

Incident ID	nRM2020935007
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?	58 (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

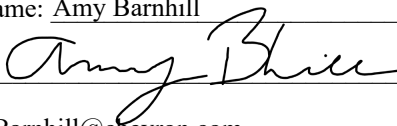
Incident ID	nRM2020935007
District RP	
Facility ID	
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I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or 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: Amy Barnhill

Title: Waste and Water Specialist

Signature:



Date: 3-30-21

email: ABarnhill@chevron.com

Telephone: 432-687-7108

OCD Only

Received by: Cristina Eads

Date: 04/26/2021

Incident ID	nRM2020935007
District RP	
Facility ID	
Application ID	

Remediation Plan

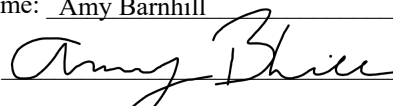
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ 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.

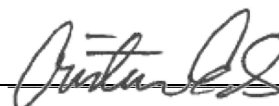
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public 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: Amy Barnhill Title: Waste and Water Specialist
Signature:  Date: 3-30-21
email: ABarnhill@chevron.com Telephone: 432-687-7108

OCD Only

Received by: Cristina Eads Date: 04/26/2021

☒ Approved ☐ Approved with Attached Conditions of Approval ☐ Denied ☐ Deferral Approved

Signature:  Date: 07/07/2021

Tracking Number: nRM2020935007
Delineation Report and Remediation Plan
Old Indian Draw
Produced Water & Crude Oil Release
Eddy County, New Mexico

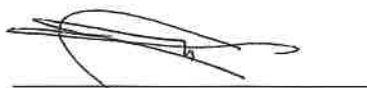
Latitude: N 32.3904°
Longitude: W -104.1228°

LAI Project No. 20-0107-16

March 15, 2021

Prepared for:
Chevron USA Inc.
6301 Deauville Blvd.
Midland, Texas 79706

Prepared by:
Larson & Associates, Inc.
507 North Marienfeld Street, Suite 202
Midland, Texas 79701



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



Robert Nelson
Sr. Geoscientist

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Tracking Number: nRM202935007
Delineation Report and Remediation Plan
Chevron USA, Inc., Old Indian Draw
Produced Water & Crude Oil Release
March 15, 2021

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI), has prepared this delineation report and remediation plan on behalf of Chevron USA Inc. (Chevron) for submittal to the New Mexico Oil Conservation Division (OCD) District II for a produced water and crude oil release at Old Indian Draw (Site) located in Unit I (NE/4, SE/4), Section 18, Township 22 South, Range 28 East in Eddy County, New Mexico. The geodetic position is North 32.3904° and West -104.1228°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release was discovered on July 10, 2020, due to power loss which caused instrument air compressors and dumps on the production vessel to fail causing liquid to escape from the gas outlet. Chevron reported that approximately 9.3 barrels (bbls) of crude oil and 29.54 bbls of produced water were released. Approximately 8 bbls of crude oil and 22 bbls of produced water were recovered. The affected area measures approximately 4,244 square feet. Chevron submitted the initial C-141 OCD and was assigned incident number nRM2020935007.

Appendix A presents initial Chevron spill documentation.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,085 feet above mean sea level (msl).
- The surface topography gradually slopes to the southeast.
- There are no surface water features within 1,000 feet of the Site.
- Karst data provided by the USGS describes the Site as "Medium Risk" potential.
- The soils are designated as "Simona-Bippus complex", consisting of 19 inches of gravelly fine sandy loam underlain by indurated soils from 19 to 23 inches.
- The geology consists of the Holocene to upper Pleistocene unconsolidated Piedmont alluvial deposits (USGS).
- Groundwater was reported at approximately 58 feet below ground surface (bgs) in 2019.
- According to the New Mexico Office of the State Engineer (OSE) the nearest freshwater well is located approximately 1.81 miles or about 9,563 feet southwest of the Site in Section 24, Township 22 South, Range 27, East.

Appendix B presents data depicting karst risk potential.

1.3 Remediation Action Levels

The following remediation standards are based on closure criteria for soils impacted by a release as presented in Table 1 of 19.15.29 NMAC:

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 2,500 mg/Kg
- Chloride 10,000 mg/Kg

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Delineation Report and Remediation Plan
Chevron USA, Inc., Old Indian Draw
Produced Water & Crude Oil Release
March 15, 2021

Further, 19.15.29.13 NMAC (Restoration, Reclamation and Re-Vegetation) requires the operator to restore the impacted surface area that existed prior to the release or their final land use.

2.0 DELINEATION

On August 19, 2020, LAI personnel used a stainless-steel hand auger to collect soil samples from ground surface to approximately 0.5 feet bgs from ten (10) locations inside of the spill area (S-1 through S-5, and S-10) and in each cardinal direction of the spill (S-6 through S-9). The soil samples were delivered under chain of custody and preservation to Xenco Laboratories (Xenco) in Midland, Texas, which analyzed the samples for benzene, toluene, ethylbenzene, and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35), and chloride by EPA SW-846 Methods 8021B and 8015M, and 300.0, respectively. Figure 2 presents an aerial map showing the sample locations.

Benzene and BTEX were below the OCD remediation standards in Table 1 (19.15.29 NMAC) of 10 milligrams per kilogram (mg/Kg) and 50 mg/Kg, respectively. TPH and chloride exceeded the OCD delineation limits 100 mg/Kg and 600 mg/Kg, respectively, in the following samples:

Sample ID	Depth (Feet)	TPH Concentration (mg/Kg)	Chloride Concentration (mg/Kg)
S-1	0.5	13,400	2,270
S-2	0.5	102	4,340
S-3	0.5	30,500	2,360
S-4	0.5	9,960	--
S-5	0.5	9,960	--
S-10	0.5	113	1,200

On October 22 and 23, 2020, LAI personnel used a Geoprobe® 7822DT direct push rig to further delineate TPH and chloride at sample location S-1 through S-5 and S-10. Soil samples were collected between approximately one (1) three (3) feet bgs depending on subsurface conditions. The samples were analyzed for BTEX, TPH, and chloride. The laboratory results demonstrate the release was delineated at all locations except S-2.

On January 25, 2021, Scarborough Drilling, Inc. (SDI), under supervision from LAI, utilized an air rotary rig to further delineate chloride at sample location S-2. Soil samples were collected at approximately 5 and 10 feet bgs and were analyzed in the field for chloride. The laboratory results demonstrate the release was delineated according to the OCD remediation and closure requirements (19.15.29.12 NMAC Table 1) for groundwater between 50 and 100 feet bgs. Table 1 presents the soil sample analytical data summary. Appendix C presents the laboratory report.

3.0 REMEDIATION PLAN

Chevron proposes the following remedial actions:

Tracking Number: nRM202935007
Delineation Report and Remediation Plan
Chevron USA, Inc., Old Indian Draw
Produced Water & Crude Oil Release
March 15, 2021

- Excavate soil from an area measuring approximately 4,673 square feet encompassing S-1 through S-5 and S-10 to a depth of approximately 1.5 feet bgs.
- Excavate soil from an area measuring approximately 1,579 square feet encompassing S-1 and S-2 to a depth of approximately 3 feet bgs.
- Collect five (5) point composite bottom and sidewall confirmation soil samples every 200 square feet of excavation and analyze for BTEX, TPH and chloride.
- Backfill excavations with caliche confirmed clean by laboratory analysis assuming achievement of OCD remediation levels; and
- Prepare report with photographs for submittal to OCD District II.

Figure 3 presents the proposed excavation areas.

Tables

Table 1
Soil Sample Analytical Data Summary
Old Indian Draw
Eddy County, New Mexico
North 32° 23' 26.79", West 104° 07' 21.18"

Page 1 of 2

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)	
Remediation Level:						10	50	100 / 2,500			600 / 10,000
S-1	0.5	8/19/2020	In-Situ	<0.0401	4.83	923	10,800	1,630	13,400	2,270	
	1	10/22/2020	In-Situ	0.0699	5.52	643	6,910	923	8,840	3,280	
	1.5	10/22/2020	In-Situ	--	--	166	1,260	156	1,580	2,520	
	5	1/25/2021	In-Situ	--	--	<50.0	<50.0	<50.0	<50.0	197	
	10	1/25/2021	In-Situ	--	--	<49.9	<49.9	<49.9	<49.9	124	
S-2	0.5	8/19/2020	In-Situ	<0.00129	0.00129	<50.0	102	<50.0	102	4,340	
	1	10/22/2020	In-Situ	<0.00199	<0.00199	<250	5,190	925	6,120	6,180	
	1.5	10/22/2020	In-Situ	--	--	<49.9	<49.9	<49.9	<49.9	4,700	
	5	1/25/2021	In-Situ	--	--	--	--	--	--	403	
	10	1/25/2021	In-Situ	--	--	--	--	--	--	72.6	
S-3	0.5	8/19/2020	In-Situ	0.286	37.1	4,050	24,000	2,440	30,500	2,360	
	1	10/22/2020	In-Situ	<0.00200	0.179	74.6	1,540	297	1,910	8,220	
	3	10/22/2020	In-Situ	--	--	<50.0	<50.0	<50.0	<50.0	362	
S-4	0.5	8/19/2020	In-Situ	0.0233	1.58	303	9,860	1,510	9,960	22.4	
	1	10/23/2020	In-Situ	<0.00202	<0.00202	<250	3,560	735	4,300	4,340	
	3	10/23/2020	In-Situ	--	--	<50.0	<50.0	<50.0	<50.0	41.1	
S-5	0.5	8/19/2020	In-Situ	<0.00199	0.00200	<249	8,160	1,800	9,960	22.4	
	1	10/23/2020	In-Situ	<0.00199	<0.00199	<50.0	1,090	273	1,360	11.7	
	3	10/23/2020	In-Situ	--	--	<49.9	<49.9	<49.9	<49.9	--	
S-6	0.5	8/19/2020	In-Situ	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	41.0	

Table 1
Soil Sample Analytical Data Summary
Old Indian Draw
Eddy County, New Mexico
North 32° 23' 26.79", West 104° 07' 21.18"

Page 2 of 2

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)	
Remediation Level:						10	50	100 / 2,500			600 / 10,000
S-7	0.5	8/19/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	9.49	
S-8	0.5	8/19/2020	In-Situ	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	10.3	
S-9	0.5	8/19/2020	In-Situ	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	10.3	
S-10	0.5	8/19/2020	In-Situ	<0.00201	<0.00201	<49.9	113	<49.9	113	1,200	
	1	10/23/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	943	
	3	10/23/2020	In-Situ	--	--	<50.0	<50.0	<50.0	<50.0	43.5	

Notes: Analysis performed by Xenco Laboratories

Depth in feet below ground surface (bgs)

mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)

