Form C-141
Page 3

State of New Mexico
Oil Conservation Division

Incident ID	nVV2003708492
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?	25.25 (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.

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State of New Mexico
Oil Conservation Division

Incident ID	nVV2003708492
District RP	
Facility ID	
Application ID	

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Amy Barnhill Title: Waste and Water Specialist

Signature: Date: 8-3-2020

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

OCD Only

Received by: Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nVV2003708492
District RP	
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.

Printed Name: Amy Barnhill Title: Waste and Water Specialist

Signature: Date: 8-3-2020

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

OCD Only

Received by: Victoria Venegas Date: 08/03/2020

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

Signature: Date: 08/31/2020

nVV2003738492
Delineation Report and Remediation Plan
Hayhurst New Mexico SWD
Produced Water Release
Eddy County, New Mexico

Latitude: N 32.06569°
Longitude: W -104.16510°

LAI Project No. 19-0180-3

July 12, 2020

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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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI), has prepared this delineation report and remediation plan on behalf of Chevron USA Inc. (Chevron) for submittal to the New Mexico Oil Conservation Division (OCD) District 2 for a produced water release at the Hayhurst New Mexico SWD (Site) located in Unit N (SE/4, SW/4), Section 2, Township 26 South, Range 27 East in Eddy County New Mexico. The geodetic position is North 32.06569° and West -104.16510°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release was discovered on October 16, 2019, due to equipment failure. Chevron reported that approximately 5 barrels (bbls) of produced water was released and approximately 4 bbls were recovered. The affected area measures approximately 2,065 square feet. Appendix A presents the Chevron spill calculation. The initial C-141 was assigned an incident number of nVV2003738492.

1.2 Physical Setting

The physical setting is as follows:.

- The surface elevation is approximately 3,222 feet above mean sea level (msl).
- The surface topography gradually decreases to the southeast.
- There are no karst or surface water features within 1,000 feet of the Site.
- The soils are designated as “Reeves-Reagan loams, 0 to 3 percent slopes”, consisting of 0 to 8 inches of loam, underlain by 8 to 32 inches of clay loam, and 32 to 60 inches of gypsiferous material.
- The geology consists of the Rustler Formation (Upper Permian)- Siltstone, gypsum, sandstone, and dolomite deposits (USGS).
- Groundwater occurs at approximately 25.25 feet below ground surface (bgs) based on depth to groundwater measurements 72 hours after installing a boring (BH-1).

1.3 Remediation Action Levels

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

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 100 mg/Kg
- Chloride 600 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.

2.0 DELINEATION

On October 24, January 9, May 13, and June 5, 2020, LAI personnel used a stainless steel hand auger to collect soil samples from thirteen (13) locations inside of the spill area and in each cardinal direction of the spill (SP-1 through SP-13) to vertically and horizontally delineate the release. The samples were collected to approximately 1-foot bgs. The soil samples were delivered under chain of custody and

preservation to Xenco Laboratories (Xenco) in Midland, Texas. The laboratory analyzed the samples for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH), including gasoline range organics (C6-C12), diesel range organics (>C12-C28) and oil range organics (>C28-C35), and chloride by EPA SW-846 Methods 8021B and 8015M, and M300, respectively. Figure 2 presents an aerial map showing the sample locations.

Benzene and BTEX reported below the remediation action levels of 10 milligrams per kilogram (mg/Kg) and 50 mg/Kg, respectively, in all samples. Chloride and TPH exceeded the surface restoration limits (19.15.29.13 NMAC) of 600 mg/Kg and 100 mg/Kg, respectively, in the following samples:

Sample ID, Depth (Feet)	**Chloride (mg/Kg)**	**TPH (mg/Kg)**
SP-1, 0 to 0.5	32,500	117
SP-2, 0 to 0.5	12,400	124
SP-3, 0 to 0.5	24,800	8,060
SP-4, 0 to 0.5	11,600	10,000
SP-5, 0 to 0.5	13,800	9,300
SP-6,0 to 0.5	40,400	389
SP-7, 0 to 0.5	1,010	--
SP-8, 0 to 0.5	710	--
SP-9, 0 to 0.5	4,750	183
SP-12, 0 to 0.5	616	--

On January 9 and 10, 2020, LAI personnel used direct push technology (DPT) to further delineate the release. Soil samples were collected at 1, 3, 5 and 10 feet bgs. The samples were delivered under chain of custody and preservation to Xenco. The laboratory analyzed the samples for BTEX, TPH, including C6-C12, >C12-C28 and >C28-C35, and chloride by EPA SW-846 Methods 8021B and 8015M, and M300, respectively. Chloride and TPH were delineated below the remediation limit 600 mg/Kg and 100 mg/Kg, respectively, at all sample locations. Table 1 presents the soil sample analytical data summary. Appendix B presents the laboratory reports.

3.0 Remediation Plan

Chevron proposes the following remedial actions:

- Excavate soil from an area measuring approximately 728 square feet, encompassing SP-4 and SP-3 to 4.1 feet bgs
- Excavate soil from an area measuring approximately 1,398, encompassing SP-1, SP-2, and SP-5 through SP-9 to approximately 1-foot 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 on the pad assuming achievement of OCD remediation levels.
- Prepare report with photographs for submittal to OCD District 2.

Figure 3 presents the proposed excavation areas.

Tables

Table 1
Delineation Soil Sample Analytical Data Summary
Chevron USA, Hayhurst NM SWD
Eddy County, New Mexico
North 32 03' 56.48" West 104 09' 54.26"

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**				**2,500**	**10,000**
SP-1	0 - 0.5	10/24/2019	In-Situ	<0.00104	<0.00624	<26.0	80.3	37.1	**117**	**32,500**
	1	1/10/2020	In-Situ	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	**2,280**
	3	1/10/2020	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	63.2
	5	1/10/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	7.98
	10	1/10/2020	In-Situ	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<4.97
SP-2	0 - 0.5	10/24/2019	In-Situ	<0.00110	<0.00660	<27.5	84.6	39.2	**124**	**12,400**
	1	1/10/2020	In-Situ	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	63.7
	3	1/10/2020	In-Situ	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	38.4
	5	1/10/2020	In-Situ	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<5.05
	10	1/10/2020	In-Situ	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	25.9
SP-3	0 - 0.5	10/24/2019	In-Situ	<0.00109	0.33627	1,240	6,350	473	**8,060**	**24,800**
	1	1/10/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	99.8
	3	1/10/2020	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	**1,700**
	5	1/10/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	37.5
	10	1/10/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<4.99
SP-4	0 - 0.5	10/24/2019	In-Situ	<0.00106	0.5407	1,630	7,780	637	**10,000**	**11,600**
	1	1/9/2020	In-Situ	<0.00201	<0.00201	<50.0	88.5	<50.0	88.5	355
	3	1/9/2020	In-Situ	<0.00198	<0.00198	177	6,540	426	**7,140**	**2,830**
	5	1/9/2020	In-Situ	<0.00201	0.0920	<49.9	<49.9	<49.9	<49.9	6.10
	10	1/9/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	15.7

