

Incident ID	nRM2011949780
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?	<u>126</u> (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.

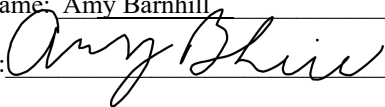
State of New Mexico
Oil Conservation Division

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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: Lead Environmental Specialist

Signature:  Date: 11-3-21

email: ABarnhill@chevron.com Telephone: 432-687-7108

OCD Only

Received by: _____ Date: _____

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Remediation Plan

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

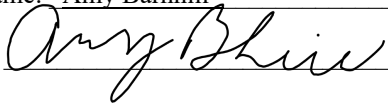
- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note 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: Lead Environmental Specialist

Signature:  Date: 11-3-21

email: ABarnhill@chevron.com Telephone: 432-687-7108

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Incident ID	nRM2011949780
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Application ID	

Closure

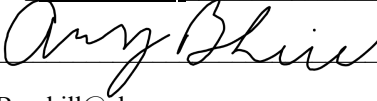
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled site map, sampling diagrams, relevant field notes, photographs of any excavation prior to backfilling, laboratory data including chain of custody documents of final sampling, and a narrative of the remedial activities. Refer to 19.15.29.12 NMAC.

Closure Report Attachment Checklist: *Each of the following items must be included in the closure report.*

- ☒ A scaled site and sampling diagram as described in 19.15.29.11 NMAC
- ☒ Photographs of the remediated site prior to backfill or photos of the liner integrity if applicable (Note: appropriate OCD District office must be notified 2 days prior to liner inspection)
- ☒ Laboratory analyses of final sampling (Note: appropriate ODC District office must be notified 2 days prior to final sampling)
- ☒ Description of remediation activities

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations. The responsible party acknowledges they must substantially restore, reclaim, and re-vegetate the impacted surface area to the conditions that existed prior to the release or their final land use in accordance with 19.15.29.13 NMAC including notification to the OCD when reclamation and re-vegetation are complete.

Printed Name: Amy Barnhill Title: Lead Environmental Specialist

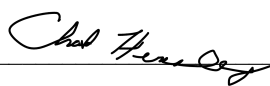
Signature:  Date: 11-3-21

email: ABarnhill@chevron.com Telephone: 432-687-7108

OCD Only

Received by: Chad Hensley Date: 12/06/2021

Closure approval by the OCD does not relieve the responsible party of liability should their operations have failed to adequately investigate and remediate contamination that poses a threat to groundwater, surface water, human health, or the environment nor does not relieve the responsible party of compliance with any other federal, state, or local laws and/or regulations.

Closure Approved by:  Date: 12/06/2021

Printed Name: Chad Hensley Title: Environmental Specialist Advanced

Tracking Number: nRM2011949780
Closure Report
Vacuum Glorieta West Unit #041
Produced Water Release
Lea County, New Mexico

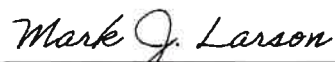
Latitude: N 32.802536°
Longitude: W -103.5108736°

LAI Project No. 20-0107-12

October 22, 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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Figure 2	Aerial Map Showing Sample Locations
Figure 3	Aerial Map Showing Confirmation Sample and Excavation Locations

Appendices

Appendix A	Initial C-141
Appendix B	NMOCD Communications
Appendix C	Laboratory Reports
Appendix D	Photographs

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2020

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI), has prepared this closure report on behalf of Chevron USA Inc. (Chevron) for submittal to the New Mexico Oil Conservation Division (OCD) District I for a produced water release at the Vacuum Glorieta West Unit #041 (Site) located in Unit J (NW/4, SE/4), Section 25, Township 17 South, Range 34 East, in Lea County, New Mexico. The geodetic position is North 32.802536° and West - 103.510736°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release was discovered on March 1, 2020, due to equipment failure. Chevron reported that approximately 73.32 barrels (bbls) of produced water was released. Approximately 60 bbls of produced water were recovered. The affected area measures approximately 6,131 square feet. The initial C-141 was assigned an incident number of nRM2011949780. Appendix A presents the initial C-141.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately feet above mean sea level (msl).
- The surface topography slopes gradually to the southwest.
- There are no surface water features within 1,000 feet of the Site.
- Karst data provided by the USGS describes this site as “Low Risk” potential.
- The soils are designated as “Kimbrough gravelly loam”, dry, 0 to 3 percent slopes, consisting of 3 inches of gravelly loam, underlain by 7 inches of loam, and 70 inches of cemented material, in descending order.
- The surface geology consists of the Pliocene-age sand, silt, clay, gravel, and caliche (USGS).
- Groundwater was reported at approximately 126 feet below ground surface (bgs) in 2016.
- The New Mexico Office of the State Engineer (OSE) reports the nearest fresh water well is in Section 36, Township 17 South, Range 34 East, approximately 0.46 miles or 2,430 feet southeast of the Site.

1.3 Remediation 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 20,000 mg/Kg

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.

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2020

2.0 DELINEATION

The release was fully delineated between May 8, 2020, and July 22, 2020. The delineation was reported to the NMOCD in the document titled "Tracking Number: nRM2011949780, Delineation Report and Remediation Plan, Vacuum Glorieta West Unit #041 Produced Water Release, Lea County, New Mexico, December 22, 2020" and recommended the following remediation:

- Excavate soil from an area measuring approximately 2,055 square feet encompassing sample location S-4 to approximately 1-foot bgs.
- Excavate soil from an area measuring approximately 1,311 square feet encompassing sample locations S-6 and S-9 to approximately 4.1 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 clean caliche assuming achievement of OCD remediation levels; and
- Prepare closure report with photographs for submittal to OCD District I.

NMOCD approved the remediation plan on April 9, 2021. Table 1 presents the delineation soil sample analytical data summary. Appendix B presents NMOCD communications.

3.0 REMEDIATION

Between July 19 and August 24, 2021, Rocky Peak Inc. (Rocky Peak), under supervision from LAI, excavated soil encompassing sample location S-4 to a depth of approximately 1-foot bgs over an area measuring approximately 2,055 square feet. Additional soil encompassing sample locations S-6 and S-9 was excavated to a depth of approximately 4.1 feet bgs over an area measuring approximately 1,311 square feet. Contaminated soil was stockpiled on a liner adjacent to the excavation and subsequently transported to the R360 Halfway Facility located between Hobbs and Carlsbad, New Mexico.

Between July 20 and 22, 2021, LAI personnel collected nineteen (19) confirmation soil samples from the bottom and sidewalls of the excavation. The soil samples were delivered under chain of custody and preservation to the Eurofins-Xenco Laboratories (Xenco) in Midland, Texas. The laboratory analyzed the samples for BTEX, TPH, and chloride by EPA SW-846 Methods 8021B, 8015M, and 300.0E, respectively. Benzene, BTEX, and TPH reported below the NMOCD remediation standards in all confirmation composite soil samples. Chloride reported above the NMOCD remediation standard of 600 mg/Kg in the following samples:

Sample ID	Location	Depth (Feet)	Chloride (mg/Kg)
C-4	Bottom	1	1,730
C-10	Bottom	1	1,950
C-18	Sidewall	0 – 4.1	2,420

On August 4, 2021, Rocky Peak excavated an additional one (1) foot from the bottom of the excavation encompassing sample locations C-4 and C-10 and an additional one (1) foot from the sidewall encompassing sample location C-18. Laboratory analysis reported chloride above the NMOCD remediation standard in the sample C-18 at 679 mg/Kg. On August 24, 2021, Rocky Peak excavated an additional one (1) foot from the sidewall encompassing sample location C-18. Subsequent laboratory

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2020

analysis reported benzene, BTEX, TPH, and chloride below the NMOCD remediation standards in all confirmation soil samples listed in Table 1 of 19.15.29 NMAC.

On October 15 and 18, 2021 Rocky Peak backfilled the excavation with clean caliche. LAI personnel collected four (4) composite samples (BF-1 through BF-4) of clean caliche from a nearby landowner's, Pierce Family Trust, burrow pit, located approximately 1.20 miles northwest of the Site. Xenco analyzed the samples for benzene, BTEX, TPH, and chloride. Benzene, BTEX, and TPH were below the analytical method reporting limits (RLs) and chloride was less than 600 mg/Kg. Figure 3 presents the soil excavation areas and confirmation sample locations. Table 2 presents the confirmation and backfill sample analytical data summary. Appendix C presents the laboratory reports. Appendix D presents photographs.

4.0 CLOSURE REQUEST

Chevron requests no further action for this release.

Tables

Table 1
Soil Sample Analytical Data Summary
Vacuum Glorieta West Unit #041
Lea County, New Mexico
North 32° 48' 09.13", West 103° 30' 38.65"

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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:						1050100 / 2,500600 / 10,000				
S-1	0.5	5/8/2020	In-Situ	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	136.0
S-2	0.5	5/8/2020	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	93.1
	1	5/8/2020	In-Situ	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	91.9
S-3	0.5	5/8/2020	In-Situ	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	16.6
	1	5/8/2020	In-Situ	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	16.3
S-4	0.5	5/8/2020	In-Situ	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	645
	1	5/8/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	1,300
	1	6/22/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	38.7
	3	6/22/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	14.0
S-5	0.5	5/8/2020	In-Situ	<0.00198	<0.00198	<49.9	76.6	<49.9	76.6	11.6
	1	5/8/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	13.3
S-6 BH-1 (S-6)	0.5	5/8/2020	In-Situ	<0.00199	<0.00199	<50.0	57.1	<50.0	57.1	6,310
	1	5/8/2020	In-Situ	<0.00202	<0.00202	<50.0	74.7	<50.0	74.7	6,690
	1	6/22/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	9,140
	3	6/22/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	3,520
	5	7/22/2020	In-Situ	<0.00198	0.00198	<50.0	<50.0	<50.0	<50.0	3,230
	10	7/22/2020	In-Situ	--	--	--	--	--	--	3,640
	15	7/22/2020	In-Situ	--	--	--	--	--	--	740
	20	7/22/2020	In-Situ	--	--	--	--	--	--	910
	25	7/22/2020	In-Situ	--	--	--	--	--	--	97.3

Table 1
Soil Sample Analytical Data Summary
Vacuum Glorieta West Unit #041
Lea County, New Mexico
North 32° 48' 09.13", West 103° 30' 38.65"

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	5/8/2020	In-Situ	<0.00200	0.00397	<49.9	<49.9	<49.9	<49.9	70.2
S-8	0.5	5/8/2020	In-Situ	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	22.7
	1	5/8/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	34.5
S-9 BH-2 (S-9)	0.5	6/22/2020	In-Situ	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	1,630
	1	6/22/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	1,920
	3	6/22/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	1,610
	5	7/22/2020	In-Situ	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	386
	10	7/22/2020	In-Situ	--	--	--	--	--	--	332
	15	7/22/2020	In-Situ	--	--	--	--	--	--	154
	20	7/22/2020	In-Situ	--	--	--	--	--	--	49.0
S-10	0.5	7/23/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	25.0
	1	7/23/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	12.9

Notes: Analysis performed by Xenco Laboratories (Xenco) Midland, Texas, by EPA SW-846 8021B (BTEX), 8015M (TPH), and 300E (chloride)

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

Table 2

Confirmation Soil Sample Analytical Data Summary
Chevron USA, Vacuum Glorietta West Unit #041
Lea County, New Mexico
North 32°48'09.13", West 103°30'38.65"

Sample ID	Location	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)
RAL:					10	50	100/2,500				600/10,000
C-1	Bottom	1	7/20/2021	In-Situ	<0.00200	0.02210	<49.7	97.4	<49.7	97.4	22.4
C-2	Bottom	1	7/20/2021	In-Situ	<0.00198	<0.00396	<49.9	<49.9	<49.9	<49.9	20.5
C-3	Bottom	1	7/20/2021	In-Situ	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	77.5
C-4	Bottom	1	7/20/2021	In-Situ	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	151.0
C-5	Bottom	1	7/20/2021	Excavated	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	1,730
		2	8/4/2021	In-Situ	<0.00198	<0.00396	<50.0	<50.0	<50.0	<50.0	286
C-6	Bottom	1	7/20/2021	In-Situ	<0.00199	<0.00398	<50.0	<50.0	<50.0	<50.0	464
C-7	Bottom	1	7/20/2021	In-Situ	<0.00198	<0.00397	<50.0	<50.0	<50.0	<50.0	150
C-8	Bottom	1	7/20/2021	In-Situ	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	124
C-9	Bottom	1	7/20/2021	In-Situ	<0.00202	<0.00403	<49.9	216	<49.9	<49.9	168
C-10	Bottom	1	7/20/2021	Excavated	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	1,950
		2	8/4/2021	In-Situ	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	124
C-11	Side Wall	0-1	7/20/2021	In-Situ	<0.00200	<0.00399	<50.0	<50.0	<50.0	<50.0	215
C-12	Side Wall	0-1	7/20/2021	In-Situ	<0.00200	<0.00401	<49.9	<49.9	<49.9	<49.9	27.3
C-13	Bottom	4.1	7/22/2021	In-Situ	<0.00198	<0.00396	<50.0	<50.0	<50.0	<50.0	3,340
C-14	Bottom	4.1	7/22/2021	In-Situ	<0.0201	<0.00402	<50.0	<50.0	<50.0	<50.0	3,240
C-15	Bottom	4.1	7/22/2021	In-Situ	<0.00199	<0.00398	<49.9	<49.9	<49.9	<49.9	2,240
C-16	Bottom	4.1	7/22/2021	In-Situ	<0.00200	<0.00400	<50.0	<50.0	<50.0	<50.0	963
C-17	Bottom	4.1	7/22/2021	In-Situ	<0.00200	<0.00399	<49.9	<49.9	<49.9	<49.9	1,690
C-18	Side Wall	0-4.1	7/22/2021	Excavated	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	2,420
			8/4/2021	Excavated	<0.00198	<0.00397	<50.0	<50.0	<50.0	<50.0	679
			8/24/2021	In-Situ	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	12.3
C-19	Side Wall	0-4.1	7/22/2021	In-Situ	<0.00201	<0.00402	<50.0	<50.0	<50.0	<50.0	436
Backfill-1	--	--	9/10/2021	In-Situ	<0.00200	<0.00401	<50.0	<50.0	<50.0	<50.0	22.3
Backfill-2	--	--	9/10/2021	In-Situ	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	90.6
Backfill-3	--	--	9/10/2021	In-Situ	<0.00200	<0.00399	<49.8	<49.8	<49.8	<49.8	26.9
Backfill-4	--	--	9/10/2021	In-Situ	<0.00200	<0.00400	<49.9	<49.9	<49.9	<49.9	68.3

Table 2
Confirmation Soil Sample Analytical Data Summary
Chevron USA, Vacuum Glorietta West Unit #041
Lea County, New Mexico
North 32°48'09.13", West 103°30'38.65"

Notes: analysis performed by Xenco Laboratories (Xenco), Midland, Texas by EPA SW-846 Methods 8021B (BTEX) and 8015M (TPH), and Method 300 (chloride)

Depth in feet below ground surface (bgs)

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

Bold and Highlighted Denotes Conetrations Above OCD Closure Criteria

Figures

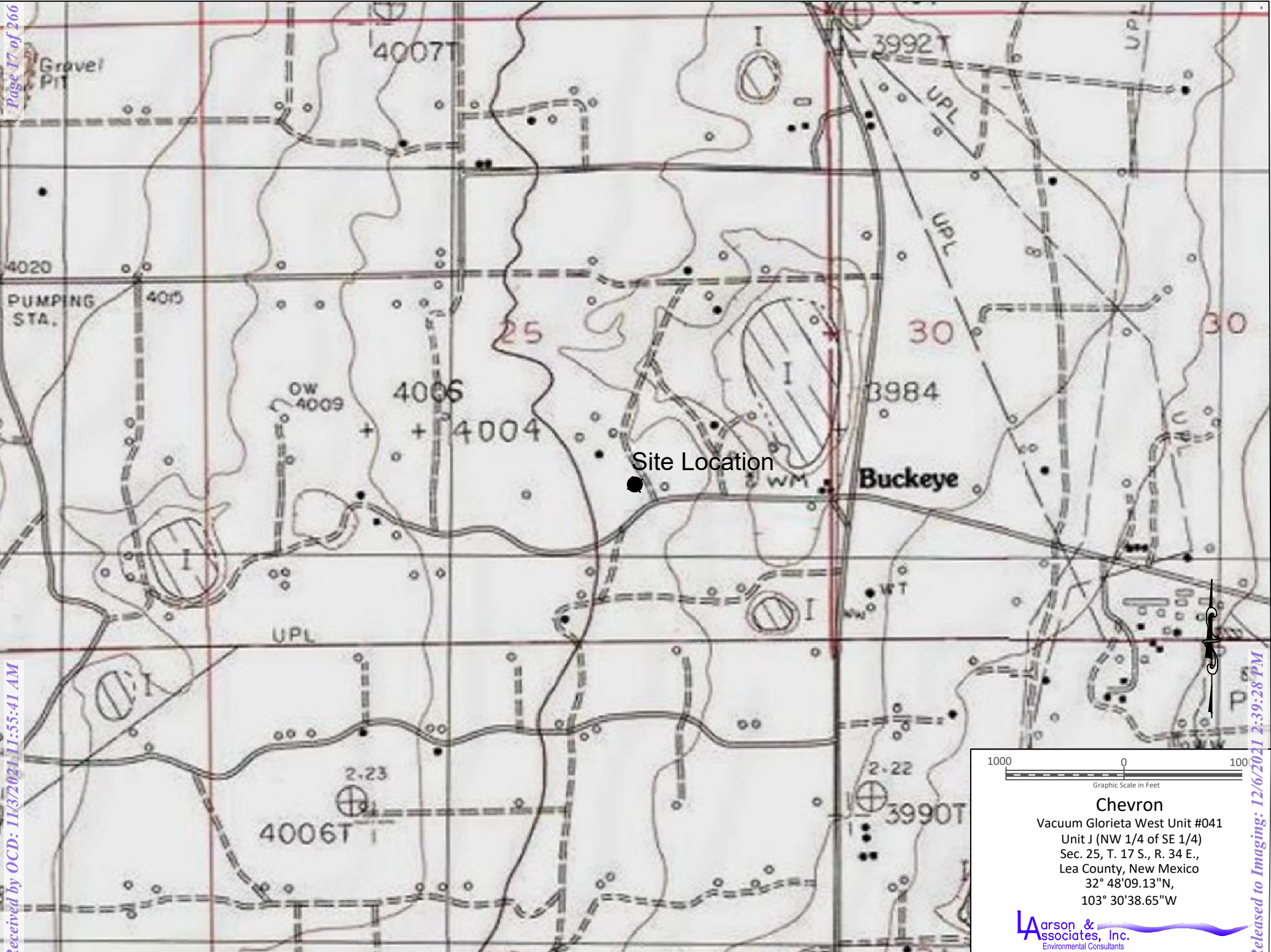


Figure 1 - Topographic Map

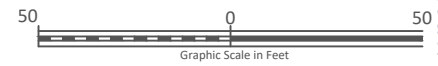
Chevron
Vacuum Glorieta West Unit #041
Unit J (NW 1/4 of SE 1/4)
Sec. 25, T. 17 S., R. 34 E.,
Lea County, New Mexico
32° 48'09.13"N,
103° 30'38.65"W

Larson & Associates, Inc.
Environmental Consultants



Legend

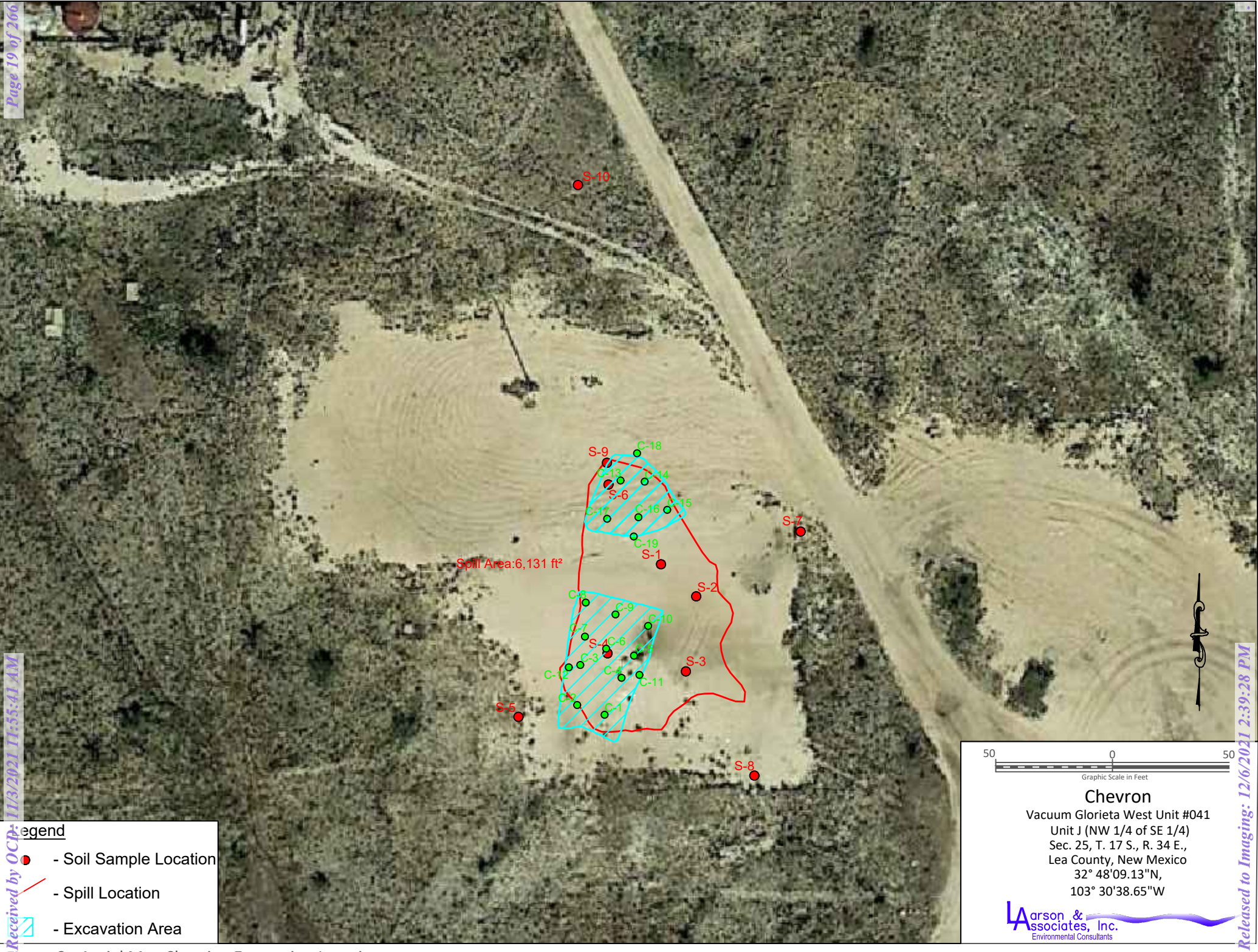
- - Soil Sample Location
- - Spill Location



Chevron
Vacuum Glorieta West Unit #041
Unit J (NW 1/4 of SE 1/4)
Sec. 25, T. 17 S., R. 34 E.,
Lea County, New Mexico
32° 48'09.13"N,
103° 30'38.65"W

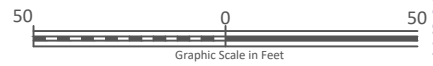


Figure 2 - Aerial Map



Legend

- - Soil Sample Location
- - Spill Location
- ▭ - Excavation Area



Chevron
Vacuum Glorieta West Unit #041
Unit J (NW 1/4 of SE 1/4)
Sec. 25, T. 17 S., R. 34 E.,
Lea County, New Mexico
32° 48'09.13"N,
103° 30'38.65"W



Figure 3 - Aerial Map Showing Excavation Locations

Appendix A

Initial C-141

District I
1625 N. French Dr., Hobbs, NM 88240
District II
811 S. First St., Artesia, NM 88210
District III
1000 Rio Brazos Road, Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Chevron USA Inc.	OGRID: 4323
Contact Name: Josepha DeLeon	Contact Telephone: 575-263-0424
Contact email: jdx@chevron.com	Incident # (assigned by OCD):
Contact mailing address: 1616 E. Bender Blvd., Hobbs, NM 88240	

Location of Release Source

Latitude 32.8025665 Longitude: -103.5108795
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Vacuum Glorieta West Unit #041	Site Type: Injection
Date Release Discovered: 03/01/2020	API# (if applicable): 30-025-42638

Unit Letter	Section	Township	Range	County
J	25	17S	34E	Lea

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

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls):	Volume Recovered (bbls):
☒ Produced Water	Volume Released (bbls): 73.32 barrels	Volume Recovered (bbls): 60 barrels
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	☐ Yes ☐ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release:

½" nipple failure on injection line.

Incident ID	
District RP	
Facility ID	
Application ID	

Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? Exceeded 25 barrel release.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? By Josepha DeLeon, to 'EMNRD-OCD-District1spills@state.nm.us'; via email on 04/14/2020 at 03:52 PM	

Initial Response

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

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why: 	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Signature: 	Date: <u>April 24, 2020</u>
Printed Name: <u>Josepha DeLeon</u>	Title: <u>Environmental Compliance Specialist</u>
email: <u>jdx@chevron.com</u>	Telephone: <u>575-263-0424</u>
<u>OCD Only</u> Received by: _____ Date: _____	

State of New Mexico
Oil Conservation Division

Page 3

Incident ID	
District RP	
Facility ID	
Application ID	

Incident Date		4/14/2020			
Incident Time		Start Time		End Time	
		6:00 AM		12:30 PM	
Location		VGWU 41			
All volumes in following table in barrels					
Area	Standing Liquid	In Soil	dimensions / shape	Oil Volume	Water Volume
1	35	5.29	132X36	0	40.29
2	15	2.26	45X45	0	17.26
3	12	1.8	90X18	0	13.8
4		1.97	42X42	0	1.97
5					
6					
7					
8					
Total Fluid				0	73.32
Fluid Recovered in barrels					
Oil Volume			Water Volume		
0			60		

Appendix B
NMOCD Communications

From: [Barnhill, Amy D.](#)
To: [Robert Nelson](#)
Subject: The Oil Conservation Division (OCD) has approved the application, Application ID: 14357 (nRM2011949780)
Date: Monday, April 12, 2021 4:20:54 PM

The VGWU #41 Workplan has been approved.

From: OCDOnline@state.nm.us <OCDOnline@state.nm.us>
Sent: Friday, April 9, 2021 9:32 AM
To: Barnhill, Amy D. <ABarnhill@chevron.com>
Subject: **[**EXTERNAL**]** The Oil Conservation Division (OCD) has approved the application, Application ID: 14357

To whom it may concern (c/o Amy Barnhill for CHEVRON U S A INC),

The OCD has approved the submitted *Application for administrative approval of a release notification and corrective action* (C-141), for incident ID (n#) nRM2011949780, with the following conditions:

- **None**

The signed C-141 can be found in the OCD Online: Imaging under the incident ID (n#).

If you have any questions regarding this application, please contact me.

Thank you,
Cristina Eads
Environmental Scientist and Specialist
505-670-5601
Cristina.Eads@state.nm.us

New Mexico Energy, Minerals and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, NM 87505

From: [Robert Nelson](#)
To: robert.hamlet@state.nm.us; victoria.venegas@state.nm.us
Cc: [Barnhill, Amy D.](#); [Mark Larson](#)
Subject: Vacuum Glorietta West Unit #041 (nRM2011949780) Excavation Backfill Notice
Date: Wednesday, October 6, 2021 5:00:00 PM
Attachments: [image001.png](#)
[Table 2 Confirmation Soil Sample Analytical Data Summary.pdf](#)
[Figure 3 - Aerial Map Showing Excavation Locations.pdf](#)

Hello Mr. Hamlet and Ms. Venegas,

Larson & Associates, Inc. (LAI), on behalf of Chevron USA, submits the attached confirmation (post remediation) laboratory analytical data and sample location map to the New Mexico Oil Conservation Division (OCD) District I to provide two (2) business days notification prior to backfilling the excavation at the Vacuum Glorietta West Unit #041 (nRM2011949780) in Eddy County, New Mexico. Please feel free to contact Amy Barnhill with Chevron at (432) 687-7108 or ABarnhill@chevron.com, Mark Larson (432) 556-8656 or mark@laenvironmental.com, or me with any questions or concerns.