<: denotes concentration less than analytical method reporting limit

Bold and Highlighted exceeds OCD remediation action limits

Figures

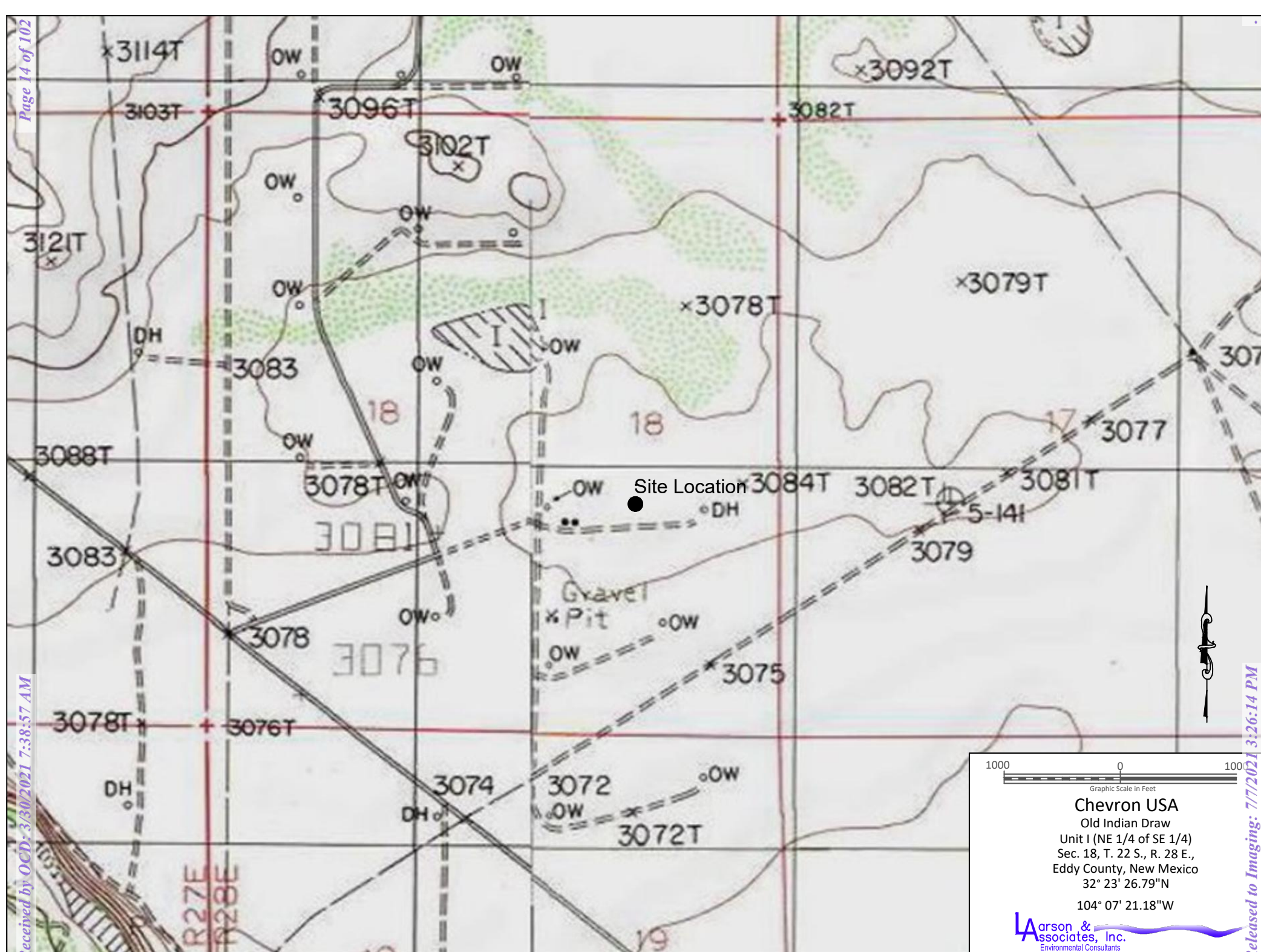
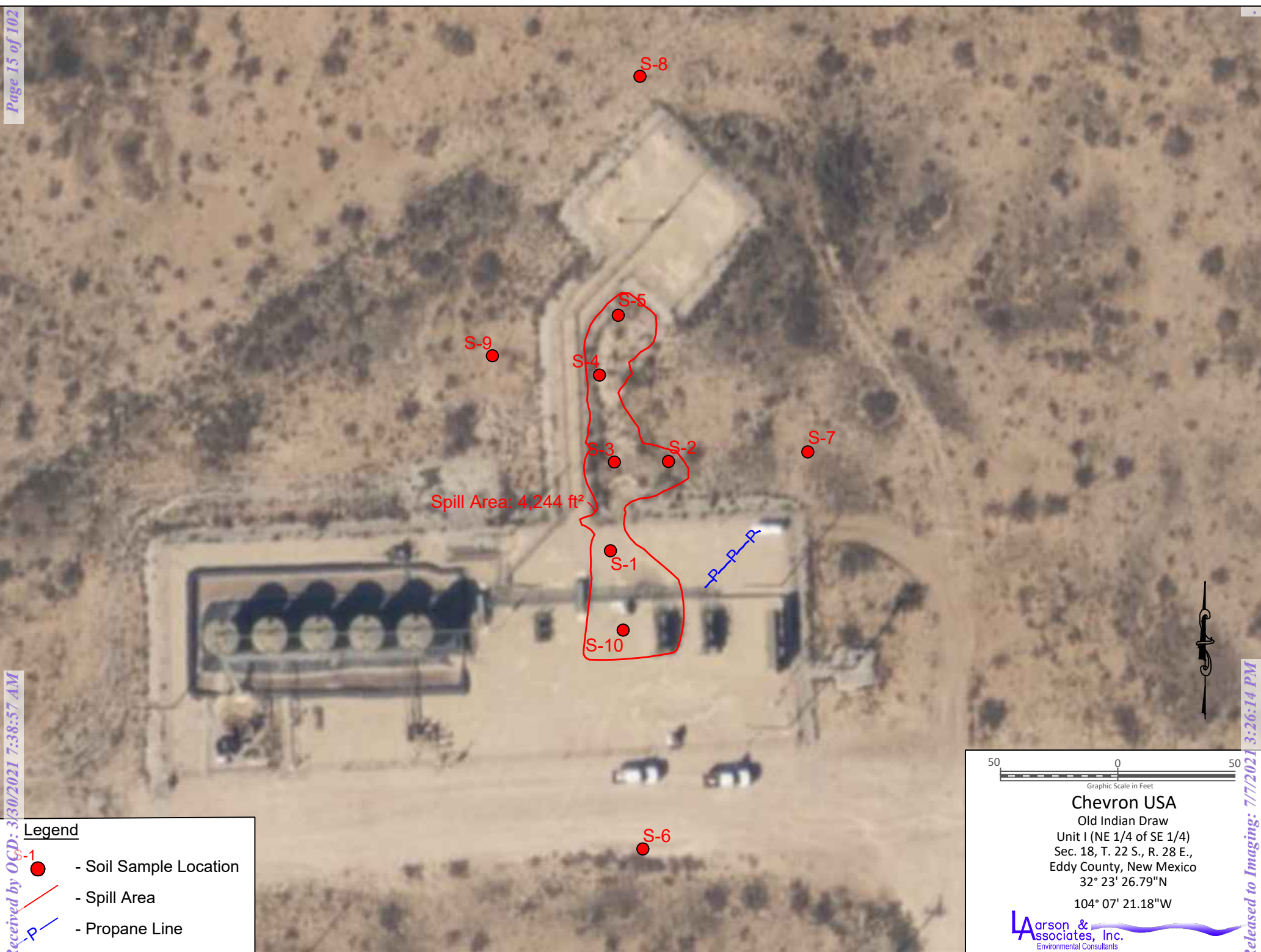


Figure 1 - Topographic Map



Legend

-  - Soil Sample Location
-  - Spill Area
-  - Propane Line



Chevron USA
Old Indian Draw
Unit I (NE 1/4 of SE 1/4)
Sec. 18, T. 22 S., R. 28 E.,
Eddy County, New Mexico
32° 23' 26.79"N
104° 07' 21.18"W

Larson & Associates, Inc.
Environmental Consultants

Figure 2 - Aerial Map

Legend

-  - Soil Sample Location
-  - Spill Area
-  - Propane Line
-  - Proposed Excavation Location: 1.5'
-  - Proposed Excavation Location: 3'

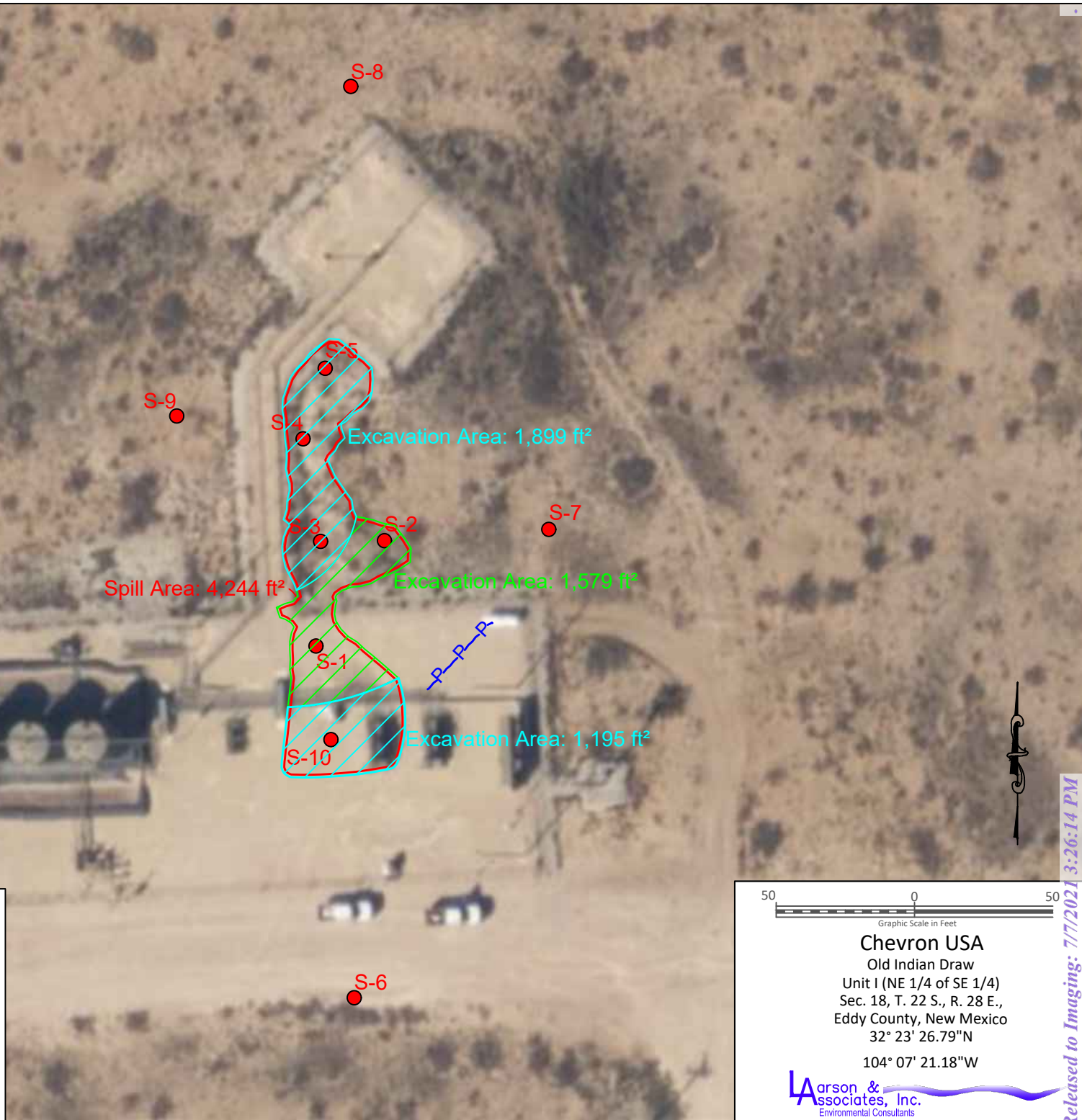


Figure 3 - Aerial Map Showing Proposed Excavation Location

Appendix A
Chevron Spill Calculation

Incident ID	
District RP	
Facility ID	
Application ID	

Location	Old Indian Draw CTB				
Lat/Long	32.3904/-104.1228: UL J, Sec. 18, 22S, R28E				
All volumes in following table in barrels					
Area	Standing Liquid	In Soil	dimensions / shape	Oil Volume	Water Volume
1	0.0521		4x34 REC	0.3	0.96
2	0.0521		29x34 TRI	1.09	3.47
3	0.25		33.75x9 REC	3.24	10.28
4	0.25		20.25x33.75 TRI	3.65	11.56
5		0.25	33.75x9 REC	0.48	1.54
6		0.25	20.25x33.75 TRI	0.54	1.73
7					
8					
Total Fluid				9.3	29.54
Fluid Recovered in barrels			Oil Volume	Water Volume	
			8	22	