Table 1
Delineation Soil Sample Analytical Data Summary
Chevron USA, Hayhurst NM SWD
Eddy County, New Mexico
North 32 03' 56.48" West 104 09' 54.26"

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**				**2,500**	**10,000**
SP-5	0 - 0.5	10/24/2019	In-Situ	<0.00106	<0.00637	190	8,310	806	**9,300**	**13,800**
	1	1/9/2020	In-Situ	<0.00198	<0.00198	<50.0	671	92	**763**	**6,880**
	3	1/9/2020	In-Situ	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	84.8
	5	1/9/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	10.3
	10	1/9/2020	In-Situ	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	8.84
SP-6	0 - 0.5	10/24/2019	In-Situ	<0.00106	<0.00637	<26.6	303	86.3	**389**	**40,400**
	1	1/10/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	84.6
	3	1/10/2020	In-Situ	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	11.5
	5	1/10/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<5.03
	10	1/10/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	6.01
SP-7	0 - 0.5	10/24/2019	In-Situ	<0.00108	<0.00647	<26.9	<26.9	<26.9	<26.9	**1,010**
	1	1/9/2020	In-Situ	<0.00198	<0.00198	<49.9	622.00	50.30	**672**	**4,540**
	3	1/9/2020	In-Situ	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<5.00
	5	1/9/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	7.75
	10	1/9/2020	In-Situ	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	10.3
SP-8	0 - 0.5	10/24/2019	In-Situ	<0.00106	<0.00637	<26.6	<26.6	<26.6	<26.6	**710**
	1	1/9/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	306
	3	1/9/2020	In-Situ	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	31.6
	5	1/9/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	12.6
	10	1/9/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	12.5
SP-9	1	1/9/2020	In-Situ	<0.00198	<0.00198	<50.0	183.00	<50.0	**183**	**4,750**
	3	1/9/2020	In-Situ	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	96.4
	5	1/9/2020	In-Situ	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	53.8
	10	1/9/2020	In-Situ	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.7

Table 1

Delineation Soil Sample Analytical Data Summary

Chevron USA, Hayhurst NM SWD

Eddy County, New Mexico

North 32 03' 56.48" West 104 09' 54.26"

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**				**2,500**	**10,000**
SP-10	0 - 0.5	1/9/2020	In-Situ	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	7.55
	0.5 - 1	1/9/2020	In-Situ	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	21.4
SP-11	0 - 0.5	1/9/2020	In-Situ	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	6.91
	0.5 - 1	1/9/2020	In-Situ	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<5.00
SP-12	0 - 0.5	5/13/2020	In-Situ	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	**616**
	0.5 - 1	5/13/2020	In-Situ	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	346
SP-13	0 - 0.5	6/5/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	6.42
	0.5 - 1	6/5/2020	In-Situ	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	10.3

Notes: Analysis performed by Xenco Laboratories by EPA SW-846 Methods 8021B (BTEX), 8015M (TPH), and M300 (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 levels