Thank you,

Robert Nelson
Sr. Geologist
Office – 432-687-0901
Cell – 432-664-4804
rnelson@laenvironmental.com



Appendix C
Laboratory Reports



Certificate of Analysis Summary 661118

Larson and Associates, Inc., Midland, TX

Project Name: Chevron-Vacuum Glonietha #041

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Mon 05.11.2020 11:21

Report Date: 05.18.2020 12:46

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	661118-001	661118-002	661118-003	661118-004	661118-005	661118-006
	<i>Field Id:</i>	S-1 (0.5')	S-2 (0.5')	S-2 (1')	S-3 (0.5')	S-3 (1')	S-4 (0.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.08.2020 12:26	05.08.2020 12:28	05.08.2020 12:29	05.08.2020 12:30	05.08.2020 12:31	05.08.2020 12:08
BTEX by EPA 8021B	<i>Extracted:</i>	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00
	<i>Analyzed:</i>	05.13.2020 10:08	05.13.2020 10:28	05.13.2020 10:48	05.13.2020 11:08	05.13.2020 11:28	05.13.2020 11:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Toluene		<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Ethylbenzene		<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
m,p-Xylenes		<0.00403 0.00403	<0.00402 0.00402	<0.00398 0.00398	<0.00397 0.00397	<0.00396 0.00396	<0.00398 0.00398
o-Xylene		<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Total Xylenes		<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Total BTEX		<0.00202 0.00202	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00198 0.00198	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30
	<i>Analyzed:</i>	05.12.2020 09:23	05.12.2020 10:10	05.12.2020 10:15	05.12.2020 10:21	05.12.2020 10:26	05.12.2020 10:31
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		136 5.04	93.1 5.00	91.9 5.00	16.6 5.05	16.3 4.96	645 4.98
TPH by SW8015 Mod	<i>Extracted:</i>	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00
	<i>Analyzed:</i>	05.11.2020 19:08	05.11.2020 20:13	05.11.2020 20:34	05.11.2020 20:55	05.11.2020 21:17	05.11.2020 21:38
	<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)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	<49.8 49.8
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	<49.8 49.8
Total TPH		<50.0 50.0	<49.9 49.9	<49.8 49.8	<50.0 50.0	<49.9 49.9	<49.8 49.8

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Holly Taylor
Project Manager



Certificate of Analysis Summary 661118

Larson and Associates, Inc., Midland, TX

Project Name: Chevron-Vacuum Glonietha #041

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Mon 05.11.2020 11:21

Report Date: 05.18.2020 12:46

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	661118-007	661118-008	661118-009	661118-010	661118-011	661118-012
	<i>Field Id:</i>	S-4 (1')	S-5 (0.5')	S-5 (1')	S-6 (0.5')	S-6 (1')	S-7 (0.5')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	05.08.2020 12:11	05.08.2020 12:15	05.08.2020 12:20	05.08.2020 12:22	05.08.2020 12:23	05.08.2020 12:25
BTEX by EPA 8021B	<i>Extracted:</i>	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00	05.12.2020 08:00
	<i>Analyzed:</i>	05.13.2020 12:09	05.13.2020 12:29	05.13.2020 13:49	05.13.2020 14:10	05.13.2020 14:30	05.13.2020 14:50
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	0.00397 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
m,p-Xylenes		<0.00399 0.00399	<0.00397 0.00397	<0.00399 0.00399	<0.00398 0.00398	<0.00403 0.00403	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00198 0.00198	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	0.00397 0.00200
Chloride by EPA 300	<i>Extracted:</i>	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30	05.11.2020 14:30
	<i>Analyzed:</i>	05.12.2020 10:52	05.12.2020 10:36	05.12.2020 10:57	05.12.2020 11:19	05.12.2020 11:24	05.12.2020 11:29
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		1300 25.2	11.6 5.00	13.3 4.95	6310 248	6690 99.6	70.2 5.00
TPH by SW8015 Mod	<i>Extracted:</i>	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00	05.11.2020 16:00
	<i>Analyzed:</i>	05.11.2020 21:59	05.12.2020 07:00	05.12.2020 07:21	05.12.2020 07:49	05.12.2020 08:30	05.12.2020 08:51
	<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)		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9
Diesel Range Organics (DRO)		<50.0 50.0	76.6 49.9	<49.9 49.9	57.1 50.0	74.7 50.0	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9
Total TPH		<50.0 50.0	76.6 49.9	<49.9 49.9	57.1 50.0	74.7 50.0	<49.9 49.9

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

Holly Taylor
Project Manager



Certificate of Analysis Summary 661118

Larson and Associates, Inc., Midland, TX

Project Name: Chevron-Vacuum Glonietha #041

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Mon 05.11.2020 11:21

Report Date: 05.18.2020 12:46

Project Manager: Holly Taylor

Analysis Requested	Lab Id:	661118-013	661118-014				
	Field Id:	S-8 (0.5')	S-8 (1')				
	Depth:						
	Matrix:	SOIL	SOIL				
	Sampled:	05.08.2020 12:25	05.08.2020 12:28				
BTEX by EPA 8021B	Extracted:	05.13.2020 14:00	05.13.2020 14:00				
	Analyzed:	05.13.2020 18:12	05.13.2020 18:32				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00199 0.00199	<0.00200 0.00200				
Toluene		<0.00199 0.00199	<0.00200 0.00200				
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200				
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399				
o-Xylene		<0.00199 0.00199	<0.00200 0.00200				
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200				
Total BTEX		<0.00199 0.00199	<0.00200 0.00200				
Chloride by EPA 300	Extracted:	05.11.2020 14:30	05.11.2020 14:30				
	Analyzed:	05.12.2020 11:34	05.12.2020 11:40				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		22.7 4.99	34.5 5.02				
TPH by SW8015 Mod	Extracted:	05.11.2020 16:00	05.11.2020 16:00				
	Analyzed:	05.12.2020 09:12	05.12.2020 09:33				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<50.0 50.0				
Diesel Range Organics (DRO)		<49.8 49.8	<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8	<50.0 50.0				
Total TPH		<49.8 49.8	<50.0 50.0				

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Holly Taylor
Project Manager



Analytical Report 661118

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Chevron-Vacuum Glonietha #041

20-0107-12

05.18.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-32), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-23), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-19-5)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



05.18.2020

Project Manager: **Mark Larson**

Larson and Associates, Inc.

P. O. Box 50685

Midland, TX 79710

Reference: XENCO Report No(s): **661118**

Chevron-Vacuum Glonietha #041

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 XENCO Report Number(s) 661118. 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 XENCO Laboratories. 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. 661118 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 XENCO Laboratories 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'. The signature is written in a cursive, flowing style.

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 661118****Larson and Associates, Inc., Midland, TX**

Chevron-Vacuum Glonietha #041

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-1 (0.5')	S	05.08.2020 12:26		661118-001
S-2 (0.5')	S	05.08.2020 12:28		661118-002
S-2 (1')	S	05.08.2020 12:29		661118-003
S-3 (0.5')	S	05.08.2020 12:30		661118-004
S-3 (1')	S	05.08.2020 12:31		661118-005
S-4 (0.5')	S	05.08.2020 12:08		661118-006
S-4 (1')	S	05.08.2020 12:11		661118-007
S-5 (0.5')	S	05.08.2020 12:15		661118-008
S-5 (1')	S	05.08.2020 12:20		661118-009
S-6 (0.5')	S	05.08.2020 12:22		661118-010
S-6 (1')	S	05.08.2020 12:23		661118-011
S-7 (0.5')	S	05.08.2020 12:25		661118-012
S-8 (0.5')	S	05.08.2020 12:25		661118-013
S-8 (1')	S	05.08.2020 12:28		661118-014



CASE NARRATIVE

Client Name: *Larson and Associates, Inc.*

Project Name: *Chevron-Vacuum Glonietha #041*

Project ID: 20-0107-12
Work Order Number(s): 661118

Report Date: 05.18.2020
Date Received: 05.11.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3125822 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Samples affected are: 7703250-1-BLK.



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-1 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-001

Date Collected: 05.08.2020 12:26

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	136	5.04	mg/kg	05.12.2020 09:23		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.11.2020 19:08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.11.2020 19:08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.11.2020 19:08	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.11.2020 19:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-130	05.11.2020 19:08	
o-Terphenyl	84-15-1	98	%	70-130	05.11.2020 19:08	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-1 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-001

Date Collected: 05.08.2020 12:26

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.13.2020 10:08	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.13.2020 10:08	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.13.2020 10:08	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.13.2020 10:08	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.13.2020 10:08	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.13.2020 10:08	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.13.2020 10:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	107	%	70-130	05.13.2020 10:08		
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.13.2020 10:08		



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-2 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-002

Date Collected: 05.08.2020 12:28

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	93.1	5.00	mg/kg	05.12.2020 10:10		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	05.11.2020 20:13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	05.11.2020 20:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.11.2020 20:13	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.11.2020 20:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-130	05.11.2020 20:13	
o-Terphenyl	84-15-1	95	%	70-130	05.11.2020 20:13	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-2 (0.5')
Lab Sample Id: 661118-002

Matrix: Soil
Date Collected: 05.08.2020 12:28

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	05.13.2020 10:28	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	05.13.2020 10:28	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	05.13.2020 10:28	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	05.13.2020 10:28	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	05.13.2020 10:28	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	05.13.2020 10:28	U	1
Total BTEX		<0.00201	0.00201	mg/kg	05.13.2020 10:28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	110	%	70-130	05.13.2020 10:28		
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.13.2020 10:28		



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-2 (1')
Lab Sample Id: 661118-003

Matrix: Soil
Date Collected: 05.08.2020 12:29

Date Received: 05.11.2020 11:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	91.9	5.00	mg/kg	05.12.2020 10:15		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	05.11.2020 20:34	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	05.11.2020 20:34	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.11.2020 20:34	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.11.2020 20:34	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	05.11.2020 20:34	
o-Terphenyl	84-15-1	94	%	70-130	05.11.2020 20:34	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-2 (1')
Lab Sample Id: 661118-003

Matrix: Soil
Date Collected: 05.08.2020 12:29

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.13.2020 10:48	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.13.2020 10:48	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.13.2020 10:48	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.13.2020 10:48	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.13.2020 10:48	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.13.2020 10:48	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.13.2020 10:48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.13.2020 10:48		
4-Bromofluorobenzene	460-00-4	96	%	70-130	05.13.2020 10:48		



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-3 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-004

Date Collected: 05.08.2020 12:30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.6	5.05	mg/kg	05.12.2020 10:21		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.11.2020 20:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.11.2020 20:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.11.2020 20:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.11.2020 20:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	79	%	70-130	05.11.2020 20:55	
o-Terphenyl	84-15-1	100	%	70-130	05.11.2020 20:55	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-3 (0.5')
Lab Sample Id: 661118-004

Matrix: Soil
Date Collected: 05.08.2020 12:30

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.13.2020 11:08	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.13.2020 11:08	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.13.2020 11:08	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.13.2020 11:08	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.13.2020 11:08	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.13.2020 11:08	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.13.2020 11:08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	05.13.2020 11:08		
1,4-Difluorobenzene	540-36-3	106	%	70-130	05.13.2020 11:08		



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-3 (1')
Lab Sample Id: 661118-005

Matrix: Soil
Date Collected: 05.08.2020 12:31

Date Received: 05.11.2020 11:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.3	4.96	mg/kg	05.12.2020 10:26		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	05.11.2020 21:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	05.11.2020 21:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.11.2020 21:17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.11.2020 21:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	05.11.2020 21:17	
o-Terphenyl	84-15-1	96	%	70-130	05.11.2020 21:17	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-3 (1')
Lab Sample Id: 661118-005

Matrix: Soil
Date Collected: 05.08.2020 12:31

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.13.2020 11:28	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.13.2020 11:28	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.13.2020 11:28	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	05.13.2020 11:28	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.13.2020 11:28	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.13.2020 11:28	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.13.2020 11:28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	05.13.2020 11:28		
4-Bromofluorobenzene	460-00-4	94	%	70-130	05.13.2020 11:28		



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-4 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-006

Date Collected: 05.08.2020 12:08

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	645	4.98	mg/kg	05.12.2020 10:31		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	05.11.2020 21:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	05.11.2020 21:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.11.2020 21:38	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.11.2020 21:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	05.11.2020 21:38	
o-Terphenyl	84-15-1	92	%	70-130	05.11.2020 21:38	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-4 (0.5')
Lab Sample Id: 661118-006

Matrix: Soil
Date Collected: 05.08.2020 12:08

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.13.2020 11:49	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.13.2020 11:49	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.13.2020 11:49	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.13.2020 11:49	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.13.2020 11:49	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.13.2020 11:49	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.13.2020 11:49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	05.13.2020 11:49		
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.13.2020 11:49		



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-4 (1')
Lab Sample Id: 661118-007

Matrix: Soil
Date Collected: 05.08.2020 12:11

Date Received: 05.11.2020 11:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1300	25.2	mg/kg	05.12.2020 10:52		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.11.2020 21:59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.11.2020 21:59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.11.2020 21:59	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.11.2020 21:59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-130	05.11.2020 21:59	
o-Terphenyl	84-15-1	95	%	70-130	05.11.2020 21:59	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-4 (1')
Lab Sample Id: 661118-007

Matrix: Soil
Date Collected: 05.08.2020 12:11

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.13.2020 12:09	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.13.2020 12:09	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.13.2020 12:09	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.13.2020 12:09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.13.2020 12:09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.13.2020 12:09	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.13.2020 12:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.13.2020 12:09	
4-Bromofluorobenzene	460-00-4	91	%	70-130	05.13.2020 12:09	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-5 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-008

Date Collected: 05.08.2020 12:15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.6	5.00	mg/kg	05.12.2020 10:36		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	05.12.2020 07:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	76.6	49.9	mg/kg	05.12.2020 07:00		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.12.2020 07:00	U	1
Total TPH	PHC635	76.6	49.9	mg/kg	05.12.2020 07:00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	75	%	70-130	05.12.2020 07:00	
o-Terphenyl	84-15-1	90	%	70-130	05.12.2020 07:00	



Certificate of Analytical Results 661118

Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-5 (0.5')
Lab Sample Id: 661118-008

Matrix: Soil
Date Collected: 05.08.2020 12:15

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.13.2020 12:29	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.13.2020 12:29	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.13.2020 12:29	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.13.2020 12:29	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.13.2020 12:29	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.13.2020 12:29	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.13.2020 12:29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.13.2020 12:29	
4-Bromofluorobenzene	460-00-4	107	%	70-130	05.13.2020 12:29	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-5 (1')
Lab Sample Id: 661118-009

Matrix: Soil
Date Collected: 05.08.2020 12:20

Date Received: 05.11.2020 11:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.3	4.95	mg/kg	05.12.2020 10:57		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	05.12.2020 07:21	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	05.12.2020 07:21	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.12.2020 07:21	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.12.2020 07:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	74	%	70-130	05.12.2020 07:21	
o-Terphenyl	84-15-1	93	%	70-130	05.12.2020 07:21	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-5 (1')
Lab Sample Id: 661118-009

Matrix: Soil
Date Collected: 05.08.2020 12:20

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.13.2020 13:49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.13.2020 13:49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.13.2020 13:49	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.13.2020 13:49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.13.2020 13:49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.13.2020 13:49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.13.2020 13:49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	05.13.2020 13:49		
4-Bromofluorobenzene	460-00-4	93	%	70-130	05.13.2020 13:49		



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-6 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-010

Date Collected: 05.08.2020 12:22

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6310	248	mg/kg	05.12.2020 11:19		50

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.12.2020 07:49	U	1
Diesel Range Organics (DRO)	C10C28DRO	57.1	50.0	mg/kg	05.12.2020 07:49		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.12.2020 07:49	U	1
Total TPH	PHC635	57.1	50.0	mg/kg	05.12.2020 07:49		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	05.12.2020 07:49	
o-Terphenyl	84-15-1	91	%	70-130	05.12.2020 07:49	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-6 (0.5')
Lab Sample Id: 661118-010

Matrix: Soil
Date Collected: 05.08.2020 12:22

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.13.2020 14:10	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.13.2020 14:10	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.13.2020 14:10	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.13.2020 14:10	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.13.2020 14:10	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.13.2020 14:10	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.13.2020 14:10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	05.13.2020 14:10		
1,4-Difluorobenzene	540-36-3	107	%	70-130	05.13.2020 14:10		



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-6 (1')
Lab Sample Id: 661118-011

Matrix: Soil
Date Collected: 05.08.2020 12:23

Date Received: 05.11.2020 11:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	6690	99.6	mg/kg	05.12.2020 11:24		20

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.12.2020 08:30	U	1
Diesel Range Organics (DRO)	C10C28DRO	74.7	50.0	mg/kg	05.12.2020 08:30		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.12.2020 08:30	U	1
Total TPH	PHC635	74.7	50.0	mg/kg	05.12.2020 08:30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	05.12.2020 08:30	
o-Terphenyl	84-15-1	95	%	70-130	05.12.2020 08:30	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-6 (1')
Lab Sample Id: 661118-011

Matrix: Soil
Date Collected: 05.08.2020 12:23

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	05.13.2020 14:30	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	05.13.2020 14:30	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	05.13.2020 14:30	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	05.13.2020 14:30	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	05.13.2020 14:30	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	05.13.2020 14:30	U	1
Total BTEX		<0.00202	0.00202	mg/kg	05.13.2020 14:30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	05.13.2020 14:30		
4-Bromofluorobenzene	460-00-4	73	%	70-130	05.13.2020 14:30		



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-7 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-012

Date Collected: 05.08.2020 12:25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	70.2	5.00	mg/kg	05.12.2020 11:29		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	05.12.2020 08:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	05.12.2020 08:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	05.12.2020 08:51	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	05.12.2020 08:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	70	%	70-130	05.12.2020 08:51	
o-Terphenyl	84-15-1	85	%	70-130	05.12.2020 08:51	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-7 (0.5')
Lab Sample Id: 661118-012

Matrix: Soil
Date Collected: 05.08.2020 12:25

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.12.2020 08:00

Basis: Wet Weight

Seq Number: 3125822

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.13.2020 14:50	U	1
Toluene	108-88-3	0.00397	0.00200	mg/kg	05.13.2020 14:50		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.13.2020 14:50	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	05.13.2020 14:50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.13.2020 14:50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.13.2020 14:50	U	1
Total BTEX		0.00397	0.00200	mg/kg	05.13.2020 14:50		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	112	%	70-130	05.13.2020 14:50		
4-Bromofluorobenzene	460-00-4	108	%	70-130	05.13.2020 14:50		



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-8 (0.5')

Matrix: Soil

Date Received: 05.11.2020 11:21

Lab Sample Id: 661118-013

Date Collected: 05.08.2020 12:25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.7	4.99	mg/kg	05.12.2020 11:34		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	05.12.2020 09:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	05.12.2020 09:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	05.12.2020 09:12	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	05.12.2020 09:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	78	%	70-130	05.12.2020 09:12	
o-Terphenyl	84-15-1	95	%	70-130	05.12.2020 09:12	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: **S-8 (0.5')**
 Lab Sample Id: 661118-013

Matrix: Soil
 Date Collected: 05.08.2020 12:25

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.13.2020 14:00

Basis: Wet Weight

Seq Number: 3125815

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.13.2020 18:12	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.13.2020 18:12	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.13.2020 18:12	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.13.2020 18:12	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.13.2020 18:12	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.13.2020 18:12	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.13.2020 18:12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	116	%	70-130	05.13.2020 18:12		
4-Bromofluorobenzene	460-00-4	121	%	70-130	05.13.2020 18:12		



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-8 (1')
Lab Sample Id: 661118-014

Matrix: Soil
Date Collected: 05.08.2020 12:28

Date Received: 05.11.2020 11:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 05.11.2020 14:30

Basis: Wet Weight

Seq Number: 3125642

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.5	5.02	mg/kg	05.12.2020 11:40		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 05.11.2020 16:00

Basis: Wet Weight

Seq Number: 3125662

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.12.2020 09:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.12.2020 09:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.12.2020 09:33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.12.2020 09:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	80	%	70-130	05.12.2020 09:33	
o-Terphenyl	84-15-1	96	%	70-130	05.12.2020 09:33	



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Larson and Associates, Inc., Midland, TX

Chevron-Vacuum Glonietha #041

Sample Id: S-8 (1')
Lab Sample Id: 661118-014

Matrix: Soil
Date Collected: 05.08.2020 12:28

Date Received: 05.11.2020 11:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 05.13.2020 14:00

Basis: Wet Weight

Seq Number: 3125815

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	05.13.2020 18:32	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	05.13.2020 18:32	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	05.13.2020 18:32	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	05.13.2020 18:32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	05.13.2020 18:32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	05.13.2020 18:32	U	1
Total BTEX		<0.00200	0.00200	mg/kg	05.13.2020 18:32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	120	%	70-130	05.13.2020 18:32		
1,4-Difluorobenzene	540-36-3	120	%	70-130	05.13.2020 18:32		



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.
Chevron-Vacuum Gronietha #041

Analytical Method: Chloride by EPA 300

Seq Number: 3125642

MB Sample Id: 7703097-1-BLK

Matrix: Solid

LCS Sample Id: 7703097-1-BKS

Prep Method: E300P

Date Prep: 05.11.2020

LCSD Sample Id: 7703097-1-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	255	102	243	97	90-110	5	20	mg/kg	05.12.2020 09:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3125642

Parent Sample Id: 661118-001

Matrix: Soil

MS Sample Id: 661118-001 S

Prep Method: E300P

Date Prep: 05.11.2020

MSD Sample Id: 661118-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	136	252	372	94	394	102	90-110	6	20	mg/kg	05.12.2020 09:28	

Analytical Method: Chloride by EPA 300

Seq Number: 3125642

Parent Sample Id: 661118-008

Matrix: Soil

MS Sample Id: 661118-008 S

Prep Method: E300P

Date Prep: 05.11.2020

MSD Sample Id: 661118-008 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.6	250	271	104	261	100	90-110	4	20	mg/kg	05.12.2020 10:47	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3125662

MB Sample Id: 7703102-1-BLK

Matrix: Solid

LCS Sample Id: 7703102-1-BKS

Prep Method: SW8015P

Date Prep: 05.11.2020

LCSD Sample Id: 7703102-1-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	825	83	847	85	70-130	3	20	mg/kg	05.11.2020 18:26	
Diesel Range Organics (DRO)	<50.0	1000	864	86	879	88	70-130	2	20	mg/kg	05.11.2020 18:26	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	80		87		86		70-130	%	05.11.2020 18:26
o-Terphenyl	100		89		88		70-130	%	05.11.2020 18:26

Analytical Method: TPH by SW8015 Mod

Seq Number: 3125662

Matrix: Solid

MB Sample Id: 7703102-1-BLK

Prep Method: SW8015P

Date Prep: 05.11.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.11.2020 18:05	

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.
Chevron-Vacuum Glonietha #041

Analytical Method: TPH by SW8015 Mod

Seq Number: 3125662

Parent Sample Id: 661118-001

Matrix: Soil

MS Sample Id: 661118-001 S

Prep Method: SW8015P

Date Prep: 05.11.2020

MSD Sample Id: 661118-001 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	801	80	809	81	70-130	1	20	mg/kg	05.11.2020 19:30	
Diesel Range Organics (DRO)	<49.9	997	834	84	824	83	70-130	1	20	mg/kg	05.11.2020 19:30	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	81		80		70-130	%	05.11.2020 19:30
o-Terphenyl	82		81		70-130	%	05.11.2020 19:30

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125822

MB Sample Id: 7703250-1-BLK

Matrix: Solid

LCS Sample Id: 7703250-1-BKS

Prep Method: SW5035A

Date Prep: 05.12.2020

LCSD Sample Id: 7703250-1-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	0.107	107	0.0944	94	70-130	13	35	mg/kg	05.12.2020 22:06	
Toluene	<0.00200	0.100	0.0890	89	0.0944	94	70-130	6	35	mg/kg	05.12.2020 22:06	
Ethylbenzene	<0.00200	0.100	0.0851	85	0.0960	96	70-130	12	35	mg/kg	05.12.2020 22:06	
m,p-Xylenes	<0.00400	0.200	0.158	79	0.182	91	70-130	14	35	mg/kg	05.12.2020 22:06	
o-Xylene	<0.00200	0.100	0.0789	79	0.0918	92	70-130	15	35	mg/kg	05.12.2020 22:06	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	87		103		103		70-130	%	05.12.2020 22:06
4-Bromofluorobenzene	64	**	98		110		70-130	%	05.12.2020 22:06

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125815

MB Sample Id: 7703255-1-BLK

Matrix: Solid

LCS Sample Id: 7703255-1-BKS

Prep Method: SW5035A

Date Prep: 05.13.2020

LCSD Sample Id: 7703255-1-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	0.105	105	0.118	119	70-130	12	35	mg/kg	05.13.2020 10:16	
Toluene	<0.00200	0.100	0.115	115	0.121	122	70-130	5	35	mg/kg	05.13.2020 10:16	
Ethylbenzene	<0.00200	0.100	0.108	108	0.108	109	70-130	0	35	mg/kg	05.13.2020 10:16	
m,p-Xylenes	<0.00400	0.200	0.219	110	0.216	109	70-130	1	35	mg/kg	05.13.2020 10:16	
o-Xylene	<0.00200	0.100	0.104	104	0.105	106	70-130	1	35	mg/kg	05.13.2020 10:16	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		105		109		70-130	%	05.13.2020 10:16
4-Bromofluorobenzene	101		106		104		70-130	%	05.13.2020 10:16

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.
Chevron-Vacuum Glonietha #041

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125822

Parent Sample Id: 661008-004

Matrix: Soil

MS Sample Id: 661008-004 S

Prep Method: SW5035A

Date Prep: 05.12.2020

MSD Sample Id: 661008-004 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	0.0990	0.0952	96	0.0885	89	70-130	7	35	mg/kg	05.12.2020 22:46	
Toluene	<0.00198	0.0990	0.0931	94	0.0867	87	70-130	7	35	mg/kg	05.12.2020 22:46	
Ethylbenzene	<0.00198	0.0990	0.0934	94	0.0872	88	70-130	7	35	mg/kg	05.12.2020 22:46	
m,p-Xylenes	<0.00396	0.198	0.176	89	0.165	83	70-130	6	35	mg/kg	05.12.2020 22:46	
o-Xylene	<0.00198	0.0990	0.0897	91	0.0849	85	70-130	5	35	mg/kg	05.12.2020 22:46	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	109		106		70-130	%	05.12.2020 22:46
4-Bromofluorobenzene	118		112		70-130	%	05.12.2020 22:46

Analytical Method: BTEX by EPA 8021B

Seq Number: 3125815

Parent Sample Id: 660570-013

Matrix: Soil

MS Sample Id: 660570-013 S

Prep Method: SW5035A

Date Prep: 05.13.2020

MSD Sample Id: 660570-013 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.00410	0.0992	0.0930	90	0.0960	92	70-130	3	35	mg/kg	05.13.2020 10:57	
Toluene	0.0175	0.0992	0.131	114	0.135	118	70-130	3	35	mg/kg	05.13.2020 10:57	
Ethylbenzene	0.00281	0.0992	0.0493	47	0.103	100	70-130	71	35	mg/kg	05.13.2020 10:57	XF
m,p-Xylenes	0.00566	0.198	0.0900	43	0.113	54	70-130	23	35	mg/kg	05.13.2020 10:57	X
o-Xylene	0.00266	0.0992	0.0425	40	0.0554	53	70-130	26	35	mg/kg	05.13.2020 10:57	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	123		123		70-130	%	05.13.2020 10:57
4-Bromofluorobenzene	90		104		70-130	%	05.13.2020 10:57

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

Aarson &
Associates, Inc.
Environmental Consultants

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

DATE: 05/08/2020 PAGE 1 OF 1
PO#: _____ LAB WORK ORDER#:
PROJECT LOCATION OR NAME: Chevron - Vacuum Chloride #041
LAI PROJECT #: 20-0103-12 COLLECTOR: Eglds

Data Reported to:

TRRP report?
☐ Yes ☒ No

S=SOIL
W=WATER
A=AIR

P=PAINT
SL=SLUDGE
OT=OTHER

TIME ZONE:
Time zone/State:

MDT/LM

Field
Sample I.D.