Appendix B
Karst Risk Potential

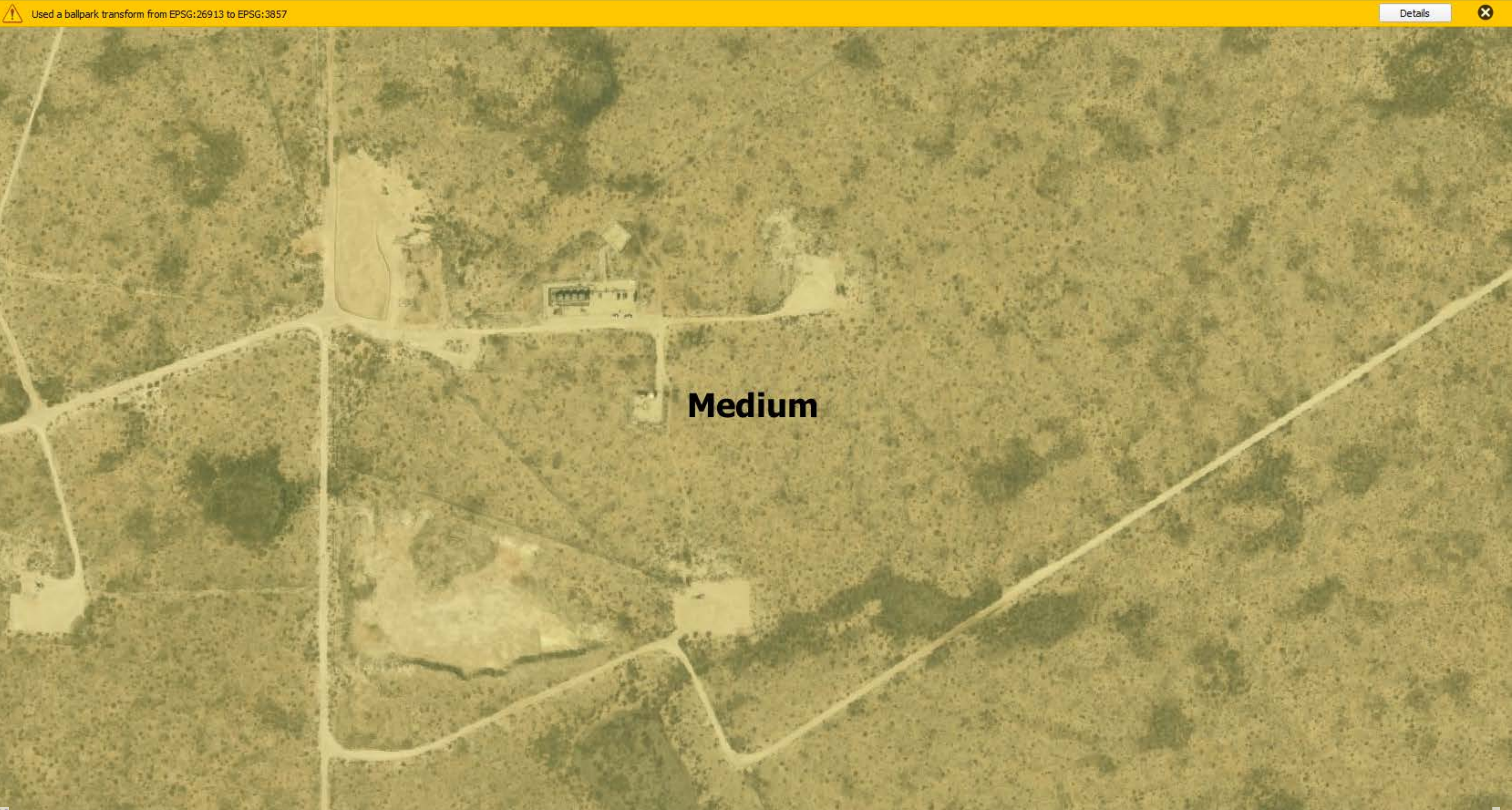


Browser

- ★ Favorites
- ▶ Spatial Bookmarks
- ▶ Project Home
- ▶ Home
- ▶ C:\
- ▶ D:\
- ▶ L:\
- ▶ Z:\
- GeoPackage
- SpatiaLite
- PostGIS
- MSSQL
- Oracle
- DB2
- WMS/WMTS
- ▶ XYZ Tiles
- WCS
- WFS / OGC API - Features
- OWS
- ArcGisMapServer
- ArcGisFeatureServer
- GeoNode

Layers

- ✓ Added geom info
- ▼ Karst_or_No_Karst
 - ✓ High
 - ✓ Low
 - ✓ Medium
 - ✓
- ▼ Bing Satellite



Appendix C
Laboratory Reports

Certificate of Analysis Summary 670492

Larson and Associates, Inc., Midland, TX

Project Name: Old Indian Draw

Project Id: 20-0107-16

Contact: Mark Larson

Project Location:

Date Received in Lab: Thu 08.20.2020 08:30

Report Date: 08.25.2020 10:49

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	670492-001	670492-002	670492-003	670492-004	670492-005	670492-006
	<i>Field Id:</i>	S-1 0.5'	S-2 0.5'	S-3 0.5'	S-4 0.5'	S-5 0.5'	S-6 0.5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	08.19.2020 11:10	08.19.2020 11:18	08.19.2020 11:29	08.19.2020 11:30	08.19.2020 11:35	08.19.2020 10:50
BTEX by EPA 8021B	<i>Extracted:</i>	08.20.2020 16:00	08.20.2020 16:00	08.20.2020 16:00	08.20.2020 16:00	08.20.2020 16:00	08.20.2020 16:00
	<i>Analyzed:</i>	08.21.2020 13:26	08.21.2020 05:23	08.21.2020 13:47	08.21.2020 08:35	08.21.2020 05:43	08.21.2020 06:04
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.0401 0.0401	<0.00199 0.00199	0.286 0.0398	0.0233 0.0198	<0.00199 0.00199	<0.00201 0.00201
Toluene		0.258 0.0401	0.00219 0.00199	6.42 0.0398	0.0569 0.0198	0.00200 0.00199	<0.00201 0.00201
Ethylbenzene		0.366 0.0401	<0.00199 0.00199	2.97 0.0398	0.0517 0.0198	<0.00199 0.00199	<0.00201 0.00201
m,p-Xylenes		2.42 0.0802	<0.00398 0.00398	8.10 0.0795	0.707 0.0397	<0.00398 0.00398	<0.00402 0.00402
o-Xylene		1.79 0.0401	<0.00199 0.00199	19.3 D 0.199	0.738 0.0198	<0.00199 0.00199	<0.00201 0.00201
Total Xylenes		4.21 0.0401	<0.00199 0.00199	27.4 0.0795	1.45 0.0198	<0.00199 0.00199	<0.00201 0.00201
Total BTEX		4.83 0.0401	0.00219 0.00199	37.1 0.0398	1.58 0.0198	0.00200 0.00199	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	08.20.2020 15:10	08.20.2020 15:10	08.20.2020 15:10	08.20.2020 15:10	08.20.2020 15:10	08.20.2020 15:10
	<i>Analyzed:</i>	08.20.2020 20:18	08.20.2020 20:23	08.20.2020 20:28	08.20.2020 20:34	08.20.2020 20:39	08.20.2020 20:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		2270 24.8	4340 25.2	2360 24.9	4470 24.9	22.4 4.95	41.0 5.03
TPH by SW8015 Mod	<i>Extracted:</i>	08.20.2020 14:00	08.20.2020 14:00	08.20.2020 14:00	08.20.2020 14:00	08.20.2020 14:00	08.20.2020 14:00
	<i>Analyzed:</i>	08.20.2020 22:28	08.20.2020 20:16	08.20.2020 22:47	08.20.2020 23:06	08.20.2020 23:24	08.20.2020 20:35
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		923 250	<50.0 50.0	4050 250	303 249	<249 249	<50.0 50.0
Diesel Range Organics (DRO)		10800 250	102 50.0	24000 250	9860 249	8160 249	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		1630 250	<50.0 50.0	2440 250	1510 249	1800 249	<50.0 50.0
Total TPH		13400 250	102 50.0	30500 250	11700 249	9960 249	<50.0 50.0

BRL - Below Reporting Limit



Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

Certificate of Analysis Summary 670492

Larson and Associates, Inc., Midland, TX

Project Name: Old Indian Draw

Project Id: 20-0107-16

Contact: Mark Larson

Project Location:

Date Received in Lab: Thu 08.20.2020 08:30

Report Date: 08.25.2020 10:49

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	670492-007	670492-008	670492-009	670492-010		
	<i>Field Id:</i>	S-7 0.5'	S-8 0.5'	S-9 0.5'	S-10 0.5'		
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL		
	<i>Sampled:</i>	08.19.2020 11:05	08.19.2020 11:15	08.19.2020 11:20	08.19.2020 11:45		
BTEX by EPA 8021B	<i>Extracted:</i>	08.20.2020 16:00	08.20.2020 16:00	08.20.2020 16:00	08.20.2020 16:00		
	<i>Analyzed:</i>	08.21.2020 06:25	08.21.2020 06:45	08.21.2020 07:06	08.21.2020 07:27		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00201 0.00201		
Toluene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00201 0.00201		
Ethylbenzene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00201 0.00201		
m,p-Xylenes		<0.00398 0.00398	<0.00397 0.00397	<0.00396 0.00396	<0.00402 0.00402		
o-Xylene		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00201 0.00201		
Total Xylenes		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00201 0.00201		
Total BTEX		<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00201 0.00201		
Chloride by EPA 300	<i>Extracted:</i>	08.20.2020 15:10	08.20.2020 15:30	08.20.2020 15:30	08.20.2020 15:30		
	<i>Analyzed:</i>	08.20.2020 20:49	08.20.2020 21:21	08.20.2020 21:37	08.20.2020 21:42		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		9.49 4.96	10.3 5.00	10.3 5.00	1200 24.8		
TPH by SW8015 Mod	<i>Extracted:</i>	08.20.2020 14:00	08.20.2020 14:00	08.20.2020 14:00	08.20.2020 14:00		
	<i>Analyzed:</i>	08.20.2020 20:54	08.20.2020 21:13	08.20.2020 21:31	08.20.2020 22:09		
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9		
Diesel Range Organics (DRO)		<49.9 49.9	<49.8 49.8	<50.0 50.0	113 49.9		
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9		
Total TPH		<49.9 49.9	<49.8 49.8	<50.0 50.0	113 49.9		

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 670492

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Old Indian Draw

20-0107-16

08.25.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-37), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



08.25.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **670492**
Old Indian Draw
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 670492. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 670492 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Holly Taylor".

Holly Taylor
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 670492****Larson and Associates, Inc., Midland, TX**

Old Indian Draw

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-1 0.5'	S	08.19.2020 11:10		670492-001
S-2 0.5'	S	08.19.2020 11:18		670492-002
S-3 0.5'	S	08.19.2020 11:29		670492-003
S-4 0.5'	S	08.19.2020 11:30		670492-004
S-5 0.5'	S	08.19.2020 11:35		670492-005
S-6 0.5'	S	08.19.2020 10:50		670492-006
S-7 0.5'	S	08.19.2020 11:05		670492-007
S-8 0.5'	S	08.19.2020 11:15		670492-008
S-9 0.5'	S	08.19.2020 11:20		670492-009
S-10 0.5'	S	08.19.2020 11:45		670492-010

**CASE NARRATIVE****Client Name: Larson and Associates, Inc.****Project Name: Old Indian Draw**Project ID: 20-0107-16
Work Order Number(s): 670492Report Date: 08.25.2020
Date Received: 08.20.2020**Sample receipt non conformances and comments:****Sample receipt non conformances and comments per sample:**

None

Analytical non conformances and comments:

Batch: LBA-3135268 BTEX by EPA 8021B

Lab Sample ID 670492-002 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 670492-001, -002, -003, -004, -005, -006, -007, -008, -009, -010.

The Laboratory Control Sample for m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 670492-004,670492-003,670492-001.