Figures

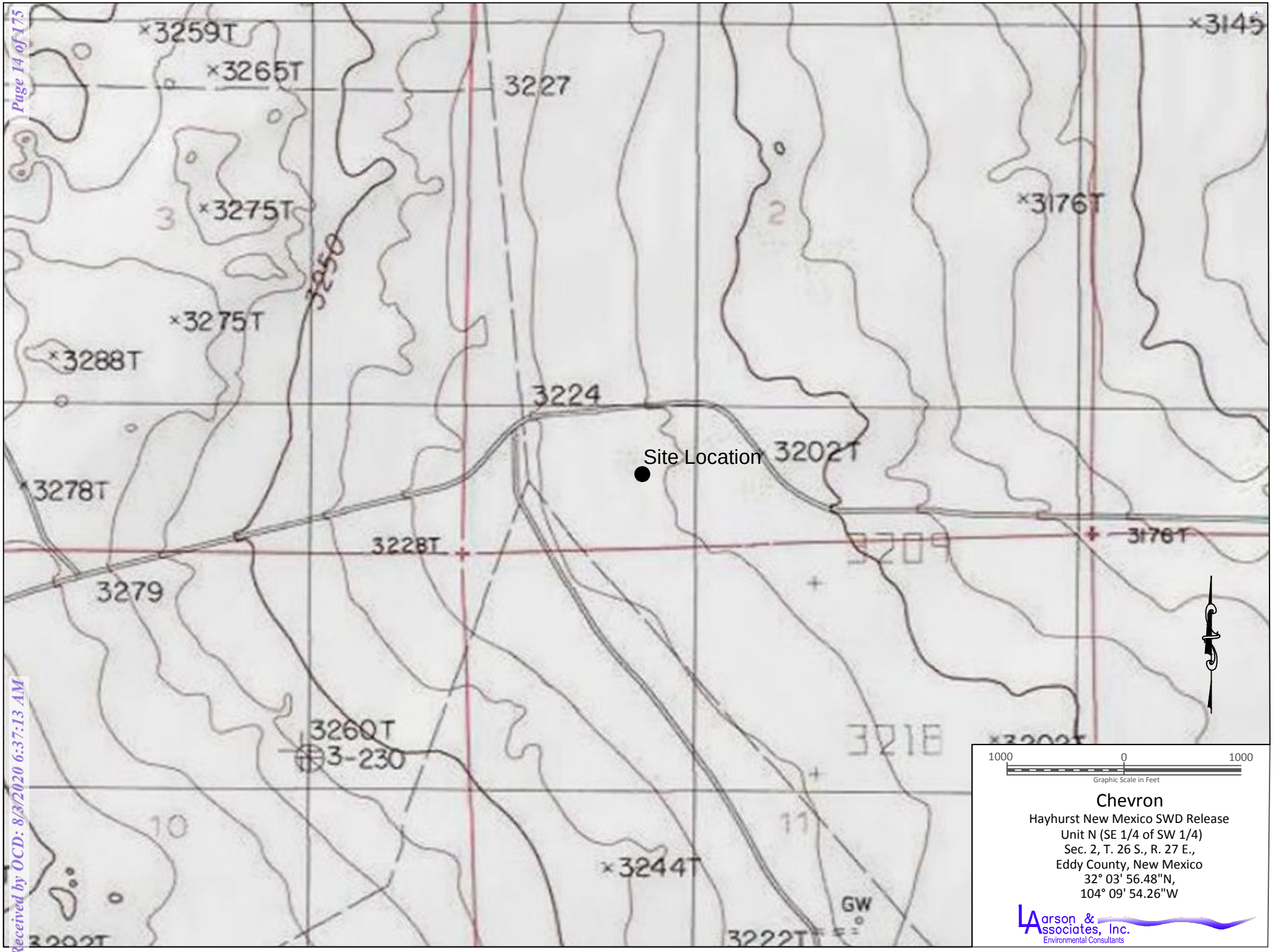


Figure 1 - Topographic Map

Figure 2 - Aerial Map

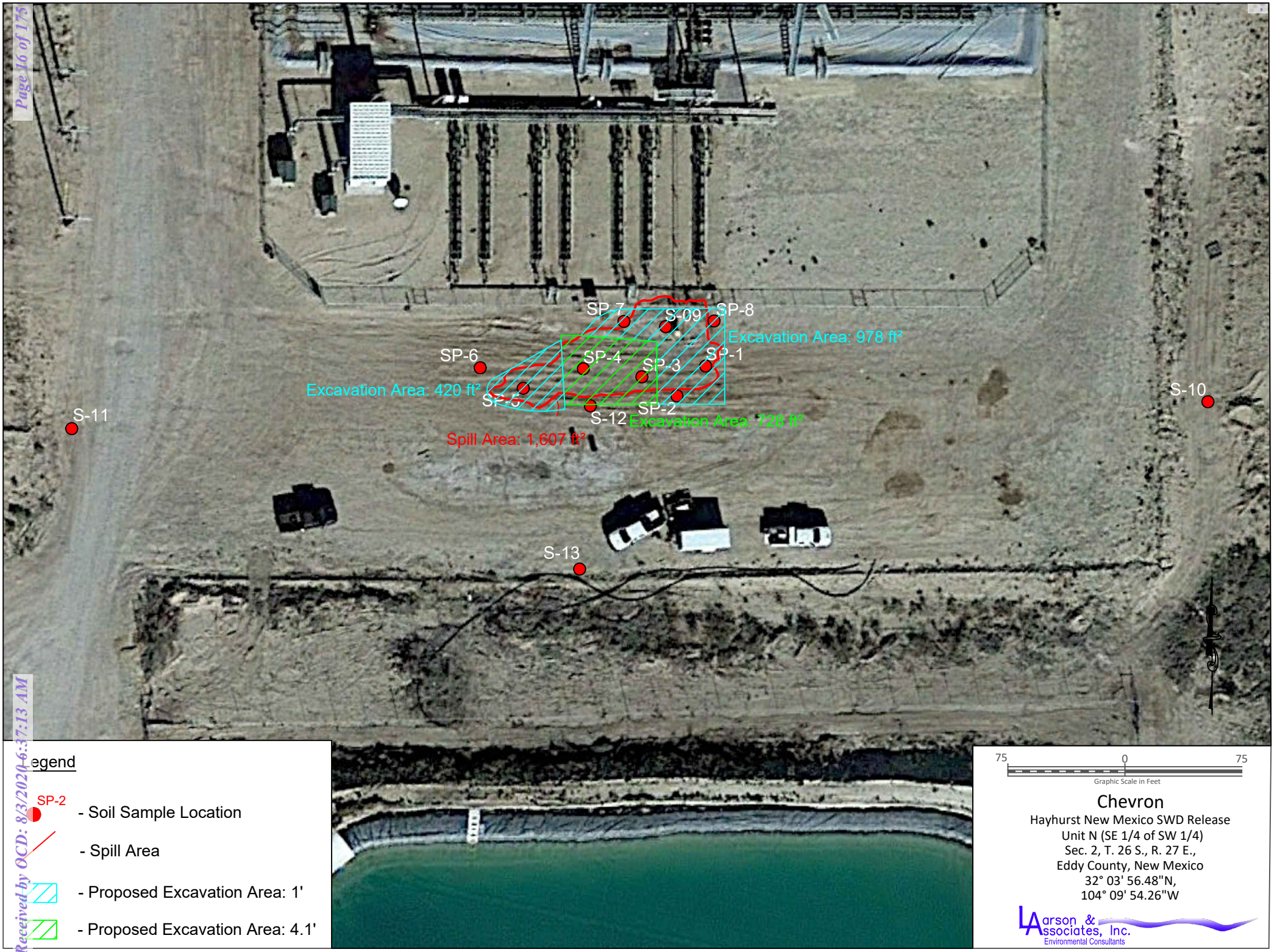


Figure 3 - Aerial Map Showing Proposed Excavation Locations

Appendix A

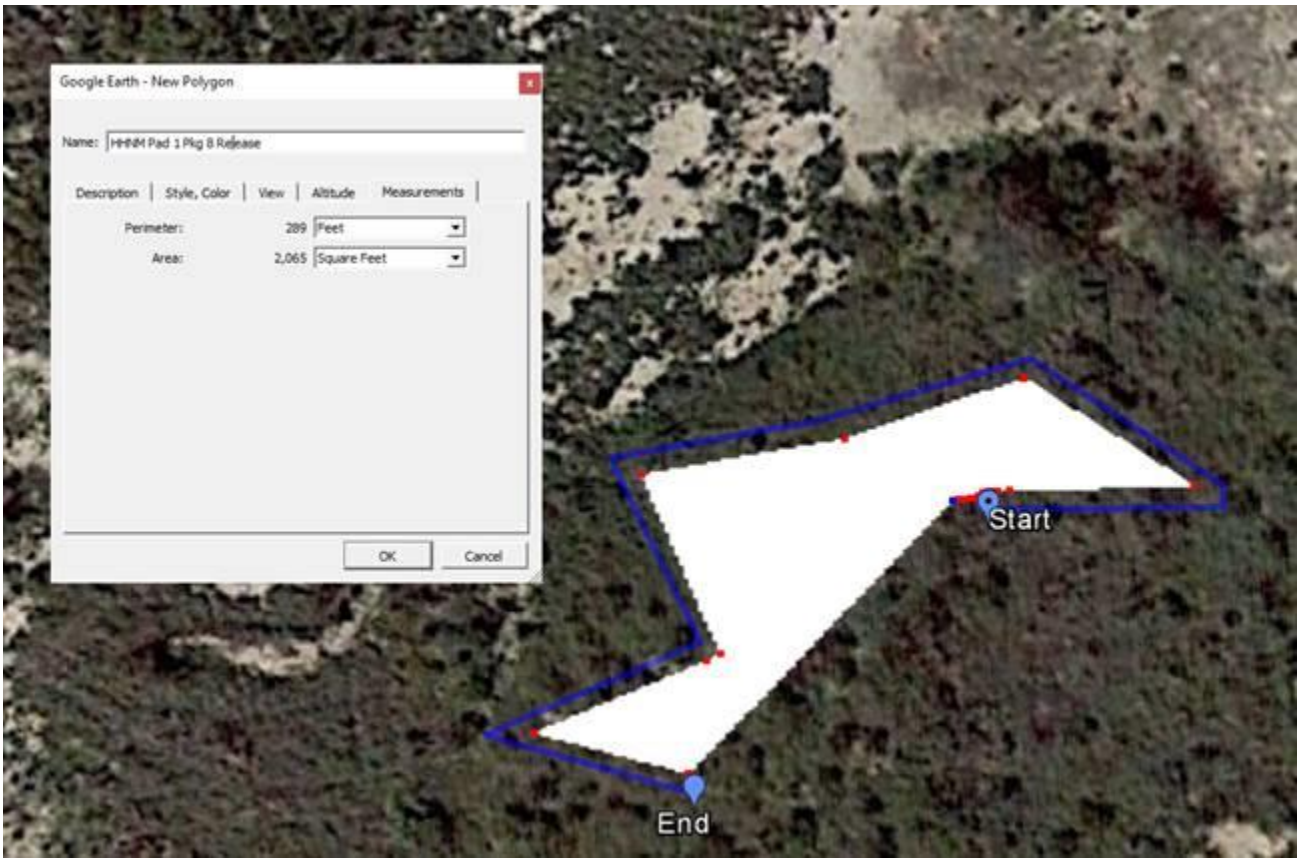
Chevron Spill Calculation

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

"Fluid in Soil Rectangular Spill"

	Length	Width	Depth-Soil Penetration	Total Volume of Fluid in Soil Pore Space (15%) in barrels
Average total depth	30	20	0.2500	4.01



Appendix B

Laboratory Reports

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

PBELAB

Analytical Report

Prepared for:

Mark Larson

Larson & Associates, Inc.

P.O. Box 50685

Midland, TX 79710

Project: Hayhurst NM SWD Release

Project Number: 19-0180-03

Location: NM

Lab Order Number: 9J25001

NELAP ACCREDITED TNI LABORATORY

NELAP/TCEQ # T104704516-17-8

Report Date: 11/01/19

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

Project: Hayhurst NM SWD Release
Project Number: 19-0180-03
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
SP-1 @ (0-0.5')	9J25001-01	Soil	10/24/19 11:30	10-25-2019 09:15
SP-2 @ (0-0.5')	9J25001-02	Soil	10/24/19 11:37	10-25-2019 09:15
SP-3 @ (0-0.5')	9J25001-03	Soil	10/24/19 11:49	10-25-2019 09:15
SP-4 @ (0-0.5')	9J25001-04	Soil	10/24/19 12:03	10-25-2019 09:15
SP-5 @ (0-0.5')	9J25001-05	Soil	10/24/19 12:10	10-25-2019 09:15
SP-6 @ (0-0.5')	9J25001-06	Soil	10/24/19 12:17	10-25-2019 09:15
SP-7 @ (0-0.5')	9J25001-07	Soil	10/24/19 12:23	10-25-2019 09:15
SP-8 @ (0-0.5')	9J25001-08	Soil	10/24/19 12:30	10-25-2019 09:15

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

Project: Hayhurst NM SWD Release
Project Number: 19-0180-03
Project Manager: Mark Larson

Fax: (432) 687-0456

SP-1 @ (0-0.5')

9J25001-01 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00104	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	ND	0.00104	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	ND	0.00104	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	ND	0.00208	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	ND	0.00104	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*98.3 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*98.3 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**32500**	104	mg/kg dry	100	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.0	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
>C12-C28	**80.3**	26.0	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
>C28-C35	**37.1**	26.0	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*106 %*	*70-130*		*P9J2511*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*113 %*	*70-130*		*P9J2511*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**117**	26.0	mg/kg dry	1	[CALC]	10/25/19	10/28/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-2 @ (0-0.5')

9J25001-02 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00110	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	ND	0.00110	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	ND	0.00110	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	ND	0.00220	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	ND	0.00110	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*106 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*102 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**12400**	54.9	mg/kg dry	50	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	27.5	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
>C12-C28	**84.6**	27.5	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
>C28-C35	**39.2**	27.5	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*119 %*	*70-130*		*P9J2511*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*124 %*	*70-130*		*P9J2511*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**124**	27.5	mg/kg dry	1	[CALC]	10/25/19	10/28/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-3 @ (0-0.5')

9J25001-03 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00109	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	**0.00267**	0.00109	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	**0.0124**	0.00109	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	**0.244**	0.00217	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	**0.0772**	0.00109	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*70.5 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	*S-GC*
