midland, TX 79710

Project: Targa Decker Leak
Project Number: 17-0177-01
Location:

Lab Order Number: 7L05010

NELAP/TCEQ # T104704516-16-7

Report Date: 12/07/17

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Targa Decker Leak Project Number: 17-0177-01 Project Manager: Mark Larson	Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-1 5'-6'	7L05010-01	Soil	12/05/17 10:10	12-05-2017 15:45
S-1 10'-11'	7L05010-02	Soil	12/05/17 10:13	12-05-2017 15:45
S-1 15'-16'	7L05010-03	Soil	12/05/17 10:15	12-05-2017 15:45
S-1 20'-21'	7L05010-04	Soil	12/05/17 10:16	12-05-2017 15:45
S-2 5'-6'	7L05010-05	Soil	12/05/17 10:39	12-05-2017 15:45
S-2 10'-11'	7L05010-06	Soil	12/05/17 10:43	12-05-2017 15:45
S-2 15'-16'	7L05010-07	Soil	12/05/17 10:47	12-05-2017 15:45

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Targa Decker Leak
Project Number: 17-0177-01
Project Manager: Mark Larson

Fax: (432) 687-0456

S-1 5'-6'

7L05010-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**13.5**	1.08	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Targa Decker Leak Project Number: 17-0177-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-1 10'-11'

7L05010-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10.3**	1.09	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Targa Decker Leak Project Number: 17-0177-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-1 15'-16'

7L05010-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.56**	1.08	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Targa Decker Leak Project Number: 17-0177-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-1 20'-21'

7L05010-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.09	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc.	Project: Targa Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 5'-6'

7L05010-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc.	Project: Targa Decker Leak	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 17-0177-01	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 10'-11'

7L05010-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.08	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc. P.O. Box 50685 Midland TX, 79710	Project: Targa Decker Leak Project Number: 17-0177-01 Project Manager: Mark Larson	Fax: (432) 687-0456

S-2 15'-16'

7L05010-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P7L0604	12/06/17	12/07/17	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P7L0601	12/06/17	12/06/17	ASTM D2216	

Larson & Associates, Inc.
P.O. Box 50685
Midland TX, 79710

Project: Targa Decker Leak
Project Number: 17-0177-01
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P7L0601 - * DEFAULT PREP *** **										
Blank (P7L0601-BLK1)				Prepared & Analyzed: 12/06/17						
% Moisture	ND	0.1	%							
Duplicate (P7L0601-DUP1)		Source: 7L05002-18		Prepared & Analyzed: 12/06/17						
% Moisture	11.0	0.1	%		12.0			8.70	20	
Duplicate (P7L0601-DUP2)		Source: 7L05009-01		Prepared & Analyzed: 12/06/17						
% Moisture	4.0	0.1	%		5.0			22.2	20	
Batch P7L0604 - * DEFAULT PREP *** **										
Blank (P7L0604-BLK1)				Prepared: 12/06/17 Analyzed: 12/07/17						
Chloride	ND	1.00	mg/kg wet							
LCS (P7L0604-BS1)				Prepared: 12/06/17 Analyzed: 12/07/17						
Chloride	420	1.00	mg/kg wet	400		105	80-120			
LCS Dup (P7L0604-BSD1)				Prepared: 12/06/17 Analyzed: 12/07/17						
Chloride	426	1.00	mg/kg wet	400		107	80-120	1.55	20	
Duplicate (P7L0604-DUP1)		Source: 7L05003-01		Prepared: 12/06/17 Analyzed: 12/07/17						
Chloride	10800	54.3	mg/kg dry		10800			0.509	20	
Duplicate (P7L0604-DUP2)		Source: 7L05010-01		Prepared: 12/06/17 Analyzed: 12/07/17						
Chloride	12.9	1.08	mg/kg dry		13.5			4.55	20	
Matrix Spike (P7L0604-MS1)		Source: 7L05003-01		Prepared: 12/06/17 Analyzed: 12/07/17						
Chloride	16500	54.3	mg/kg dry	5430	10800	104	80-120			

Notes and Definitions

BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: _____ Date: 12/7/2017

Brent Barron, Laboratory Director/Technical Director

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
507 N. Marienfeld, Ste. 200
Midland, TX 79701
432-687-0901

DATE: 12-05-17 PAGE 1 OF 1

PO #: _____ LAB WORK ORDER #: 7L05010

PROJECT LOCATION OR NAME: Targa Decker

LAI PROJECT #: 17-0177-01 COLLECTOR: SJ

Data Reported to: Sarah Johnson

TRRP report? ☐ Yes ☐ No

TIME ZONE: Time zone/State:

S=SOIL W=WATER A=AIR P=PAINT SL=SLUDGE OT=OTHER

PRESERVATION: HCl | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE | UNPRESERVED