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-1 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-001 Date Collected: 08.19.2020 11:10
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:10 Basis: Wet Weight
 Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2270	24.8	mg/kg	08.20.2020 20:18		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	923	250	mg/kg	08.20.2020 22:28		5
Diesel Range Organics (DRO)	C10C28DRO	10800	250	mg/kg	08.20.2020 22:28		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1630	250	mg/kg	08.20.2020 22:28		5
Total TPH	PHC635	13400	250	mg/kg	08.20.2020 22:28		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-130	08.20.2020 22:28	
o-Terphenyl	84-15-1	128	%	70-130	08.20.2020 22:28	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-1 0.5'**
Lab Sample Id: 670492-001

Matrix: Soil
Date Collected: 08.19.2020 11:10

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.0401	0.0401	mg/kg	08.21.2020 13:26	U	20
Toluene	108-88-3	0.258	0.0401	mg/kg	08.21.2020 13:26		20
Ethylbenzene	100-41-4	0.366	0.0401	mg/kg	08.21.2020 13:26		20
m,p-Xylenes	179601-23-1	2.42	0.0802	mg/kg	08.21.2020 13:26		20
o-Xylene	95-47-6	1.79	0.0401	mg/kg	08.21.2020 13:26		20
Total Xylenes	1330-20-7	4.21	0.0401	mg/kg	08.21.2020 13:26		20
Total BTEX		4.83	0.0401	mg/kg	08.21.2020 13:26		20
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	70-130	08.21.2020 13:26		
4-Bromofluorobenzene	460-00-4	337	%	70-130	08.21.2020 13:26	**	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-2 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-002 Date Collected: 08.19.2020 11:18
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:10 Basis: Wet Weight
 Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4340	25.2	mg/kg	08.20.2020 20:23		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	08.20.2020 20:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	102	50.0	mg/kg	08.20.2020 20:16		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.20.2020 20:16	U	1
Total TPH	PHC635	102	50.0	mg/kg	08.20.2020 20:16		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	130	%	70-130	08.20.2020 20:16	
o-Terphenyl	84-15-1	126	%	70-130	08.20.2020 20:16	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: S-2 0.5'
Lab Sample Id: 670492-002

Matrix: Soil
Date Collected: 08.19.2020 11:18

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.21.2020 05:23	U	1
Toluene	108-88-3	0.00219	0.00199	mg/kg	08.21.2020 05:23		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.21.2020 05:23	UX	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.21.2020 05:23	UX	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.21.2020 05:23	UX	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.21.2020 05:23	U	1
Total BTEX		0.00219	0.00199	mg/kg	08.21.2020 05:23		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	08.21.2020 05:23		
1,4-Difluorobenzene	540-36-3	90	%	70-130	08.21.2020 05:23		



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-3 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-003 Date Collected: 08.19.2020 11:29
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:10 Basis: Wet Weight
 Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2360	24.9	mg/kg	08.20.2020 20:28		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	4050	250	mg/kg	08.20.2020 22:47		5
Diesel Range Organics (DRO)	C10C28DRO	24000	250	mg/kg	08.20.2020 22:47		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	2440	250	mg/kg	08.20.2020 22:47		5
Total TPH	PHC635	30500	250	mg/kg	08.20.2020 22:47		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	120	%	70-130	08.20.2020 22:47	
o-Terphenyl	84-15-1	125	%	70-130	08.20.2020 22:47	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-3 0.5'**
Lab Sample Id: 670492-003

Matrix: Soil
Date Collected: 08.19.2020 11:29

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.286	0.0398	mg/kg	08.21.2020 13:47		20
Toluene	108-88-3	6.42	0.0398	mg/kg	08.21.2020 13:47		20
Ethylbenzene	100-41-4	2.97	0.0398	mg/kg	08.21.2020 13:47		20
m,p-Xylenes	179601-23-1	8.10	0.0795	mg/kg	08.21.2020 13:47		20
o-Xylene	95-47-6	19.3	0.199	mg/kg	08.23.2020 14:31	D	100
Total Xylenes	1330-20-7	27.4	0.0795	mg/kg	08.23.2020 14:31		100
Total BTEX		37.1	0.0398	mg/kg	08.23.2020 14:31		100
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	660	%	70-130	08.21.2020 13:47	**	
1,4-Difluorobenzene	540-36-3	108	%	70-130	08.21.2020 13:47		



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-4 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-004 Date Collected: 08.19.2020 11:30
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:10 Basis: Wet Weight
 Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4470	24.9	mg/kg	08.20.2020 20:34		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	303	249	mg/kg	08.20.2020 23:06		5
Diesel Range Organics (DRO)	C10C28DRO	9860	249	mg/kg	08.20.2020 23:06		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1510	249	mg/kg	08.20.2020 23:06		5
Total TPH	PHC635	11700	249	mg/kg	08.20.2020 23:06		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-130	08.20.2020 23:06	
o-Terphenyl	84-15-1	110	%	70-130	08.20.2020 23:06	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-4 0.5'**
Lab Sample Id: 670492-004

Matrix: Soil
Date Collected: 08.19.2020 11:30

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0233	0.0198	mg/kg	08.21.2020 08:35		10
Toluene	108-88-3	0.0569	0.0198	mg/kg	08.21.2020 08:35		10
Ethylbenzene	100-41-4	0.0517	0.0198	mg/kg	08.21.2020 08:35		10
m,p-Xylenes	179601-23-1	0.707	0.0397	mg/kg	08.21.2020 08:35		10
o-Xylene	95-47-6	0.738	0.0198	mg/kg	08.21.2020 08:35		10
Total Xylenes	1330-20-7	1.45	0.0198	mg/kg	08.21.2020 08:35		10
Total BTEX		1.58	0.0198	mg/kg	08.21.2020 08:35		10
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	353	%	70-130	08.21.2020 08:35	**	
1,4-Difluorobenzene	540-36-3	83	%	70-130	08.21.2020 08:35		



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-5 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-005 Date Collected: 08.19.2020 11:35
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:10 Basis: Wet Weight
 Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.4	4.95	mg/kg	08.20.2020 20:39		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<249	249	mg/kg	08.20.2020 23:24	U	5
Diesel Range Organics (DRO)	C10C28DRO	8160	249	mg/kg	08.20.2020 23:24		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	1800	249	mg/kg	08.20.2020 23:24		5
Total TPH	PHC635	9960	249	mg/kg	08.20.2020 23:24		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-130	08.20.2020 23:24	
o-Terphenyl	84-15-1	91	%	70-130	08.20.2020 23:24	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-5 0.5'**
Lab Sample Id: 670492-005

Matrix: Soil
Date Collected: 08.19.2020 11:35

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.21.2020 05:43	U	1
Toluene	108-88-3	0.00200	0.00199	mg/kg	08.21.2020 05:43		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.21.2020 05:43	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.21.2020 05:43	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.21.2020 05:43	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.21.2020 05:43	U	1
Total BTEX		0.00200	0.00199	mg/kg	08.21.2020 05:43		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	08.21.2020 05:43		
4-Bromofluorobenzene	460-00-4	103	%	70-130	08.21.2020 05:43		



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-6 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-006 Date Collected: 08.19.2020 10:50
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:10 Basis: Wet Weight
 Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	41.0	5.03	mg/kg	08.20.2020 20:44		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	08.20.2020 20:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	08.20.2020 20:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.20.2020 20:35	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	08.20.2020 20:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	123	%	70-130	08.20.2020 20:35	
o-Terphenyl	84-15-1	124	%	70-130	08.20.2020 20:35	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-6 0.5'**
Lab Sample Id: 670492-006

Matrix: Soil
Date Collected: 08.19.2020 10:50

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.21.2020 06:04	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.21.2020 06:04	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.21.2020 06:04	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.21.2020 06:04	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.21.2020 06:04	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.21.2020 06:04	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.21.2020 06:04	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	08.21.2020 06:04		
4-Bromofluorobenzene	460-00-4	106	%	70-130	08.21.2020 06:04		



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: S-7 0.5'
Lab Sample Id: 670492-007

Matrix: Soil
Date Collected: 08.19.2020 11:05

Date Received: 08.20.2020 08:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 08.20.2020 15:10

Basis: Wet Weight

Seq Number: 3135188

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9.49	4.96	mg/kg	08.20.2020 20:49		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 08.20.2020 14:00

Basis: Wet Weight

Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	08.20.2020 20:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	08.20.2020 20:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.20.2020 20:54	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	08.20.2020 20:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-130	08.20.2020 20:54	
o-Terphenyl	84-15-1	123	%	70-130	08.20.2020 20:54	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: S-7 0.5'
Lab Sample Id: 670492-007

Matrix: Soil
Date Collected: 08.19.2020 11:05

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	08.21.2020 06:25	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	08.21.2020 06:25	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	08.21.2020 06:25	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	08.21.2020 06:25	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	08.21.2020 06:25	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	08.21.2020 06:25	U	1
Total BTEX		<0.00199	0.00199	mg/kg	08.21.2020 06:25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	102	%	70-130	08.21.2020 06:25	
1,4-Difluorobenzene	540-36-3	92	%	70-130	08.21.2020 06:25	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-8 0.5'**
Lab Sample Id: 670492-008

Matrix: Soil
Date Collected: 08.19.2020 11:15

Date Received: 08.20.2020 08:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 08.20.2020 15:30

Basis: Wet Weight

Seq Number: 3135192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.3	5.00	mg/kg	08.20.2020 21:21		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 08.20.2020 14:00

Basis: Wet Weight

Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	08.20.2020 21:13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	08.20.2020 21:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	08.20.2020 21:13	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	08.20.2020 21:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-130	08.20.2020 21:13	
o-Terphenyl	84-15-1	116	%	70-130	08.20.2020 21:13	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-8 0.5'**
Lab Sample Id: 670492-008

Matrix: Soil
Date Collected: 08.19.2020 11:15

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.21.2020 06:45	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.21.2020 06:45	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.21.2020 06:45	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	08.21.2020 06:45	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.21.2020 06:45	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.21.2020 06:45	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.21.2020 06:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	99	%	70-130	08.21.2020 06:45	
1,4-Difluorobenzene	540-36-3	92	%	70-130	08.21.2020 06:45	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-9 0.5'** Matrix: Soil Date Received: 08.20.2020 08:30
 Lab Sample Id: 670492-009 Date Collected: 08.19.2020 11:20
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 08.20.2020 15:30 Basis: Wet Weight
 Seq Number: 3135192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.3	5.00	mg/kg	08.20.2020 21:37		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 08.20.2020 14:00 Basis: Wet Weight
 Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	08.20.2020 21:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	08.20.2020 21:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	08.20.2020 21:31	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	08.20.2020 21:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	119	%	70-130	08.20.2020 21:31	
o-Terphenyl	84-15-1	117	%	70-130	08.20.2020 21:31	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-9 0.5'**
Lab Sample Id: 670492-009

Matrix: Soil
Date Collected: 08.19.2020 11:20

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	08.21.2020 07:06	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	08.21.2020 07:06	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	08.21.2020 07:06	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	08.21.2020 07:06	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	08.21.2020 07:06	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	08.21.2020 07:06	U	1
Total BTEX		<0.00198	0.00198	mg/kg	08.21.2020 07:06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	110	%	70-130	08.21.2020 07:06		
1,4-Difluorobenzene	540-36-3	96	%	70-130	08.21.2020 07:06		



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-10 0.5'**
Lab Sample Id: 670492-010

Matrix: Soil
Date Collected: 08.19.2020 11:45

Date Received: 08.20.2020 08:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 08.20.2020 15:30

Basis: Wet Weight

Seq Number: 3135192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1200	24.8	mg/kg	08.20.2020 21:42		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 08.20.2020 14:00

Basis: Wet Weight

Seq Number: 3135235

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	08.20.2020 22:09	U	1
Diesel Range Organics (DRO)	C10C28DRO	113	49.9	mg/kg	08.20.2020 22:09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	08.20.2020 22:09	U	1
Total TPH	PHC635	113	49.9	mg/kg	08.20.2020 22:09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-130	08.20.2020 22:09	
o-Terphenyl	84-15-1	117	%	70-130	08.20.2020 22:09	



Certificate of Analytical Results 670492

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-10 0.5'**
Lab Sample Id: 670492-010

Matrix: Soil
Date Collected: 08.19.2020 11:45

Date Received: 08.20.2020 08:30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 08.20.2020 16:00