Surrogate: 1,4-Difluorobenzene		*111 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**24800**	109	mg/kg dry	100	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1240**	136	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
>C12-C28	**6350**	136	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
>C28-C35	**473**	136	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*108 %*	*70-130*		*P9J2511*	*10/25/19*	*10/30/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*117 %*	*70-130*		*P9J2511*	*10/25/19*	*10/30/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**8060**	136	mg/kg dry	5	[CALC]	10/25/19	10/30/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-4 @ (0-0.5')

9J25001-04 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	**0.00260**	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	**0.0311**	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	**0.368**	0.00213	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	**0.139**	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*109 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*103 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**11600**	53.2	mg/kg dry	50	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**1630**	133	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
>C12-C28	**7780**	133	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
>C28-C35	**637**	133	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*100 %*	*70-130*		*P9J2511*	*10/25/19*	*10/30/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*100 %*	*70-130*		*P9J2511*	*10/25/19*	*10/30/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**10000**	133	mg/kg dry	5	[CALC]	10/25/19	10/30/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-5 @ (0-0.5')

9J25001-05 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		*90.6 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 1,4-Difluorobenzene		*115 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**13800**	53.2	mg/kg dry	50	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	**190**	133	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
>C12-C28	**8310**	133	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
>C28-C35	**806**	133	mg/kg dry	5	P9J2511	10/25/19	10/30/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*107 %*	*70-130*		*P9J2511*	*10/25/19*	*10/30/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*121 %*	*70-130*		*P9J2511*	*10/25/19*	*10/30/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**9300**	133	mg/kg dry	5	[CALC]	10/25/19	10/30/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-6 @ (0-0.5')

9J25001-06 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*105 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*96.1 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**40400**	106	mg/kg dry	100	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
>C12-C28	**303**	26.6	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
>C28-C35	**86.3**	26.6	mg/kg dry	1	P9J2511	10/25/19	10/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*118 %*	*70-130*		*P9J2511*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P9J2511*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	**389**	26.6	mg/kg dry	1	[CALC]	10/25/19	10/28/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-7 @ (0-0.5')

9J25001-07 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00108	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	ND	0.00108	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	ND	0.00108	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	ND	0.00215	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	ND	0.00108	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*110 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*102 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1010**	26.9	mg/kg dry	25	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.9	mg/kg dry	1	P9J2513	10/25/19	10/28/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9J2513	10/25/19	10/28/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9J2513	10/25/19	10/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*88.7 %*	*70-130*		*P9J2513*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*110 %*	*70-130*		*P9J2513*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	10/25/19	10/28/19	calc	