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ | M 300

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	CHLORIDES ☒ M 300	FIELD NOTES
S-1 5'-6'	1	12/05	10:10	S	1				✓		✓	
S-1 10'-11'	2	"	10:13	"	"				"		"	
S-1 15'-16'	3	"	10:15	"	"				"		"	
S-1 20'-21'	4	"	10:16	"	"				"		"	
S-2 5'-6'	5	"	10:39	"	"				"		"	
S-2 10'-11'	6	"	10:43	"	"				"		"	
S-2 15'-16'	7	"	10:47	"	"				"		"	
TOTAL												

RELINQUISHED BY:(Signature) Sarah Johnson DATE/TIME 12-05-17 RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature)

RELINQUISHED BY:(Signature) DATE/TIME RECEIVED BY: (Signature) 12-5-17 1545

TURN AROUND TIME
NORMAL ☐
1 DAY ☐
2 DAY ☒
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: -1.0 THERM #: _____
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☒ HAND DELIVERED

APPENDIX D

Photographs

Source of Release Viewing North

Source of Release

Release Area Viewing from South to North

Soil Sample Location S-1 Viewing South

Release Area Viewing South from Soil Sample Location S-2

Release Area Viewing South from Soil Sample Location S-3

Release Area Viewing South from Soil Sample Location S-5

Release Area Viewing South from Soil Sample Location S-7

Release Area after Microblaze® Application Viewing North, September 25, 2017

Release Area after Microblaze® Application Viewing North, September 25, 2017

Release Area after Microblaze® Application Viewing North, September 25, 2017

APPENDIX E

Final 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 Department

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

Form C-141
Revised August 24, 2018
Submit to appropriate OCD District office

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Targa Midstream Services, L.P.	OGRID 24650
Contact Name Cindy Klein	Contact Telephone 575-631-7093
Contact email Cklein@targaresources.com	Incident # *(assigned by OCD)* 1RP-4787
Contact mailing address P.O. Box 67, Monument, NM 88265	

Location of Release Source

Latitude 33° 14' 58.20" North Longitude 103° 06' 07.73" West
(NAD 83 in decimal degrees to 5 decimal places)

Site Name NGL Release	Site Type gas and pipeline liquids
Date Release Discovered 8/5/2017	API# *(if applicable)*

Unit Letter	Section	Township	Range	County
C,G	28	12S	38E	Lea

Surface Owner: ☒ State ☐ Federal ☐ Tribal ☐ Private (*Name:* _____)

Nature and Volume of Release

Material(s) Released (Select all that apply and attach calculations or specific justification for the volumes provided below)

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 7 bbls	Volume Recovered (bbls) N/A
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☒ Natural Gas	Volume Released (Mcf) 425	Volume Recovered (Mcf) N/A
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Targa's 6" poly pipeline was discovered leaking as the result of external corrosion on a 2" valve. The line was isolated, blown down and a new valve was installed.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

Initial Response

The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury

☒ The source of the release has been stopped.

☒ The impacted area has been secured to protect human health and the environment.

☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.

☒ All free liquids and recoverable materials have been removed and managed appropriately.

If all the actions described above have not been undertaken, explain why:

Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.

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.

Printed Name: Cindy Klein Title: ES&H Supervisor

Signature: Cindy Klein Date: 9/04/18

email: Cklein@targaresources.com Telephone: 575-631-7093

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Site Assessment/Characterization

This information must be provided to the appropriate district office no later than 90 days after the release discovery date.

What is the shallowest depth to groundwater beneath the area affected by the release?	18 (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☒ Yes ☐ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☒ Yes ☐ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas **not** on an exploration, development, production, or storage site?	☐ Yes ☒ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: ***Each of the following items must be included in the report.***

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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.

Printed Name: Cindy Klein Title: ES&H Supervisor

Signature: Cindy Klein Date: 9/04/18

email: Cklein@targaresources.com Telephone: 575-631-7093

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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Remediation Plan

Remediation Plan Checklist: ***Each of the following items must be included in the plan.***

- [X] Detailed description of proposed remediation technique
- [X] Scaled sitemap with GPS coordinates showing delineation points
- [X] Estimated volume of material to be remediated
- [X] Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- [X] Proposed schedule for remediation (note if remediation plan timeline is more than 90 days OCD approval is required)

Deferral Requests Only: ***Each of the following items must be confirmed as part of any request for deferral of remediation.***

- [ ] Contamination must be in areas immediately under or around production equipment where remediation could cause a major facility deconstruction.
- [ ] Extents of contamination must be fully delineated.
- [ ] Contamination does not cause an imminent risk to human health, the environment, or groundwater.

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.

Printed Name: Cindy Klein Title: ES&H Supervisor

Signature: Cindy Klein Date: 9/04/18

email: Cklein@targaresources.com Telephone: 575-631-7093

OCD Only

Received by: _____ Date: _____

- [ ] Approved
- [ ] Approved with Attached Conditions of Approval
- [ ] Denied
- [ ] Deferral Approved

Signature: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
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)

[X] 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: Cindy Klein Title: ES&H Supervisor

Signature: Cindy Klein Date: 9/04/18

email: Cklein@targaresources.com Telephone: 575-631-7093

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: _____ Date: _____

Printed Name: _____ Title: _____