Basis: Wet Weight

Seq Number: 3135268

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	08.21.2020 07:27	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	08.21.2020 07:27	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	08.21.2020 07:27	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	08.21.2020 07:27	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	08.21.2020 07:27	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	08.21.2020 07:27	U	1
Total BTEX		<0.00201	0.00201	mg/kg	08.21.2020 07:27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	116	%	70-130	08.21.2020 07:27		
1,4-Difluorobenzene	540-36-3	102	%	70-130	08.21.2020 07:27		

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Larson and Associates, Inc.
Old Indian Draw

Analytical Method: Chloride by EPA 300

Seq Number: 3135188

MB Sample Id: 7709843-1-BLK

Matrix: Solid

LCS Sample Id: 7709843-1-BKS

Prep Method: E300P

Date Prep: 08.20.2020

LCSD Sample Id: 7709843-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	248	99	247	99	90-110	0	20	mg/kg	08.20.2020 18:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3135192

MB Sample Id: 7709844-1-BLK

Matrix: Solid

LCS Sample Id: 7709844-1-BKS

Prep Method: E300P

Date Prep: 08.20.2020

LCSD Sample Id: 7709844-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	248	99	249	100	90-110	0	20	mg/kg	08.20.2020 21:11	

Analytical Method: Chloride by EPA 300

Seq Number: 3135188

Parent Sample Id: 670433-003

Matrix: Soil

MS Sample Id: 670433-003 S

Prep Method: E300P

Date Prep: 08.20.2020

MSD Sample Id: 670433-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	609	250	836	91	835	90	90-110	0	20	mg/kg	08.20.2020 18:32	

Analytical Method: Chloride by EPA 300

Seq Number: 3135188

Parent Sample Id: 670453-004

Matrix: Soil

MS Sample Id: 670453-004 S

Prep Method: E300P

Date Prep: 08.20.2020

MSD Sample Id: 670453-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	54.6	250	323	107	322	107	90-110	0	20	mg/kg	08.20.2020 19:46	

Analytical Method: Chloride by EPA 300

Seq Number: 3135192

Parent Sample Id: 670492-008

Matrix: Soil

MS Sample Id: 670492-008 S

Prep Method: E300P

Date Prep: 08.20.2020

MSD Sample Id: 670492-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.3	250	272	105	272	105	90-110	0	20	mg/kg	08.20.2020 21:26	

Analytical Method: Chloride by EPA 300

Seq Number: 3135192

Parent Sample Id: 670650-003

Matrix: Soil

MS Sample Id: 670650-003 S

Prep Method: E300P

Date Prep: 08.20.2020

MSD Sample Id: 670650-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	350	251	590	96	588	95	90-110	0	20	mg/kg	08.20.2020 22:40	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Larson and Associates, Inc.
Old Indian Draw

Analytical Method: TPH by SW8015 Mod

Seq Number: 3135235

MB Sample Id: 7709893-1-BLK

Matrix: Solid

LCS Sample Id: 7709893-1-BKS

Prep Method: SW8015P

Date Prep: 08.20.2020

LCSD Sample Id: 7709893-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1070	107	1050	105	70-130	2	20	mg/kg	08.20.2020 16:46	
Diesel Range Organics (DRO)	<50.0	1000	1120	112	1170	117	70-130	4	20	mg/kg	08.20.2020 16:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	71		73		77		70-130	%	08.20.2020 16:46
o-Terphenyl	76		73		74		70-130	%	08.20.2020 16:46

Analytical Method: TPH by SW8015 Mod

Seq Number: 3135235

Matrix: Solid

MB Sample Id: 7709893-1-BLK

Prep Method: SW8015P

Date Prep: 08.20.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.20.2020 16:27	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3135235

Matrix: Soil

Parent Sample Id: 670346-001

MS Sample Id: 670346-001 S

Prep Method: SW8015P

Date Prep: 08.20.2020

MSD Sample Id: 670346-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	961	96	970	97	70-130	1	20	mg/kg	08.20.2020 18:22	
Diesel Range Organics (DRO)	<49.9	997	1030	103	1050	105	70-130	2	20	mg/kg	08.20.2020 18:22	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	120		106		70-130	%	08.20.2020 18:22
o-Terphenyl	128		125		70-130	%	08.20.2020 18:22

Analytical Method: BTEX by EPA 8021B

Seq Number: 3135268

Matrix: Solid

MB Sample Id: 7709902-1-BLK

LCS Sample Id: 7709902-1-BKS

Prep Method: SW5035A

Date Prep: 08.20.2020

LCSD Sample Id: 7709902-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0916	92	0.0935	94	70-130	2	35	mg/kg	08.21.2020 02:53	
Toluene	<0.00200	0.100	0.0912	91	0.0940	94	70-130	3	35	mg/kg	08.21.2020 02:53	
Ethylbenzene	<0.00200	0.100	0.0845	85	0.0870	87	70-130	3	35	mg/kg	08.21.2020 02:53	
m,p-Xylenes	<0.00400	0.200	0.174	87	0.180	90	70-130	3	35	mg/kg	08.21.2020 02:53	
o-Xylene	<0.00200	0.100	0.0839	84	0.0867	87	70-130	3	35	mg/kg	08.21.2020 02:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	86		98		94		70-130	%	08.21.2020 02:53
4-Bromofluorobenzene	89		103		103		70-130	%	08.21.2020 02:53

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

[D] = 100*(C-A) / B
RPD = 200* | (C-E) / (C+E) |
[D] = 100 * (C) / [B]
Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
A = Parent Result
C = MS/LCS Result
E = MSD/LCSD Result

MS = Matrix Spike
B = Spike Added
D = MSD/LCSD % Rec

Larson and Associates, Inc.
 Old Indian Draw
Analytical Method: BTEX by EPA 8021B

Seq Number: 3135268

Parent Sample Id: 670492-002

Matrix: Soil

MS Sample Id: 670492-002 S

Prep Method: SW5035A

Date Prep: 08.20.2020

MSD Sample Id: 670492-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.0767	77	0.0773	77	70-130	1	35	mg/kg	08.21.2020 03:34	
Toluene	0.00219	0.0992	0.0722	71	0.0739	72	70-130	2	35	mg/kg	08.21.2020 03:34	
Ethylbenzene	<0.00198	0.0992	0.0630	64	0.0644	65	70-130	2	35	mg/kg	08.21.2020 03:34	X
m,p-Xylenes	<0.00397	0.198	0.0919	46	0.111	56	70-130	19	35	mg/kg	08.21.2020 03:34	X
o-Xylene	<0.00198	0.0992	0.0596	60	0.0624	63	70-130	5	35	mg/kg	08.21.2020 03:34	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		101		70-130	%	08.21.2020 03:34
4-Bromofluorobenzene	100		102		70-130	%	08.21.2020 03:34

MS/MSD Percent Recovery
 Relative Percent Difference
 LCS/LCSD Recovery
 Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Varson & Associates, Inc.
Environmental Consultants

507 N. Marientfeld, Ste. 200
Midland, TX 79701
432-687-0901

Data Reported to:

DATE: 8/19/20 PAGE 1 OF 1
PO#: 1070499 LAB WORK ORDER#: 1070499
PROJECT LOCATION OR NAME: Old Indian Dam
LAI PROJECT #: 20-007-16 COLLECTOR: DS+TJ

CHAIN-OF-CUSTODY

No 1329

TRRP report?		S=SOIL W=WATER A=AIR	P=PAINT SL=SLUDGE OT=OTHER	PRESERVATION		ANALYSES		FIELD NOTES							
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO ₃	H ₂ SO ₄ ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES		FIELD NOTES		
5-1 0.5'		8/19/20	1110	S	1				X		X	X	X		
5-2 0.5'			1118												
5-3 0.5'			1127												
5-4 0.5'			1130												
5-5 0.5'			1135												
5-6 0.5'			1050												
5-7 0.5'			1105												
5-8 0.5'			1115												
5-9 0.5'			1125												
5-10 0.5'			1145												
TOTAL 10															
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY:		RECEIVING TEMP:		CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY:		RECEIVING TEMP:		CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY:		RECEIVING TEMP:		CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED	
LABORATORY: <u>XenCo</u>		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY:		RECEIVING TEMP:		CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED	

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.20.2020 08.30.00 AM

Work Order #: 670492

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes BTEX was in bulk container
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Brianna Teel

Date: 08.20.2020

Checklist reviewed by:



Holly Taylor

Date: 08.22.2020

Certificate of Analysis Summary 676071

Larson and Associates, Inc., Midland, TX

Project Name: OID Old Indian Draw

Project Id: 20-0107-16

Contact: Mark Larson

Project Location:

Date Received in Lab: Mon 10.26.2020 08:47

Report Date: 11.03.2020 16:05

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	676071-001	676071-002	676071-003	676071-004	676071-005	676071-006
	<i>Field Id:</i>	S-1 1'	S-1 1.5'	S-2 1'	S-2 1.5'	S-3 1'	S-3 3'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.22.2020 11:48	10.22.2020 11:52	10.22.2020 14:25	10.22.2020 14:27	10.22.2020 14:40	10.22.2020 14:44
BTEX by EPA 8021B	<i>Extracted:</i>	10.27.2020 16:00		10.27.2020 16:00		10.27.2020 16:00	
	<i>Analyzed:</i>	10.28.2020 08:05		10.28.2020 02:36		10.28.2020 02:57	
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL		mg/kg RL	
Benzene		0.0699 0.0396		<0.00199 0.00199		<0.00200 0.00200	
Toluene		0.724 0.0396		<0.00199 0.00199		0.0324 0.00200	
Ethylbenzene		0.514 0.0396		<0.00199 0.00199		0.0163 0.00200	
m,p-Xylenes		2.11 0.0792		<0.00398 0.00398		0.0548 0.00400	
o-Xylene		2.10 0.0396		<0.00199 0.00199		0.0752 0.00200	
Total Xylenes		4.21 0.0396		<0.00199 0.00199		0.130 0.00200	
Total BTEX		5.52 0.0396		<0.00199 0.00199		0.179 0.00200	
Chloride by EPA 300	<i>Extracted:</i>	10.27.2020 15:00	10.27.2020 15:00	10.27.2020 15:00	10.27.2020 15:00	10.27.2020 15:00	10.27.2020 15:00
	<i>Analyzed:</i>	10.27.2020 21:50	10.27.2020 21:57	10.27.2020 22:03	10.27.2020 22:23	10.27.2020 22:30	10.27.2020 22:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3280 24.9	2520 24.9	6180 49.5	4700 25.1	8220 50.0	362 4.98
TPH by SW8015 Mod	<i>Extracted:</i>	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00
	<i>Analyzed:</i>	10.27.2020 07:46	10.27.2020 08:24	10.27.2020 08:42	10.27.2020 09:00	10.27.2020 09:19	10.27.2020 09:37
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		643 250	166 49.9	<250 250	<49.9 49.9	74.6 50.0	<50.0 50.0
Diesel Range Organics (DRO)		6910 250	1260 49.9	5190 250	<49.9 49.9	1540 50.0	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		923 250	156 49.9	925 250	<49.9 49.9	297 50.0	<50.0 50.0
Total TPH		8480 250	1580 49.9	6120 250	<49.9 49.9	1910 50.0	<50.0 50.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Certificate of Analysis Summary 676071

Larson and Associates, Inc., Midland, TX

Project Name: OID Old Indian Draw

Project Id: 20-0107-16

Contact: Mark Larson

Project Location:

Date Received in Lab: Mon 10.26.2020 08:47

Report Date: 11.03.2020 16:05

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	676071-007	676071-008	676071-009	676071-010	676071-011	676071-012
	<i>Field Id:</i>	S-4 1'	S-4 3'	S-5 1'	S-5 3'	S-10 1'	S-10 3'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	10.23.2020 10:38	10.23.2020 10:40	10.23.2020 08:58	10.23.2020 09:00	10.23.2020 10:53	10.23.2020 10:55
BTEX by EPA 8021B	<i>Extracted:</i>	10.27.2020 16:00		10.27.2020 16:00		10.27.2020 16:00	
	<i>Analyzed:</i>	10.28.2020 03:18		10.28.2020 03:39		10.28.2020 02:16	
	<i>Units/RL:</i>	mg/kg RL		mg/kg RL		mg/kg RL	
Benzene		<0.00202 0.00202		<0.00199 0.00199		<0.00200 0.00200	
Toluene		<0.00202 0.00202		<0.00199 0.00199		<0.00200 0.00200	
Ethylbenzene		<0.00202 0.00202		<0.00199 0.00199		<0.00200 0.00200	
m,p-Xylenes		<0.00403 0.00403		<0.00398 0.00398		<0.00399 0.00399	
o-Xylene		<0.00202 0.00202		<0.00199 0.00199		<0.00200 0.00200	
Total Xylenes		<0.00202 0.00202		<0.00199 0.00199		<0.00200 0.00200	
Total BTEX		<0.00202 0.00202		<0.00199 0.00199		<0.00200 0.00200	
Chloride by EPA 300	<i>Extracted:</i>	10.27.2020 15:00	11.02.2020 08:05	10.27.2020 15:00		10.27.2020 15:00	10.27.2020 15:00
	<i>Analyzed:</i>	10.27.2020 22:43	11.02.2020 09:21	10.27.2020 22:56		10.27.2020 23:22	10.27.2020 23:42
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL		mg/kg RL	mg/kg RL
Chloride		4340 25.1	41.1 5.03	11.7 4.99		943 25.2	43.5 5.03
TPH by SW8015 Mod	<i>Extracted:</i>	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 17:00	10.26.2020 14:00
	<i>Analyzed:</i>	10.27.2020 09:56	10.27.2020 10:14	10.27.2020 10:33	10.27.2020 10:52	10.27.2020 11:11	10.27.2020 11:29
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<250 250	<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0
Diesel Range Organics (DRO)		3560 250	<50.0 50.0	1090 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		735 250	<50.0 50.0	273 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0
Total TPH		4300 250	<50.0 50.0	1360 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 676071

for

Larson and Associates, Inc.