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Midland TX, 79710	Project Manager: Mark Larson	

SP-8 @ (0-0.5')

9J25001-08 (Soil)

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Organics by GC									
Benzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Toluene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Ethylbenzene	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (p/m)	ND	0.00213	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Xylene (o)	ND	0.00106	mg/kg dry	1	P9J2504	10/25/19	10/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		*107 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
Surrogate: 4-Bromofluorobenzene		*103 %*	*75-125*		*P9J2504*	*10/25/19*	*10/25/19*	*EPA 8021B*	
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**710**	26.6	mg/kg dry	25	P9J3010	10/30/19	10/31/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9J2802	10/28/19	10/28/19	ASTM D2216	
Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M									
C6-C12	ND	26.6	mg/kg dry	1	P9J2513	10/25/19	10/28/19	TPH 8015M	
>C12-C28	ND	26.6	mg/kg dry	1	P9J2513	10/25/19	10/28/19	TPH 8015M	
>C28-C35	ND	26.6	mg/kg dry	1	P9J2513	10/25/19	10/28/19	TPH 8015M	
Surrogate: 1-Chlorooctane		*94.4 %*	*70-130*		*P9J2513*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Surrogate: o-Terphenyl		*118 %*	*70-130*		*P9J2513*	*10/25/19*	*10/28/19*	*TPH 8015M*	
Total Petroleum Hydrocarbon C6-C35	ND	26.6	mg/kg dry	1	[CALC]	10/25/19	10/28/19	calc	

Larson & Associates, Inc.
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Midland TX, 79710

Project: Hayhurst NM SWD Release
Project Number: 19-0180-03
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2504 - General Preparation (GC)										
Blank (P9J2504-BLK1)				Prepared & Analyzed: 10/25/19						
Benzene	ND	0.00100	mg/kg wet							
Toluene	ND	0.00100	"							
Ethylbenzene	ND	0.00100	"							
Xylene (p/m)	ND	0.00200	"							
Xylene (o)	ND	0.00100	"							
Surrogate: 1,4-Difluorobenzene	*0.128*		*"*	*0.120*		*107*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.143*		*"*	*0.120*		*120*	*75-125*			
LCS (P9J2504-BS1)				Prepared & Analyzed: 10/25/19						
Benzene	0.102	0.00100	mg/kg wet	0.100		102	70-130			
Toluene	0.109	0.00100	"	0.100		109	70-130			
Ethylbenzene	0.119	0.00100	"	0.100		119	70-130			
Xylene (p/m)	0.206	0.00200	"	0.200		103	70-130			
Xylene (o)	0.0966	0.00100	"	0.100		96.6	70-130			
Surrogate: 1,4-Difluorobenzene	*0.123*		*"*	*0.120*		*102*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.127*		*"*	*0.120*		*106*	*75-125*			
LCS Dup (P9J2504-BSD1)				Prepared & Analyzed: 10/25/19						
Benzene	0.0985	0.00100	mg/kg wet	0.100		98.5	70-130	3.37	20	
Toluene	0.105	0.00100	"	0.100		105	70-130	3.58	20	
Ethylbenzene	0.108	0.00100	"	0.100		108	70-130	9.45	20	
Xylene (p/m)	0.208	0.00200	"	0.200		104	70-130	0.647	20	
Xylene (o)	0.110	0.00100	"	0.100		110	70-130	13.1	20	
Surrogate: 1,4-Difluorobenzene	*0.120*		*"*	*0.120*		*100*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.106*		*"*	*0.120*		*88.0*	*75-125*			
Calibration Blank (P9J2504-CCB1)				Prepared & Analyzed: 10/25/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	*0.132*		*"*	*0.120*		*110*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.116*		*"*	*0.120*		*96.6*	*75-125*			

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Midland TX, 79710	Project Manager: Mark Larson	

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2504 - General Preparation (GC)										
Calibration Blank (P9J2504-CCB3)				Prepared: 10/25/19 Analyzed: 10/26/19						
Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 1,4-Difluorobenzene	*0.112*		*"*	*0.120*		*93.0*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.125*		*"*	*0.120*		*105*	*75-125*			
Calibration Check (P9J2504-CCV1)				Prepared & Analyzed: 10/25/19						
Benzene	0.109	0.00100	mg/kg wet	0.100		109	80-120			
Toluene	0.113	0.00100	"	0.100		113	80-120			
Ethylbenzene	0.119	0.00100	"	0.100		119	80-120			
Xylene (p/m)	0.213	0.00200	"	0.200		106	80-120			
Xylene (o)	0.117	0.00100	"	0.100		117	80-120			
Surrogate: 1,4-Difluorobenzene	*0.135*		*"*	*0.120*		*113*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.115*		*"*	*0.120*		*96.1*	*75-125*			
Calibration Check (P9J2504-CCV3)				Prepared: 10/25/19 Analyzed: 10/26/19						
Benzene	0.101	0.00100	mg/kg wet	0.100		101	80-120			
Toluene	0.102	0.00100	"	0.100		102	80-120			
Ethylbenzene	0.114	0.00100	"	0.100		114	80-120			
Xylene (p/m)	0.186	0.00200	"	0.200		93.1	80-120			
Xylene (o)	0.105	0.00100	"	0.100		105	80-120			
Surrogate: 1,4-Difluorobenzene	*0.138*		*"*	*0.120*		*115*	*75-125*			
Surrogate: 4-Bromofluorobenzene	*0.132*		*"*	*0.120*		*110*	*75-125*			
Matrix Spike (P9J2504-MS1)		**Source: 9J25001-01**		Prepared: 10/25/19 Analyzed: 10/26/19						
Benzene	0.0784	0.00104	mg/kg dry	0.104	ND	75.2	80-120			QM-05
Toluene	0.0745	0.00104	"	0.104	ND	71.5	80-120			QM-05
Ethylbenzene	0.0676	0.00104	"	0.104	ND	64.9	80-120			QM-05
Xylene (p/m)	0.0981	0.00208	"	0.208	ND	47.1	80-120			QM-05
Xylene (o)	0.0486	0.00104	"	0.104	ND	46.6	80-120			QM-05
Surrogate: 4-Bromofluorobenzene	*0.104*		*"*	*0.125*		*83.1*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.122*		*"*	*0.125*		*97.5*	*75-125*			

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

Project: Hayhurst NM SWD Release
Project Number: 19-0180-03
Project Manager: Mark Larson