Lab #

Date

Time

Matrix

of Containers

HCl

HNO₃

H₂SO₄ ☐ NaOH ☐

ICE

UNPRESERVED

ANALYSES

- BTEX-MTBE ☐
- TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐
- GASOLINE MOD 8015 ☐
- DIESEL - MOD 8015 ☐
- OIL - MOD 8015 ☐
- VOC 8280 ☐
- SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐
- 8081 PESTICIDES ☐ 8151 HERBICIDES ☐
- TBLP - METALS (RCRA) ☐ TCLP VOC ☐
- TCLP - PEST ☐ HERB ☐ Semi-VOC ☐
- TOTAL METALS (RCRA) ☐ OTHER LIST ☐
- LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐
- RCl ☐ TOX ☐ FLASHPOINT ☐
- TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐
- pH ☐ HEXAVALENT CHROMIUM ☐
- EXPLOSIVES ☐ PECHLORATE ☐
- CHLORIDES ☐ ANIONS ☐ ALKALINITY ☐

FIELD NOTES

S-1(0.5')
S-2(0.5')
S-2(1')
S-3(0.5')
S-3(1')
S-4(0.5')
S-4(1')
S-5(0.5')
S-5(1')
S-6(0.5')
S-6(1')
S-7(0.5')
S-8(0.5')
S-8(1')

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TOTAL 14

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

TURN AROUND TIME

LABORATORY USE ONLY

RECEIVING TEMP:

TERM#:

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

NORMAL ☒

1 DAY ☐

2 DAY ☐

OTHER ☐

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

1 DAY ☐

2 DAY ☐</

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 05.11.2020 11.21.00 AM

Work Order #: 661118

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R9

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	4.6
#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: 05.11.2020

Checklist reviewed by:



Holly Taylor

Date: 05.11.2020



Certificate of Analysis Summary 665085

Larson and Associates, Inc., Midland, TX

Project Name: Vacuum Glorieta

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Tue 06.23.2020 08:39

Report Date: 06.29.2020 17:24

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	665085-001	665085-002	665085-003	665085-004	665085-005	665085-006
	<i>Field Id:</i>	S-4 1'	S-4 3'	S-6 1'	S-6 3'	S-9 0.5'	S-9 1'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	06.22.2020 11:15	06.22.2020 11:16	06.22.2020 11:31	06.22.2020 11:32	06.22.2020 11:47	06.22.2020 11:48
BTEX by EPA 8021B	<i>Extracted:</i>	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00
	<i>Analyzed:</i>	06.27.2020 21:01	06.27.2020 21:22	06.27.2020 21:42	06.27.2020 22:03	06.27.2020 22:23	06.27.2020 22:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00398 0.00398	<0.00400 0.00400	<0.00398 0.00398	<0.00397 0.00397	<0.00399 0.00399
o-Xylene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	06.23.2020 16:10	06.23.2020 16:10	06.23.2020 16:10	06.23.2020 16:20	06.23.2020 16:20	06.23.2020 16:20
	<i>Analyzed:</i>	06.23.2020 21:54	06.23.2020 22:00	06.23.2020 22:06	06.23.2020 19:23	06.23.2020 19:28	06.23.2020 19:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		38.7 5.00	14.0 5.00	9140 250	3520 49.8	1630 24.8	1920 25.1
TPH by SW8015 Mod	<i>Extracted:</i>	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00
	<i>Analyzed:</i>	06.23.2020 12:47	06.23.2020 13:52	06.23.2020 14:14	06.23.2020 14:35	06.23.2020 14:57	06.23.2020 15:19
	<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)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9	83.1 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0
Total TPH		<50.0 50.0	<49.9 49.9	83.1 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Holly Taylor
Project Manager



Certificate of Analysis Summary 665085

Larson and Associates, Inc., Midland, TX

Project Name: Vacuum Glorieta

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Tue 06.23.2020 08:39

Report Date: 06.29.2020 17:24

Project Manager: Holly Taylor

Analysis Requested	Lab Id:	665085-007					
	Field Id:	S-9 3'					
	Depth:						
	Matrix:	SOIL					
	Sampled:	06.22.2020 11:49					
Chloride by EPA 300	Extracted:	06.23.2020 16:20					
	Analyzed:	06.23.2020 19:38					
	Units/RL:	mg/kg RL					
Chloride		1610 25.0					
TPH by SW8015 Mod	Extracted:	06.23.2020 11:00					
	Analyzed:	06.23.2020 15:41					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0					
Diesel Range Organics (DRO)		<50.0 50.0					
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0					
Total TPH		<50.0 50.0					

This analytical report, and the entire data package it represents, has been made for your exclusive and confidential use. The interpretations and results expressed throughout this analytical report represent the best judgment of XENCO Laboratories. XENCO Laboratories assumes no responsibility and makes no warranty to the end use of the data hereby presented. Our liability is limited to the amount invoiced for this work order unless otherwise agreed to in writing.

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

Holly Taylor
Project Manager



Analytical Report 665085

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Vacuum Glorieta

20-0107-12

06.29.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



06.29.2020

Project Manager: **Mark Larson**

Larson and Associates, Inc.

P. O. Box 50685

Midland, TX 79710

Reference: XENCO Report No(s): **665085**

Vacuum Glorieta

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 XENCO Report Number(s) 665085. 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 XENCO Laboratories. 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. 665085 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 XENCO Laboratories 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'. The signature is written in a cursive, flowing style.

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 665085****Larson and Associates, Inc., Midland, TX**

Vacuum Glorieta

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-4 1'	S	06.22.2020 11:15		665085-001
S-4 3'	S	06.22.2020 11:16		665085-002
S-6 1'	S	06.22.2020 11:31		665085-003
S-6 3'	S	06.22.2020 11:32		665085-004
S-9 0.5'	S	06.22.2020 11:47		665085-005
S-9 1'	S	06.22.2020 11:48		665085-006
S-9 3'	S	06.22.2020 11:49		665085-007



CASE NARRATIVE

Client Name: *Larson and Associates, Inc.*

Project Name: *Vacuum Glorieta*

Project ID: 20-0107-12
Work Order Number(s): 665085

Report Date: 06.29.2020
Date Received: 06.23.2020

Sample receipt non conformances and comments:

6/24/2020 Do not report BTEX on sample 007 per Robert Nelson (email). HT

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 1'
Lab Sample Id: 665085-001

Matrix: Soil
Date Collected: 06.22.2020 11:15

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:10

Basis: Wet Weight

Seq Number: 3129776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	38.7	5.00	mg/kg	06.23.2020 21:54		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-130	06.23.2020 12:47	
o-Terphenyl	84-15-1	100	%	70-130	06.23.2020 12:47	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 1'
Lab Sample Id: 665085-001

Matrix: Soil
Date Collected: 06.22.2020 11:15

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.27.2020 21:01	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	106	%	70-130	06.27.2020 21:01		
4-Bromofluorobenzene	460-00-4	115	%	70-130	06.27.2020 21:01		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 3'
Lab Sample Id: 665085-002

Matrix: Soil
Date Collected: 06.22.2020 11:16

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:10

Basis: Wet Weight

Seq Number: 3129776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.0	5.00	mg/kg	06.23.2020 22:00		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-130	06.23.2020 13:52	
o-Terphenyl	84-15-1	101	%	70-130	06.23.2020 13:52	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-4 3'**
Lab Sample Id: 665085-002

Matrix: Soil
Date Collected: 06.22.2020 11:16

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.27.2020 21:22	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.27.2020 21:22		
4-Bromofluorobenzene	460-00-4	113	%	70-130	06.27.2020 21:22		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-6 1'
Lab Sample Id: 665085-003

Matrix: Soil
Date Collected: 06.22.2020 11:31

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:10

Basis: Wet Weight

Seq Number: 3129776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9140	250	mg/kg	06.23.2020 22:06		50

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 14:14	U	1
Diesel Range Organics (DRO)	C10C28DRO	83.1	50.0	mg/kg	06.23.2020 14:14		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 14:14	U	1
Total TPH	PHC635	83.1	50.0	mg/kg	06.23.2020 14:14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-130	06.23.2020 14:14	
o-Terphenyl	84-15-1	104	%	70-130	06.23.2020 14:14	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-6 1'**
Lab Sample Id: 665085-003

Matrix: Soil
Date Collected: 06.22.2020 11:31

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.27.2020 21:42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.27.2020 21:42	
4-Bromofluorobenzene	460-00-4	114	%	70-130	06.27.2020 21:42	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-6 3'
Lab Sample Id: 665085-004

Matrix: Soil
Date Collected: 06.22.2020 11:32

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3520	49.8	mg/kg	06.23.2020 19:23		10

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-130	06.23.2020 14:35	
o-Terphenyl	84-15-1	103	%	70-130	06.23.2020 14:35	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-6 3'**
Lab Sample Id: 665085-004

Matrix: Soil
Date Collected: 06.22.2020 11:32

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.27.2020 22:03	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.27.2020 22:03		
1,4-Difluorobenzene	540-36-3	107	%	70-130	06.27.2020 22:03		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-9 0.5'
Lab Sample Id: 665085-005

Matrix: Soil
Date Collected: 06.22.2020 11:47

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1630	24.8	mg/kg	06.23.2020 19:28		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-130	06.23.2020 14:57	
o-Terphenyl	84-15-1	100	%	70-130	06.23.2020 14:57	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-9 0.5'
Lab Sample Id: 665085-005

Matrix: Soil
Date Collected: 06.22.2020 11:47

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	06.27.2020 22:23	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.27.2020 22:23		
4-Bromofluorobenzene	460-00-4	118	%	70-130	06.27.2020 22:23		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-9 1'
Lab Sample Id: 665085-006

Matrix: Soil
Date Collected: 06.22.2020 11:48

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1920	25.1	mg/kg	06.23.2020 19:33		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-130	06.23.2020 15:19	
o-Terphenyl	84-15-1	105	%	70-130	06.23.2020 15:19	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 1'**
Lab Sample Id: 665085-006

Matrix: Soil
Date Collected: 06.22.2020 11:48

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.27.2020 22:44	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	06.27.2020 22:44		
4-Bromofluorobenzene	460-00-4	113	%	70-130	06.27.2020 22:44		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-9 3'
Lab Sample Id: 665085-007

Matrix: Soil
Date Collected: 06.22.2020 11:49

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1610	25.0	mg/kg	06.23.2020 19:38		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	06.23.2020 15:41	
o-Terphenyl	84-15-1	104	%	70-130	06.23.2020 15:41	



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.
Vacuum Glorieta

Analytical Method: Chloride by EPA 300

Seq Number: 3129776

MB Sample Id: 7706029-1-BLK

Matrix: Solid

LCS Sample Id: 7706029-1-BKS

Prep Method: E300P

Date Prep: 06.23.2020

LCSD Sample Id: 7706029-1-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	253	101	253	101	90-110	0	20	mg/kg	06.23.2020 19:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3129779

MB Sample Id: 7706030-1-BLK

Matrix: Solid

LCS Sample Id: 7706030-1-BKS

Prep Method: E300P

Date Prep: 06.23.2020

LCSD Sample Id: 7706030-1-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	245	98	247	99	90-110	1	20	mg/kg	06.23.2020 18:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3129776

Parent Sample Id: 665093-001

Matrix: Solid

MS Sample Id: 665093-001 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665093-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.51	248	269	106	267	105	90-110	1	20	mg/kg	06.23.2020 19:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3129776

Parent Sample Id: 665093-007

Matrix: Solid

MS Sample Id: 665093-007 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665093-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.96	248	258	104	257	104	90-110	0	20	mg/kg	06.23.2020 20:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3129779

Parent Sample Id: 665098-001

Matrix: Soil

MS Sample Id: 665098-001 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665098-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	351	248	612	105	612	105	90-110	0	20	mg/kg	06.23.2020 19:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3129779

Parent Sample Id: 665099-004

Matrix: Soil

MS Sample Id: 665099-004 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665099-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	202	253	482	111	456	100	90-110	6	20	mg/kg	06.23.2020 20:23	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.
Vacuum Glorieta

Analytical Method: TPH by SW8015 Mod

Seq Number: 3129788

MB Sample Id: 7706004-1-BLK

Matrix: Solid

LCS Sample Id: 7706004-1-BKS

Prep Method: SW8015P

Date Prep: 06.23.2020

LCSD Sample Id: 7706004-1-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	883	88	851	85	70-130	4	20	mg/kg	06.23.2020 12:04	
Diesel Range Organics (DRO)	<50.0	1000	870	87	867	87	70-130	0	20	mg/kg	06.23.2020 12:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		110		106		70-130	%	06.23.2020 12:04
o-Terphenyl	103		105		99		70-130	%	06.23.2020 12:04

Analytical Method: TPH by SW8015 Mod

Seq Number: 3129788

Matrix: Solid

MB Sample Id: 7706004-1-BLK

Prep Method: SW8015P

Date Prep: 06.23.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.23.2020 11:43	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3129788

Matrix: Soil

Parent Sample Id: 665085-001

MS Sample Id: 665085-001 S

Prep Method: SW8015P

Date Prep: 06.23.2020

MSD Sample Id: 665085-001 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	840	84	844	84	70-130	0	20	mg/kg	06.23.2020 13:09	
Diesel Range Organics (DRO)	<49.9	997	872	87	881	88	70-130	1	20	mg/kg	06.23.2020 13:09	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		111		70-130	%	06.23.2020 13:09
o-Terphenyl	103		102		70-130	%	06.23.2020 13:09

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130222

Matrix: Solid

MB Sample Id: 7706352-1-BLK

LCS Sample Id: 7706352-1-BKS

Prep Method: SW5035A

Date Prep: 06.26.2020

LCSD Sample Id: 7706352-1-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	0.0949	95	0.0866	87	70-130	9	35	mg/kg	06.27.2020 13:50	
Toluene	<0.00200	0.100	0.0911	91	0.0870	87	70-130	5	35	mg/kg	06.27.2020 13:50	
Ethylbenzene	<0.00200	0.100	0.0917	92	0.0894	89	70-130	3	35	mg/kg	06.27.2020 13:50	
m,p-Xylenes	<0.00400	0.200	0.173	87	0.170	85	70-130	2	35	mg/kg	06.27.2020 13:50	
o-Xylene	<0.00200	0.100	0.0902	90	0.0886	89	70-130	2	35	mg/kg	06.27.2020 13:50	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		99		96		70-130	%	06.27.2020 13:50
4-Bromofluorobenzene	98		93		95		70-130	%	06.27.2020 13:50

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.
Vacuum Glorieta

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130222

Parent Sample Id: 664989-016

Matrix: Soil

MS Sample Id: 664989-016 S

Prep Method: SW5035A

Date Prep: 06.26.2020

MSD Sample Id: 664989-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0492	49	0.0253	25	70-130	64	35	mg/kg	06.27.2020 14:31	XF
Toluene	<0.00202	0.101	0.0519	51	0.0306	30	70-130	52	35	mg/kg	06.27.2020 14:31	XF
Ethylbenzene	<0.00202	0.101	0.0535	53	0.0322	32	70-130	50	35	mg/kg	06.27.2020 14:31	XF
m,p-Xylenes	<0.00403	0.202	0.103	51	0.0654	32	70-130	45	35	mg/kg	06.27.2020 14:31	XF
o-Xylene	<0.00202	0.101	0.0549	54	0.0366	36	70-130	40	35	mg/kg	06.27.2020 14:31	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		99		70-130	%	06.27.2020 14:31
4-Bromofluorobenzene	96		104		70-130	%	06.27.2020 14:31

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

Vacuum Associates, Inc.
Environmental Consultants

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

DATE: 6/22/20 PAGE 1 OF 1
PO#: _____ LAB WORK ORDER#:
PROJECT LOCATION OR NAME: VACUUM GLORICETA

Data Reported to:

LAI PROJECT #: 20-0107-12 COLLECTOR: TJIDS

TRRP report?
☐ Yes ☒ No

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

TIME ZONE:
Time zone/State:
MST

Field Sample I.D.

Lab #

Date

Time

Matrix

of Containers

HCl

HNO₃

H₂SO₄ ☐ NaOH ☐

ICE

UNPRESERVED

ANALYSES

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

FIELD NOTES

5-4 1' 6/22/20 1115 S 1 X X X X
5-4 3' 1116 |
5-6 1' 1131 |
5-6 3' 1132 |
5-1 0.5' 1147 |
5-1 1' 1148 |
5-1 3' 1149 |

TOTAL

7

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

RELINQUISHED BY: (Signature)

DATE/TIME

RECEIVED BY: (Signature)

LABORATORY: **XenCo**

TURN AROUND TIME

NORMAL ☒

1 DAY ☐

2 DAY ☐

OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 20/27 TERM#: 128

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED

CARRIER BILL #

☒ HAND DELIVERED

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 06.23.2020 08.39.00 AM

Work Order #: 665085

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)?	2.2
#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: 06.23.2020

Checklist reviewed by:



Holly Taylor

Date: 06.24.2020



Xenco

Certificate of Analysis Summary 665085

Larson and Associates, Inc., Midland, TX

Project Name: Vacuum Glorieta

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Tue 06.23.2020 08:39

Report Date: 07.07.2020 14:15

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	665085-001	665085-002	665085-003	665085-004	665085-005	665085-006
	<i>Field Id:</i>	S-4 1'	S-4 3'	S-6 1'	S-6 3'	S-9 0.5'	S-9 1'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	06.22.2020 11:15	06.22.2020 11:16	06.22.2020 11:31	06.22.2020 11:32	06.22.2020 11:47	06.22.2020 11:48
BTEX by EPA 8021B	<i>Extracted:</i>	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00	06.26.2020 17:00
	<i>Analyzed:</i>	06.27.2020 21:01	06.27.2020 21:22	06.27.2020 21:42	06.27.2020 22:03	06.27.2020 22:23	06.27.2020 22:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00398 0.00398	<0.00400 0.00400	<0.00398 0.00398	<0.00397 0.00397	<0.00399 0.00399
o-Xylene		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	06.23.2020 16:10	06.23.2020 16:10	06.23.2020 16:10	06.23.2020 16:20	06.23.2020 16:20	06.23.2020 16:20
	<i>Analyzed:</i>	06.23.2020 21:54	06.23.2020 22:00	06.23.2020 22:06	06.23.2020 19:23	06.23.2020 19:28	06.23.2020 19:33
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		38.7 5.00	14.0 5.00	9140 250	3520 49.8	1630 24.8	1920 25.1
TPH by SW8015 Mod	<i>Extracted:</i>	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00	06.23.2020 11:00
	<i>Analyzed:</i>	06.23.2020 12:47	06.23.2020 13:52	06.23.2020 14:14	06.23.2020 14:35	06.23.2020 14:57	06.23.2020 15:19
	<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)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<50.0 50.0	<49.9 49.9	83.1 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0
Total TPH		<50.0 50.0	<49.9 49.9	83.1 50.0	<50.0 50.0	<49.9 49.9	<50.0 50.0

BRL - Below Reporting Limit

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



Xenco

Certificate of Analysis Summary 665085

Larson and Associates, Inc., Midland, TX

Project Name: Vacuum Glorieta

Project Id: 20-0107-12

Contact: Mark Larson

Project Location:

Date Received in Lab: Tue 06.23.2020 08:39

Report Date: 07.07.2020 14:15

Project Manager: Holly Taylor

Analysis Requested	Lab Id:	665085-007					
	Field Id:	S-9 3'					
	Depth:						
	Matrix:	SOIL					
	Sampled:	06.22.2020 11:49					
BTEX by EPA 8021B	Extracted:	07.06.2020 09:00					
	Analyzed:	07.06.2020 14:41					
	Units/RL:	mg/kg RL					
Benzene		<0.00199 0.00199					
Toluene		<0.00199 0.00199					
Ethylbenzene		<0.00199 0.00199					
m,p-Xylenes		<0.00398 0.00398					
o-Xylene		<0.00199 0.00199					
Total Xylenes		<0.00199 0.00199					
Total BTEX		<0.00199 0.00199					
Chloride by EPA 300	Extracted:	06.23.2020 16:20					
	Analyzed:	06.23.2020 19:38					
	Units/RL:	mg/kg RL					
Chloride		1610 25.0					
TPH by SW8015 Mod	Extracted:	06.23.2020 11:00					
	Analyzed:	06.23.2020 15:41					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0					
Diesel Range Organics (DRO)		<50.0 50.0					
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0					
Total TPH		<50.0 50.0					

BRL - Below Reporting Limit

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



Xenco

Analytical Report 665085

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Vacuum Glorieta

20-0107-12

07.07.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.07.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **665085**
Vacuum Glorieta
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) 665085. 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. 665085 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 665085****Larson and Associates, Inc., Midland, TX**

Vacuum Glorieta

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-4 1'	S	06.22.2020 11:15		665085-001
S-4 3'	S	06.22.2020 11:16		665085-002
S-6 1'	S	06.22.2020 11:31		665085-003
S-6 3'	S	06.22.2020 11:32		665085-004
S-9 0.5'	S	06.22.2020 11:47		665085-005
S-9 1'	S	06.22.2020 11:48		665085-006
S-9 3'	S	06.22.2020 11:49		665085-007



Xenco

CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: Vacuum Glorieta

Project ID: 20-0107-12
Work Order Number(s): 665085

Report Date: 07.07.2020
Date Received: 06.23.2020

Sample receipt non conformances and comments:

6/24/2020 Do not report BTEX on sample 007 per Robert Nelson (email). HT

7/2/2020 1.001 Revised to report BTEX on sample 007 per Robert Nelson (email). HT

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 1'
Lab Sample Id: 665085-001

Matrix: Soil
Date Collected: 06.22.2020 11:15

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:10

Basis: Wet Weight

Seq Number: 3129776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	38.7	5.00	mg/kg	06.23.2020 21:54		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 12:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-130	06.23.2020 12:47	
o-Terphenyl	84-15-1	100	%	70-130	06.23.2020 12:47	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 1'
Lab Sample Id: 665085-001

Matrix: Soil
Date Collected: 06.22.2020 11:15

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.27.2020 21:01	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.27.2020 21:01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	06.27.2020 21:01	
4-Bromofluorobenzene	460-00-4	115	%	70-130	06.27.2020 21:01	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 3'
Lab Sample Id: 665085-002

Matrix: Soil
Date Collected: 06.22.2020 11:16

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:10

Basis: Wet Weight

Seq Number: 3129776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.0	5.00	mg/kg	06.23.2020 22:00		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.23.2020 13:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-130	06.23.2020 13:52	
o-Terphenyl	84-15-1	101	%	70-130	06.23.2020 13:52	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-4 3'
Lab Sample Id: 665085-002

Matrix: Soil
Date Collected: 06.22.2020 11:16

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.27.2020 21:22	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.27.2020 21:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.27.2020 21:22	
4-Bromofluorobenzene	460-00-4	113	%	70-130	06.27.2020 21:22	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-6 1'** Matrix: Soil Date Received: 06.23.2020 08:39
 Lab Sample Id: 665085-003 Date Collected: 06.22.2020 11:31
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 06.23.2020 16:10 Basis: Wet Weight
 Seq Number: 3129776

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	9140	250	mg/kg	06.23.2020 22:06		50

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 06.23.2020 11:00 Basis: Wet Weight
 Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 14:14	U	1
Diesel Range Organics (DRO)	C10C28DRO	83.1	50.0	mg/kg	06.23.2020 14:14		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 14:14	U	1
Total TPH	PHC635	83.1	50.0	mg/kg	06.23.2020 14:14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-130	06.23.2020 14:14	
o-Terphenyl	84-15-1	104	%	70-130	06.23.2020 14:14	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-6 1'
Lab Sample Id: 665085-003

Matrix: Soil
Date Collected: 06.22.2020 11:31

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	06.27.2020 21:42	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.27.2020 21:42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.27.2020 21:42		
4-Bromofluorobenzene	460-00-4	114	%	70-130	06.27.2020 21:42		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-6 3'
Lab Sample Id: 665085-004

Matrix: Soil
Date Collected: 06.22.2020 11:32

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3520	49.8	mg/kg	06.23.2020 19:23		10

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 14:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-130	06.23.2020 14:35	
o-Terphenyl	84-15-1	103	%	70-130	06.23.2020 14:35	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-6 3'**
Lab Sample Id: 665085-004

Matrix: Soil
Date Collected: 06.22.2020 11:32

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	06.27.2020 22:03	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Total BTEX		<0.00199	0.00199	mg/kg	06.27.2020 22:03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	06.27.2020 22:03		
1,4-Difluorobenzene	540-36-3	107	%	70-130	06.27.2020 22:03		



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 0.5'**
Lab Sample Id: 665085-005

Matrix: Soil
Date Collected: 06.22.2020 11:47

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1630	24.8	mg/kg	06.23.2020 19:28		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.23.2020 14:57	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-130	06.23.2020 14:57	
o-Terphenyl	84-15-1	100	%	70-130	06.23.2020 14:57	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 0.5'**
Lab Sample Id: 665085-005

Matrix: Soil
Date Collected: 06.22.2020 11:47

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	06.27.2020 22:23	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1
Total BTEX		<0.00198	0.00198	mg/kg	06.27.2020 22:23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	06.27.2020 22:23	
4-Bromofluorobenzene	460-00-4	118	%	70-130	06.27.2020 22:23	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 1'**
Lab Sample Id: 665085-006

Matrix: Soil
Date Collected: 06.22.2020 11:48

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Seq Number: 3129779

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1920	25.1	mg/kg	06.23.2020 19:33		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Seq Number: 3129788

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 15:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-130	06.23.2020 15:19	
o-Terphenyl	84-15-1	105	%	70-130	06.23.2020 15:19	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 1'**
Lab Sample Id: 665085-006

Matrix: Soil
Date Collected: 06.22.2020 11:48

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 06.26.2020 17:00

Basis: Wet Weight

Seq Number: 3130222

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.27.2020 22:44	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.27.2020 22:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	06.27.2020 22:44	
4-Bromofluorobenzene	460-00-4	113	%	70-130	06.27.2020 22:44	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 3'**
Lab Sample Id: 665085-007

Matrix: Soil
Date Collected: 06.22.2020 11:49

Date Received: 06.23.2020 08:39

Analytical Method: Chloride by EPA 300

Tech: CHE

Analyst: CHE

Seq Number: 3129779

Prep Method: E300P

% Moisture:

Date Prep: 06.23.2020 16:20

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1610	25.0	mg/kg	06.23.2020 19:38		5

Analytical Method: TPH by SW8015 Mod

Tech: DVM

Analyst: ARM

Seq Number: 3129788

Prep Method: SW8015P

% Moisture:

Date Prep: 06.23.2020 11:00

Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.23.2020 15:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	06.23.2020 15:41	
o-Terphenyl	84-15-1	104	%	70-130	06.23.2020 15:41	



Certificate of Analytical Results 665085

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: **S-9 3'**
Lab Sample Id: 665085-007

Matrix: Soil
Date Collected: 06.22.2020 11:49

Date Received: 06.23.2020 08:39

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

% Moisture:

Analyst: KTL

Date Prep: 07.06.2020 09:00

Basis: Wet Weight

Seq Number: 3130810

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.06.2020 14:41	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.06.2020 14:41	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.06.2020 14:41	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.06.2020 14:41	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.06.2020 14:41	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.06.2020 14:41	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.06.2020 14:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	105	%	70-130	07.06.2020 14:41	
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.06.2020 14:41	



Xenco

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.
Vacuum Glorieta

Analytical Method: Chloride by EPA 300

Seq Number: 3129776

MB Sample Id: 7706029-1-BLK

Matrix: Solid

LCS Sample Id: 7706029-1-BKS

Prep Method: E300P

Date Prep: 06.23.2020

LCSD Sample Id: 7706029-1-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	253	101	253	101	90-110	0	20	mg/kg	06.23.2020 19:02	

Analytical Method: Chloride by EPA 300

Seq Number: 3129779

MB Sample Id: 7706030-1-BLK

Matrix: Solid

LCS Sample Id: 7706030-1-BKS

Prep Method: E300P

Date Prep: 06.23.2020

LCSD Sample Id: 7706030-1-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	245	98	247	99	90-110	1	20	mg/kg	06.23.2020 18:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3129776

Parent Sample Id: 665093-001

Matrix: Solid

MS Sample Id: 665093-001 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665093-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	6.51	248	269	106	267	105	90-110	1	20	mg/kg	06.23.2020 19:21	

Analytical Method: Chloride by EPA 300

Seq Number: 3129776

Parent Sample Id: 665093-007

Matrix: Solid

MS Sample Id: 665093-007 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665093-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.96	248	258	104	257	104	90-110	0	20	mg/kg	06.23.2020 20:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3129779

Parent Sample Id: 665098-001

Matrix: Soil

MS Sample Id: 665098-001 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665098-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	351	248	612	105	612	105	90-110	0	20	mg/kg	06.23.2020 19:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3129779

Parent Sample Id: 665099-004

Matrix: Soil

MS Sample Id: 665099-004 S

Prep Method: E300P

Date Prep: 06.23.2020

MSD Sample Id: 665099-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	202	253	482	111	456	100	90-110	6	20	mg/kg	06.23.2020 20:23	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.
Vacuum Glorieta

Analytical Method: TPH by SW8015 Mod

Seq Number: 3129788

MB Sample Id: 7706004-1-BLK

Matrix: Solid

LCS Sample Id: 7706004-1-BKS

Prep Method: SW8015P

Date Prep: 06.23.2020

LCSD Sample Id: 7706004-1-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	883	88	851	85	70-130	4	20	mg/kg	06.23.2020 12:04	
Diesel Range Organics (DRO)	<50.0	1000	870	87	867	87	70-130	0	20	mg/kg	06.23.2020 12:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		110		106		70-130	%	06.23.2020 12:04
o-Terphenyl	103		105		99		70-130	%	06.23.2020 12:04

Analytical Method: TPH by SW8015 Mod

Seq Number: 3129788

Matrix: Solid

MB Sample Id: 7706004-1-BLK

Prep Method: SW8015P

Date Prep: 06.23.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.23.2020 11:43	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3129788

Matrix: Soil

Parent Sample Id: 665085-001

MS Sample Id: 665085-001 S

Prep Method: SW8015P

Date Prep: 06.23.2020

MSD Sample Id: 665085-001 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	840	84	844	84	70-130	0	20	mg/kg	06.23.2020 13:09	
Diesel Range Organics (DRO)	<49.9	997	872	87	881	88	70-130	1	20	mg/kg	06.23.2020 13:09	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		111		70-130	%	06.23.2020 13:09
o-Terphenyl	103		102		70-130	%	06.23.2020 13:09

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130222

Matrix: Solid

MB Sample Id: 7706352-1-BLK

LCS Sample Id: 7706352-1-BKS

Prep Method: SW5035A

Date Prep: 06.26.2020

LCSD Sample Id: 7706352-1-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	0.0949	95	0.0866	87	70-130	9	35	mg/kg	06.27.2020 13:50	
Toluene	<0.00200	0.100	0.0911	91	0.0870	87	70-130	5	35	mg/kg	06.27.2020 13:50	
Ethylbenzene	<0.00200	0.100	0.0917	92	0.0894	89	70-130	3	35	mg/kg	06.27.2020 13:50	
m,p-Xylenes	<0.00400	0.200	0.173	87	0.170	85	70-130	2	35	mg/kg	06.27.2020 13:50	
o-Xylene	<0.00200	0.100	0.0902	90	0.0886	89	70-130	2	35	mg/kg	06.27.2020 13:50	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		99		96		70-130	%	06.27.2020 13:50
4-Bromofluorobenzene	98		93		95		70-130	%	06.27.2020 13:50