Project Manager: Mark Larson

OID Old Indian Draw

20-0107-16

11.03.2020

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-23)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



11.03.2020

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **676071**
OID Old Indian Draw
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 676071. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 676071 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Holly Taylor".

Holly Taylor
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 676071****Larson and Associates, Inc., Midland, TX**

OID Old Indian Draw

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-1 1'	S	10.22.2020 11:48		676071-001
S-1 1.5'	S	10.22.2020 11:52		676071-002
S-2 1'	S	10.22.2020 14:25		676071-003
S-2 1.5'	S	10.22.2020 14:27		676071-004
S-3 1'	S	10.22.2020 14:40		676071-005
S-3 3'	S	10.22.2020 14:44		676071-006
S-4 1'	S	10.23.2020 10:38		676071-007
S-4 3'	S	10.23.2020 10:40		676071-008
S-5 1'	S	10.23.2020 08:58		676071-009
S-5 3'	S	10.23.2020 09:00		676071-010
S-10 1'	S	10.23.2020 10:53		676071-011
S-10 3'	S	10.23.2020 10:55		676071-012

**CASE NARRATIVE****Client Name: Larson and Associates, Inc.****Project Name: OID Old Indian Draw**Project ID: 20-0107-16
Work Order Number(s): 676071Report Date: 11.03.2020
Date Received: 10.26.2020**Sample receipt non conformances and comments:**

10/29/2020 CI on sample 008 (S-4, 3') added per Robert Nelson (email). HT

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3140678 TPH by SW8015 Mod

Surrogate o-Terphenyl recovered above QC limits. Matrix interferences is suspected; data confirmed by re-analysis.

Samples affected are: 676071-007.

Batch: LBA-3140792 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.

Samples affected are: 676071-001,676071-005.

Lab Sample ID 676071-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). m,p-Xylenes recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Benzene, Ethylbenzene, Toluene, o-Xylene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 676071-001, -003, -005, -007, -009, -011.

The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-1 1'**
Lab Sample Id: 676071-001

Matrix: Soil
Date Collected: 10.22.2020 11:48

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3280	24.9	mg/kg	10.27.2020 21:50		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	643	250	mg/kg	10.27.2020 07:46		5
Diesel Range Organics (DRO)	C10C28DRO	6910	250	mg/kg	10.27.2020 07:46		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	923	250	mg/kg	10.27.2020 07:46		5
Total TPH	PHC635	8480	250	mg/kg	10.27.2020 07:46		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	128	%	70-130	10.27.2020 07:46		
o-Terphenyl	84-15-1	101	%	70-130	10.27.2020 07:46		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-1 1'**
Lab Sample Id: 676071-001

Matrix: Soil
Date Collected: 10.22.2020 11:48

Date Received: 10.26.2020 08:47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 10.27.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140792

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.0699	0.0396	mg/kg	10.28.2020 08:05		20
Toluene	108-88-3	0.724	0.0396	mg/kg	10.28.2020 08:05		20
Ethylbenzene	100-41-4	0.514	0.0396	mg/kg	10.28.2020 08:05		20
m,p-Xylenes	179601-23-1	2.11	0.0792	mg/kg	10.28.2020 08:05		20
o-Xylene	95-47-6	2.10	0.0396	mg/kg	10.28.2020 08:05		20
Total Xylenes	1330-20-7	4.21	0.0396	mg/kg	10.28.2020 08:05		20
Total BTEX		5.52	0.0396	mg/kg	10.28.2020 08:05		20
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	84	%	70-130	10.28.2020 08:05		
4-Bromofluorobenzene	460-00-4	215	%	70-130	10.28.2020 08:05	**	



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-1 1.5'
Lab Sample Id: 676071-002

Matrix: Soil
Date Collected: 10.22.2020 11:52

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	2520	24.9	mg/kg	10.27.2020 21:57		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	166	49.9	mg/kg	10.27.2020 08:24		1
Diesel Range Organics (DRO)	C10C28DRO	1260	49.9	mg/kg	10.27.2020 08:24		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	156	49.9	mg/kg	10.27.2020 08:24		1
Total TPH	PHC635	1580	49.9	mg/kg	10.27.2020 08:24		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	117	%	70-130	10.27.2020 08:24		
o-Terphenyl	84-15-1	126	%	70-130	10.27.2020 08:24		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-2 1'
Lab Sample Id: 676071-003

Matrix: Soil
Date Collected: 10.22.2020 14:25

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6180	49.5	mg/kg	10.27.2020 22:03		10

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<250	250	mg/kg	10.27.2020 08:42	U	5
Diesel Range Organics (DRO)	C10C28DRO	5190	250	mg/kg	10.27.2020 08:42		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	925	250	mg/kg	10.27.2020 08:42		5
Total TPH	PHC635	6120	250	mg/kg	10.27.2020 08:42		5
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-130	10.27.2020 08:42		
o-Terphenyl	84-15-1	97	%	70-130	10.27.2020 08:42		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-2 1'
Lab Sample Id: 676071-003

Matrix: Soil
Date Collected: 10.22.2020 14:25

Date Received: 10.26.2020 08:47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 10.27.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140792

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.28.2020 02:36	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.28.2020 02:36	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.28.2020 02:36	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.28.2020 02:36	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.28.2020 02:36	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.28.2020 02:36	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.28.2020 02:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	87	%	70-130	10.28.2020 02:36		
4-Bromofluorobenzene	460-00-4	98	%	70-130	10.28.2020 02:36		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-2 1.5'
Lab Sample Id: 676071-004

Matrix: Soil
Date Collected: 10.22.2020 14:27

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4700	25.1	mg/kg	10.27.2020 22:23		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.27.2020 09:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.27.2020 09:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.27.2020 09:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.27.2020 09:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	109	%	70-130	10.27.2020 09:00		
o-Terphenyl	84-15-1	122	%	70-130	10.27.2020 09:00		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-3 1'**
Lab Sample Id: 676071-005

Matrix: Soil
Date Collected: 10.22.2020 14:40

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	8220	50.0	mg/kg	10.27.2020 22:30		10

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	74.6	50.0	mg/kg	10.27.2020 09:19		1
Diesel Range Organics (DRO)	C10C28DRO	1540	50.0	mg/kg	10.27.2020 09:19		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	297	50.0	mg/kg	10.27.2020 09:19		1
Total TPH	PHC635	1910	50.0	mg/kg	10.27.2020 09:19		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	112	%	70-130	10.27.2020 09:19		
o-Terphenyl	84-15-1	112	%	70-130	10.27.2020 09:19		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-3 1'**
Lab Sample Id: 676071-005

Matrix: Soil
Date Collected: 10.22.2020 14:40

Date Received: 10.26.2020 08:47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 10.27.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140792

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.28.2020 02:57	U	1
Toluene	108-88-3	0.0324	0.00200	mg/kg	10.28.2020 02:57		1
Ethylbenzene	100-41-4	0.0163	0.00200	mg/kg	10.28.2020 02:57		1
m,p-Xylenes	179601-23-1	0.0548	0.00400	mg/kg	10.28.2020 02:57		1
o-Xylene	95-47-6	0.0752	0.00200	mg/kg	10.28.2020 02:57		1
Total Xylenes	1330-20-7	0.130	0.00200	mg/kg	10.28.2020 02:57		1
Total BTEX		0.179	0.00200	mg/kg	10.28.2020 02:57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	93	%	70-130	10.28.2020 02:57	
4-Bromofluorobenzene	460-00-4	155	%	70-130	10.28.2020 02:57	**



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-3 3'
Lab Sample Id: 676071-006

Matrix: Soil
Date Collected: 10.22.2020 14:44

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	362	4.98	mg/kg	10.27.2020 22:36		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.27.2020 09:37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.27.2020 09:37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.27.2020 09:37	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.27.2020 09:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-130	10.27.2020 09:37	
o-Terphenyl	84-15-1	125	%	70-130	10.27.2020 09:37	



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-4 1'**
Lab Sample Id: 676071-007

Matrix: Soil
Date Collected: 10.23.2020 10:38

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4340	25.1	mg/kg	10.27.2020 22:43		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<250	250	mg/kg	10.27.2020 09:56	U	5
Diesel Range Organics (DRO)	C10C28DRO	3560	250	mg/kg	10.27.2020 09:56		5
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	735	250	mg/kg	10.27.2020 09:56		5
Total TPH	PHC635	4300	250	mg/kg	10.27.2020 09:56		5

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-130	10.27.2020 09:56	
o-Terphenyl	84-15-1	173	%	70-130	10.27.2020 09:56	**



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-4 1'**
Lab Sample Id: 676071-007

Matrix: Soil
Date Collected: 10.23.2020 10:38

Date Received: 10.26.2020 08:47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 10.27.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140792

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	10.28.2020 03:18	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	10.28.2020 03:18	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	10.28.2020 03:18	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	10.28.2020 03:18	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	10.28.2020 03:18	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	10.28.2020 03:18	U	1
Total BTEX		<0.00202	0.00202	mg/kg	10.28.2020 03:18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	10.28.2020 03:18		
4-Bromofluorobenzene	460-00-4	107	%	70-130	10.28.2020 03:18		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-4 3'**
Lab Sample Id: 676071-008

Matrix: Soil
Date Collected: 10.23.2020 10:40

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 11.02.2020 08:05

% Moisture:
Basis: Wet Weight

Seq Number: 3141196

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	41.1	5.03	mg/kg	11.02.2020 09:21		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.27.2020 10:14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.27.2020 10:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.27.2020 10:14	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.27.2020 10:14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	104	%	70-130	10.27.2020 10:14		
o-Terphenyl	84-15-1	116	%	70-130	10.27.2020 10:14		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-5 1'
Lab Sample Id: 676071-009

Matrix: Soil
Date Collected: 10.23.2020 08:58

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.7	4.99	mg/kg	10.27.2020 22:56		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.27.2020 10:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	1090	50.0	mg/kg	10.27.2020 10:33		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	273	50.0	mg/kg	10.27.2020 10:33		1
Total TPH	PHC635	1360	50.0	mg/kg	10.27.2020 10:33		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	104	%	70-130	10.27.2020 10:33		
o-Terphenyl	84-15-1	124	%	70-130	10.27.2020 10:33		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-5 1'
Lab Sample Id: 676071-009

Matrix: Soil
Date Collected: 10.23.2020 08:58

Date Received: 10.26.2020 08:47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 10.27.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140792