Fax: (432) 687-0456

Organics by GC - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2504 - General Preparation (GC)										
Matrix Spike Dup (P9J2504-MSD1)		**Source: 9J25001-01**		Prepared: 10/25/19 Analyzed: 10/26/19						
Benzene	0.0805	0.00104	mg/kg dry	0.104	ND	77.2	80-120	2.65	20	QM-05
Toluene	0.0794	0.00104	"	0.104	ND	76.3	80-120	6.39	20	QM-05
Ethylbenzene	0.0920	0.00104	"	0.104	ND	88.3	80-120	30.5	20	QM-05
Xylene (p/m)	0.135	0.00208	"	0.208	ND	64.6	80-120	31.4	20	QM-05
Xylene (o)	0.0662	0.00104	"	0.104	ND	63.5	80-120	30.7	20	QM-05
Surrogate: 4-Bromofluorobenzene	*0.114*		*"*	*0.125*		*91.2*	*75-125*			
Surrogate: 1,4-Difluorobenzene	*0.137*		*"*	*0.125*		*109*	*75-125*			

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Midland TX, 79710

Project: Hayhurst NM SWD Release
Project Number: 19-0180-03
Project Manager: Mark Larson

Fax: (432) 687-0456

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2802 - * DEFAULT PREP *** **										
Blank (P9J2802-BLK1)				Prepared & Analyzed: 10/28/19						
% Moisture	ND	0.1	%							
Duplicate (P9J2802-DUP1)		**Source: 9J25004-16**		Prepared & Analyzed: 10/28/19						
% Moisture	2.0	0.1	%		2.0			0.00	20	
Duplicate (P9J2802-DUP2)		**Source: 9J25009-10**		Prepared & Analyzed: 10/28/19						
% Moisture	5.0	0.1	%		6.0			18.2	20	
Batch P9J3010 - * DEFAULT PREP *** **										
Blank (P9J3010-BLK1)				Prepared & Analyzed: 10/30/19						
Chloride	ND	0.100	mg/kg wet							
LCS (P9J3010-BS1)				Prepared & Analyzed: 10/30/19						
Chloride	424	1.00	mg/kg wet	400		106	80-120			
LCS Dup (P9J3010-BSD1)				Prepared & Analyzed: 10/30/19						
Chloride	418	1.00	mg/kg wet	400		105	80-120	1.45	20	
Calibration Blank (P9J3010-CCB1)				Prepared & Analyzed: 10/30/19						
Chloride	0.00		mg/kg wet							
Calibration Blank (P9J3010-CCB2)				Prepared: 10/30/19 Analyzed: 10/31/19						
Chloride	0.00		mg/kg wet							
Calibration Check (P9J3010-CCV1)				Prepared & Analyzed: 10/30/19						
Chloride	19.8		mg/kg	20.0		98.9	0-200			

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Midland TX, 79710	Project Manager: Mark Larson	

General Chemistry Parameters by EPA / Standard Methods - Quality Control

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J3010 - * DEFAULT PREP *** **										
Calibration Check (P9J3010-CCV2)				Prepared: 10/30/19 Analyzed: 10/31/19						
Chloride	19.7		mg/kg	20.0		98.6	0-200			
Calibration Check (P9J3010-CCV3)				Prepared: 10/30/19 Analyzed: 10/31/19						
Chloride	18.8		mg/kg	20.0		93.8	0-200			
Matrix Spike (P9J3010-MS1)		**Source: 9J30005-01**		Prepared & Analyzed: 10/30/19						
Chloride	1560	11.6	mg/kg dry	1160	402	99.4	80-120			
Matrix Spike (P9J3010-MS2)		**Source: 9J25001-02**		Prepared: 10/30/19 Analyzed: 10/31/19						
Chloride	17700	54.9	mg/kg dry	5490	12400	97.4	80-120			
Matrix Spike Dup (P9J3010-MSD1)		**Source: 9J30005-01**		Prepared & Analyzed: 10/30/19						
Chloride	1500	11.6	mg/kg dry	1160	402	94.5	80-120	3.77	20	
Matrix Spike Dup (P9J3010-MSD2)		**Source: 9J25001-02**		Prepared: 10/30/19 Analyzed: 10/31/19						
Chloride	17300	54.9	mg/kg dry	5490	12400	90.6	80-120	2.14	20	

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P.O. Box 50685	Project Number: 19-0180-03	
Midland TX, 79710	Project Manager: Mark Larson	

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2511 - TX 1005										
Blank (P9J2511-BLK1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*107*		*"*	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*55.0*		*"*	*50.0*		*110*	*70-130*			
LCS (P9J2511-BS1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	1080	25.0	mg/kg wet	1000		108	75-125			
>C12-C28	1050	25.0	"	1000		105	75-125			
Surrogate: 1-Chlorooctane	*103*		*"*	*100*		*103*	*70-130*			
Surrogate: o-Terphenyl	*50.9*		*"*	*50.0*		*102*	*70-130*			
LCS Dup (P9J2511-BSD1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	1050	25.0	mg/kg wet	1000		105	75-125	2.42	20	
>C12-C28	1030	25.0	"	1000		103	75-125	2.46	20	
Surrogate: 1-Chlorooctane	*99.6*		*"*	*100*		*99.6*	*70-130*			
Surrogate: o-Terphenyl	*49.2*		*"*	*50.0*		*98.4*	*70-130*			
Calibration Blank (P9J2511-CCB1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	10.4		mg/kg wet							
>C12-C28	8.35		"							
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*56.1*		*"*	*50.0*		*112*	*70-130*			
Calibration Blank (P9J2511-CCB2)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	10.9		mg/kg wet							
>C12-C28	7.88		"							
Surrogate: 1-Chlorooctane	*117*		*"*	*100*		*117*	*70-130*			
Surrogate: o-Terphenyl	*61.8*		*"*	*50.0*		*124*	*70-130*			

Larson & Associates, Inc.	Project: Hayhurst NM SWD Release	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0180-03	
Midland TX, 79710	Project Manager: Mark Larson	

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2511 - TX 1005										
Calibration Check (P9J2511-CCV1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	506	25.0	mg/kg wet	500		101	85-115			
>C12-C28	505	25.0	"	500		101	85-115			
Surrogate: 1-Chlorooctane	*91.0*		*"*	*100*		*91.0*	*70-130*			
Surrogate: o-Terphenyl	*46.6*		*"*	*50.0*		*93.2*	*70-130*			
Calibration Check (P9J2511-CCV2)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	522	25.0	mg/kg wet	500		104	85-115			
>C12-C28	524	25.0	"	500		105	85-115			
Surrogate: 1-Chlorooctane	*91.9*		*"*	*100*		*91.9*	*70-130*			
Surrogate: o-Terphenyl	*46.8*		*"*	*50.0*		*93.7*	*70-130*			
Calibration Check (P9J2511-CCV3)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	574	25.0	mg/kg wet	500		115	85-115			
>C12-C28	548	25.0	"	500		110	85-115			
Surrogate: 1-Chlorooctane	*106*		*"*	*100*		*106*	*70-130*			
Surrogate: o-Terphenyl	*52.5*		*"*	*50.0*		*105*	*70-130*			
Matrix Spike (P9J2511-MS1)		**Source: 9J24036-16**		Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	1540	25.3	mg/kg dry	1010	10.0	151	75-125			
>C12-C28	3540	25.3	"	1010	2840	69.2	75-125			
Surrogate: 1-Chlorooctane	*147*		*"*	*101*		*145*	*70-130*			
Surrogate: o-Terphenyl	*70.3*		*"*	*50.5*		*139*	*70-130*			
Matrix Spike Dup (P9J2511-MSD1)		**Source: 9J24036-16**		Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	1730	25.3	mg/kg dry	1010	10.0	170	75-125	11.7	20	
>C12-C28	4080	25.3	"	1010	2840	123	75-125	55.9	20	
Surrogate: 1-Chlorooctane	*165*		*"*	*101*		*163*	*70-130*			
Surrogate: o-Terphenyl	*79.3*		*"*	*50.5*		*157*	*70-130*			