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.
Vacuum Glorieta

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130810

MB Sample Id: 7706751-1-BLK

Matrix: Solid

LCS Sample Id: 7706751-1-BKS

Prep Method: SW5035A

Date Prep: 07.06.2020

LCSD Sample Id: 7706751-1-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	0.104	104	0.104	104	70-130	0	35	mg/kg	07.06.2020 11:35	
Toluene	<0.00200	0.100	0.0944	94	0.0965	97	70-130	2	35	mg/kg	07.06.2020 11:35	
Ethylbenzene	<0.00200	0.100	0.0930	93	0.0944	94	70-130	1	35	mg/kg	07.06.2020 11:35	
m,p-Xylenes	<0.00400	0.200	0.175	88	0.178	89	70-130	2	35	mg/kg	07.06.2020 11:35	
o-Xylene	<0.00200	0.100	0.0878	88	0.0905	91	70-130	3	35	mg/kg	07.06.2020 11:35	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	111		99		100		70-130	%	07.06.2020 11:35
4-Bromofluorobenzene	85		86		91		70-130	%	07.06.2020 11:35

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130222

Parent Sample Id: 664989-016

Matrix: Soil

MS Sample Id: 664989-016 S

Prep Method: SW5035A

Date Prep: 06.26.2020

MSD Sample Id: 664989-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.0492	49	0.0253	25	70-130	64	35	mg/kg	06.27.2020 14:31	XF
Toluene	<0.00202	0.101	0.0519	51	0.0306	30	70-130	52	35	mg/kg	06.27.2020 14:31	XF
Ethylbenzene	<0.00202	0.101	0.0535	53	0.0322	32	70-130	50	35	mg/kg	06.27.2020 14:31	XF
m,p-Xylenes	<0.00403	0.202	0.103	51	0.0654	32	70-130	45	35	mg/kg	06.27.2020 14:31	XF
o-Xylene	<0.00202	0.101	0.0549	54	0.0366	36	70-130	40	35	mg/kg	06.27.2020 14:31	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		99		70-130	%	06.27.2020 14:31
4-Bromofluorobenzene	96		104		70-130	%	06.27.2020 14:31

Analytical Method: BTEX by EPA 8021B

Seq Number: 3130810

Parent Sample Id: 666230-006

Matrix: Soil

MS Sample Id: 666230-006 S

Prep Method: SW5035A

Date Prep: 07.06.2020

MSD Sample Id: 666230-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0954	96	0.0888	90	70-130	7	35	mg/kg	07.06.2020 12:17	
Toluene	<0.00200	0.0998	0.0743	74	0.0657	66	70-130	12	35	mg/kg	07.06.2020 12:17	X
Ethylbenzene	<0.00200	0.0998	0.0594	60	0.0513	52	70-130	15	35	mg/kg	07.06.2020 12:17	X
m,p-Xylenes	<0.00399	0.200	0.0846	42	0.0668	34	70-130	24	35	mg/kg	07.06.2020 12:17	X
o-Xylene	<0.00200	0.0998	0.0631	63	0.0575	58	70-130	9	35	mg/kg	07.06.2020 12:17	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		103		70-130	%	07.06.2020 12:17
4-Bromofluorobenzene	88		89		70-130	%	07.06.2020 12:17

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

CHAIN-OF-CUSTODY

XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 06.23.2020 08.39.00 AM

Work Order #: 665085

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)?	2.2
#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: 06.23.2020

Checklist reviewed by:



Holly Taylor

Date: 06.24.2020

Certificate of Analysis Summary 667963



Larson and Associates, Inc., Midland, TX

Project Name: Vaccum Glorieta

Project Id: 20-0107-12

Date Received in Lab: Thu 07.23.2020 08:21

Contact: Mark Larson

Report Date: 07.29.2020 13:39

Project Location:

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	667963-001	667963-002	667963-003	667963-004	667963-005	667963-006
	<i>Field Id:</i>	BH-1 5'	BH-1 10'	BH-1 15'	BH-1 20'	BH-1 25'	BH-2 5'
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	07.22.2020 11:05	07.22.2020 11:10	07.22.2020 11:12	07.22.2020 11:14	07.22.2020 12:30	07.22.2020 12:58
BTEX by EPA 8021B	<i>Extracted:</i>	07.27.2020 09:00					07.27.2020 09:00
	<i>Analyzed:</i>	07.27.2020 12:19					07.27.2020 12:39
	<i>Units/RL:</i>	mg/kg RL					mg/kg RL
Benzene		<0.00198 0.00198					<0.00201 0.00201
Toluene		<0.00198 0.00198					<0.00201 0.00201
Ethylbenzene		<0.00198 0.00198					<0.00201 0.00201
m,p-Xylenes		<0.00397 0.00397					<0.00402 0.00402
o-Xylene		<0.00198 0.00198					<0.00201 0.00201
Total Xylenes		<0.00198 0.00198					<0.00201 0.00201
Total BTEX		<0.00198 0.00198					<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	07.23.2020 13:45	07.23.2020 13:45	07.23.2020 13:45	07.24.2020 09:30	07.24.2020 09:30	07.24.2020 09:30
	<i>Analyzed:</i>	07.23.2020 16:46	07.23.2020 16:52	07.23.2020 16:59	07.24.2020 10:02	07.24.2020 10:21	07.24.2020 10:27
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		3230 25.0	3640 25.0	740 5.02	910 X 4.97	97.3 4.96	386 4.96
TPH by SW8015 Mod	<i>Extracted:</i>	07.24.2020 12:00					07.24.2020 12:00
	<i>Analyzed:</i>	07.24.2020 12:50					07.24.2020 13:54
	<i>Units/RL:</i>	mg/kg RL					mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0					<49.8 49.8
Diesel Range Organics (DRO)		<50.0 50.0					<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0					<49.8 49.8
Total TPH		<50.0 50.0					<49.8 49.8

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 667963



Larson and Associates, Inc., Midland, TX

Project Name: Vaccum Glorieta

Project Id: 20-0107-12

Date Received in Lab: Thu 07.23.2020 08:21

Contact: Mark Larson

Report Date: 07.29.2020 13:39

Project Location:

Project Manager: Holly Taylor

Analysis Requested	Lab Id:	667963-007	667963-008	667963-009			
	Field Id:	BH-2 10'	BH-2 15'	BH-2 20'			
	Depth:						
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	07.22.2020 13:04	07.22.2020 13:06	07.22.2020 13:08			
Chloride by EPA 300	Extracted:	07.24.2020 09:30	07.24.2020 09:30	07.24.2020 09:30			
	Analyzed:	07.24.2020 10:34	07.24.2020 10:40	07.24.2020 10:59			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		332 4.94	154 5.01	49.0 4.99			

BRL - Below Reporting Limit

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

Analytical Report 667963

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Vaccum Glorieta

20-0107-12

07.29.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNi02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.29.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **667963**
Vaccum Glorieta
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) 667963. 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. 667963 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, appearing to read "JB", written over a light blue rectangular background.

John Builes
Project Manager

A Small Business and Minority Company

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

**Sample Cross Reference 667963****Larson and Associates, Inc., Midland, TX**

Vaccum Glorieta

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 5'	S	07.22.2020 11:05		667963-001
BH-1 10'	S	07.22.2020 11:10		667963-002
BH-1 15'	S	07.22.2020 11:12		667963-003
BH-1 20'	S	07.22.2020 11:14		667963-004
BH-1 25'	S	07.22.2020 12:30		667963-005
BH-2 5'	S	07.22.2020 12:58		667963-006
BH-2 10'	S	07.22.2020 13:04		667963-007
BH-2 15'	S	07.22.2020 13:06		667963-008
BH-2 20'	S	07.22.2020 13:08		667963-009



CASE NARRATIVE

Client Name: *Larson and Associates, Inc.*

Project Name: *Vaccum Glorieta*

Project ID: 20-0107-12
Work Order Number(s): 667963

Report Date: 07.29.2020
Date Received: 07.23.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3132579 Chloride by EPA 300

Lab Sample ID 668135-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride 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: 667963-004, -005, -006, -007, -008, -009.

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



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-1 5'** Matrix: Soil Date Received: 07.23.2020 08:21
 Lab Sample Id: 667963-001 Date Collected: 07.22.2020 11:05
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 07.23.2020 13:45 Basis: Wet Weight
 Seq Number: 3132491

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3230	25.0	mg/kg	07.23.2020 16:46		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 07.24.2020 12:00 Basis: Wet Weight
 Seq Number: 3132651

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.24.2020 12:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.24.2020 12:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.24.2020 12:50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.24.2020 12:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.24.2020 12:50	
o-Terphenyl	84-15-1	106	%	70-130	07.24.2020 12:50	



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-1 5'**
Lab Sample Id: 667963-001

Matrix: Soil
Date Collected: 07.22.2020 11:05

Date Received: 07.23.2020 08:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 07.27.2020 09:00

Basis: Wet Weight

Seq Number: 3132772

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.27.2020 12:19	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.27.2020 12:19	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.27.2020 12:19	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.27.2020 12:19	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.27.2020 12:19	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.27.2020 12:19	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.27.2020 12:19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	102	%	70-130	07.27.2020 12:19	
4-Bromofluorobenzene	460-00-4	104	%	70-130	07.27.2020 12:19	



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-1 10'**
Lab Sample Id: 667963-002

Matrix: Soil
Date Collected: 07.22.2020 11:10

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.23.2020 13:45

Basis: Wet Weight

Seq Number: 3132491

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	3640	25.0	mg/kg	07.23.2020 16:52		5



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-1 15'**
Lab Sample Id: 667963-003

Matrix: Soil
Date Collected: 07.22.2020 11:12

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.23.2020 13:45

Basis: Wet Weight

Seq Number: 3132491

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	740	5.02	mg/kg	07.23.2020 16:59		1

**Certificate of Analytical Results 667963****Larson and Associates, Inc., Midland, TX**

Vaccum Glorieta

Sample Id: **BH-1 20'**
Lab Sample Id: 667963-004

Matrix: Soil
Date Collected: 07.22.2020 11:14

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.24.2020 09:30

Basis: Wet Weight

Seq Number: 3132579

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	910	4.97	mg/kg	07.24.2020 10:02	X	1

**Certificate of Analytical Results 667963****Larson and Associates, Inc., Midland, TX**

Vaccum Glorieta

Sample Id: **BH-1 25'**
Lab Sample Id: 667963-005

Matrix: Soil
Date Collected: 07.22.2020 12:30

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.24.2020 09:30

Basis: Wet Weight

Seq Number: 3132579

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	97.3	4.96	mg/kg	07.24.2020 10:21		1



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-2 5'** Matrix: Soil Date Received: 07.23.2020 08:21
 Lab Sample Id: 667963-006 Date Collected: 07.22.2020 12:58
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: SPC % Moisture:
 Analyst: SPC Date Prep: 07.24.2020 09:30 Basis: Wet Weight
 Seq Number: 3132579

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	386	4.96	mg/kg	07.24.2020 10:27		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 07.24.2020 12:00 Basis: Wet Weight
 Seq Number: 3132651

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.24.2020 13:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.24.2020 13:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.24.2020 13:54	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.24.2020 13:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-130	07.24.2020 13:54	
o-Terphenyl	84-15-1	108	%	70-130	07.24.2020 13:54	



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-2 5'**
Lab Sample Id: 667963-006

Matrix: Soil
Date Collected: 07.22.2020 12:58

Date Received: 07.23.2020 08:21

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 07.27.2020 09:00

Basis: Wet Weight

Seq Number: 3132772

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.27.2020 12:39	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.27.2020 12:39	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.27.2020 12:39	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.27.2020 12:39	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.27.2020 12:39	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.27.2020 12:39	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.27.2020 12:39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	07.27.2020 12:39		
4-Bromofluorobenzene	460-00-4	103	%	70-130	07.27.2020 12:39		



Certificate of Analytical Results 667963

Larson and Associates, Inc., Midland, TX

Vaccum Glorieta

Sample Id: **BH-2 10'**
Lab Sample Id: 667963-007

Matrix: Soil
Date Collected: 07.22.2020 13:04

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.24.2020 09:30

Basis: Wet Weight

Seq Number: 3132579

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	332	4.94	mg/kg	07.24.2020 10:34		1

**Certificate of Analytical Results 667963****Larson and Associates, Inc., Midland, TX**

Vaccum Glorieta

Sample Id: **BH-2 15'**
Lab Sample Id: 667963-008

Matrix: Soil
Date Collected: 07.22.2020 13:06

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.24.2020 09:30

Basis: Wet Weight

Seq Number: 3132579

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	154	5.01	mg/kg	07.24.2020 10:40		1

**Certificate of Analytical Results 667963****Larson and Associates, Inc., Midland, TX**

Vaccum Glorieta

Sample Id: **BH-2 20'**
Lab Sample Id: 667963-009

Matrix: Soil
Date Collected: 07.22.2020 13:08

Date Received: 07.23.2020 08:21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SPC

% Moisture:

Analyst: SPC

Date Prep: 07.24.2020 09:30

Basis: Wet Weight

Seq Number: 3132579

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	49.0	4.99	mg/kg	07.24.2020 10:59		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.
Vaccum Glorieta

Analytical Method: Chloride by EPA 300

Seq Number: 3132491

MB Sample Id: 7707929-1-BLK

Matrix: Solid

LCS Sample Id: 7707929-1-BKS

Prep Method: E300P

Date Prep: 07.23.2020

LCSD Sample Id: 7707929-1-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	260	104	261	104	90-110	0	20	mg/kg	07.23.2020 13:55	

Analytical Method: Chloride by EPA 300

Seq Number: 3132579

MB Sample Id: 7707992-1-BLK

Matrix: Solid

LCS Sample Id: 7707992-1-BKS

Prep Method: E300P

Date Prep: 07.24.2020

LCSD Sample Id: 7707992-1-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	258	103	260	104	90-110	1	20	mg/kg	07.24.2020 09:49	

Analytical Method: Chloride by EPA 300

Seq Number: 3132491

Parent Sample Id: 667947-009

Matrix: Soil

MS Sample Id: 667947-009 S

Prep Method: E300P

Date Prep: 07.23.2020

MSD Sample Id: 667947-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	99.1	253	363	104	363	104	90-110	0	20	mg/kg	07.23.2020 15:43	

Analytical Method: Chloride by EPA 300

Seq Number: 3132491

Parent Sample Id: 667991-003

Matrix: Soil

MS Sample Id: 667991-003 S

Prep Method: E300P

Date Prep: 07.23.2020

MSD Sample Id: 667991-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.3	249	313	113	313	113	90-110	0	20	mg/kg	07.23.2020 14:14	X

Analytical Method: Chloride by EPA 300

Seq Number: 3132579

Parent Sample Id: 667963-004

Matrix: Soil

MS Sample Id: 667963-004 S

Prep Method: E300P

Date Prep: 07.24.2020

MSD Sample Id: 667963-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	910	249	1130	88	1130	88	90-110	0	20	mg/kg	07.24.2020 10:08	X

Analytical Method: Chloride by EPA 300

Seq Number: 3132579

Parent Sample Id: 668135-001

Matrix: Solid

MS Sample Id: 668135-001 S

Prep Method: E300P

Date Prep: 07.24.2020

MSD Sample Id: 668135-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	903	250	1130	91	1130	91	90-110	0	20	mg/kg	07.24.2020 12:02	

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.
Vaccum Glorieta

Analytical Method: TPH by SW8015 Mod

Seq Number: 3132651

MB Sample Id: 7708088-1-BLK

Matrix: Solid

LCS Sample Id: 7708088-1-BKS

Prep Method: SW8015P

Date Prep: 07.24.2020

LCSD Sample Id: 7708088-1-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	861	86	822	82	70-130	5	20	mg/kg	07.24.2020 12:07	
Diesel Range Organics (DRO)	<50.0	1000	891	89	880	88	70-130	1	20	mg/kg	07.24.2020 12:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		89		92		70-130	%	07.24.2020 12:07
o-Terphenyl	104		101		98		70-130	%	07.24.2020 12:07

Analytical Method: TPH by SW8015 Mod

Seq Number: 3132651

Matrix: Solid

Prep Method: SW8015P

Date Prep: 07.24.2020

MB Sample Id: 7708088-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.24.2020 11:45	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3132651

Matrix: Soil

Prep Method: SW8015P

Date Prep: 07.24.2020

Parent Sample Id: 667963-001

MS Sample Id: 667963-001 S

MSD Sample Id: 667963-001 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	998	809	81	822	82	70-130	2	20	mg/kg	07.24.2020 13:11	
Diesel Range Organics (DRO)	<49.9	998	838	84	853	86	70-130	2	20	mg/kg	07.24.2020 13:11	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		91		70-130	%	07.24.2020 13:11
o-Terphenyl	96		97		70-130	%	07.24.2020 13:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3132772

Matrix: Solid

Prep Method: SW5035A

Date Prep: 07.27.2020

MB Sample Id: 7708187-1-BLK

LCS Sample Id: 7708187-1-BKS

LCSD Sample Id: 7708187-1-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	0.0957	96	0.0995	100	70-130	4	35	mg/kg	07.27.2020 10:15	
Toluene	<0.00200	0.100	0.0850	85	0.0881	88	70-130	4	35	mg/kg	07.27.2020 10:15	
Ethylbenzene	<0.00200	0.100	0.0955	96	0.0987	99	70-130	3	35	mg/kg	07.27.2020 10:15	
m,p-Xylenes	<0.00400	0.200	0.194	97	0.202	101	70-130	4	35	mg/kg	07.27.2020 10:15	
o-Xylene	<0.00200	0.100	0.0952	95	0.0989	99	70-130	4	35	mg/kg	07.27.2020 10:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		96		99		70-130	%	07.27.2020 10:15
4-Bromofluorobenzene	100		97		100		70-130	%	07.27.2020 10:15

 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.
 Vaccum Glorieta
Analytical Method: BTEX by EPA 8021B

Seq Number: 3132772

Parent Sample Id: 667963-001

Matrix: Soil

MS Sample Id: 667963-001 S

Prep Method: SW5035A

Date Prep: 07.27.2020

MSD Sample Id: 667963-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0818	82	0.0901	90	70-130	10	35	mg/kg	07.27.2020 10:56	
Toluene	<0.00199	0.0996	0.0815	82	0.0886	89	70-130	8	35	mg/kg	07.27.2020 10:56	
Ethylbenzene	<0.00199	0.0996	0.0809	81	0.0899	90	70-130	11	35	mg/kg	07.27.2020 10:56	
m,p-Xylenes	<0.00398	0.199	0.166	83	0.183	92	70-130	10	35	mg/kg	07.27.2020 10:56	
o-Xylene	<0.00199	0.0996	0.0808	81	0.0895	90	70-130	10	35	mg/kg	07.27.2020 10:56	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		98		70-130	%	07.27.2020 10:56
4-Bromofluorobenzene	101		101		70-130	%	07.27.2020 10:56

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

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

DATE: 7/22/7 PAGE 1 OF 1
PO#: _____ LAB WORK ORDER#: _____
PROJECT LOCATION OR NAME: Vaduvu Morieta
LAI PROJECT #: 20-0107-12 COLLECTOR: TJ+DS

067943

CHAIN-OF-CUSTODY

No. 206

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER	
☐ Yes ☒ No					
TIME ZONE:					
Time zone/State:					
MS T					
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers
BH-1 5'		7/23/20	1105	S	1
BH-1 10'			1110		
BH-1 15'			1112		
BH-1 20'			1114		
BH-1 25'			1230		
BH-2 5'			1258		
BH-2 10'			1304		
BH-2 15'			1306		
BH-2 20'			1308		
TOTAL 9					
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
[Signature]		7/23/20		[Signature]	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
LABORATORY: XELCO					
PRESERVATION					
HCl					
HNO ₃					
H ₂ SO ₄ ☐ NaOH ☐					
ICE					
UNPRESERVED					
ANALYSES					
BTEX ☐ MTBE ☐					
TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐					
GASOLINE MOD 8015 ☐					
DIESEL - MOD 8015 ☐					
OIL - MOD 8015 ☐					
VOC 8260 ☐					
SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐					
8081 PESTICIDES ☐ 8151 HERBICIDES ☐					
TBLP - METALS (RCRA) ☐ TCLP VOC ☐					
TCLP - PEST ☐ HERB ☐ Semi-VOC ☐					
TOTAL METALS (RCRA) ☐ OTHER LIST ☐					
LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐					
RCI ☐ TOX ☐ FLASHPOINT ☐					
TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐					
PH ☐ HEXAVALENT CHROMIUM ☐					
EXPLOSIVES ☐ PECHLORATE ☐					
CHLORIDE ☐ ANIONS ☐ ALKALINITY ☐					
FIELD NOTES					
TURN AROUND TIME					
NORMAL ☒					
1 DAY ☐					
2 DAY ☐					
OTHER ☐					
LABORATORY USE ONLY:					
RECEIVING TEMP: 33/29 THERM #: 1A-20					
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED					
☐ CARRIER BILL #					
☐ HAND DELIVERED					

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.23.2020 08.21.59 AM

Work Order #: 667963

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)?	2.9
#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: 07.23.2020

Checklist reviewed by:



Holly Taylor

Date: 07.27.2020

Certificate of Analysis Summary 668113



Larson and Associates, Inc., Midland, TX

Project Name: Vacuum Glorieta

Project Id:

Date Received in Lab: Fri 07.24.2020 08:13

Contact: Mark Larson

Report Date: 07.29.2020 13:38

Project Location:

Project Manager: Holly Taylor

Analysis Requested	Lab Id:	668113-001	668113-002				
	Field Id:	S-10 .5'	S-10 .5'-1'				
	Depth:						
	Matrix:	SOIL	SOIL				
	Sampled:	07.23.2020 10:10	07.23.2020 10:12				
BTEX by EPA 8021B	Extracted:	07.27.2020 09:00	07.27.2020 09:00				
	Analyzed:	07.27.2020 13:00	07.27.2020 13:20				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00200 0.00200	<0.00199 0.00199				
Toluene		<0.00200 0.00200	<0.00199 0.00199				
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199				
m,p-Xylenes		<0.00401 0.00401	<0.00398 0.00398				
o-Xylene		<0.00200 0.00200	<0.00199 0.00199				
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199				
Total BTEX		<0.00200 0.00200	<0.00199 0.00199				
Chloride by EPA 300	Extracted:	07.24.2020 14:30	07.24.2020 14:30				
	Analyzed:	07.24.2020 15:28	07.24.2020 15:43				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		25.0 5.02	12.9 4.97				
TPH by SW8015 Mod	Extracted:	07.24.2020 12:00	07.24.2020 12:00				
	Analyzed:	07.24.2020 14:16	07.24.2020 14:38				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0				
Diesel Range Organics (DRO)		<49.9 49.9	<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0				
Total TPH		<49.9 49.9	<50.0 50.0				

BRL - Below Reporting Limit

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

Analytical Report 668113

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Vacuum Glorieta

07.29.2020

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-20-36), Arizona (AZ0765), Florida (E871002-33), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (20-035-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-20-25), Arizona (AZ0809)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-17)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-22)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-19-19)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-20-7)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Tampa: Florida (E87429), North Carolina (483)



07.29.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **668113**
Vacuum Glorieta
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) 668113. 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. 668113 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, appearing to read "JB", written over a light blue rectangular background.

John Builes
Project Manager

A Small Business and Minority Company

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



Sample Cross Reference 668113

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-10 .5'	S	07.23.2020 10:10		668113-001
S-10 .5'-1'	S	07.23.2020 10:12		668113-002



CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: Vacuum Glorieta

Project ID:
Work Order Number(s): 668113

Report Date: 07.29.2020
Date Received: 07.24.2020

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 668113

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-10 .5' Matrix: Soil Date Received: 07.24.2020 08:13
 Lab Sample Id: 668113-001 Date Collected: 07.23.2020 10:10
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: CHE % Moisture:
 Analyst: CHE Date Prep: 07.24.2020 14:30 Basis: Wet Weight
 Seq Number: 3132617

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	25.0	5.02	mg/kg	07.24.2020 15:28		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: DVM % Moisture:
 Analyst: ARM Date Prep: 07.24.2020 12:00 Basis: Wet Weight
 Seq Number: 3132651

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.24.2020 14:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.24.2020 14:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.24.2020 14:16	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.24.2020 14:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.24.2020 14:16	
o-Terphenyl	84-15-1	96	%	70-130	07.24.2020 14:16	



Certificate of Analytical Results 668113

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-10.5'
Lab Sample Id: 668113-001

Matrix: Soil
Date Collected: 07.23.2020 10:10

Date Received: 07.24.2020 08:13

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 07.27.2020 09:00

Basis: Wet Weight

Seq Number: 3132772

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.27.2020 13:00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.27.2020 13:00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.27.2020 13:00	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.27.2020 13:00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.27.2020 13:00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.27.2020 13:00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.27.2020 13:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	104	%	70-130	07.27.2020 13:00		
1,4-Difluorobenzene	540-36-3	104	%	70-130	07.27.2020 13:00		



Certificate of Analytical Results 668113

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-10.5'-1'

Matrix: Soil

Date Received: 07.24.2020 08:13

Lab Sample Id: 668113-002

Date Collected: 07.23.2020 10:12

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: CHE

Date Prep: 07.24.2020 14:30

Basis: Wet Weight

Seq Number: 3132617

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	12.9	4.97	mg/kg	07.24.2020 15:43		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

% Moisture:

Analyst: ARM

Date Prep: 07.24.2020 12:00

Basis: Wet Weight

Seq Number: 3132651

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.24.2020 14:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.24.2020 14:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.24.2020 14:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.24.2020 14:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-130	07.24.2020 14:38	
o-Terphenyl	84-15-1	98	%	70-130	07.24.2020 14:38	



Certificate of Analytical Results 668113

Larson and Associates, Inc., Midland, TX

Vacuum Glorieta

Sample Id: S-10.5'-1'

Matrix: Soil

Date Received: 07.24.2020 08:13

Lab Sample Id: 668113-002

Date Collected: 07.23.2020 10:12

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: AMF

% Moisture:

Analyst: AMF

Date Prep: 07.27.2020 09:00

Basis: Wet Weight

Seq Number: 3132772

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.27.2020 13:20	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	07.27.2020 13:20	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.27.2020 13:20	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.27.2020 13:20	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.27.2020 13:20	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.27.2020 13:20	U	1
Total BTEX		<0.00199	0.00199	mg/kg	07.27.2020 13:20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	102	%	70-130	07.27.2020 13:20		
1,4-Difluorobenzene	540-36-3	102	%	70-130	07.27.2020 13:20		

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.
Vacuum Glorieta

Analytical Method: Chloride by EPA 300

Seq Number: 3132617

MB Sample Id: 7708035-1-BLK

Matrix: Solid

LCS Sample Id: 7708035-1-BKS

Prep Method: E300P

Date Prep: 07.24.2020

LCSD Sample Id: 7708035-1-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	266	106	275	110	90-110	3	20	mg/kg	07.24.2020 15:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3132617

Parent Sample Id: 668113-001

Matrix: Soil

MS Sample Id: 668113-001 S

Prep Method: E300P

Date Prep: 07.24.2020

MSD Sample Id: 668113-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	25.0	251	294	107	295	108	90-110	0	20	mg/kg	07.24.2020 15:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3132617

Parent Sample Id: 668114-009

Matrix: Soil

MS Sample Id: 668114-009 S

Prep Method: E300P

Date Prep: 07.24.2020

MSD Sample Id: 668114-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	189	250	439	100	433	98	90-110	1	20	mg/kg	07.24.2020 16:46	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3132651

MB Sample Id: 7708088-1-BLK

Matrix: Solid

LCS Sample Id: 7708088-1-BKS

Prep Method: SW8015P

Date Prep: 07.24.2020

LCSD Sample Id: 7708088-1-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	861	86	822	82	70-130	5	20	mg/kg	07.24.2020 12:07	
Diesel Range Organics (DRO)	<50.0	1000	891	89	880	88	70-130	1	20	mg/kg	07.24.2020 12:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		89		92		70-130	%	07.24.2020 12:07
o-Terphenyl	104		101		98		70-130	%	07.24.2020 12:07

Analytical Method: TPH by SW8015 Mod

Seq Number: 3132651

Matrix: Solid

MB Sample Id: 7708088-1-BLK

Prep Method: SW8015P

Date Prep: 07.24.2020

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.24.2020 11:45	

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.
Vacuum Glorieta

Analytical Method: TPH by SW8015 Mod

Seq Number: 3132651

Parent Sample Id: 667963-001

Matrix: Soil

MS Sample Id: 667963-001 S

Prep Method: SW8015P

Date Prep: 07.24.2020

MSD Sample Id: 667963-001 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	998	809	81	822	82	70-130	2	20	mg/kg	07.24.2020 13:11	
Diesel Range Organics (DRO)	<49.9	998	838	84	853	86	70-130	2	20	mg/kg	07.24.2020 13:11	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		91		70-130	%	07.24.2020 13:11
o-Terphenyl	96		97		70-130	%	07.24.2020 13:11