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	10.28.2020 03:39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	10.28.2020 03:39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	10.28.2020 03:39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	10.28.2020 03:39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	10.28.2020 03:39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	10.28.2020 03:39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	10.28.2020 03:39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	10.28.2020 03:39		
4-Bromofluorobenzene	460-00-4	112	%	70-130	10.28.2020 03:39		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: S-5 3'
Lab Sample Id: 676071-010

Matrix: Soil
Date Collected: 10.23.2020 09:00

Date Received: 10.26.2020 08:47

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	10.27.2020 10:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	10.27.2020 10:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	10.27.2020 10:52	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	10.27.2020 10:52	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	106	%	70-130	10.27.2020 10:52		
o-Terphenyl	84-15-1	118	%	70-130	10.27.2020 10:52		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-10 1'**
Lab Sample Id: 676071-011

Matrix: Soil
Date Collected: 10.23.2020 10:53

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	943	25.2	mg/kg	10.27.2020 23:22		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140678

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.27.2020 11:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.27.2020 11:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.27.2020 11:11	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.27.2020 11:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	10.27.2020 11:11	
o-Terphenyl	84-15-1	116	%	70-130	10.27.2020 11:11	



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-10 1'**
Lab Sample Id: 676071-011

Matrix: Soil
Date Collected: 10.23.2020 10:53

Date Received: 10.26.2020 08:47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 10.27.2020 16:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140792

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	10.28.2020 02:16	UX	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	10.28.2020 02:16	UX	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	10.28.2020 02:16	UX	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	10.28.2020 02:16	UX	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	10.28.2020 02:16	UX	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	10.28.2020 02:16	U	1
Total BTEX		<0.00200	0.00200	mg/kg	10.28.2020 02:16	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	10.28.2020 02:16		
1,4-Difluorobenzene	540-36-3	87	%	70-130	10.28.2020 02:16		



Certificate of Analytical Results 676071

Larson and Associates, Inc., Midland, TX

OID Old Indian Draw

Sample Id: **S-10 3'**
Lab Sample Id: 676071-012

Matrix: Soil
Date Collected: 10.23.2020 10:55

Date Received: 10.26.2020 08:47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

Analyst: SPC

Date Prep: 10.27.2020 15:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140775

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	43.5	5.03	mg/kg	10.27.2020 23:42		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 10.26.2020 14:00

% Moisture:
Basis: Wet Weight

Seq Number: 3140676

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	10.27.2020 11:29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	10.27.2020 11:29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	10.27.2020 11:29	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	10.27.2020 11:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	111	%	70-130	10.27.2020 11:29	
o-Terphenyl	84-15-1	125	%	70-130	10.27.2020 11:29	

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Larson and Associates, Inc.
OID Old Indian Draw

Analytical Method: Chloride by EPA 300

Seq Number: 3140775

MB Sample Id: 7714042-1-BLK

Matrix: Solid

LCS Sample Id: 7714042-1-BKS

Prep Method: E300P

Date Prep: 10.27.2020

LCSD Sample Id: 7714042-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	264	106	264	106	90-110	0	20	mg/kg	10.27.2020 21:11	

Analytical Method: Chloride by EPA 300

Seq Number: 3141196

MB Sample Id: 7714301-1-BLK

Matrix: Solid

LCS Sample Id: 7714301-1-BKS

Prep Method: E300P

Date Prep: 11.02.2020

LCSD Sample Id: 7714301-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	262	105	261	104	90-110	0	20	mg/kg	11.02.2020 09:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3140775

Parent Sample Id: 676070-011

Matrix: Soil

MS Sample Id: 676070-011 S

Prep Method: E300P

Date Prep: 10.27.2020

MSD Sample Id: 676070-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2340	1260	3550	96	3550	96	90-110	0	20	mg/kg	10.27.2020 21:31	

Analytical Method: Chloride by EPA 300

Seq Number: 3140775

Parent Sample Id: 676071-009

Matrix: Soil

MS Sample Id: 676071-009 S

Prep Method: E300P

Date Prep: 10.27.2020

MSD Sample Id: 676071-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.7	250	283	109	282	108	90-110	0	20	mg/kg	10.27.2020 23:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3141196

Parent Sample Id: 676071-008

Matrix: Soil

MS Sample Id: 676071-008 S

Prep Method: E300P

Date Prep: 11.02.2020

MSD Sample Id: 676071-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	41.1	252	312	108	309	106	90-110	1	20	mg/kg	11.02.2020 09:26	

Analytical Method: Chloride by EPA 300

Seq Number: 3141196

Parent Sample Id: 676427-002

Matrix: Soil

MS Sample Id: 676427-002 S

Prep Method: E300P

Date Prep: 11.02.2020

MSD Sample Id: 676427-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	43.2	1250	1360	105	1360	105	90-110	0	20	mg/kg	11.02.2020 10:40	

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Larson and Associates, Inc.
 OID Old Indian Draw
Analytical Method: TPH by SW8015 Mod

Seq Number: 3140676

MB Sample Id: 7713952-1-BLK

Matrix: Solid

LCS Sample Id: 7713952-1-BKS

Prep Method: SW8015P

Date Prep: 10.26.2020

LCSD Sample Id: 7713952-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	868	87	879	88	70-130	1	20	mg/kg	10.26.2020 19:05	
Diesel Range Organics (DRO)	<50.0	1000	896	90	902	90	70-130	1	20	mg/kg	10.26.2020 19:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		117		122		70-130	%	10.26.2020 19:05
o-Terphenyl	97		113		119		70-130	%	10.26.2020 19:05

Analytical Method: TPH by SW8015 Mod

Seq Number: 3140678

MB Sample Id: 7713953-1-BLK

Matrix: Solid

LCS Sample Id: 7713953-1-BKS

Prep Method: SW8015P

Date Prep: 10.26.2020

LCSD Sample Id: 7713953-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	888	89	860	86	70-130	3	20	mg/kg	10.26.2020 23:26	
Diesel Range Organics (DRO)	<50.0	1000	952	95	933	93	70-130	2	20	mg/kg	10.26.2020 23:26	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		122		109		70-130	%	10.26.2020 23:26
o-Terphenyl	101		125		120		70-130	%	10.26.2020 23:26

Analytical Method: TPH by SW8015 Mod

Seq Number: 3140676

Matrix: Solid

MB Sample Id: 7713952-1-BLK

Prep Method: SW8015P

Date Prep: 10.26.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.26.2020 18:47	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3140678

Matrix: Solid

MB Sample Id: 7713953-1-BLK

Prep Method: SW8015P

Date Prep: 10.26.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	10.26.2020 23:07	

 MS/MSD Percent Recovery
 Relative Percent Difference
 LCS/LCSD Recovery
 Log Difference

 $[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

 LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

 MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Larson and Associates, Inc.
 OID Old Indian Draw
Analytical Method: TPH by SW8015 Mod

Seq Number: 3140676

Parent Sample Id: 676099-001

Matrix: Soil

MS Sample Id: 676099-001 S

Prep Method: SW8015P

Date Prep: 10.26.2020

MSD Sample Id: 676099-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	945	95	924	93	70-130	2	20	mg/kg	10.26.2020 20:01	
Diesel Range Organics (DRO)	<49.9	997	969	97	964	97	70-130	1	20	mg/kg	10.26.2020 20:01	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	119		120		70-130	%	10.26.2020 20:01
o-Terphenyl	122		121		70-130	%	10.26.2020 20:01

Analytical Method: TPH by SW8015 Mod

Seq Number: 3140678

Parent Sample Id: 676066-001

Matrix: Soil

MS Sample Id: 676066-001 S

Prep Method: SW8015P

Date Prep: 10.26.2020

MSD Sample Id: 676066-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	917	92	904	90	70-130	1	20	mg/kg	10.27.2020 00:21	
Diesel Range Organics (DRO)	<49.9	997	1010	101	985	99	70-130	3	20	mg/kg	10.27.2020 00:21	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		115		70-130	%	10.27.2020 00:21
o-Terphenyl	115		114		70-130	%	10.27.2020 00:21

Analytical Method: BTEX by EPA 8021B

Seq Number: 3140792

MB Sample Id: 7714071-1-BLK

Matrix: Solid

LCS Sample Id: 7714071-1-BKS

Prep Method: SW5035A

Date Prep: 10.27.2020

LCSD Sample Id: 7714071-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0839	84	0.0876	88	70-130	4	35	mg/kg	10.27.2020 23:44	
Toluene	<0.00200	0.100	0.0874	87	0.0925	93	70-130	6	35	mg/kg	10.27.2020 23:44	
Ethylbenzene	<0.00200	0.100	0.0978	98	0.102	102	70-130	4	35	mg/kg	10.27.2020 23:44	
m,p-Xylenes	<0.00400	0.200	0.179	90	0.185	93	70-130	3	35	mg/kg	10.27.2020 23:44	
o-Xylene	<0.00200	0.100	0.0946	95	0.0981	98	70-130	4	35	mg/kg	10.27.2020 23:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	90		102		97		70-130	%	10.27.2020 23:44
4-Bromofluorobenzene	94		108		107		70-130	%	10.27.2020 23:44

MS/MSD Percent Recovery
 Relative Percent Difference
 LCS/LCSD Recovery
 Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Larson and Associates, Inc.
 OID Old Indian Draw
Analytical Method: BTEX by EPA 8021B

Seq Number: 3140792

Parent Sample Id: 676071-011

Matrix: Soil

MS Sample Id: 676071-011 S

Prep Method: SW5035A

Date Prep: 10.27.2020

MSD Sample Id: 676071-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00198	0.0992	0.0707	71	0.0677	68	70-130	4	35	mg/kg	10.28.2020 00:26	X
Toluene	<0.00198	0.0992	0.0731	74	0.0639	64	70-130	13	35	mg/kg	10.28.2020 00:26	X
Ethylbenzene	<0.00198	0.0992	0.0751	76	0.0626	63	70-130	18	35	mg/kg	10.28.2020 00:26	X
m,p-Xylenes	<0.00397	0.198	0.133	67	0.110	56	70-130	19	35	mg/kg	10.28.2020 00:26	X
o-Xylene	<0.00198	0.0992	0.0705	71	0.0572	58	70-130	21	35	mg/kg	10.28.2020 00:26	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		99		70-130	%	10.28.2020 00:26
4-Bromofluorobenzene	112		105		70-130	%	10.28.2020 00:26

MS/MSD Percent Recovery
 Relative Percent Difference
 LCS/LCSD Recovery
 Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.**Date/ Time Received:** 10.26.2020 08.47.00 AM**Work Order #:** 676071**Acceptable Temperature Range:** 0 - 6 degC**Air and Metal samples Acceptable Range:** Ambient**Temperature Measuring device used :** IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-5.3
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes BTEX was in bulk container
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:

Brianna Teel

Date: 10.26.2020

Checklist reviewed by:

Holly Taylor

Date: 10.26.2020

Certificate of Analysis Summary 685964

Larson and Associates, Inc., Midland, TX

Project Name: Old Indian Draw

Project Id: 20-0107-16

Contact: Mark Larson

Project Location:

Date Received in Lab: Tue 01.26.2021 08:50

Report Date: 01.29.2021 13:25

Project Manager: Holly Taylor

Analysis Requested	Lab Id:	685964-001	685964-002	685964-005	685964-006		
	Field Id:	S-1 5'	S-1 10'	S- 5'	S-2 10'		
	Depth:						
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	01.25.2021 10:33	01.25.2021 10:35	01.25.2021 11:25	01.25.2021 11:30		
Chloride by EPA 300	Extracted:	01.27.2021 12:00	01.27.2021 12:00	01.27.2021 12:00	01.27.2021 12:30		
	Analyzed:	01.27.2021 14:36	01.27.2021 14:41	01.27.2021 14:46	01.27.2021 15:17		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		197 5.03	124 5.00	403 5.00	72.6 X 4.98		
TPH by SW8015 Mod	Extracted:	01.26.2021 17:00	01.26.2021 17:00				
	Analyzed:	01.27.2021 10:43	01.27.2021 11:34				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<49.9 49.9				
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9				
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9				
Total TPH		<50.0 50.0	<49.9 49.9				

BRL - Below Reporting Limit

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico



Analytical Report 685964

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Old Indian Draw

20-0107-16

01.29.2021

Collected By: Client



**1211 W. Florida Ave
Midland TX 79701**

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-38), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2020-014), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-26), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.29.2021

Project Manager: **Mark Larson**
Larson and Associates, Inc.
P. O. Box 50685
Midland, TX 79710

Reference: Eurofins Xenco, LLC Report No(s): **685964**
Old Indian Draw
Project Address:

Mark Larson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 685964. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

Unless otherwise noted in a Case Narrative, all data reported in this Analytical Report are in compliance with NELAC standards. The uncertainty of measurement associated with the results of analysis reported is available upon request. Should insufficient sample be provided to the laboratory to meet the method and NELAC Matrix Duplicate and Matrix Spike requirements, then the data will be analyzed, evaluated and reported using all other available quality control measures.