Larson & Associates, Inc.	Project: Hayhurst NM SWD Release	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0180-03	
Midland TX, 79710	Project Manager: Mark Larson	

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2513 - TX 1005										
Blank (P9J2513-BLK1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	*96.8*		*"*	*100*		*96.8*	*70-130*			
Surrogate: o-Terphenyl	*57.8*		*"*	*50.0*		*116*	*70-130*			
LCS (P9J2513-BS1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	1090	25.0	mg/kg wet	1000		109	75-125			
>C12-C28	1180	25.0	"	1000		118	75-125			
Surrogate: 1-Chlorooctane	*110*		*"*	*100*		*110*	*70-130*			
Surrogate: o-Terphenyl	*57.6*		*"*	*50.0*		*115*	*70-130*			
LCS Dup (P9J2513-BSD1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	1070	25.0	mg/kg wet	1000		107	75-125	2.38	20	
>C12-C28	1170	25.0	"	1000		117	75-125	0.608	20	
Surrogate: 1-Chlorooctane	*107*		*"*	*100*		*107*	*70-130*			
Surrogate: o-Terphenyl	*56.2*		*"*	*50.0*		*112*	*70-130*			
Calibration Blank (P9J2513-CCB1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	19.8		mg/kg wet							
>C12-C28	22.4		"							
Surrogate: 1-Chlorooctane	*99.9*		*"*	*100*		*99.9*	*70-130*			
Surrogate: o-Terphenyl	*59.3*		*"*	*50.0*		*119*	*70-130*			
Calibration Blank (P9J2513-CCB2)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	23.0		mg/kg wet							
>C12-C28	18.2		"							
Surrogate: 1-Chlorooctane	*98.1*		*"*	*100*		*98.1*	*70-130*			
Surrogate: o-Terphenyl	*58.7*		*"*	*50.0*		*117*	*70-130*			

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P.O. Box 50685	Project Number: 19-0180-03	
Midland TX, 79710	Project Manager: Mark Larson	

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

Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch P9J2513 - TX 1005										
Calibration Check (P9J2513-CCV1)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	541	25.0	mg/kg wet	500		108	85-115			
>C12-C28	536	25.0	"	500		107	85-115			
Surrogate: 1-Chlorooctane	*98.2*		*"*	*100*		*98.2*	*70-130*			
Surrogate: o-Terphenyl	*54.4*		*"*	*50.0*		*109*	*70-130*			
Calibration Check (P9J2513-CCV2)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	527	25.0	mg/kg wet	500		105	85-115			
>C12-C28	547	25.0	"	500		109	85-115			
Surrogate: 1-Chlorooctane	*95.7*		*"*	*100*		*95.7*	*70-130*			
Surrogate: o-Terphenyl	*53.2*		*"*	*50.0*		*106*	*70-130*			
Calibration Check (P9J2513-CCV3)				Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	523	25.0	mg/kg wet	500		105	85-115			
>C12-C28	558	25.0	"	500		112	85-115			
Surrogate: 1-Chlorooctane	*104*		*"*	*100*		*104*	*70-130*			
Surrogate: o-Terphenyl	*58.5*		*"*	*50.0*		*117*	*70-130*			
Matrix Spike (P9J2513-MS1)	**Source: 9J25006-04**			Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	7170	145	mg/kg dry	1160	1820	460	75-125			QM-07
>C12-C28	7570	145	"	1160	4260	285	75-125			QM-07
Surrogate: 1-Chlorooctane	*145*		*"*	*116*		*125*	*70-130*			
Surrogate: o-Terphenyl	*70.5*		*"*	*58.1*		*121*	*70-130*			
Matrix Spike Dup (P9J2513-MSD1)	**Source: 9J25006-04**			Prepared: 10/25/19 Analyzed: 10/28/19						
C6-C12	7230	145	mg/kg dry	1160	1820	465	75-125	1.03	20	QM-07
>C12-C28	10500	145	"	1160	4260	536	75-125	61.3	20	QM-07
Surrogate: 1-Chlorooctane	*145*		*"*	*116*		*125*	*70-130*			
Surrogate: o-Terphenyl	*65.1*		*"*	*58.1*		*112*	*70-130*			

Larson & Associates, Inc.	Project: Hayhurst NM SWD Release	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0180-03	
Midland TX, 79710	Project Manager: Mark Larson	

Notes and Definitions

S-GC	Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.
ROI	Received on Ice
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
QM-05	The spike recovery was outside acceptance limits for the MS and/or MSD due to matrix interference. The LCS and/or LCSD were within acceptance limits showing that the laboratory is in control and the data is acceptable.
BULK	Samples received in Bulk soil containers
DET	Analyte DETECTED
ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
dry	Sample results reported on a dry weight basis
RPD	Relative Percent Difference
LCS	Laboratory Control Spike
MS	Matrix Spike
Dup	Duplicate

Report Approved By: Brent Barron Date: 11/1/2019

Brent Barron, Laboratory Director/Technical Director

Larson & Associates, Inc.	Project: Hayhurst NM SWD Release	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0180-03	
Midland TX, 79710	Project Manager: Mark Larson	

№ 0788

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 10/25/2019 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 9J25001

PROJECT LOCATION OR NAME: Haynurst NM SWD Releas

LAI PROJECT #: 19-0180-03 COLLECTOR: RD

TRRP report? ☐ Yes ☒ No

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

TIME ZONE: Time zone/State: MST

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	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 ☐	8082 PCBS ☐	TCLP - METALS (RCRA) ☐	TCLP VOC ☐	TCLP - PEST ☐ HERB ☐	Semi-VOC ☐	TOTAL METALS (RCRA) ☐	OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐	TCLP ☐	RCI ☐ TOX ☐	FLASHPOINT ☐	TDS ☐ TSS ☐	% MOISTURE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	CYANIDE ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐	M300	FIELD NOTES
Sp-1(0-0.5')	1	10-24-19	11:30	S	1				X		X			X	X	X																				X		
Sp-2(0-0.5')	2		11:37																																			
Sp-3(0-0.5')	3		11:49																																			
Sp-4(0-0.5')	4		12:03																																			
Sp-5(0-0.5')	5		12:10																																			
Sp-6(0-0.5')	6		12:17																																			
Sp-7(0-0.5')	7		12:23																																			
Sp-8(0-0.5')	8		12:30																																			