Analytical Method: BTEX by EPA 8021B

Seq Number: 3132772

MB Sample Id: 7708187-1-BLK

Matrix: Solid

LCS Sample Id: 7708187-1-BKS

Prep Method: SW5035A

Date Prep: 07.27.2020

LCSD Sample Id: 7708187-1-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	0.0957	96	0.0995	100	70-130	4	35	mg/kg	07.27.2020 10:15	
Toluene	<0.00200	0.100	0.0850	85	0.0881	88	70-130	4	35	mg/kg	07.27.2020 10:15	
Ethylbenzene	<0.00200	0.100	0.0955	96	0.0987	99	70-130	3	35	mg/kg	07.27.2020 10:15	
m,p-Xylenes	<0.00400	0.200	0.194	97	0.202	101	70-130	4	35	mg/kg	07.27.2020 10:15	
o-Xylene	<0.00200	0.100	0.0952	95	0.0989	99	70-130	4	35	mg/kg	07.27.2020 10:15	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		96		99		70-130	%	07.27.2020 10:15
4-Bromofluorobenzene	100		97		100		70-130	%	07.27.2020 10:15

Analytical Method: BTEX by EPA 8021B

Seq Number: 3132772

Parent Sample Id: 667963-001

Matrix: Soil

MS Sample Id: 667963-001 S

Prep Method: SW5035A

Date Prep: 07.27.2020

MSD Sample Id: 667963-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0818	82	0.0901	90	70-130	10	35	mg/kg	07.27.2020 10:56	
Toluene	<0.00199	0.0996	0.0815	82	0.0886	89	70-130	8	35	mg/kg	07.27.2020 10:56	
Ethylbenzene	<0.00199	0.0996	0.0809	81	0.0899	90	70-130	11	35	mg/kg	07.27.2020 10:56	
m,p-Xylenes	<0.00398	0.199	0.166	83	0.183	92	70-130	10	35	mg/kg	07.27.2020 10:56	
o-Xylene	<0.00199	0.0996	0.0808	81	0.0895	90	70-130	10	35	mg/kg	07.27.2020 10:56	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		98		70-130	%	07.27.2020 10:56
4-Bromofluorobenzene	101		101		70-130	%	07.27.2020 10:56

 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

CHAIN-OF-CUSTODY

Environmental Consultants

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

Data Reported to:

PO#:

PROJECT LOCATION OR NAME:

LAI PROJECT #: 20-0107-12

PAGE 1 OF 1

LAB WORK ORDER#:

Vaccu Ciaricta

COLLECTOR: TT

Released to Imaging: 12/6/2021 2:39:28 PM

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.24.2020 08.13.00 AM

Work Order #: 668113

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)?	.4
#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

BTEX was in bulk container

* 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: 07.24.2020

Checklist reviewed by:



Holly Taylor

Date: 07.27.2020



Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-4353-1
Client Project/Site: VGWU #41

For:

Larson & Associates, Inc.
507 N Marienfeld
Suite 202
Midland, Texas 79701

Attn: Mr. Mark J Larson

Holly Taylor

Authorized for release by:
7/31/2021 9:27:39 AM

Holly Taylor, Project Manager
(806)794-1296
holly.taylor@eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Laboratory Job ID: 880-4353-1

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Eurofins Xenco, Midland

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Job ID: 880-4353-1**Laboratory: Eurofins Xenco, Midland****Narrative****Job Narrative
880-4353-1****Receipt**

The samples were received on 7/26/2021 2:37 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.5°C

GC VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-5766 and analytical batch 880-5856 recovered outside control limits for the following analytes: Gasoline Range Organics (GRO)-C6-C10 and Diesel Range Organics (Over C10-C28)

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-1

Lab Sample ID: 880-4353-1

Date Collected: 07/20/21 11:40

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 02:20	1
Toluene	0.00436		0.00200	mg/Kg		07/26/21 16:00	07/27/21 02:20	1
Ethylbenzene	0.00303		0.00200	mg/Kg		07/26/21 16:00	07/27/21 02:20	1
m,p-Xylenes	0.00969		0.00400	mg/Kg		07/26/21 16:00	07/27/21 02:20	1
o-Xylene	0.00497		0.00200	mg/Kg		07/26/21 16:00	07/27/21 02:20	1
Xylenes, Total	0.0147		0.00400	mg/Kg		07/26/21 16:00	07/27/21 02:20	1
Total BTEX	0.0221		0.00400	mg/Kg		07/26/21 16:00	07/27/21 02:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	136	S1+	70 - 130	07/26/21 16:00	07/27/21 02:20	1
1,4-Difluorobenzene (Surr)	111		70 - 130	07/26/21 16:00	07/27/21 02:20	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.7	U	49.7	mg/Kg		07/27/21 10:13	07/30/21 14:22	1
Diesel Range Organics (Over C10-C28)	97.4		49.7	mg/Kg		07/27/21 10:13	07/30/21 14:22	1
Oil Range Organics (Over C28-C36)	<49.7	U	49.7	mg/Kg		07/27/21 10:13	07/30/21 14:22	1
Total TPH	97.4		49.7	mg/Kg		07/27/21 10:13	07/30/21 14:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	17	S1-	70 - 130	07/27/21 10:13	07/30/21 14:22	1
o-Terphenyl (Surr)	16	S1-	70 - 130	07/27/21 10:13	07/30/21 14:22	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.4		4.96	mg/Kg			07/28/21 22:00	1

Client Sample ID: C-2

Lab Sample ID: 880-4353-2

Date Collected: 07/20/21 11:41

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 02:41	1
Toluene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 02:41	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 02:41	1
m,p-Xylenes	<0.00396	U	0.00396	mg/Kg		07/26/21 16:00	07/27/21 02:41	1
o-Xylene	0.00313		0.00198	mg/Kg		07/26/21 16:00	07/27/21 02:41	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		07/26/21 16:00	07/27/21 02:41	1
Total BTEX	<0.00396	U	0.00396	mg/Kg		07/26/21 16:00	07/27/21 02:41	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	136	S1+	70 - 130	07/26/21 16:00	07/27/21 02:41	1
1,4-Difluorobenzene (Surr)	107		70 - 130	07/26/21 16:00	07/27/21 02:41	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 18:28	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-2

Lab Sample ID: 880-4353-2

Date Collected: 07/20/21 11:41

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 18:28	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 18:28	1
Total TPH	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 18:28	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	88		70 - 130			07/27/21 10:13	07/30/21 18:28	1
o-Terphenyl (Surr)	90		70 - 130			07/27/21 10:13	07/30/21 18:28	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	20.5		4.99	mg/Kg			07/28/21 22:17	1

Client Sample ID: C-3

Lab Sample ID: 880-4353-3

Date Collected: 07/20/21 11:42

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
m,p-Xylenes	<0.00399	U	0.00399	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		07/26/21 16:00	07/27/21 03:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	137	S1+	70 - 130			07/26/21 16:00	07/27/21 03:01	1
1,4-Difluorobenzene (Surr)	102		70 - 130			07/26/21 16:00	07/27/21 03:01	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 18:48	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 18:48	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 18:48	1
Total TPH	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 18:48	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 18:48	1
o-Terphenyl (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 18:48	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	77.5		5.04	mg/Kg			07/28/21 22:22	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-4

Lab Sample ID: 880-4353-4

Date Collected: 07/20/21 11:45

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:23	1
Toluene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:23	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:23	1
m,p-Xylenes	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 04:23	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:23	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 04:23	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 04:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	07/26/21 16:00	07/27/21 04:23	1
1,4-Difluorobenzene (Surr)	105		70 - 130	07/26/21 16:00	07/27/21 04:23	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:09	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:09	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:09	1
Total TPH	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	82		70 - 130	07/27/21 10:13	07/30/21 19:09	1
o-Terphenyl (Surr)	83		70 - 130	07/27/21 10:13	07/30/21 19:09	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	151		5.02	mg/Kg			07/28/21 22:27	1

Client Sample ID: C-5

Lab Sample ID: 880-4353-5

Date Collected: 07/20/21 11:48

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:43	1
Toluene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:43	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:43	1
m,p-Xylenes	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 04:43	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 04:43	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 04:43	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 04:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	130		70 - 130	07/26/21 16:00	07/27/21 04:43	1
1,4-Difluorobenzene (Surr)	103		70 - 130	07/26/21 16:00	07/27/21 04:43	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 19:29	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-5

Lab Sample ID: 880-4353-5

Date Collected: 07/20/21 11:48

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 19:29	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 19:29	1
Total TPH	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 19:29	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 19:29	1
o-Terphenyl (Surr)	87		70 - 130			07/27/21 10:13	07/30/21 19:29	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1730		24.9	mg/Kg			07/28/21 22:33	5

Client Sample ID: C-6

Lab Sample ID: 880-4353-6

Date Collected: 07/20/21 11:49

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
Toluene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
m,p-Xylenes	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 05:04	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	130		70 - 130			07/26/21 16:00	07/27/21 05:04	1
1,4-Difluorobenzene (Surr)	99		70 - 130			07/26/21 16:00	07/27/21 05:04	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:49	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:49	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:49	1
Total TPH	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 19:49	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	89		70 - 130			07/27/21 10:13	07/30/21 19:49	1
o-Terphenyl (Surr)	93		70 - 130			07/27/21 10:13	07/30/21 19:49	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	464		4.98	mg/Kg			07/28/21 22:38	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-7

Lab Sample ID: 880-4353-7

Date Collected: 07/20/21 11:50

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 05:24	1
Toluene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 05:24	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 05:24	1
m,p-Xylenes	<0.00397	U	0.00397	mg/Kg		07/26/21 16:00	07/27/21 05:24	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 05:24	1
Xylenes, Total	<0.00397	U	0.00397	mg/Kg		07/26/21 16:00	07/27/21 05:24	1
Total BTEX	<0.00397	U	0.00397	mg/Kg		07/26/21 16:00	07/27/21 05:24	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	130		70 - 130	07/26/21 16:00	07/27/21 05:24	1
1,4-Difluorobenzene (Surr)	96		70 - 130	07/26/21 16:00	07/27/21 05:24	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 20:10	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 20:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 20:10	1
Total TPH	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 20:10	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	98		70 - 130	07/27/21 10:13	07/30/21 20:10	1
o-Terphenyl (Surr)	107		70 - 130	07/27/21 10:13	07/30/21 20:10	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	150		5.00	mg/Kg			07/28/21 22:44	1

Client Sample ID: C-8

Lab Sample ID: 880-4353-8

Date Collected: 07/20/21 11:52

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 05:44	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 05:44	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 05:44	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		07/26/21 16:00	07/27/21 05:44	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 05:44	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/26/21 16:00	07/27/21 05:44	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		07/26/21 16:00	07/27/21 05:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130	07/26/21 16:00	07/27/21 05:44	1
1,4-Difluorobenzene (Surr)	96		70 - 130	07/26/21 16:00	07/27/21 05:44	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:31	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-8

Lab Sample ID: 880-4353-8

Date Collected: 07/20/21 11:52

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:31	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:31	1
Total TPH	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:31	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	86		70 - 130			07/27/21 10:13	07/30/21 20:31	1
o-Terphenyl (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 20:31	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	124		4.99	mg/Kg			07/28/21 23:00	1

Client Sample ID: C-9

Lab Sample ID: 880-4353-9

Date Collected: 07/20/21 11:53

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00202	U	0.00202	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
Toluene	<0.00202	U	0.00202	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
Ethylbenzene	<0.00202	U	0.00202	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
m,p-Xylenes	<0.00403	U	0.00403	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
o-Xylene	<0.00202	U	0.00202	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
Xylenes, Total	<0.00403	U	0.00403	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
Total BTEX	<0.00403	U	0.00403	mg/Kg		07/26/21 16:00	07/27/21 06:05	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	117		70 - 130			07/26/21 16:00	07/27/21 06:05	1
1,4-Difluorobenzene (Surr)	98		70 - 130			07/26/21 16:00	07/27/21 06:05	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:51	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:51	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:51	1
Total TPH	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 20:51	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 20:51	1
o-Terphenyl (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 20:51	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	168		4.95	mg/Kg			07/28/21 23:05	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-10

Lab Sample ID: 880-4353-10

Date Collected: 07/20/21 11:55

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 06:25	1
Toluene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 06:25	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 06:25	1
m,p-Xylenes	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 06:25	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:00	07/27/21 06:25	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 06:25	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		07/26/21 16:00	07/27/21 06:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130	07/26/21 16:00	07/27/21 06:25	1
1,4-Difluorobenzene (Surr)	96		70 - 130	07/26/21 16:00	07/27/21 06:25	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 21:12	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 21:12	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 21:12	1
Total TPH	<49.9	U	49.9	mg/Kg		07/27/21 10:13	07/30/21 21:12	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	86		70 - 130	07/27/21 10:13	07/30/21 21:12	1
o-Terphenyl (Surr)	86		70 - 130	07/27/21 10:13	07/30/21 21:12	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1950		24.8	mg/Kg			07/28/21 23:21	5

Client Sample ID: C-11

Lab Sample ID: 880-4353-11

Date Collected: 07/20/21 12:00

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 06:46	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 06:46	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 06:46	1
m,p-Xylenes	<0.00399	U	0.00399	mg/Kg		07/26/21 16:00	07/27/21 06:46	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 06:46	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		07/26/21 16:00	07/27/21 06:46	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		07/26/21 16:00	07/27/21 06:46	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	07/26/21 16:00	07/27/21 06:46	1
1,4-Difluorobenzene (Surr)	96		70 - 130	07/26/21 16:00	07/27/21 06:46	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 21:32	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-11

Lab Sample ID: 880-4353-11

Date Collected: 07/20/21 12:00

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 21:32	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 21:32	1
Total TPH	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 21:32	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 21:32	1
o-Terphenyl (Surr)	85		70 - 130			07/27/21 10:13	07/30/21 21:32	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	215		5.04	mg/Kg			07/28/21 23:27	1

Client Sample ID: C-12

Lab Sample ID: 880-4353-12

Date Collected: 07/20/21 12:03

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
m,p-Xylenes	<0.00401	U	0.00401	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		07/26/21 16:00	07/27/21 07:06	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	118		70 - 130			07/26/21 16:00	07/27/21 07:06	1
1,4-Difluorobenzene (Surr)	96		70 - 130			07/26/21 16:00	07/27/21 07:06	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 08:35	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 08:35	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 08:35	1
Total TPH	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 08:35	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	98		70 - 130			07/30/21 10:16	07/31/21 08:35	1
o-Terphenyl (Surr)	111		70 - 130			07/30/21 10:16	07/31/21 08:35	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	27.3		4.98	mg/Kg			07/28/21 23:32	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-13

Lab Sample ID: 880-4353-13

Date Collected: 07/22/21 11:05

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 07:26	1
Toluene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 07:26	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 07:26	1
m,p-Xylenes	<0.00396	U	0.00396	mg/Kg		07/26/21 16:00	07/27/21 07:26	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		07/26/21 16:00	07/27/21 07:26	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		07/26/21 16:00	07/27/21 07:26	1
Total BTEX	<0.00396	U	0.00396	mg/Kg		07/26/21 16:00	07/27/21 07:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130	07/26/21 16:00	07/27/21 07:26	1
1,4-Difluorobenzene (Surr)	96		70 - 130	07/26/21 16:00	07/27/21 07:26	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 08:56	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 08:56	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 08:56	1
Total TPH	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 08:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	90		70 - 130	07/30/21 10:16	07/31/21 08:56	1
o-Terphenyl (Surr)	101		70 - 130	07/30/21 10:16	07/31/21 08:56	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3340		25.0	mg/Kg			07/28/21 23:37	5

Client Sample ID: C-14

Lab Sample ID: 880-4353-14

Date Collected: 07/22/21 11:06

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 12:20	1
Toluene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 12:20	1
Ethylbenzene	<0.00201	U F1	0.00201	mg/Kg		07/26/21 16:01	07/27/21 12:20	1
m,p-Xylenes	<0.00402	U	0.00402	mg/Kg		07/26/21 16:01	07/27/21 12:20	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 12:20	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		07/26/21 16:01	07/27/21 12:20	1
Total BTEX	<0.00402	U	0.00402	mg/Kg		07/26/21 16:01	07/27/21 12:20	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	07/26/21 16:01	07/27/21 12:20	1
1,4-Difluorobenzene (Surr)	96		70 - 130	07/26/21 16:01	07/27/21 12:20	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 09:17	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-14

Lab Sample ID: 880-4353-14

Date Collected: 07/22/21 11:06

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 09:17	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 09:17	1
Total TPH	<50.0	U	50.0	mg/Kg		07/30/21 10:16	07/31/21 09:17	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	97		70 - 130			07/30/21 10:16	07/31/21 09:17	1
o-Terphenyl (Surr)	108		70 - 130			07/30/21 10:16	07/31/21 09:17	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3240		50.0	mg/Kg			07/28/21 23:43	10

Client Sample ID: C-15

Lab Sample ID: 880-4353-15

Date Collected: 07/22/21 11:07

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
Toluene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
Ethylbenzene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
m,p-Xylenes	<0.00398	U	0.00398	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
o-Xylene	<0.00199	U	0.00199	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
Xylenes, Total	<0.00398	U	0.00398	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
Total BTEX	<0.00398	U	0.00398	mg/Kg		07/26/21 16:01	07/27/21 12:40	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	116		70 - 130			07/26/21 16:01	07/27/21 12:40	1
1,4-Difluorobenzene (Surr)	97		70 - 130			07/26/21 16:01	07/27/21 12:40	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 09:39	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 09:39	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 09:39	1
Total TPH	<49.9	U	49.9	mg/Kg		07/30/21 10:16	07/31/21 09:39	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	92		70 - 130			07/30/21 10:16	07/31/21 09:39	1
o-Terphenyl (Surr)	105		70 - 130			07/30/21 10:16	07/31/21 09:39	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2240		25.2	mg/Kg			07/28/21 23:48	5

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-16

Lab Sample ID: 880-4353-16

Date Collected: 07/22/21 11:08

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:00	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:00	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:00	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		07/26/21 16:01	07/27/21 13:00	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:00	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/26/21 16:01	07/27/21 13:00	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		07/26/21 16:01	07/27/21 13:00	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	114		70 - 130	07/26/21 16:01	07/27/21 13:00	1
1,4-Difluorobenzene (Surr)	99		70 - 130	07/26/21 16:01	07/27/21 13:00	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	50.0	mg/Kg		07/28/21 15:07	07/30/21 18:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0	mg/Kg		07/28/21 15:07	07/30/21 18:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 18:36	1
Total TPH	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 18:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	109		70 - 130	07/28/21 15:07	07/30/21 18:36	1
o-Terphenyl (Surr)	125		70 - 130	07/28/21 15:07	07/30/21 18:36	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	963		5.00	mg/Kg			07/28/21 21:35	1

Client Sample ID: C-17

Lab Sample ID: 880-4353-17

Date Collected: 07/22/21 11:09

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:21	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:21	1
m,p-Xylenes	<0.00399	U	0.00399	mg/Kg		07/26/21 16:01	07/27/21 13:21	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:21	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		07/26/21 16:01	07/27/21 13:21	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		07/26/21 16:01	07/27/21 13:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	07/26/21 16:01	07/27/21 13:21	1
1,4-Difluorobenzene (Surr)	102		70 - 130	07/26/21 16:01	07/27/21 13:21	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U *1	49.9	mg/Kg		07/28/21 15:07	07/30/21 18:57	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-17

Lab Sample ID: 880-4353-17

Date Collected: 07/22/21 11:09

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9	mg/Kg		07/28/21 15:07	07/30/21 18:57	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		07/28/21 15:07	07/30/21 18:57	1
Total TPH	<49.9	U	49.9	mg/Kg		07/28/21 15:07	07/30/21 18:57	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	109		70 - 130			07/28/21 15:07	07/30/21 18:57	1
o-Terphenyl (Surr)	124		70 - 130			07/28/21 15:07	07/30/21 18:57	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1690		25.0	mg/Kg			07/28/21 21:52	5

Client Sample ID: C-18

Lab Sample ID: 880-4353-18

Date Collected: 07/22/21 11:10

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
m,p-Xylenes	<0.00401	U	0.00401	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		07/26/21 16:01	07/27/21 13:41	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	113		70 - 130			07/26/21 16:01	07/27/21 13:41	1
1,4-Difluorobenzene (Surr)	101		70 - 130			07/26/21 16:01	07/27/21 13:41	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:18	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:18	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:18	1
Total TPH	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:18	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	107		70 - 130			07/28/21 15:07	07/30/21 19:18	1
o-Terphenyl (Surr)	120		70 - 130			07/28/21 15:07	07/30/21 19:18	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2420		25.2	mg/Kg			07/28/21 21:57	5

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-19

Lab Sample ID: 880-4353-19

Date Collected: 07/22/21 11:11

Matrix: Solid

Date Received: 07/26/21 14:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 14:02	1
Toluene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 14:02	1
Ethylbenzene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 14:02	1
m,p-Xylenes	<0.00402	U	0.00402	mg/Kg		07/26/21 16:01	07/27/21 14:02	1
o-Xylene	<0.00201	U	0.00201	mg/Kg		07/26/21 16:01	07/27/21 14:02	1
Xylenes, Total	<0.00402	U	0.00402	mg/Kg		07/26/21 16:01	07/27/21 14:02	1
Total BTEX	<0.00402	U	0.00402	mg/Kg		07/26/21 16:01	07/27/21 14:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	07/26/21 16:01	07/27/21 14:02	1
1,4-Difluorobenzene (Surr)	97		70 - 130	07/26/21 16:01	07/27/21 14:02	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:39	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:39	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:39	1
Total TPH	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 19:39	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	92		70 - 130	07/28/21 15:07	07/30/21 19:39	1
o-Terphenyl (Surr)	104		70 - 130	07/28/21 15:07	07/30/21 19:39	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	436		5.02	mg/Kg			07/28/21 22:03	1

Eurofins Xenco, Midland

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1	DFBZ1
		(70-130)	(70-130)
880-4330-A-2-A MS	Matrix Spike	110	105
880-4330-A-2-B MSD	Matrix Spike Duplicate	116	105
880-4353-1	C-1	136 S1+	111
880-4353-2	C-2	136 S1+	107
880-4353-3	C-3	137 S1+	102
880-4353-4	C-4	112	105
880-4353-5	C-5	130	103
880-4353-6	C-6	130	99
880-4353-7	C-7	130	96
880-4353-8	C-8	123	96
880-4353-9	C-9	117	98
880-4353-10	C-10	111	96
880-4353-11	C-11	112	96
880-4353-12	C-12	118	96
880-4353-13	C-13	113	96
880-4353-14	C-14	104	96
880-4353-14 MS	C-14	107	108
880-4353-14 MSD	C-14	109	107
880-4353-15	C-15	116	97
880-4353-16	C-16	114	99
880-4353-17	C-17	104	102
880-4353-18	C-18	113	101
880-4353-19	C-19	106	97
LCS 880-5666/1-A	Lab Control Sample	105	106
LCS 880-5668/1-A	Lab Control Sample	106	103
LCSD 880-5666/2-A	Lab Control Sample Dup	106	108
LCSD 880-5668/2-A	Lab Control Sample Dup	113	109
MB 880-5605/5-A	Method Blank	125	93
MB 880-5666/5-A	Method Blank	122	94
MB 880-5668/5-A	Method Blank	123	92
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1	OTPH1
		(70-130)	(70-130)
880-4353-1	C-1	17 S1-	16 S1-
880-4353-2	C-2	88	90
880-4353-3	C-3	85	85
880-4353-4	C-4	82	83
880-4353-5	C-5	85	87
880-4353-6	C-6	89	93
880-4353-7	C-7	98	107
880-4353-8	C-8	86	85
880-4353-9	C-9	85	85

Eurofins Xenco, Midland

Surrogate Summary

Client: Larson & Associates, Inc.

Job ID: 880-4353-1

Project/Site: VGWU #41

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-4353-10	C-10	86	86
880-4353-11	C-11	85	85
880-4353-12	C-12	98	111
880-4353-13	C-13	90	101
880-4353-14	C-14	97	108
880-4353-15	C-15	92	105
880-4353-16	C-16	109	125
880-4353-17	C-17	109	124
880-4353-18	C-18	107	120
880-4353-19	C-19	92	104
890-991-A-1-E MS	Matrix Spike	89	90
890-991-A-1-F MSD	Matrix Spike Duplicate	101	98
LCS 880-5697/2-A	Lab Control Sample	108	114
LCS 880-5766/2-A	Lab Control Sample	94	96
LCSD 880-5697/3-A	Lab Control Sample Dup	106	110
LCSD 880-5766/3-A	Lab Control Sample Dup	120	128
MB 880-5697/1-A	Method Blank	87	94
MB 880-5766/1-A	Method Blank	102	113

Surrogate Legend

1CO = 1-Chlorooctane (Surr)

OTPH = o-Terphenyl (Surr)

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-5605/5-A

Matrix: Solid

Analysis Batch: 5650

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5605

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/24/21 11:00	07/26/21 11:54	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/24/21 11:00	07/26/21 11:54	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/24/21 11:00	07/26/21 11:54	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		07/24/21 11:00	07/26/21 11:54	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/24/21 11:00	07/26/21 11:54	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/24/21 11:00	07/26/21 11:54	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		07/24/21 11:00	07/26/21 11:54	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	125		70 - 130	07/24/21 11:00	07/26/21 11:54	1
1,4-Difluorobenzene (Surr)	93		70 - 130	07/24/21 11:00	07/26/21 11:54	1

Lab Sample ID: MB 880-5666/5-A

Matrix: Solid

Analysis Batch: 5650

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5666

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 13:15	07/26/21 23:36	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 13:15	07/26/21 23:36	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 13:15	07/26/21 23:36	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		07/26/21 13:15	07/26/21 23:36	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 13:15	07/26/21 23:36	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/26/21 13:15	07/26/21 23:36	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		07/26/21 13:15	07/26/21 23:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		70 - 130	07/26/21 13:15	07/26/21 23:36	1
1,4-Difluorobenzene (Surr)	94		70 - 130	07/26/21 13:15	07/26/21 23:36	1

Lab Sample ID: LCS 880-5666/1-A

Matrix: Solid

Analysis Batch: 5650

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5666

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.1087		mg/Kg		109	70 - 130
Toluene	0.100	0.09721		mg/Kg		97	70 - 130
Ethylbenzene	0.100	0.09426		mg/Kg		94	70 - 130
m,p-Xylenes	0.200	0.1910		mg/Kg		96	70 - 130
o-Xylene	0.100	0.09547		mg/Kg		95	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	106		70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-5666/2-A

Matrix: Solid

Analysis Batch: 5650

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 5666

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.1020		mg/Kg		102	70 - 130	6	35
Toluene	0.100	0.09010		mg/Kg		90	70 - 130	8	35
Ethylbenzene	0.100	0.08707		mg/Kg		87	70 - 130	8	35
m,p-Xylenes	0.200	0.1769		mg/Kg		88	70 - 130	8	35
o-Xylene	0.100	0.08849		mg/Kg		88	70 - 130	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

Lab Sample ID: 880-4330-A-2-A MS

Matrix: Solid

Analysis Batch: 5650

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 5666

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00198	U	0.101	0.07160		mg/Kg		71	70 - 130		
Toluene	<0.00198	U F1	0.101	0.06402	F1	mg/Kg		64	70 - 130		
Ethylbenzene	<0.00198	U F1	0.101	0.06149	F1	mg/Kg		61	70 - 130		
m,p-Xylenes	<0.00397	U F1	0.201	0.1240	F1	mg/Kg		62	70 - 130		
o-Xylene	<0.00198	U F1	0.101	0.06095	F1	mg/Kg		61	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	110		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: 880-4330-A-2-B MSD

Matrix: Solid

Analysis Batch: 5650

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 5666

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00198	U	0.0998	0.07860		mg/Kg		79	70 - 130	9	35
Toluene	<0.00198	U F1	0.0998	0.07157		mg/Kg		72	70 - 130	11	35
Ethylbenzene	<0.00198	U F1	0.0998	0.06905	F1	mg/Kg		69	70 - 130	12	35
m,p-Xylenes	<0.00397	U F1	0.200	0.1408		mg/Kg		71	70 - 130	13	35
o-Xylene	<0.00198	U F1	0.0998	0.06940		mg/Kg		70	70 - 130	13	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,4-Difluorobenzene (Surr)	105		70 - 130

Lab Sample ID: MB 880-5668/5-A

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5668

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 11:58	1
Toluene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 11:58	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 11:58	1

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 880-5668/5-A

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5668

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		07/26/21 16:01	07/27/21 11:58	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		07/26/21 16:01	07/27/21 11:58	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		07/26/21 16:01	07/27/21 11:58	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		07/26/21 16:01	07/27/21 11:58	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	123		70 - 130	07/26/21 16:01	07/27/21 11:58	1
1,4-Difluorobenzene (Surr)	92		70 - 130	07/26/21 16:01	07/27/21 11:58	1

Lab Sample ID: LCS 880-5668/1-A

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5668

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.09657		mg/Kg		97	70 - 130
Toluene	0.100	0.08984		mg/Kg		90	70 - 130
Ethylbenzene	0.100	0.09146		mg/Kg		91	70 - 130
m,p-Xylenes	0.200	0.1901		mg/Kg		95	70 - 130
o-Xylene	0.100	0.09357		mg/Kg		94	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	106		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: LCSD 880-5668/2-A

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 5668

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.1113		mg/Kg		111	70 - 130	14	35
Toluene	0.100	0.09878		mg/Kg		99	70 - 130	9	35
Ethylbenzene	0.100	0.1000		mg/Kg		100	70 - 130	9	35
m,p-Xylenes	0.200	0.2052		mg/Kg		103	70 - 130	8	35
o-Xylene	0.100	0.1019		mg/Kg		102	70 - 130	9	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	109		70 - 130