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 685964 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

We thank you for selecting Eurofins Xenco, LLC to serve your analytical needs. If you have any questions concerning this report, please feel free to contact us at any time.

Respectfully,

A handwritten signature in black ink that reads "Holly Taylor".

Holly Taylor
Project Manager

A Small Business and Minority Company

Houston - Dallas - Midland - Tampa - Phoenix - Lubbock - San Antonio - El Paso - Atlanta - New Mexico

**Sample Cross Reference 685964****Larson and Associates, Inc., Midland, TX**

Old Indian Draw

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-1 5'	S	01.25.2021 10:33		685964-001
S-1 10'	S	01.25.2021 10:35		685964-002
S- 5'	S	01.25.2021 11:25		685964-005
S-2 10'	S	01.25.2021 11:30		685964-006
S-1 15'	S	01.25.2021 10:38		Not Analyzed
S-1 20'	S	01.25.2021 10:42		Not Analyzed
S-2 15'	S	01.25.2021 11:32		Not Analyzed
S-2 20'	S	01.25.2021 11:36		Not Analyzed



CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: Old Indian Draw

Project ID: 20-0107-16
Work Order Number(s): 685964

Report Date: 01.29.2021
Date Received: 01.26.2021

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3149192 Chloride by EPA 300

Lab Sample ID 686053-005 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 685964-006.

The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 685964

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: S-1 5'
Lab Sample Id: 685964-001

Matrix: Soil
Date Collected: 01.25.2021 10:33

Date Received: 01.26.2021 08:50

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 01.27.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3149179

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	197	5.03	mg/kg	01.27.2021 14:36		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 01.26.2021 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3149102

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.27.2021 10:43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.27.2021 10:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.27.2021 10:43	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.27.2021 10:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-130	01.27.2021 10:43	
o-Terphenyl	84-15-1	121	%	70-130	01.27.2021 10:43	



Certificate of Analytical Results 685964

Larson and Associates, Inc., Midland, TX

Old Indian Draw

Sample Id: **S-1 10'**
Lab Sample Id: 685964-002

Matrix: Soil
Date Collected: 01.25.2021 10:35

Date Received: 01.26.2021 08:50

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 01.27.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3149179

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	124	5.00	mg/kg	01.27.2021 14:41		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 01.26.2021 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3149102

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.27.2021 11:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.27.2021 11:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.27.2021 11:34	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.27.2021 11:34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	98	%	70-130	01.27.2021 11:34		
o-Terphenyl	84-15-1	115	%	70-130	01.27.2021 11:34		

**Certificate of Analytical Results 685964****Larson and Associates, Inc., Midland, TX**

Old Indian Draw

Sample Id: S- 5'
Lab Sample Id: 685964-005

Matrix: Soil
Date Collected: 01.25.2021 11:25

Date Received: 01.26.2021 08:50

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 01.27.2021 12:00

% Moisture:
Basis: Wet Weight

Seq Number: 3149179

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	403	5.00	mg/kg	01.27.2021 14:46		1

**Certificate of Analytical Results 685964****Larson and Associates, Inc., Midland, TX**

Old Indian Draw

Sample Id: **S-2 10'**
Lab Sample Id: 685964-006

Matrix: Soil
Date Collected: 01.25.2021 11:30

Date Received: 01.26.2021 08:50

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 01.27.2021 12:30

% Moisture:
Basis: Wet Weight

Seq Number: 3149192

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	72.6	4.98	mg/kg	01.27.2021 15:17	X	1

Flagging Criteria

- X** In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.
- B** A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.
- D** The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
- E** The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.
- F** RPD exceeded lab control limits.
- J** The target analyte was positively identified below the quantitation limit and above the detection limit.
- U** Analyte was not detected.
- L** The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.
- H** The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.
- K** Sample analyzed outside of recommended hold time.
- JN** A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

BRL Below Reporting Limit. **ND** Not Detected.

RL Reporting Limit

MDL Method Detection Limit **SDL** Sample Detection Limit **LOD** Limit of Detection

PQL Practical Quantitation Limit **MQL** Method Quantitation Limit **LOQ** Limit of Quantitation

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

BKS/LCS Blank Spike/Laboratory Control Sample **BKSD/LCSD** Blank Spike Duplicate/Laboratory Control Sample Duplicate

MD/SD Method Duplicate/Sample Duplicate **MS** Matrix Spike **MSD:** Matrix Spike Duplicate

+ NELAC certification not offered for this compound.

* (Next to analyte name or method description) = Outside XENCO's scope of NELAC accreditation



Larson and Associates, Inc.
Old Indian Draw

Analytical Method: Chloride by EPA 300

Seq Number: 3149179

MB Sample Id: 7720119-1-BLK

Matrix: Solid

LCS Sample Id: 7720119-1-BKS

Prep Method: E300P

Date Prep: 01.27.2021

LCSD Sample Id: 7720119-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	261	104	261	104	90-110	0	20	mg/kg	01.27.2021 12:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3149192

MB Sample Id: 7720122-1-BLK

Matrix: Solid

LCS Sample Id: 7720122-1-BKS

Prep Method: E300P

Date Prep: 01.27.2021

LCSD Sample Id: 7720122-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	263	105	263	105	90-110	0	20	mg/kg	01.27.2021 15:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3149179

Parent Sample Id: 685962-003

Matrix: Soil

MS Sample Id: 685962-003 S

Prep Method: E300P

Date Prep: 01.27.2021

MSD Sample Id: 685962-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	88.2	250	346	103	346	103	90-110	0	20	mg/kg	01.27.2021 13:44	

Analytical Method: Chloride by EPA 300

Seq Number: 3149179

Parent Sample Id: 686113-001

Matrix: Soil

MS Sample Id: 686113-001 S

Prep Method: E300P

Date Prep: 01.27.2021

MSD Sample Id: 686113-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	30.3	251	290	103	290	103	90-110	0	20	mg/kg	01.27.2021 12:31	

Analytical Method: Chloride by EPA 300

Seq Number: 3149192

Parent Sample Id: 685964-006

Matrix: Soil

MS Sample Id: 685964-006 S

Prep Method: E300P

Date Prep: 01.27.2021

MSD Sample Id: 685964-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	72.6	249	357	114	342	108	90-110	4	20	mg/kg	01.27.2021 15:22	X

Analytical Method: Chloride by EPA 300

Seq Number: 3149192

Parent Sample Id: 686053-005

Matrix: Soil

MS Sample Id: 686053-005 S

Prep Method: E300P

Date Prep: 01.27.2021

MSD Sample Id: 686053-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	26.5	250	311	114	305	111	90-110	2	20	mg/kg	01.27.2021 16:35	X

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec

Larson and Associates, Inc.
Old Indian Draw
Analytical Method: TPH by SW8015 Mod

Seq Number: 3149102

MB Sample Id: 7720103-1-BLK

Matrix: Solid

LCS Sample Id: 7720103-1-BKS

Prep Method: SW8015P

Date Prep: 01.26.2021

LCSD Sample Id: 7720103-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1130	113	1140	114	70-130	1	20	mg/kg	01.27.2021 02:53	
Diesel Range Organics (DRO)	<50.0	1000	1150	115	1190	119	70-130	3	20	mg/kg	01.27.2021 02:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	110		108		112		70-130	%	01.27.2021 02:53
o-Terphenyl	124		119		124		70-130	%	01.27.2021 02:53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3149102

Matrix: Solid

MB Sample Id: 7720103-1-BLK

Prep Method: SW8015P

Date Prep: 01.26.2021

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.27.2021 02:31	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3149102

Matrix: Soil

Parent Sample Id: 685808-001

MS Sample Id: 685808-001 S

Prep Method: SW8015P

Date Prep: 01.26.2021

MSD Sample Id: 685808-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	1010	101	1100	110	70-130	9	20	mg/kg	01.27.2021 03:58	
Diesel Range Organics (DRO)	<49.9	997	973	98	1180	118	70-130	19	20	mg/kg	01.27.2021 03:58	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		111		70-130	%	01.27.2021 03:58
o-Terphenyl	96		115		70-130	%	01.27.2021 03:58

MS/MSD Percent Recovery
Relative Percent Difference
LCS/LCSD Recovery
Log Difference

$[D] = 100 * (C - A) / B$
 $RPD = 200 * |(C - E) / (C + E)|$
 $[D] = 100 * (C) / [B]$
 Log Diff. = Log(Sample Duplicate) - Log(Original Sample)

LCS = Laboratory Control Sample
 A = Parent Result
 C = MS/LCS Result
 E = MSD/LCSD Result

MS = Matrix Spike
 B = Spike Added
 D = MSD/LCSD % Rec



Environmental Consultants

507 N. Marengfeld, Ste. 200

Midland, TX 79701

432-687-0901

Data Reported to:

DATE: 1/26/2021 PAGE 1 OF 1
 PO#: LAB WORK ORDER# 1085964
 PROJECT LOCATION OR NAME: Old Indian Drive
 LAI PROJECT #: 20-0107-16 COLLECTOR: DSK

CHAIN-OF-CUSTODY

No 1410

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION		ANALYSES		TURN AROUND TIME		LABORATORY USE ONLY:	
Yes	No					HCl	HNO ₃	H ₂ SO ₄ ☐ NaOH ☐	ICE	UNPRESERVED	BTEX ☐ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	LAB WORK ORDER#
TIME ZONE:		Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers						
		S-1 S'		1/25/21	10:33	S	1				X	X	X
		S-1 10'			10:35						X	X	X
		S-1 15'			10:35						X	X	X
		S-1 20'			10:42						X	X	X
		S-2 5'			11:25						X	X	X
		S-2 10'			11:30						X	X	X
		S-2 15'			11:32						X	X	X
		S-2 20'			11:36						X	X	X
TOTAL							8						
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY:		RECEIVING TEMP: <u>-3.2</u> THERM# <u>128</u>	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		NORMAL ☒ 1 DAY ☐ 2 DAY ☐ OTHER ☐		CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED		CARRIER BILL #	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		HAND DELIVERED		CARRIER BILL #		HAND DELIVERED	

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 01.26.2021 08.50.00 AM

Work Order #: 685964

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-3.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	N/A
#18 Water VOC samples have zero headspace?	N/A

*** Must be completed for after-hours delivery of samples prior to placing in the refrigerator**

Analyst:

PH Device/Lot#:

Checklist completed by:



Brianna Teel

Date: 01.26.2021

Checklist reviewed by:



Holly Taylor

Date: 01.28.2021

Appendix D

Photographs

Tracking Number: nRM202935007
Delineation Report and Remediation Plan
Chevron USA, Inc., Old Indian Draw
Produced Water & Crude Oil Release
March 15, 2021



View of location sign, August 19, 2020



Impacted area viewing North, August 19, 2020

Tracking Number: nRM202935007
Delineation Report and Remediation Plan
Chevron USA, Inc., Old Indian Draw
Produced Water & Crude Oil Release
March 15, 2021



Impacted area viewing East, August 19, 2020



Impacted area viewing North, August 19, 2020

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720

District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720

District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170

District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS

Action 22286

CONDITIONS

Operator: CHEVRON U S A INC 6301 Deauville Blvd Midland, TX 79706	OGRID:	4323
	Action Number:	22286
	Action Type:	[C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
ceads	None	7/7/2021