Lab Sample ID: 880-4353-14 MS

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: C-14

Prep Type: Total/NA

Prep Batch: 5668

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00201	U	0.100	0.07753		mg/Kg		77	70 - 130
Toluene	<0.00201	U	0.100	0.06991		mg/Kg		70	70 - 130
Ethylbenzene	<0.00201	U F1	0.100	0.06911	F1	mg/Kg		69	70 - 130
m,p-Xylenes	<0.00402	U	0.200	0.1426		mg/Kg		71	70 - 130

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QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-4353-14 MS

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: C-14

Prep Type: Total/NA

Prep Batch: 5668

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	<0.00201	U	0.100	0.07066		mg/Kg		71	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	107		70 - 130						
1,4-Difluorobenzene (Surr)	108		70 - 130						

Lab Sample ID: 880-4353-14 MSD

Matrix: Solid

Analysis Batch: 5690

Client Sample ID: C-14

Prep Type: Total/NA

Prep Batch: 5668

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00201	U	0.100	0.08108		mg/Kg		81	70 - 130	4	35
Toluene	<0.00201	U	0.100	0.07348		mg/Kg		73	70 - 130	5	35
Ethylbenzene	<0.00201	U F1	0.100	0.07134		mg/Kg		71	70 - 130	3	35
m,p-Xylenes	<0.00402	U	0.200	0.1455		mg/Kg		73	70 - 130	2	35
o-Xylene	<0.00201	U	0.100	0.07175		mg/Kg		72	70 - 130	2	35
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	109		70 - 130								
1,4-Difluorobenzene (Surr)	107		70 - 130								

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-5697/1-A

Matrix: Solid

Analysis Batch: 5850

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5697

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 12:17	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 12:17	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 12:17	1
Total TPH	<50.0	U	50.0	mg/Kg		07/27/21 10:13	07/30/21 12:17	1
Surrogate	%Recovery	MB Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	87		70 - 130			07/27/21 10:13	07/30/21 12:17	1
o-Terphenyl (Surr)	94		70 - 130			07/27/21 10:13	07/30/21 12:17	1

Lab Sample ID: LCS 880-5697/2-A

Matrix: Solid

Analysis Batch: 5850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5697

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	920.5		mg/Kg		92	70 - 130
Diesel Range Organics (Over C10-C28)	1000	854.7		mg/Kg		85	70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-5697/2-A

Matrix: Solid

Analysis Batch: 5850

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5697

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	108		70 - 130
o-Terphenyl (Surr)	114		70 - 130

Lab Sample ID: LCSD 880-5697/3-A

Matrix: Solid

Analysis Batch: 5850

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 5697

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	887.3		mg/Kg		89	70 - 130	4	20
Diesel Range Organics (Over C10-C28)	1000	808.5		mg/Kg		81	70 - 130	6	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	106		70 - 130
o-Terphenyl (Surr)	110		70 - 130

Lab Sample ID: MB 880-5766/1-A

Matrix: Solid

Analysis Batch: 5856

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 5766

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 10:23	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 10:23	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 10:23	1
Total TPH	<50.0	U	50.0	mg/Kg		07/28/21 15:07	07/30/21 10:23	1

	MB	MB						
Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac		
1-Chlorooctane (Surr)	102		70 - 130	07/28/21 15:07	07/30/21 10:23	1		
o-Terphenyl (Surr)	113		70 - 130	07/28/21 15:07	07/30/21 10:23	1		

Lab Sample ID: LCS 880-5766/2-A

Matrix: Solid

Analysis Batch: 5856

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 5766

	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits	
Gasoline Range Organics (GRO)-C6-C10	1000	788.7		mg/Kg		79	70 - 130	
Diesel Range Organics (Over C10-C28)	1000	907.6		mg/Kg		91	70 - 130	

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	94		70 - 130
o-Terphenyl (Surr)	96		70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCSD 880-5766/3-A

Matrix: Solid

Analysis Batch: 5856

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 5766

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1272	*1	mg/Kg		127	70 - 130	47	20
Diesel Range Organics (Over C10-C28)	1000	1208	*1	mg/Kg		121	70 - 130	28	20
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
1-Chlorooctane (Surr)	120		70 - 130						
o-Terphenyl (Surr)	128		70 - 130						

Lab Sample ID: 890-991-A-1-E MS

Matrix: Solid

Analysis Batch: 5856

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 5766

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	996	775.3		mg/Kg		78	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U *1	996	914.0		mg/Kg		92	70 - 130		
Surrogate	MS %Recovery	MS Qualifier	Limits								
1-Chlorooctane (Surr)	89		70 - 130								
o-Terphenyl (Surr)	90		70 - 130								

Lab Sample ID: 890-991-A-1-F MSD

Matrix: Solid

Analysis Batch: 5856

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 5766

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U *1	996	912.8		mg/Kg		92	70 - 130	16	20
Diesel Range Organics (Over C10-C28)	<50.0	U *1	996	1013		mg/Kg		102	70 - 130	10	20
Surrogate	MSD %Recovery	MSD Qualifier	Limits								
1-Chlorooctane (Surr)	101		70 - 130								
o-Terphenyl (Surr)	98		70 - 130								

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-5695/1-A

Matrix: Solid

Analysis Batch: 5744

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			07/28/21 21:12	1

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-5695/2-A

Matrix: Solid

Analysis Batch: 5744

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	249.7		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-5695/3-A

Matrix: Solid

Analysis Batch: 5744

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	250.4		mg/Kg		100	90 - 110	0	20

Lab Sample ID: 880-4353-7 MS

Matrix: Solid

Analysis Batch: 5744

Client Sample ID: C-7

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	150		250	397.0		mg/Kg		99	90 - 110

Lab Sample ID: 880-4353-7 MSD

Matrix: Solid

Analysis Batch: 5744

Client Sample ID: C-7

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	150		250	396.9		mg/Kg		99	90 - 110	0	20

Lab Sample ID: MB 880-5696/1-A

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			07/28/21 19:40	1

Lab Sample ID: LCS 880-5696/2-A

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	261.9		mg/Kg		105	90 - 110

Lab Sample ID: LCSD 880-5696/3-A

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	261.1		mg/Kg		104	90 - 110	0	20

Lab Sample ID: 880-4128-A-2-B MS

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	3730		1240	5036		mg/Kg		106	90 - 110

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 880-4128-A-2-C MSD

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	3730		1240	5033		mg/Kg		105	90 - 110	0	20

Lab Sample ID: 880-4340-A-3-B MS

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Chloride	12400		4990	16950		mg/Kg		92	90 - 110		

Lab Sample ID: 880-4340-A-3-C MSD

Matrix: Solid

Analysis Batch: 5749

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12400		4990	16970		mg/Kg		92	90 - 110	0	20

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

GC VOA

Prep Batch: 5605

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-5605/5-A	Method Blank	Total/NA	Solid	5035	

Analysis Batch: 5650

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-1	C-1	Total/NA	Solid	8021B	5666
880-4353-2	C-2	Total/NA	Solid	8021B	5666
880-4353-3	C-3	Total/NA	Solid	8021B	5666
880-4353-4	C-4	Total/NA	Solid	8021B	5666
880-4353-5	C-5	Total/NA	Solid	8021B	5666
880-4353-6	C-6	Total/NA	Solid	8021B	5666
880-4353-7	C-7	Total/NA	Solid	8021B	5666
880-4353-8	C-8	Total/NA	Solid	8021B	5666
880-4353-9	C-9	Total/NA	Solid	8021B	5666
880-4353-10	C-10	Total/NA	Solid	8021B	5666
880-4353-11	C-11	Total/NA	Solid	8021B	5666
880-4353-12	C-12	Total/NA	Solid	8021B	5666
880-4353-13	C-13	Total/NA	Solid	8021B	5666
MB 880-5605/5-A	Method Blank	Total/NA	Solid	8021B	5605
MB 880-5666/5-A	Method Blank	Total/NA	Solid	8021B	5666
LCS 880-5666/1-A	Lab Control Sample	Total/NA	Solid	8021B	5666
LCSD 880-5666/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	5666
880-4330-A-2-A MS	Matrix Spike	Total/NA	Solid	8021B	5666
880-4330-A-2-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	5666

Prep Batch: 5666

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-1	C-1	Total/NA	Solid	5035	
880-4353-2	C-2	Total/NA	Solid	5035	
880-4353-3	C-3	Total/NA	Solid	5035	
880-4353-4	C-4	Total/NA	Solid	5035	
880-4353-5	C-5	Total/NA	Solid	5035	
880-4353-6	C-6	Total/NA	Solid	5035	
880-4353-7	C-7	Total/NA	Solid	5035	
880-4353-8	C-8	Total/NA	Solid	5035	
880-4353-9	C-9	Total/NA	Solid	5035	
880-4353-10	C-10	Total/NA	Solid	5035	
880-4353-11	C-11	Total/NA	Solid	5035	
880-4353-12	C-12	Total/NA	Solid	5035	
880-4353-13	C-13	Total/NA	Solid	5035	
MB 880-5666/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-5666/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-5666/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-4330-A-2-A MS	Matrix Spike	Total/NA	Solid	5035	
880-4330-A-2-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Prep Batch: 5668

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-14	C-14	Total/NA	Solid	5035	
880-4353-15	C-15	Total/NA	Solid	5035	
880-4353-16	C-16	Total/NA	Solid	5035	
880-4353-17	C-17	Total/NA	Solid	5035	

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

GC VOA (Continued)

Prep Batch: 5668 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-18	C-18	Total/NA	Solid	5035	
880-4353-19	C-19	Total/NA	Solid	5035	
MB 880-5668/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-5668/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-5668/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-4353-14 MS	C-14	Total/NA	Solid	5035	
880-4353-14 MSD	C-14	Total/NA	Solid	5035	

Analysis Batch: 5690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-14	C-14	Total/NA	Solid	8021B	5668
880-4353-15	C-15	Total/NA	Solid	8021B	5668
880-4353-16	C-16	Total/NA	Solid	8021B	5668
880-4353-17	C-17	Total/NA	Solid	8021B	5668
880-4353-18	C-18	Total/NA	Solid	8021B	5668
880-4353-19	C-19	Total/NA	Solid	8021B	5668
MB 880-5668/5-A	Method Blank	Total/NA	Solid	8021B	5668
LCS 880-5668/1-A	Lab Control Sample	Total/NA	Solid	8021B	5668
LCSD 880-5668/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	5668
880-4353-14 MS	C-14	Total/NA	Solid	8021B	5668
880-4353-14 MSD	C-14	Total/NA	Solid	8021B	5668

GC Semi VOA

Prep Batch: 5697

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-1	C-1	Total/NA	Solid	8015NM Prep	
880-4353-2	C-2	Total/NA	Solid	8015NM Prep	
880-4353-3	C-3	Total/NA	Solid	8015NM Prep	
880-4353-4	C-4	Total/NA	Solid	8015NM Prep	
880-4353-5	C-5	Total/NA	Solid	8015NM Prep	
880-4353-6	C-6	Total/NA	Solid	8015NM Prep	
880-4353-7	C-7	Total/NA	Solid	8015NM Prep	
880-4353-8	C-8	Total/NA	Solid	8015NM Prep	
880-4353-9	C-9	Total/NA	Solid	8015NM Prep	
880-4353-10	C-10	Total/NA	Solid	8015NM Prep	
880-4353-11	C-11	Total/NA	Solid	8015NM Prep	
MB 880-5697/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-5697/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-5697/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Prep Batch: 5766

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-16	C-16	Total/NA	Solid	8015NM Prep	
880-4353-17	C-17	Total/NA	Solid	8015NM Prep	
880-4353-18	C-18	Total/NA	Solid	8015NM Prep	
880-4353-19	C-19	Total/NA	Solid	8015NM Prep	
MB 880-5766/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-5766/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-5766/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-991-A-1-E MS	Matrix Spike	Total/NA	Solid	8015NM Prep	

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

GC Semi VOA (Continued)

Prep Batch: 5766 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
890-991-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Analysis Batch: 5850

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-1	C-1	Total/NA	Solid	8015B NM	5697
880-4353-2	C-2	Total/NA	Solid	8015B NM	5697
880-4353-3	C-3	Total/NA	Solid	8015B NM	5697
880-4353-4	C-4	Total/NA	Solid	8015B NM	5697
880-4353-5	C-5	Total/NA	Solid	8015B NM	5697
880-4353-6	C-6	Total/NA	Solid	8015B NM	5697
880-4353-7	C-7	Total/NA	Solid	8015B NM	5697
880-4353-8	C-8	Total/NA	Solid	8015B NM	5697
880-4353-9	C-9	Total/NA	Solid	8015B NM	5697
880-4353-10	C-10	Total/NA	Solid	8015B NM	5697
880-4353-11	C-11	Total/NA	Solid	8015B NM	5697
MB 880-5697/1-A	Method Blank	Total/NA	Solid	8015B NM	5697
LCS 880-5697/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	5697
LCSD 880-5697/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	5697

Analysis Batch: 5856

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-12	C-12	Total/NA	Solid	8015B NM	5867
880-4353-13	C-13	Total/NA	Solid	8015B NM	5867
880-4353-14	C-14	Total/NA	Solid	8015B NM	5867
880-4353-15	C-15	Total/NA	Solid	8015B NM	5867
880-4353-16	C-16	Total/NA	Solid	8015B NM	5766
880-4353-17	C-17	Total/NA	Solid	8015B NM	5766
880-4353-18	C-18	Total/NA	Solid	8015B NM	5766
880-4353-19	C-19	Total/NA	Solid	8015B NM	5766
MB 880-5766/1-A	Method Blank	Total/NA	Solid	8015B NM	5766
LCS 880-5766/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	5766
LCSD 880-5766/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	5766
890-991-A-1-E MS	Matrix Spike	Total/NA	Solid	8015B NM	5766
890-991-A-1-F MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	5766

Prep Batch: 5867

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-12	C-12	Total/NA	Solid	8015NM Prep	
880-4353-13	C-13	Total/NA	Solid	8015NM Prep	
880-4353-14	C-14	Total/NA	Solid	8015NM Prep	
880-4353-15	C-15	Total/NA	Solid	8015NM Prep	

HPLC/IC

Leach Batch: 5695

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-1	C-1	Soluble	Solid	DI Leach	
880-4353-2	C-2	Soluble	Solid	DI Leach	
880-4353-3	C-3	Soluble	Solid	DI Leach	
880-4353-4	C-4	Soluble	Solid	DI Leach	
880-4353-5	C-5	Soluble	Solid	DI Leach	

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

HPLC/IC (Continued)

Leach Batch: 5695 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-6	C-6	Soluble	Solid	DI Leach	
880-4353-7	C-7	Soluble	Solid	DI Leach	
880-4353-8	C-8	Soluble	Solid	DI Leach	
880-4353-9	C-9	Soluble	Solid	DI Leach	
880-4353-10	C-10	Soluble	Solid	DI Leach	
880-4353-11	C-11	Soluble	Solid	DI Leach	
880-4353-12	C-12	Soluble	Solid	DI Leach	
880-4353-13	C-13	Soluble	Solid	DI Leach	
880-4353-14	C-14	Soluble	Solid	DI Leach	
880-4353-15	C-15	Soluble	Solid	DI Leach	
MB 880-5695/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-5695/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-5695/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-4353-7 MS	C-7	Soluble	Solid	DI Leach	
880-4353-7 MSD	C-7	Soluble	Solid	DI Leach	

Leach Batch: 5696

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-16	C-16	Soluble	Solid	DI Leach	
880-4353-17	C-17	Soluble	Solid	DI Leach	
880-4353-18	C-18	Soluble	Solid	DI Leach	
880-4353-19	C-19	Soluble	Solid	DI Leach	
MB 880-5696/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-5696/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-5696/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-4128-A-2-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-4128-A-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	
880-4340-A-3-B MS	Matrix Spike	Soluble	Solid	DI Leach	
880-4340-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 5744

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-1	C-1	Soluble	Solid	300.0	5695
880-4353-2	C-2	Soluble	Solid	300.0	5695
880-4353-3	C-3	Soluble	Solid	300.0	5695
880-4353-4	C-4	Soluble	Solid	300.0	5695
880-4353-5	C-5	Soluble	Solid	300.0	5695
880-4353-6	C-6	Soluble	Solid	300.0	5695
880-4353-7	C-7	Soluble	Solid	300.0	5695
880-4353-8	C-8	Soluble	Solid	300.0	5695
880-4353-9	C-9	Soluble	Solid	300.0	5695
880-4353-10	C-10	Soluble	Solid	300.0	5695
880-4353-11	C-11	Soluble	Solid	300.0	5695
880-4353-12	C-12	Soluble	Solid	300.0	5695
880-4353-13	C-13	Soluble	Solid	300.0	5695
880-4353-14	C-14	Soluble	Solid	300.0	5695
880-4353-15	C-15	Soluble	Solid	300.0	5695
MB 880-5695/1-A	Method Blank	Soluble	Solid	300.0	5695
LCS 880-5695/2-A	Lab Control Sample	Soluble	Solid	300.0	5695
LCSD 880-5695/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	5695
880-4353-7 MS	C-7	Soluble	Solid	300.0	5695

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

HPLC/IC (Continued)

Analysis Batch: 5744 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-7 MSD	C-7	Soluble	Solid	300.0	5695

Analysis Batch: 5749

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4353-16	C-16	Soluble	Solid	300.0	5696
880-4353-17	C-17	Soluble	Solid	300.0	5696
880-4353-18	C-18	Soluble	Solid	300.0	5696
880-4353-19	C-19	Soluble	Solid	300.0	5696
MB 880-5696/1-A	Method Blank	Soluble	Solid	300.0	5696
LCS 880-5696/2-A	Lab Control Sample	Soluble	Solid	300.0	5696
LCSD 880-5696/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	5696
880-4128-A-2-B MS	Matrix Spike	Soluble	Solid	300.0	5696
880-4128-A-2-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	5696
880-4340-A-3-B MS	Matrix Spike	Soluble	Solid	300.0	5696
880-4340-A-3-C MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	5696

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-1

Lab Sample ID: 880-4353-1

Date Collected: 07/20/21 11:40

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 02:20	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.06 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 14:22	AJ	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 22:00	CH	XEN MID

Client Sample ID: C-2

Lab Sample ID: 880-4353-2

Date Collected: 07/20/21 11:41

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 02:41	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 18:28	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 22:17	CH	XEN MID

Client Sample ID: C-3

Lab Sample ID: 880-4353-3

Date Collected: 07/20/21 11:42

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 03:01	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 18:48	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 22:22	CH	XEN MID

Client Sample ID: C-4

Lab Sample ID: 880-4353-4

Date Collected: 07/20/21 11:45

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 04:23	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 19:09	AJ	XEN MID
Soluble	Leach	DI Leach			4.98 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 22:27	CH	XEN MID

Eurofins Xenco, Midland

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-5

Lab Sample ID: 880-4353-5

Date Collected: 07/20/21 11:48

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 04:43	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 19:29	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		5			5744	07/28/21 22:33	CH	XEN MID

Client Sample ID: C-6

Lab Sample ID: 880-4353-6

Date Collected: 07/20/21 11:49

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 05:04	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 19:49	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 22:38	CH	XEN MID

Client Sample ID: C-7

Lab Sample ID: 880-4353-7

Date Collected: 07/20/21 11:50

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 05:24	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 20:10	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 22:44	CH	XEN MID

Client Sample ID: C-8

Lab Sample ID: 880-4353-8

Date Collected: 07/20/21 11:52

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 05:44	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 20:31	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 23:00	CH	XEN MID

Eurofins Xenco, Midland

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-9

Lab Sample ID: 880-4353-9

Date Collected: 07/20/21 11:53

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.96 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 06:05	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 20:51	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 23:05	CH	XEN MID

Client Sample ID: C-10

Lab Sample ID: 880-4353-10

Date Collected: 07/20/21 11:55

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.02 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 06:25	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 21:12	AJ	XEN MID
Soluble	Leach	DI Leach			5.04 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		5			5744	07/28/21 23:21	CH	XEN MID

Client Sample ID: C-11

Lab Sample ID: 880-4353-11

Date Collected: 07/20/21 12:00

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 06:46	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	5697	07/27/21 10:13	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5850	07/30/21 21:32	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 23:27	CH	XEN MID

Client Sample ID: C-12

Lab Sample ID: 880-4353-12

Date Collected: 07/20/21 12:03

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 07:06	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	5867	07/30/21 10:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/31/21 08:35	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		1			5744	07/28/21 23:32	CH	XEN MID

Eurofins Xenco, Midland

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-13

Lab Sample ID: 880-4353-13

Date Collected: 07/22/21 11:05

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	5666	07/26/21 16:00	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5650	07/27/21 07:26	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	5867	07/30/21 10:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/31/21 08:56	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		5			5744	07/28/21 23:37	CH	XEN MID

Client Sample ID: C-14

Lab Sample ID: 880-4353-14

Date Collected: 07/22/21 11:06

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.98 g	5 mL	5668	07/26/21 16:01	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5690	07/27/21 12:20	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	5867	07/30/21 10:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/31/21 09:17	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		10			5744	07/28/21 23:43	CH	XEN MID

Client Sample ID: C-15

Lab Sample ID: 880-4353-15

Date Collected: 07/22/21 11:07

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.03 g	5 mL	5668	07/26/21 16:01	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5690	07/27/21 12:40	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	5867	07/30/21 10:16	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/31/21 09:39	AJ	XEN MID
Soluble	Leach	DI Leach			4.97 g	50 mL	5695	07/27/21 10:07	SC	XEN MID
Soluble	Analysis	300.0		5			5744	07/28/21 23:48	CH	XEN MID

Client Sample ID: C-16

Lab Sample ID: 880-4353-16

Date Collected: 07/22/21 11:08

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	5668	07/26/21 16:01	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5690	07/27/21 13:00	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	5766	07/28/21 15:07	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/30/21 18:36	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	5696	07/27/21 10:10	SC	XEN MID
Soluble	Analysis	300.0		1			5749	07/28/21 21:35	CH	XEN MID

Eurofins Xenco, Midland

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Client Sample ID: C-17

Lab Sample ID: 880-4353-17

Date Collected: 07/22/21 11:09

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	5668	07/26/21 16:01	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5690	07/27/21 13:21	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	5766	07/28/21 15:07	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/30/21 18:57	AJ	XEN MID
Soluble	Leach	DI Leach			5 g	50 mL	5696	07/27/21 10:10	SC	XEN MID
Soluble	Analysis	300.0		5			5749	07/28/21 21:52	CH	XEN MID

Client Sample ID: C-18

Lab Sample ID: 880-4353-18

Date Collected: 07/22/21 11:10

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	5668	07/26/21 16:01	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5690	07/27/21 13:41	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	5766	07/28/21 15:07	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/30/21 19:18	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	5696	07/27/21 10:10	SC	XEN MID
Soluble	Analysis	300.0		5			5749	07/28/21 21:57	CH	XEN MID

Client Sample ID: C-19

Lab Sample ID: 880-4353-19

Date Collected: 07/22/21 11:11

Matrix: Solid

Date Received: 07/26/21 14:37

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.97 g	5 mL	5668	07/26/21 16:01	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	5690	07/27/21 14:02	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	5766	07/28/21 15:07	DM	XEN MID
Total/NA	Analysis	8015B NM		1			5856	07/30/21 19:39	AJ	XEN MID
Soluble	Leach	DI Leach			4.98 g	50 mL	5696	07/27/21 10:10	SC	XEN MID
Soluble	Analysis	300.0		1			5749	07/28/21 22:03	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-4353-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-4353-1	C-1	Solid	07/20/21 11:40	07/26/21 14:37
880-4353-2	C-2	Solid	07/20/21 11:41	07/26/21 14:37
880-4353-3	C-3	Solid	07/20/21 11:42	07/26/21 14:37
880-4353-4	C-4	Solid	07/20/21 11:45	07/26/21 14:37
880-4353-5	C-5	Solid	07/20/21 11:48	07/26/21 14:37
880-4353-6	C-6	Solid	07/20/21 11:49	07/26/21 14:37
880-4353-7	C-7	Solid	07/20/21 11:50	07/26/21 14:37
880-4353-8	C-8	Solid	07/20/21 11:52	07/26/21 14:37
880-4353-9	C-9	Solid	07/20/21 11:53	07/26/21 14:37
880-4353-10	C-10	Solid	07/20/21 11:55	07/26/21 14:37
880-4353-11	C-11	Solid	07/20/21 12:00	07/26/21 14:37
880-4353-12	C-12	Solid	07/20/21 12:03	07/26/21 14:37
880-4353-13	C-13	Solid	07/22/21 11:05	07/26/21 14:37
880-4353-14	C-14	Solid	07/22/21 11:06	07/26/21 14:37
880-4353-15	C-15	Solid	07/22/21 11:07	07/26/21 14:37
880-4353-16	C-16	Solid	07/22/21 11:08	07/26/21 14:37
880-4353-17	C-17	Solid	07/22/21 11:09	07/26/21 14:37
880-4353-18	C-18	Solid	07/22/21 11:10	07/26/21 14:37
880-4353-19	C-19	Solid	07/22/21 11:11	07/26/21 14:37

7/31/2021

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-4353-1

Login Number: 4353

List Source: Eurofins Xenco, Midland

List Number: 1

Creator: Phillips, Kerianna

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-4788-1

Laboratory Sample Delivery Group: 20-0107-12

Client Project/Site: Vaccum Glorieta West Unit # 041

For:

Larson & Associates, Inc.
507 N Marienfeld
Suite 202
Midland, Texas 79701

Attn: Mr. Mark J Larson

A handwritten signature in cursive script that reads "Holly Taylor".

Authorized for release by:
8/10/2021 4:47:31 PM

Holly Taylor, Project Manager
(806)794-1296
holly.taylor@eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Laboratory Job ID: 880-4788-1
SDG: 20-0107-12

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Qualifiers

GC VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Job ID: 880-4788-1

Laboratory: Eurofins Xenco, Midland**Narrative**

Job Narrative
880-4788-1

Receipt

The samples were received on 8/5/2021 9:05 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 3.9°C

GC VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Vacuum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Client Sample ID: C-10, 2'

Lab Sample ID: 880-4788-1

Date Collected: 08/04/21 10:46

Matrix: Solid

Date Received: 08/05/21 09:05

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 17:53	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 17:53	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 17:53	1
m,p-Xylenes	<0.00401	U	0.00401	mg/Kg		08/06/21 08:30	08/06/21 17:53	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 17:53	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		08/06/21 08:30	08/06/21 17:53	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		08/06/21 08:30	08/06/21 17:53	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130	08/06/21 08:30	08/06/21 17:53	1
1,4-Difluorobenzene (Surr)	95		70 - 130	08/06/21 08:30	08/06/21 17:53	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		08/06/21 09:48	08/06/21 16:11	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		08/06/21 09:48	08/06/21 16:11	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		08/06/21 09:48	08/06/21 16:11	1
Total TPH	<49.9	U	49.9	mg/Kg		08/06/21 09:48	08/06/21 16:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	77		70 - 130	08/06/21 09:48	08/06/21 16:11	1
o-Terphenyl (Surr)	80		70 - 130	08/06/21 09:48	08/06/21 16:11	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	124		5.02	mg/Kg			08/10/21 15:06	1

Client Sample ID: C-5, 2'

Lab Sample ID: 880-4788-2

Date Collected: 08/04/21 10:50

Matrix: Solid

Date Received: 08/05/21 09:05

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:14	1
Toluene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:14	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:14	1
m,p-Xylenes	<0.00396	U	0.00396	mg/Kg		08/06/21 08:30	08/06/21 18:14	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:14	1
Xylenes, Total	<0.00396	U	0.00396	mg/Kg		08/06/21 08:30	08/06/21 18:14	1
Total BTEX	<0.00396	U	0.00396	mg/Kg		08/06/21 08:30	08/06/21 18:14	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	08/06/21 08:30	08/06/21 18:14	1
1,4-Difluorobenzene (Surr)	94		70 - 130	08/06/21 08:30	08/06/21 18:14	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:01	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Client Sample ID: C-5, 2'

Lab Sample ID: 880-4788-2

Date Collected: 08/04/21 10:50

Matrix: Solid

Date Received: 08/05/21 09:05

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:01	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:01	1
Total TPH	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:01	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	105		70 - 130			08/05/21 14:11	08/06/21 03:01	1
o-Terphenyl (Surr)	114		70 - 130			08/05/21 14:11	08/06/21 03:01	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	286		5.05	mg/Kg			08/10/21 15:12	1

Client Sample ID: C-18, 0-4.1'

Lab Sample ID: 880-4788-3

Date Collected: 08/04/21 13:14

Matrix: Solid

Date Received: 08/05/21 09:05

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
Toluene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
Ethylbenzene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
m,p-Xylenes	<0.00397	U	0.00397	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
o-Xylene	<0.00198	U	0.00198	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
Xylenes, Total	<0.00397	U	0.00397	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
Total BTEX	<0.00397	U	0.00397	mg/Kg		08/06/21 08:30	08/06/21 18:34	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	99		70 - 130			08/06/21 08:30	08/06/21 18:34	1
1,4-Difluorobenzene (Surr)	98		70 - 130			08/06/21 08:30	08/06/21 18:34	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:22	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:22	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:22	1
Total TPH	<50.0	U	50.0	mg/Kg		08/05/21 14:11	08/06/21 03:22	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	97		70 - 130			08/05/21 14:11	08/06/21 03:22	1
o-Terphenyl (Surr)	106		70 - 130			08/05/21 14:11	08/06/21 03:22	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	679		4.98	mg/Kg			08/10/21 15:18	1

Eurofins Xenco, Midland

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-4788-1	C-10, 2'	105	95
880-4788-2	C-5, 2'	110	94
880-4788-3	C-18, 0-4.1'	99	98
880-4798-A-6-A MS	Matrix Spike	105	103
880-4798-A-6-B MSD	Matrix Spike Duplicate	113	103
LCS 880-6113/1-A	Lab Control Sample	103	104
LCSD 880-6113/2-A	Lab Control Sample Dup	109	102
MB 880-6113/5-A	Method Blank	100	95
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-4788-1	C-10, 2'	77	80
880-4788-2	C-5, 2'	105	114
880-4788-3	C-18, 0-4.1'	97	106
890-1045-A-1-F MS	Matrix Spike	85	73
890-1045-A-1-G MSD	Matrix Spike Duplicate	84	72
LCS 880-6170/2-A	Lab Control Sample	86	81
LCSD 880-6170/3-A	Lab Control Sample Dup	84	81
MB 880-6170/1-A	Method Blank	92	94
Surrogate Legend			
1CO = 1-Chlorooctane (Surr)			
OTPH = o-Terphenyl (Surr)			

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-6113/5-A

Matrix: Solid

Analysis Batch: 6155

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 6113

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 11:30	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 11:30	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 11:30	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		08/06/21 08:30	08/06/21 11:30	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/06/21 08:30	08/06/21 11:30	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/06/21 08:30	08/06/21 11:30	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		08/06/21 08:30	08/06/21 11:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	100		70 - 130	08/06/21 08:30	08/06/21 11:30	1
1,4-Difluorobenzene (Surr)	95		70 - 130	08/06/21 08:30	08/06/21 11:30	1

Lab Sample ID: LCS 880-6113/1-A

Matrix: Solid

Analysis Batch: 6155

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 6113

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.09719		mg/Kg		97	70 - 130
Toluene	0.100	0.09121		mg/Kg		91	70 - 130
Ethylbenzene	0.100	0.08775		mg/Kg		88	70 - 130
m,p-Xylenes	0.200	0.1759		mg/Kg		88	70 - 130
o-Xylene	0.100	0.08785		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	104		70 - 130

Lab Sample ID: LCSD 880-6113/2-A

Matrix: Solid

Analysis Batch: 6155

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 6113

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	0.100	0.09179		mg/Kg		92	70 - 130	6	35
Toluene	0.100	0.08879		mg/Kg		89	70 - 130	3	35
Ethylbenzene	0.100	0.08570		mg/Kg		86	70 - 130	2	35
m,p-Xylenes	0.200	0.1737		mg/Kg		87	70 - 130	1	35
o-Xylene	0.100	0.08695		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	109		70 - 130
1,4-Difluorobenzene (Surr)	102		70 - 130

Lab Sample ID: 880-4798-A-6-A MS

Matrix: Solid

Analysis Batch: 6155

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 6113

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00200	U	0.101	0.08200		mg/Kg		81	70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-4798-A-6-A MS

Matrix: Solid

Analysis Batch: 6155

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 6113

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.00200	U	0.101	0.07626		mg/Kg		75	70 - 130
Ethylbenzene	<0.00200	U	0.101	0.07275		mg/Kg		72	70 - 130
m,p-Xylenes	<0.00399	U	0.202	0.1466		mg/Kg		73	70 - 130
o-Xylene	<0.00200	U	0.101	0.07333		mg/Kg		73	70 - 130

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Lab Sample ID: 880-4798-A-6-B MSD

Matrix: Solid

Analysis Batch: 6155

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 6113

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0994	0.07877		mg/Kg		79	70 - 130	4	35
Toluene	<0.00200	U	0.0994	0.07611		mg/Kg		77	70 - 130	0	35
Ethylbenzene	<0.00200	U	0.0994	0.07282		mg/Kg		73	70 - 130	0	35
m,p-Xylenes	<0.00399	U	0.199	0.1487		mg/Kg		75	70 - 130	1	35
o-Xylene	<0.00200	U	0.0994	0.07554		mg/Kg		76	70 - 130	3	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	113		70 - 130
1,4-Difluorobenzene (Surr)	103		70 - 130

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-6170/1-A

Matrix: Solid

Analysis Batch: 6161

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 6170

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		08/06/21 09:48	08/06/21 12:02	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		08/06/21 09:48	08/06/21 12:02	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		08/06/21 09:48	08/06/21 12:02	1
Total TPH	<50.0	U	50.0	mg/Kg		08/06/21 09:48	08/06/21 12:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	92		70 - 130	08/06/21 09:48	08/06/21 12:02	1
o-Terphenyl (Surr)	94		70 - 130	08/06/21 09:48	08/06/21 12:02	1

Lab Sample ID: LCS 880-6170/2-A

Matrix: Solid

Analysis Batch: 6161

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 6170

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	833.5		mg/Kg		83	70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-6170/2-A

Matrix: Solid

Analysis Batch: 6161

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 6170

			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Diesel Range Organics (Over C10-C28)			1000	765.7		mg/Kg		77	70 - 130		
Surrogate	LCS		Limits								
	%Recovery	Qualifier									
1-Chlorooctane (Surr)	86		70 - 130								
o-Terphenyl (Surr)	81		70 - 130								

Lab Sample ID: LCSD 880-6170/3-A

Matrix: Solid

Analysis Batch: 6161

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 6170

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	812.3		mg/Kg		81	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	1000	755.4		mg/Kg		76	70 - 130	1	20
Surrogate	%Recovery	LCSD Qualifier	Limits						
1-Chlorooctane (Surr)	84		70 - 130						
o-Terphenyl (Surr)	81		70 - 130						

Lab Sample ID: 890-1045-A-1-F MS

Matrix: Solid

Analysis Batch: 6161

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 6170

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	907.0		mg/Kg		89	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	995	823.1		mg/Kg		83	70 - 130
Surrogate	%Recovery	MS Qualifier	Limits						
1-Chlorooctane (Surr)	85		70 - 130						
o-Terphenyl (Surr)	73		70 - 130						

Lab Sample ID: 890-1045-A-1-G MSD

Matrix: Solid

Analysis Batch: 6161

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 6170

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	931.6		mg/Kg		91	70 - 130	3	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	812.0		mg/Kg		81	70 - 130	1	20
Surrogate	%Recovery	MSD Qualifier	Limits								
1-Chlorooctane (Surr)	84		70 - 130								
o-Terphenyl (Surr)	72		70 - 130								

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-6180/1-A

Matrix: Solid

Analysis Batch: 6263

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			08/10/21 13:51	1

Lab Sample ID: LCS 880-6180/2-A

Matrix: Solid

Analysis Batch: 6263

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	267.1		mg/Kg		107	90 - 110

Lab Sample ID: LCSD 880-6180/3-A

Matrix: Solid

Analysis Batch: 6263

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	274.8		mg/Kg		110	90 - 110	3	20

Lab Sample ID: 880-4755-A-1-C MS

Matrix: Solid

Analysis Batch: 6263

Client Sample ID: Matrix Spike

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	246		250	490.5		mg/Kg		98	90 - 110

Lab Sample ID: 880-4755-A-1-D MSD

Matrix: Solid

Analysis Batch: 6263

Client Sample ID: Matrix Spike Duplicate

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	246		250	508.1		mg/Kg		105	90 - 110	4	20

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

GC VOA

Prep Batch: 6113

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-1	C-10, 2'	Total/NA	Solid	5035	
880-4788-2	C-5, 2'	Total/NA	Solid	5035	
880-4788-3	C-18, 0-4.1'	Total/NA	Solid	5035	
MB 880-6113/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-6113/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-6113/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-4798-A-6-A MS	Matrix Spike	Total/NA	Solid	5035	
880-4798-A-6-B MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

Analysis Batch: 6155

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-1	C-10, 2'	Total/NA	Solid	8021B	6113
880-4788-2	C-5, 2'	Total/NA	Solid	8021B	6113
880-4788-3	C-18, 0-4.1'	Total/NA	Solid	8021B	6113
MB 880-6113/5-A	Method Blank	Total/NA	Solid	8021B	6113
LCS 880-6113/1-A	Lab Control Sample	Total/NA	Solid	8021B	6113
LCSD 880-6113/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	6113
880-4798-A-6-A MS	Matrix Spike	Total/NA	Solid	8021B	6113
880-4798-A-6-B MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	6113

GC Semi VOA

Analysis Batch: 6125

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-2	C-5, 2'	Total/NA	Solid	8015B NM	6131
880-4788-3	C-18, 0-4.1'	Total/NA	Solid	8015B NM	6131

Prep Batch: 6131

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-2	C-5, 2'	Total/NA	Solid	8015NM Prep	
880-4788-3	C-18, 0-4.1'	Total/NA	Solid	8015NM Prep	

Analysis Batch: 6161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-1	C-10, 2'	Total/NA	Solid	8015B NM	6170
MB 880-6170/1-A	Method Blank	Total/NA	Solid	8015B NM	6170
LCS 880-6170/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	6170
LCSD 880-6170/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	6170
890-1045-A-1-F MS	Matrix Spike	Total/NA	Solid	8015B NM	6170
890-1045-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	6170

Prep Batch: 6170

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-1	C-10, 2'	Total/NA	Solid	8015NM Prep	
MB 880-6170/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-6170/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-6170/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1045-A-1-F MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-1045-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

HPLC/IC

Leach Batch: 6180

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-1	C-10, 2'	Soluble	Solid	DI Leach	
880-4788-2	C-5, 2'	Soluble	Solid	DI Leach	
880-4788-3	C-18, 0-4.1'	Soluble	Solid	DI Leach	
MB 880-6180/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-6180/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-6180/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-4755-A-1-C MS	Matrix Spike	Soluble	Solid	DI Leach	
880-4755-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	DI Leach	

Analysis Batch: 6263

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-4788-1	C-10, 2'	Soluble	Solid	300.0	6180
880-4788-2	C-5, 2'	Soluble	Solid	300.0	6180
880-4788-3	C-18, 0-4.1'	Soluble	Solid	300.0	6180
MB 880-6180/1-A	Method Blank	Soluble	Solid	300.0	6180
LCS 880-6180/2-A	Lab Control Sample	Soluble	Solid	300.0	6180
LCSD 880-6180/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	6180
880-4755-A-1-C MS	Matrix Spike	Soluble	Solid	300.0	6180
880-4755-A-1-D MSD	Matrix Spike Duplicate	Soluble	Solid	300.0	6180

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Client Sample ID: C-10, 2'

Lab Sample ID: 880-4788-1

Date Collected: 08/04/21 10:46

Matrix: Solid

Date Received: 08/05/21 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	6113	08/06/21 08:30	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6155	08/06/21 17:53	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	6170	08/06/21 09:48	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6161	08/06/21 16:11	AJ	XEN MID
Soluble	Leach	DI Leach			4.98 g	50 mL	6180	08/06/21 11:48	SC	XEN MID
Soluble	Analysis	300.0		1			6263	08/10/21 15:06	CH	XEN MID

Client Sample ID: C-5, 2'

Lab Sample ID: 880-4788-2

Date Collected: 08/04/21 10:50

Matrix: Solid

Date Received: 08/05/21 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.05 g	5 mL	6113	08/06/21 08:30	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6155	08/06/21 18:14	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	6131	08/05/21 14:11	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6125	08/06/21 03:01	AJ	XEN MID
Soluble	Leach	DI Leach			4.95 g	50 mL	6180	08/06/21 11:48	SC	XEN MID
Soluble	Analysis	300.0		1			6263	08/10/21 15:12	CH	XEN MID

Client Sample ID: C-18, 0-4.1'

Lab Sample ID: 880-4788-3

Date Collected: 08/04/21 13:14

Matrix: Solid

Date Received: 08/05/21 09:05

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.04 g	5 mL	6113	08/06/21 08:30	KL	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	6155	08/06/21 18:34	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	6131	08/05/21 14:11	DM	XEN MID
Total/NA	Analysis	8015B NM		1			6125	08/06/21 03:22	AJ	XEN MID
Soluble	Leach	DI Leach			5.02 g	50 mL	6180	08/06/21 11:48	SC	XEN MID
Soluble	Analysis	300.0		1			6263	08/10/21 15:18	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: Vaccum Glorieta West Unit # 041

Job ID: 880-4788-1
SDG: 20-0107-12

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-4788-1	C-10, 2'	Solid	08/04/21 10:46	08/05/21 09:05
880-4788-2	C-5, 2'	Solid	08/04/21 10:50	08/05/21 09:05
880-4788-3	C-18, 0-4.1'	Solid	08/04/21 13:14	08/05/21 09:05

8/10/2021

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-4788-1

SDG Number: 20-0107-12

Login Number: 4788

List Number: 1

Creator: Phillips, Kerianna

List Source: Eurofins Xenco, Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-5423-1
Laboratory Sample Delivery Group: 20-0107-12
Client Project/Site: VGWU #41

For:
Larson & Associates, Inc.
507 N Marienfeld
Suite 202
Midland, Texas 79701

Attn: Mr. Mark J Larson

A handwritten signature in cursive script that reads "Holly Taylor".

Authorized for release by:
8/30/2021 8:57:51 AM

Holly Taylor, Project Manager
(806)794-1296
holly.taylor@eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Laboratory Job ID: 880-5423-1
SDG: 20-0107-12

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
SQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Job ID: 880-5423-1

Laboratory: Eurofins Xenco, Midland**Narrative**

**Job Narrative
880-5423-1****Receipt**

The sample was received on 8/25/2021 9:24 AM. Unless otherwise noted below, the sample arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 5.1°C

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: (880-5423-A-1-E MSD). Evidence of matrix interferences is not obvious.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Client Sample ID: C-18

Lab Sample ID: 880-5423-1

Date Collected: 08/24/21 11:41

Matrix: Solid

Date Received: 08/25/21 09:24

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 15:21	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 15:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 15:21	1
m,p-Xylenes	<0.00401	U	0.00401	mg/Kg		08/25/21 11:45	08/25/21 15:21	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 15:21	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		08/25/21 11:45	08/25/21 15:21	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		08/25/21 11:45	08/25/21 15:21	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	111		70 - 130	08/25/21 11:45	08/25/21 15:21	1
1,4-Difluorobenzene (Surr)	114		70 - 130	08/25/21 11:45	08/25/21 15:21	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/26/21 05:52	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/26/21 05:52	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/26/21 05:52	1
Total TPH	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/26/21 05:52	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	97		70 - 130	08/25/21 14:14	08/26/21 05:52	1
o-Terphenyl (Surr)	93		70 - 130	08/25/21 14:14	08/26/21 05:52	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	12.3		5.04	mg/Kg			08/27/21 23:31	1

Eurofins Xenco, Midland

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-5423-1	C-18	111	114
880-5423-1 MS	C-18	110	105
880-5423-1 MSD	C-18	102	42 S1-
LCS 880-7058/1-A	Lab Control Sample	98	98
LCSD 880-7058/2-A	Lab Control Sample Dup	99	95
MB 880-7058/5-A	Method Blank	122	108
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-5423-1	C-18	97	93
890-1147-A-1-C MS	Matrix Spike	86	75
890-1147-A-1-D MSD	Matrix Spike Duplicate	90	75
LCS 880-7068/2-A	Lab Control Sample	96	88
LCSD 880-7068/3-A	Lab Control Sample Dup	93	85
MB 880-7068/1-A	Method Blank	103	99
Surrogate Legend			
1CO = 1-Chlorooctane (Surr)			
OTPH = o-Terphenyl (Surr)			

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-7058/5-A

Matrix: Solid

Analysis Batch: 7060

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7058

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Toluene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 14:52	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		08/25/21 11:45	08/25/21 14:52	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		08/25/21 11:45	08/25/21 14:52	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		08/25/21 11:45	08/25/21 14:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	122		70 - 130	08/25/21 11:45	08/25/21 14:52	1
1,4-Difluorobenzene (Surr)	108		70 - 130	08/25/21 11:45	08/25/21 14:52	1

Lab Sample ID: LCS 880-7058/1-A

Matrix: Solid

Analysis Batch: 7060

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7058

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.1071		mg/Kg		107	70 - 130
Toluene	0.100	0.1054		mg/Kg		105	70 - 130
Ethylbenzene	0.100	0.1051		mg/Kg		105	70 - 130
m,p-Xylenes	0.200	0.1928		mg/Kg		96	70 - 130
o-Xylene	0.100	0.09927		mg/Kg		99	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: LCSD 880-7058/2-A

Matrix: Solid

Analysis Batch: 7060

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7058

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Benzene	0.100	0.1125		mg/Kg		113	70 - 130	5	35
Toluene	0.100	0.1129		mg/Kg		113	70 - 130	7	35
Ethylbenzene	0.100	0.1113		mg/Kg		111	70 - 130	6	35
m,p-Xylenes	0.200	0.2022		mg/Kg		101	70 - 130	5	35
o-Xylene	0.100	0.1014		mg/Kg		101	70 - 130	2	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	99		70 - 130
1,4-Difluorobenzene (Surr)	95		70 - 130

Lab Sample ID: 880-5423-1 MS

Matrix: Solid

Analysis Batch: 7060

Client Sample ID: C-18

Prep Type: Total/NA

Prep Batch: 7058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00200	U	0.0998	0.09135		mg/Kg		92	70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 880-5423-1 MS

Matrix: Solid

Analysis Batch: 7060

Client Sample ID: C-18

Prep Type: Total/NA

Prep Batch: 7058

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	<0.00200	U	0.0998	0.08347		mg/Kg		84	70 - 130
Ethylbenzene	<0.00200	U	0.0998	0.08350		mg/Kg		84	70 - 130
m,p-Xylenes	<0.00401	U	0.200	0.1553		mg/Kg		78	70 - 130
o-Xylene	<0.00200	U	0.0998	0.07783		mg/Kg		77	70 - 130
Surrogate	MS %Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	110		70 - 130						
1,4-Difluorobenzene (Surr)	105		70 - 130						

Lab Sample ID: 880-5423-1 MSD

Matrix: Solid

Analysis Batch: 7060

Client Sample ID: C-18

Prep Type: Total/NA

Prep Batch: 7058

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0994	0.1007		mg/Kg		101	70 - 130	10	35
Toluene	<0.00200	U	0.0994	0.09545		mg/Kg		96	70 - 130	13	35
Ethylbenzene	<0.00200	U	0.0994	0.09085		mg/Kg		91	70 - 130	8	35
m,p-Xylenes	<0.00401	U	0.199	0.1649		mg/Kg		83	70 - 130	6	35
o-Xylene	<0.00200	U	0.0994	0.08230		mg/Kg		82	70 - 130	6	35
Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	102		70 - 130								
1,4-Difluorobenzene (Surr)	42	S1-	70 - 130								

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-7068/1-A

Matrix: Solid

Analysis Batch: 7036

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7068

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/25/21 21:10	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/25/21 21:10	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/25/21 21:10	1
Total TPH	<50.0	U	50.0	mg/Kg		08/25/21 14:14	08/25/21 21:10	1
Surrogate	MB %Recovery	MB Qualifier	MB Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	103		70 - 130			08/25/21 14:14	08/25/21 21:10	1
o-Terphenyl (Surr)	99		70 - 130			08/25/21 14:14	08/25/21 21:10	1

Lab Sample ID: LCS 880-7068/2-A

Matrix: Solid

Analysis Batch: 7036

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7068

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	866.7		mg/Kg		87	70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-7068/2-A

Matrix: Solid

Analysis Batch: 7036

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7068

			Spike	LCS	LCS				%Rec.		
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits		
Diesel Range Organics (Over C10-C28)			1000	947.8		mg/Kg		95	70 - 130		
Surrogate	LCS										
	%Recovery	Qualifier	Limits								
1-Chlorooctane (Surr)	96		70 - 130								
o-Terphenyl (Surr)	88		70 - 130								

Lab Sample ID: LCSD 880-7068/3-A

Matrix: Solid

Analysis Batch: 7036

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7068

Top Data: Pass											
Analyte			Spike	LCSD	LCSD	Unit	D	%Rec	%Rec.	RPD	RPD
			Added	Result	Qualifier			Limits	Limit		
Gasoline Range Organics (GRO)-C6-C10			1000	879.6		mg/Kg		88	70 - 130	1	20
Diesel Range Organics (Over C10-C28)			1000	926.2		mg/Kg		93	70 - 130	2	20
Bottom Data: Pass											
Surrogate	LCSD		Limits								
	%Recovery	Qualifier									
1-Chlorooctane (Surr)	93		70 - 130								
o-Terphenyl (Surr)	85		70 - 130								

Lab Sample ID: 890-1147-A-1-C MS

Matrix: Solid

Analysis Batch: 7036

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7068

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	872.7		mg/Kg		88	70 - 130
Diesel Range Organics (Over C10-C28)	<50.0	U	995	857.9		mg/Kg		86	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
1-Chlorooctane (Surr)	86		70 - 130						
o-Terphenyl (Surr)	75		70 - 130						

Lab Sample ID: 890-1147-A-1-D MSD

Matrix: Solid

Analysis Batch: 7036

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7068

Trip Data: 100%											
Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	956.6		mg/Kg		96	70 - 130	9	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	884.1		mg/Kg		89	70 - 130	3	20
Surrogate	MSD %Recovery	MSD Qualifier	MSD Limits								
1-Chlorooctane (Surr)	90		70 - 130								
o-Terphenyl (Surr)	75		70 - 130								

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-7059/1-A

Matrix: Solid

Analysis Batch: 7191

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			08/27/21 23:14	1

Lab Sample ID: LCS 880-7059/2-A

Matrix: Solid

Analysis Batch: 7191

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	242.2		mg/Kg		97	90 - 110

Lab Sample ID: LCSD 880-7059/3-A

Matrix: Solid

Analysis Batch: 7191

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	247.6		mg/Kg		99	90 - 110	2	20

Lab Sample ID: 880-5423-1 MS

Matrix: Solid

Analysis Batch: 7191

Client Sample ID: C-18

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	12.3		252	279.1		mg/Kg		106	90 - 110

Lab Sample ID: 880-5423-1 MSD

Matrix: Solid

Analysis Batch: 7191

Client Sample ID: C-18

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	12.3		252	263.8		mg/Kg		100	90 - 110	6	20

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

GC VOA

Prep Batch: 7058

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5423-1	C-18	Total/NA	Solid	5035	
MB 880-7058/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7058/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7058/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5423-1 MS	C-18	Total/NA	Solid	5035	
880-5423-1 MSD	C-18	Total/NA	Solid	5035	

Analysis Batch: 7060

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5423-1	C-18	Total/NA	Solid	8021B	7058
MB 880-7058/5-A	Method Blank	Total/NA	Solid	8021B	7058
LCS 880-7058/1-A	Lab Control Sample	Total/NA	Solid	8021B	7058
LCSD 880-7058/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7058
880-5423-1 MS	C-18	Total/NA	Solid	8021B	7058
880-5423-1 MSD	C-18	Total/NA	Solid	8021B	7058

GC Semi VOA

Analysis Batch: 7036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5423-1	C-18	Total/NA	Solid	8015B NM	7068
MB 880-7068/1-A	Method Blank	Total/NA	Solid	8015B NM	7068
LCS 880-7068/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7068
LCSD 880-7068/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7068
890-1147-A-1-C MS	Matrix Spike	Total/NA	Solid	8015B NM	7068
890-1147-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015B NM	7068

Prep Batch: 7068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5423-1	C-18	Total/NA	Solid	8015NM Prep	
MB 880-7068/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7068/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7068/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
890-1147-A-1-C MS	Matrix Spike	Total/NA	Solid	8015NM Prep	
890-1147-A-1-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8015NM Prep	

HPLC/IC

Leach Batch: 7059

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5423-1	C-18	Soluble	Solid	DI Leach	
MB 880-7059/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-7059/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-7059/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-5423-1 MS	C-18	Soluble	Solid	DI Leach	
880-5423-1 MSD	C-18	Soluble	Solid	DI Leach	

Analysis Batch: 7191

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5423-1	C-18	Soluble	Solid	300.0	7059
MB 880-7059/1-A	Method Blank	Soluble	Solid	300.0	7059
LCS 880-7059/2-A	Lab Control Sample	Soluble	Solid	300.0	7059

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

HPLC/IC (Continued)

Analysis Batch: 7191 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-7059/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7059
880-5423-1 MS	C-18	Soluble	Solid	300.0	7059
880-5423-1 MSD	C-18	Soluble	Solid	300.0	7059

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Client Sample ID: C-18

Lab Sample ID: 880-5423-1

Date Collected: 08/24/21 11:41

Matrix: Solid

Date Received: 08/25/21 09:24

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	7058	08/25/21 11:45	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7060	08/25/21 15:21	KL	XEN MID
Total/NA	Prep	8015NM Prep			10.00 g	10 mL	7068	08/25/21 14:14	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7036	08/26/21 05:52	AJ	XEN MID
Soluble	Leach	DI Leach			4.96 g	50 mL	7059	08/25/21 10:48	CH	XEN MID
Soluble	Analysis	300.0		1			7191	08/27/21 23:31	CH	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-20-21	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU #41

Job ID: 880-5423-1
SDG: 20-0107-12

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-5423-1	C-18	Solid	08/24/21 11:41	08/25/21 09:24

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

000 0420 011a11 01 0451000)

1075

CUSTODY

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-5423-1

SDG Number: 20-0107-12

Login Number: 5423

List Number: 1

Creator: Teel, Brianna

List Source: Eurofins Xenco, Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	



Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Midland
1211 W. Florida Ave
Midland, TX 79701
Tel: (432)704-5440

Laboratory Job ID: 880-5804-1
Laboratory Sample Delivery Group: 20-0107-12
Client Project/Site: VGWU # 091

For:
Larson & Associates, Inc.
507 N Marienfeld
Suite 202
Midland, Texas 79701

Attn: Mr. Mark J Larson

Holly Taylor

Authorized for release by:
9/13/2021 9:04:42 AM

Holly Taylor, Project Manager
(806)794-1296
holly.taylor@eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Laboratory Job ID: 880-5804-1
SDG: 20-0107-12

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Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
F2	MS/MSD RPD exceeds control limits
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
α	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Job ID: 880-5804-1

Laboratory: Eurofins Xenco, Midland

Narrative

**Job Narrative
880-5804-1**

Receipt

The samples were received on 9/7/2021 10:26 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 2.3°C

GC VOA

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-7645 and analytical batch 880-7670 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

Method 8021B: The matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 880-7729 and analytical batch 880-7728 were outside control limits. Sample matrix interference and/or non-homogeneity are suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

GC Semi VOA

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

HPLC/IC

No additional analytical or quality issues were noted, other than those described above or in the Definitions/ Glossary page.

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Client Sample ID: Backfill-1

Lab Sample ID: 880-5804-1

Date Collected: 09/02/21 11:59

Matrix: Solid

Date Received: 09/07/21 10:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/09/21 13:47	09/10/21 18:23	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/09/21 13:47	09/10/21 18:23	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/09/21 13:47	09/10/21 18:23	1
m,p-Xylenes	<0.00401	U	0.00401	mg/Kg		09/09/21 13:47	09/10/21 18:23	1
o-Xylene	0.00313		0.00200	mg/Kg		09/09/21 13:47	09/10/21 18:23	1
Xylenes, Total	<0.00401	U	0.00401	mg/Kg		09/09/21 13:47	09/10/21 18:23	1
Total BTEX	<0.00401	U	0.00401	mg/Kg		09/09/21 13:47	09/10/21 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	93		70 - 130	09/09/21 13:47	09/10/21 18:23	1
1,4-Difluorobenzene (Surr)	88		70 - 130	09/09/21 13:47	09/10/21 18:23	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 11:43	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 11:43	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 11:43	1
Total TPH	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 11:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	94		70 - 130	09/07/21 16:33	09/08/21 11:43	1
o-Terphenyl (Surr)	99		70 - 130	09/07/21 16:33	09/08/21 11:43	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	22.3		5.05	mg/Kg			09/08/21 18:10	1

Client Sample ID: Backfill-2

Lab Sample ID: 880-5804-2

Date Collected: 09/02/21 12:00

Matrix: Solid

Date Received: 09/07/21 10:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:22	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:22	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:22	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 08:22	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:22	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 08:22	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 08:22	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	106		70 - 130	09/08/21 11:57	09/09/21 08:22	1
1,4-Difluorobenzene (Surr)	102		70 - 130	09/08/21 11:57	09/09/21 08:22	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 12:47	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Client Sample ID: Backfill-2

Lab Sample ID: 880-5804-2

Date Collected: 09/02/21 12:00

Matrix: Solid

Date Received: 09/07/21 10:26

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 12:47	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 12:47	1
Total TPH	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 12:47	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	95		70 - 130			09/07/21 16:33	09/08/21 12:47	1
o-Terphenyl (Surr)	99		70 - 130			09/07/21 16:33	09/08/21 12:47	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	90.6		4.99	mg/Kg			09/08/21 18:27	1

Client Sample ID: Backfill-3

Lab Sample ID: 880-5804-3

Date Collected: 09/02/21 12:01

Matrix: Solid

Date Received: 09/07/21 10:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
m,p-Xylenes	<0.00399	U	0.00399	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
Xylenes, Total	<0.00399	U	0.00399	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
Total BTEX	<0.00399	U	0.00399	mg/Kg		09/08/21 11:57	09/09/21 08:42	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		70 - 130			09/08/21 11:57	09/09/21 08:42	1
1,4-Difluorobenzene (Surr)	100		70 - 130			09/08/21 11:57	09/09/21 08:42	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.8	U	49.8	mg/Kg		09/07/21 16:33	09/08/21 13:08	1
Diesel Range Organics (Over C10-C28)	<49.8	U	49.8	mg/Kg		09/07/21 16:33	09/08/21 13:08	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8	mg/Kg		09/07/21 16:33	09/08/21 13:08	1
Total TPH	<49.8	U	49.8	mg/Kg		09/07/21 16:33	09/08/21 13:08	1
Surrogate	%Recovery	Qualifier	Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	89		70 - 130			09/07/21 16:33	09/08/21 13:08	1
o-Terphenyl (Surr)	97		70 - 130			09/07/21 16:33	09/08/21 13:08	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	26.9		4.95	mg/Kg			09/08/21 18:33	1

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Client Sample ID: Backfill-4

Lab Sample ID: 880-5804-4

Date Collected: 09/02/21 12:02

Matrix: Solid

Date Received: 09/07/21 10:26

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 09:02	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 09:02	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 09:02	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 09:02	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 09:02	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 09:02	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 09:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	115		70 - 130	09/08/21 11:57	09/09/21 09:02	1
1,4-Difluorobenzene (Surr)	79		70 - 130	09/08/21 11:57	09/09/21 09:02	1

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 13:30	1
Diesel Range Organics (Over C10-C28)	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 13:30	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 13:30	1
Total TPH	<49.9	U	49.9	mg/Kg		09/07/21 16:33	09/08/21 13:30	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	102		70 - 130	09/07/21 16:33	09/08/21 13:30	1
o-Terphenyl (Surr)	105		70 - 130	09/07/21 16:33	09/08/21 13:30	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	68.3		5.03	mg/Kg			09/08/21 18:38	1

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
880-5804-1	Backfill-1	93	88
880-5804-2	Backfill-2	106	102
880-5804-3	Backfill-3	105	100
880-5804-4	Backfill-4	115	79
880-5804-A-1-G MS	880-5804-A-1-G MS	111	98
880-5804-A-1-H MSD	880-5804-A-1-H MSD	93	74
890-1230-A-2-C MS	Matrix Spike	126	93
890-1230-A-2-D MSD	Matrix Spike Duplicate	116	108
LCS 880-7645/1-A	Lab Control Sample	143 S1+	87
LCS 880-7729/1-A	Lab Control Sample	116	99
LCSD 880-7645/2-A	Lab Control Sample Dup	103	90
MB 880-7644/5-A	Method Blank	120	110
MB 880-7645/5-A	Method Blank	133 S1+	104
MB 880-7729/5-A	Method Blank	104	98
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1	DFBZ1
LCSD 880-7729/2-A	Lab Control Sample Dup		
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
880-5804-1	Backfill-1	94	99
880-5804-1 MS	Backfill-1	100	93
880-5804-1 MSD	Backfill-1	91	84
880-5804-2	Backfill-2	95	99
880-5804-3	Backfill-3	89	97
880-5804-4	Backfill-4	102	105
LCS 880-7622/2-A	Lab Control Sample	109	105
LCSD 880-7622/3-A	Lab Control Sample Dup	124	117
MB 880-7622/1-A	Method Blank	102	112
Surrogate Legend			
1CO = 1-Chlorooctane (Surr)			
OTPH = o-Terphenyl (Surr)			

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-7644/5-A

Matrix: Solid

Analysis Batch: 7670

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7644

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:47	09/08/21 19:59	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:47	09/08/21 19:59	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:47	09/08/21 19:59	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		09/08/21 11:47	09/08/21 19:59	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:47	09/08/21 19:59	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/08/21 11:47	09/08/21 19:59	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/08/21 11:47	09/08/21 19:59	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	120		70 - 130	09/08/21 11:47	09/08/21 19:59	1
1,4-Difluorobenzene (Surr)	110		70 - 130	09/08/21 11:47	09/08/21 19:59	1

Lab Sample ID: MB 880-7645/5-A

Matrix: Solid

Analysis Batch: 7670

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7645

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 07:33	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 07:33	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 07:33	1
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 07:33	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/08/21 11:57	09/09/21 07:33	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 07:33	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/08/21 11:57	09/09/21 07:33	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	133	S1+	70 - 130	09/08/21 11:57	09/09/21 07:33	1
1,4-Difluorobenzene (Surr)	104		70 - 130	09/08/21 11:57	09/09/21 07:33	1

Lab Sample ID: LCS 880-7645/1-A

Matrix: Solid

Analysis Batch: 7670

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7645

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.09255		mg/Kg		93	70 - 130
Toluene	0.100	0.09254		mg/Kg		93	70 - 130
Ethylbenzene	0.100	0.1021		mg/Kg		102	70 - 130
m,p-Xylenes	0.200	0.1995		mg/Kg		100	70 - 130
o-Xylene	0.100	0.1079		mg/Kg		108	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	143	S1+	70 - 130
1,4-Difluorobenzene (Surr)	87		70 - 130

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QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: LCSD 880-7645/2-A

Matrix: Solid

Analysis Batch: 7670

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7645

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.08256		mg/Kg		83	70 - 130	11	35
Toluene	0.100	0.09815		mg/Kg		98	70 - 130	6	35
Ethylbenzene	0.100	0.1055		mg/Kg		106	70 - 130	3	35
m,p-Xylenes	0.200	0.1970		mg/Kg		99	70 - 130	1	35
o-Xylene	0.100	0.09939		mg/Kg		99	70 - 130	8	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	103		70 - 130
1,4-Difluorobenzene (Surr)	90		70 - 130

Lab Sample ID: 880-5804-A-1-G MS

Matrix: Solid

Analysis Batch: 7670

Client Sample ID: 880-5804-A-1-G MS

Prep Type: Total/NA

Prep Batch: 7645

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0218	F2 F1	0.0998	0.06053	F1	mg/Kg		39	70 - 130		
Toluene	0.0468	F2 F1	0.0998	0.05219	F1	mg/Kg		5	70 - 130		
Ethylbenzene	0.103	F1	0.0998	0.06099	F1	mg/Kg		-42	70 - 130		
m,p-Xylenes	0.280	F2 F1	0.200	0.1151	F1	mg/Kg		-83	70 - 130		
o-Xylene	0.0523	F2 F1	0.0998	0.07526	F1	mg/Kg		23	70 - 130		

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	111		70 - 130
1,4-Difluorobenzene (Surr)	98		70 - 130

Lab Sample ID: 880-5804-A-1-H MSD

Matrix: Solid

Analysis Batch: 7670

Client Sample ID: 880-5804-A-1-H MSD

Prep Type: Total/NA

Prep Batch: 7645

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.0218	F2 F1	0.101	0.03166	F2 F1	mg/Kg		10	70 - 130	63	35
Toluene	0.0468	F2 F1	0.101	0.02481	F2 F1	mg/Kg		-22	70 - 130	71	35
Ethylbenzene	0.103	F1	0.101	0.05157	F1	mg/Kg		-51	70 - 130	17	35
m,p-Xylenes	0.280	F2 F1	0.202	0.03935	F2 F1	mg/Kg		-120	70 - 130	98	35
o-Xylene	0.0523	F2 F1	0.101	0.03104	F2 F1	mg/Kg		-21	70 - 130	83	35

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	93		70 - 130
1,4-Difluorobenzene (Surr)	74		70 - 130

Lab Sample ID: MB 880-7729/5-A

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7729

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200	mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Toluene	<0.00200	U	0.00200	mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Ethylbenzene	<0.00200	U	0.00200	mg/Kg		09/10/21 09:09	09/10/21 17:21	1

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: MB 880-7729/5-A

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7729

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
m,p-Xylenes	<0.00400	U	0.00400	mg/Kg		09/10/21 09:09	09/10/21 17:21	1
o-Xylene	<0.00200	U	0.00200	mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Xylenes, Total	<0.00400	U	0.00400	mg/Kg		09/10/21 09:09	09/10/21 17:21	1
Total BTEX	<0.00400	U	0.00400	mg/Kg		09/10/21 09:09	09/10/21 17:21	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	104		70 - 130	09/10/21 09:09	09/10/21 17:21	1
1,4-Difluorobenzene (Surr)	98		70 - 130	09/10/21 09:09	09/10/21 17:21	1

Lab Sample ID: LCS 880-7729/1-A

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7729

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.08645		mg/Kg		86	70 - 130
Toluene	0.100	0.08777		mg/Kg		88	70 - 130
Ethylbenzene	0.100	0.08937		mg/Kg		89	70 - 130
m,p-Xylenes	0.200	0.1902		mg/Kg		95	70 - 130
o-Xylene	0.100	0.09347		mg/Kg		93	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	116		70 - 130
1,4-Difluorobenzene (Surr)	99		70 - 130

Lab Sample ID: LCSD 880-7729/2-A

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7729

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.08285		mg/Kg					
Toluene	0.100	0.08121		mg/Kg					
Ethylbenzene	0.100	0.08236		mg/Kg					
m,p-Xylenes	0.200	0.1748		mg/Kg					
o-Xylene	0.100	0.08603		mg/Kg					

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)			
1,4-Difluorobenzene (Surr)			

Lab Sample ID: 890-1230-A-2-C MS

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7729

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<0.00200	U	0.101	0.08146		mg/Kg		81	70 - 130
Toluene	<0.00200	U	0.101	0.08340		mg/Kg		83	70 - 130
Ethylbenzene	<0.00200	U	0.101	0.08460		mg/Kg		84	70 - 130
m,p-Xylenes	<0.00399	U	0.201	0.1801		mg/Kg		90	70 - 130

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QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 8021B - Volatile Organic Compounds (GC) (Continued)

Lab Sample ID: 890-1230-A-2-C MS

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Matrix Spike

Prep Type: Total/NA

Prep Batch: 7729

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
o-Xylene	<0.00200	U	0.101	0.08900		mg/Kg		88	70 - 130
Surrogate	%Recovery	MS Qualifier	MS Limits						
4-Bromofluorobenzene (Surr)	126		70 - 130						
1,4-Difluorobenzene (Surr)	93		70 - 130						

Lab Sample ID: 890-1230-A-2-D MSD

Matrix: Solid

Analysis Batch: 7728

Client Sample ID: Matrix Spike Duplicate

Prep Type: Total/NA

Prep Batch: 7729

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<0.00200	U	0.0994	0.07990		mg/Kg		80	70 - 130	2	35
Toluene	<0.00200	U	0.0994	0.07221		mg/Kg		73	70 - 130	14	35
Ethylbenzene	<0.00200	U	0.0994	0.07000		mg/Kg		70	70 - 130	19	35
m,p-Xylenes	<0.00399	U	0.199	0.1465		mg/Kg		74	70 - 130	21	35
o-Xylene	<0.00200	U	0.0994	0.07317		mg/Kg		74	70 - 130	20	35
Surrogate	%Recovery	MSD Qualifier	MSD Limits								
4-Bromofluorobenzene (Surr)	116		70 - 130								
1,4-Difluorobenzene (Surr)	108		70 - 130								

Method: 8015B NM - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 880-7622/1-A

Matrix: Solid

Analysis Batch: 7630

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 7622

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 10:39	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 10:39	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 10:39	1
Total TPH	<50.0	U	50.0	mg/Kg		09/07/21 16:33	09/08/21 10:39	1
Surrogate	%Recovery	MB Qualifier	MB Limits			Prepared	Analyzed	Dil Fac
1-Chlorooctane (Surr)	102		70 - 130			09/07/21 16:33	09/08/21 10:39	1
o-Terphenyl (Surr)	112		70 - 130			09/07/21 16:33	09/08/21 10:39	1

Lab Sample ID: LCS 880-7622/2-A

Matrix: Solid

Analysis Batch: 7630

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7622

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	868.7		mg/Kg		87	70 - 130
Diesel Range Organics (Over C10-C28)	1000	985.0		mg/Kg		99	70 - 130

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QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 8015B NM - Diesel Range Organics (DRO) (GC) (Continued)

Lab Sample ID: LCS 880-7622/2-A

Matrix: Solid

Analysis Batch: 7630

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 7622

	LCS	LCS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	109		70 - 130
o-Terphenyl (Surr)	105		70 - 130

Lab Sample ID: LCSD 880-7622/3-A

Matrix: Solid

Analysis Batch: 7630

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 7622

			Spike	LCSD	LCSD				%Rec.		RPD
Analyte			Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10			1000	974.9		mg/Kg		97	70 - 130	12	20
Diesel Range Organics (Over C10-C28)			1000	1119		mg/Kg		112	70 - 130	13	20

	LCSD	LCSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	124		70 - 130
o-Terphenyl (Surr)	117		70 - 130

Lab Sample ID: 880-5804-1 MS

Matrix: Solid

Analysis Batch: 7630

Client Sample ID: Backfill-1

Prep Type: Total/NA

Prep Batch: 7622

	Sample	Sample	Spike	MS	MS				%Rec.		
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	995	841.1		mg/Kg		85	70 - 130		
Diesel Range Organics (Over C10-C28)	<50.0	U	995	1007		mg/Kg		99	70 - 130		

	MS	MS	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	100		70 - 130
o-Terphenyl (Surr)	93		70 - 130

Lab Sample ID: 880-5804-1 MSD

Matrix: Solid

Analysis Batch: 7630

Client Sample ID: Backfill-1

Prep Type: Total/NA

Prep Batch: 7622

	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	998	791.2		mg/Kg		79	70 - 130	6	20
Diesel Range Organics (Over C10-C28)	<50.0	U	998	913.1		mg/Kg		89	70 - 130	10	20

	MSD	MSD	
Surrogate	%Recovery	Qualifier	Limits
1-Chlorooctane (Surr)	91		70 - 130
o-Terphenyl (Surr)	84		70 - 130

Eurofins Xenco, Midland

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-7602/1-A

Matrix: Solid

Analysis Batch: 7625

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00	mg/Kg			09/08/21 17:53	1

Lab Sample ID: LCS 880-7602/2-A

Matrix: Solid

Analysis Batch: 7625

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	253.7		mg/Kg		101	90 - 110

Lab Sample ID: LCSD 880-7602/3-A

Matrix: Solid

Analysis Batch: 7625

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	254.6		mg/Kg		102	90 - 110	0	20

Lab Sample ID: 880-5804-1 MS

Matrix: Solid

Analysis Batch: 7625

Client Sample ID: Backfill-1

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	22.3		253	283.7		mg/Kg		104	90 - 110

Lab Sample ID: 880-5804-1 MSD

Matrix: Solid

Analysis Batch: 7625

Client Sample ID: Backfill-1

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	22.3		253	283.9		mg/Kg		104	90 - 110	0	20

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

GC VOA

Prep Batch: 7644

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-7644/5-A	Method Blank	Total/NA	Solid	5035	

Prep Batch: 7645

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-2	Backfill-2	Total/NA	Solid	5035	
880-5804-3	Backfill-3	Total/NA	Solid	5035	
880-5804-4	Backfill-4	Total/NA	Solid	5035	
MB 880-7645/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7645/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7645/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
880-5804-A-1-G MS	880-5804-A-1-G MS	Total/NA	Solid	5035	
880-5804-A-1-H MSD	880-5804-A-1-H MSD	Total/NA	Solid	5035	

Analysis Batch: 7670

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-2	Backfill-2	Total/NA	Solid	8021B	7645
880-5804-3	Backfill-3	Total/NA	Solid	8021B	7645
880-5804-4	Backfill-4	Total/NA	Solid	8021B	7645
MB 880-7644/5-A	Method Blank	Total/NA	Solid	8021B	7644
MB 880-7645/5-A	Method Blank	Total/NA	Solid	8021B	7645
LCS 880-7645/1-A	Lab Control Sample	Total/NA	Solid	8021B	7645
LCSD 880-7645/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7645
880-5804-A-1-G MS	880-5804-A-1-G MS	Total/NA	Solid	8021B	7645
880-5804-A-1-H MSD	880-5804-A-1-H MSD	Total/NA	Solid	8021B	7645

Prep Batch: 7706

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-1	Backfill-1	Total/NA	Solid	5035	

Analysis Batch: 7728

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-1	Backfill-1	Total/NA	Solid	8021B	7706
MB 880-7729/5-A	Method Blank	Total/NA	Solid	8021B	7729
LCS 880-7729/1-A	Lab Control Sample	Total/NA	Solid	8021B	7729
LCSD 880-7729/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	7729
890-1230-A-2-C MS	Matrix Spike	Total/NA	Solid	8021B	7729
890-1230-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	8021B	7729

Prep Batch: 7729

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-7729/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-7729/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-7729/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	
890-1230-A-2-C MS	Matrix Spike	Total/NA	Solid	5035	
890-1230-A-2-D MSD	Matrix Spike Duplicate	Total/NA	Solid	5035	

GC Semi VOA

Prep Batch: 7622

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-1	Backfill-1	Total/NA	Solid	8015NM Prep	

Eurofins Xenco, Midland

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

GC Semi VOA (Continued)

Prep Batch: 7622 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-2	Backfill-2	Total/NA	Solid	8015NM Prep	
880-5804-3	Backfill-3	Total/NA	Solid	8015NM Prep	
880-5804-4	Backfill-4	Total/NA	Solid	8015NM Prep	
MB 880-7622/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-7622/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-7622/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	
880-5804-1 MS	Backfill-1	Total/NA	Solid	8015NM Prep	
880-5804-1 MSD	Backfill-1	Total/NA	Solid	8015NM Prep	

Analysis Batch: 7630

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-1	Backfill-1	Total/NA	Solid	8015B NM	7622
880-5804-2	Backfill-2	Total/NA	Solid	8015B NM	7622
880-5804-3	Backfill-3	Total/NA	Solid	8015B NM	7622
880-5804-4	Backfill-4	Total/NA	Solid	8015B NM	7622
MB 880-7622/1-A	Method Blank	Total/NA	Solid	8015B NM	7622
LCS 880-7622/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	7622
LCSD 880-7622/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	7622
880-5804-1 MS	Backfill-1	Total/NA	Solid	8015B NM	7622
880-5804-1 MSD	Backfill-1	Total/NA	Solid	8015B NM	7622

HPLC/IC

Leach Batch: 7602

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-1	Backfill-1	Soluble	Solid	DI Leach	
880-5804-2	Backfill-2	Soluble	Solid	DI Leach	
880-5804-3	Backfill-3	Soluble	Solid	DI Leach	
880-5804-4	Backfill-4	Soluble	Solid	DI Leach	
MB 880-7602/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-7602/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-7602/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
880-5804-1 MS	Backfill-1	Soluble	Solid	DI Leach	
880-5804-1 MSD	Backfill-1	Soluble	Solid	DI Leach	

Analysis Batch: 7625

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-5804-1	Backfill-1	Soluble	Solid	300.0	7602
880-5804-2	Backfill-2	Soluble	Solid	300.0	7602
880-5804-3	Backfill-3	Soluble	Solid	300.0	7602
880-5804-4	Backfill-4	Soluble	Solid	300.0	7602
MB 880-7602/1-A	Method Blank	Soluble	Solid	300.0	7602
LCS 880-7602/2-A	Lab Control Sample	Soluble	Solid	300.0	7602
LCSD 880-7602/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	7602
880-5804-1 MS	Backfill-1	Soluble	Solid	300.0	7602
880-5804-1 MSD	Backfill-1	Soluble	Solid	300.0	7602

Eurofins Xenco, Midland

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Client Sample ID: Backfill-1

Lab Sample ID: 880-5804-1

Date Collected: 09/02/21 11:59

Matrix: Solid

Date Received: 09/07/21 10:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			4.99 g	5 mL	7706	09/09/21 13:47	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7728	09/10/21 18:23	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.01 g	10 mL	7622	09/07/21 16:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7630	09/08/21 11:43	AJ	XEN MID
Soluble	Leach	DI Leach			4.95 g	50 mL	7602	09/07/21 11:58	CH	XEN MID
Soluble	Analysis	300.0		1			7625	09/08/21 18:10	SC	XEN MID

Client Sample ID: Backfill-2

Lab Sample ID: 880-5804-2

Date Collected: 09/02/21 12:00

Matrix: Solid

Date Received: 09/07/21 10:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	7645	09/08/21 11:57	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7670	09/09/21 08:22	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.02 g	10 mL	7622	09/07/21 16:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7630	09/08/21 12:47	AJ	XEN MID
Soluble	Leach	DI Leach			5.01 g	50 mL	7602	09/07/21 11:58	CH	XEN MID
Soluble	Analysis	300.0		1			7625	09/08/21 18:27	SC	XEN MID

Client Sample ID: Backfill-3

Lab Sample ID: 880-5804-3

Date Collected: 09/02/21 12:01

Matrix: Solid

Date Received: 09/07/21 10:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.01 g	5 mL	7645	09/08/21 11:57	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7670	09/09/21 08:42	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.04 g	10 mL	7622	09/07/21 16:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7630	09/08/21 13:08	AJ	XEN MID
Soluble	Leach	DI Leach			5.05 g	50 mL	7602	09/07/21 11:58	CH	XEN MID
Soluble	Analysis	300.0		1			7625	09/08/21 18:33	SC	XEN MID

Client Sample ID: Backfill-4

Lab Sample ID: 880-5804-4

Date Collected: 09/02/21 12:02

Matrix: Solid

Date Received: 09/07/21 10:26

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			5.00 g	5 mL	7645	09/08/21 11:57	MR	XEN MID
Total/NA	Analysis	8021B		1	5 mL	5 mL	7670	09/09/21 09:02	MR	XEN MID
Total/NA	Prep	8015NM Prep			10.03 g	10 mL	7622	09/07/21 16:33	DM	XEN MID
Total/NA	Analysis	8015B NM		1			7630	09/08/21 13:30	AJ	XEN MID
Soluble	Leach	DI Leach			4.97 g	50 mL	7602	09/07/21 11:58	CH	XEN MID
Soluble	Analysis	300.0		1			7625	09/08/21 18:38	SC	XEN MID

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Laboratory: Eurofins Xenco, Midland

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704400-21-22	06-30-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8015B NM	8015NM Prep	Solid	Total TPH
8021B	5035	Solid	Total BTEX

Method Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
8015B NM	Diesel Range Organics (DRO) (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
5035	Closed System Purge and Trap	SW846	XEN MID
8015NM Prep	Microextraction	SW846	XEN MID
DI Leach	Deionized Water Leaching Procedure	ASTM	XEN MID

Protocol References:

ASTM = ASTM International

MCAWW = "Methods For Chemical Analysis Of Water And Wastes", EPA-600/4-79-020, March 1983 And Subsequent Revisions.

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

XEN MID = Eurofins Xenco, Midland, 1211 W. Florida Ave, Midland, TX 79701, TEL (432)704-5440

Eurofins Xenco, Midland

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: VGWU # 091

Job ID: 880-5804-1
SDG: 20-0107-12

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
880-5804-1	Backfill-1	Solid	09/02/21 11:59	09/07/21 10:26
880-5804-2	Backfill-2	Solid	09/02/21 12:00	09/07/21 10:26
880-5804-3	Backfill-3	Solid	09/02/21 12:01	09/07/21 10:26
880-5804-4	Backfill-4	Solid	09/02/21 12:02	09/07/21 10:26

CHAIN-OF-CUSTODY

No. 2094

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-5804-1

SDG Number: 20-0107-12

Login Number: 5804

List Number: 1

Creator: Teel, Brianna

List Source: Eurofins Xenco, Midland

Question	Answer	Comment
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	N/A	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	N/A	

Appendix D

Photographs

Tracking Number: nRM2011949780
Closure Report
Vacuum Glorieta West Unit #041, Lea County, New Mexico
October 22, 2021



Impacted area viewing north, May 8, 2020



Impacted area viewing southeast, May 8, 2020

Tracking Number: nRM2011949780
Closure Report
Vacuum Glorieta West Unit #041, Lea County, New Mexico
October 22, 2021



Impacted area viewing southwest, May 8, 2020



Impacted area viewing east, May 8, 2020

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2021



Excavated Soil Encompassing S-4 to a Depth of 1-foot bgs



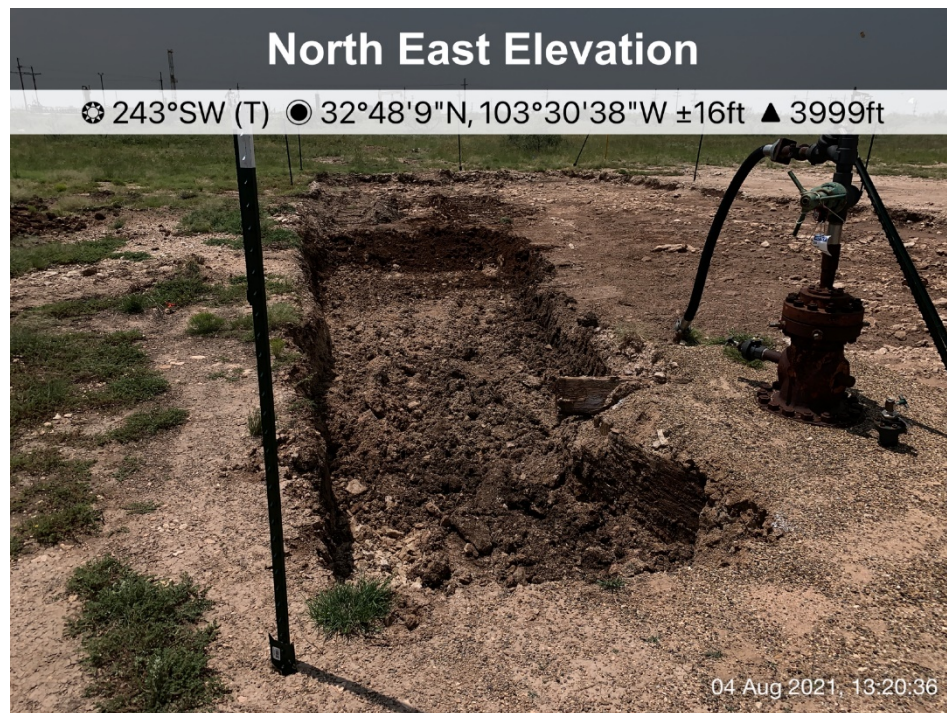
Excavated Soil Encompassing S-6 and S-9 to a depth of 4.1 Feet bgs

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2021



Excavated Soil Encompassing C-4 and C-10 to a Depth of 2 feet bgs



Additional 1-foot Excavated from the Sidewall Encompassing C-18

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2021



Additional 1-foot Excavated from the Sidewall Encompassing C-18



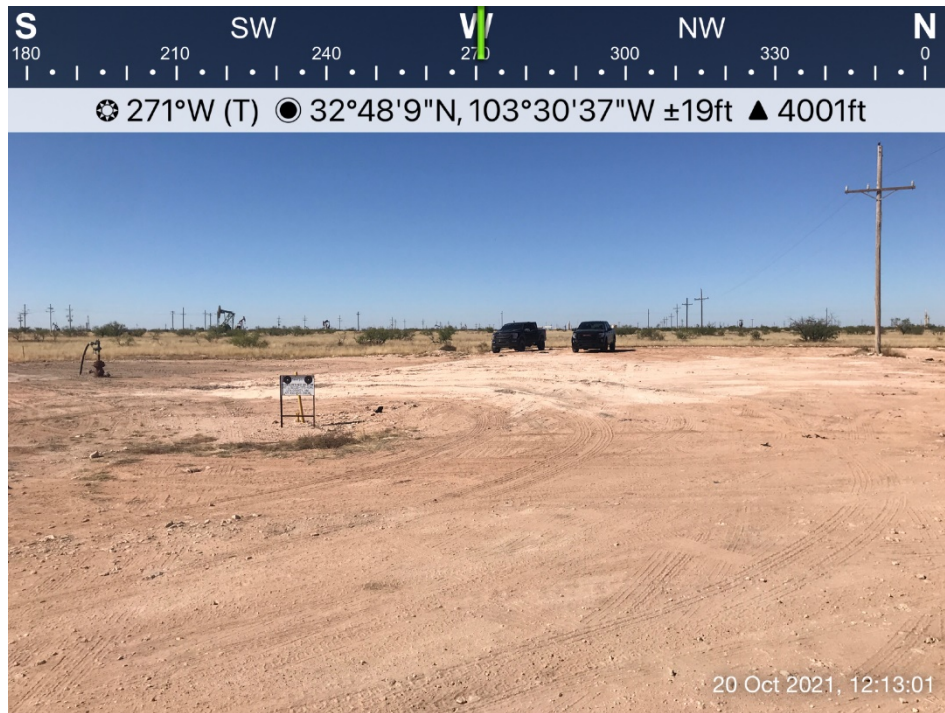
Backfilled Excavation Area Encompassing S-4

Tracking Number: nRM2011949780

Closure Report

Vacuum Glorieta West Unit #041, Lea County, New Mexico

October 22, 2021



Backfilled Excavation Area Encompassing S-6 and S-9

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 59897

CONDITIONS

Operator: CHEVRON U S A INC 6301 Deauville Blvd Midland, TX 79706	OGRID: 4323
	Action Number: 59897
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	12/6/2021