TOTAL 8

RELINQUISHED BY:(Signature) Rachel Owen DATE/TIME 10-24-19 / 9:15 RECEIVED BY: (Signature)

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

RELINQUISHED BY:(Signature) DATE/TIME 10-24-19 9:15 RECEIVED BY: (Signature)

LABORATORY: PBEL

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

LABORATORY USE ONLY:
RECEIVING TEMP: 1.7-2.7 THERM#: 12 CF1
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

Certificate of Analysis Summary 663806

Larson and Associates, Inc., Midland, TX

Project Name: Hayhurst

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 06.09.2020 09:51
Report Date: 06.16.2020 09:52
Project Manager: Holly Taylor

Analysis Requested									
	Lab Id:	663806-001		663806-002					
	Field Id:	S-13 0.5'		S-13 1'					
	Depth:								
	Matrix:	SOIL		SOIL					
	Sampled:	06.05.2020 11:30		06.05.2020 11:35					
BTEX by EPA 8021B	***Extracted:***	06.09.2020 10:15		06.09.2020 10:15					
	Analyzed:	06.09.2020 17:21		06.09.2020 17:41					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00202	0.00202				
Toluene		<0.00200	0.00200	<0.00202	0.00202				
Ethylbenzene		<0.00200	0.00200	<0.00202	0.00202				
m,p-Xylenes		<0.00399	0.00399	<0.00404	0.00404				
o-Xylene		<0.00200	0.00200	<0.00202	0.00202				
Total Xylenes		<0.00200	0.00200	<0.00202	0.00202				
Total BTEX		<0.00200	0.00200	<0.00202	0.00202				
Chloride by EPA 300	***Extracted:***	06.09.2020 16:35		06.09.2020 16:35					
	Analyzed:	06.10.2020 17:25		06.10.2020 17:31					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		6.42	5.03	10.3	5.02				
TPH by SW8015 Mod	***Extracted:***	06.10.2020 16:00		06.10.2020 16:00					
	Analyzed:	06.10.2020 21:54		06.10.2020 22:50					
	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				

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

Holly Taylor
Project Manager

Analytical Report 663806

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Hayhurst

19-0180-03

06.16.2020

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 (20-035-0)

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

06.16.2020

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

Reference: XENCO Report No(s): **663806**
Hayhurst
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) 663806. 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. 663806 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,

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 663806

Larson and Associates, Inc., Midland, TX

Hayhurst

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-13 0.5'	S	06.05.2020 11:30		663806-001
S-13 1'	S	06.05.2020 11:35		663806-002

CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: Hayhurst

Project ID:	*19-0180-03*	Report Date:	*06.16.2020*
Work Order Number(s):	*663806*	Date Received:	*06.09.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Certificate of Analytical Results 663806

Larson and Associates, Inc., Midland, TX

Hayhurst

Sample Id: **S-13 0.5'** Matrix: Soil Date Received:06.09.2020 09:51

Lab Sample Id: 663806-001 Date Collected: 06.05.2020 11:30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 06.09.2020 16:35 Basis: Wet Weight

Seq Number: 3128518

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.42**	5.03	mg/kg	06.10.2020 17:25		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 06.10.2020 16:00 Basis: Wet Weight

Seq Number: 3128649

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	06.10.2020 21:54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	06.10.2020 21:54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	06.10.2020 21:54	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	06.10.2020 21:54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-130	06.10.2020 21:54	
o-Terphenyl	84-15-1	101	%	70-130	06.10.2020 21:54	

Certificate of Analytical Results 663806

Larson and Associates, Inc., Midland, TX

Hayhurst

Sample Id:	**S-13 0.5'**	Matrix:	Soil	Date Received:	06.09.2020 09:51
Lab Sample Id:	663806-001	Date Collected:	06.05.2020 11:30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	06.09.2020 10:15	Basis:	Wet Weight
Seq Number:	3128451				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	06.09.2020 17:21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	06.09.2020 17:21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	06.09.2020 17:21	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	06.09.2020 17:21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	06.09.2020 17:21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	06.09.2020 17:21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	06.09.2020 17:21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	91	%	70-130	06.09.2020 17:21	
4-Bromofluorobenzene	460-00-4	89	%	70-130	06.09.2020 17:21	

Certificate of Analytical Results 663806

Larson and Associates, Inc., Midland, TX

Hayhurst

Sample Id: **S-13 1'** Matrix: Soil Date Received:06.09.2020 09:51

Lab Sample Id: 663806-002 Date Collected: 06.05.2020 11:35

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 06.09.2020 16:35 Basis: Wet Weight

Seq Number: 3128518

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	5.02	mg/kg	06.10.2020 17:31		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 06.10.2020 16:00 Basis: Wet Weight

Seq Number: 3128649

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	06.10.2020 22:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	06.10.2020 22:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	06.10.2020 22:50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	06.10.2020 22:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-130	06.10.2020 22:50	
o-Terphenyl	84-15-1	106	%	70-130	06.10.2020 22:50	

Certificate of Analytical Results 663806

Larson and Associates, Inc., Midland, TX

Hayhurst

Sample Id:	**S-13 1'**	Matrix:	Soil	Date Received:	06.09.2020 09:51
Lab Sample Id:	663806-002	Date Collected:	06.05.2020 11:35		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	06.09.2020 10:15	Basis:	Wet Weight
Seq Number:	3128451				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	06.09.2020 17:41	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	06.09.2020 17:41	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	06.09.2020 17:41	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	06.09.2020 17:41	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	06.09.2020 17:41	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	06.09.2020 17:41	U	1
Total BTEX		<0.00202	0.00202	mg/kg	06.09.2020 17:41	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	90	%	70-130	06.09.2020 17:41	
1,4-Difluorobenzene	540-36-3	102	%	70-130	06.09.2020 17:41	

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

QC Summary 663806

Larson and Associates, Inc.

Hayhurst

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3128518 — Matrix: Solid — Date Prep: 06.09.2020
MB Sample Id: 7705116-1-BLK — LCS Sample Id: 7705116-1-BKS — LCSD Sample Id: 7705116-1-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	265	106	90-110	2	20	mg/kg	06.10.2020 09:15	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3128518 — Matrix: Soil — Date Prep: 06.09.2020
Parent Sample Id: 663294-015 — MS Sample Id: 663294-015 S — MSD Sample Id: 663294-015 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1750	1250	2980	98	2970	98	90-110	0	20	mg/kg	06.10.2020 09:46	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3128518 — Matrix: Soil — Date Prep: 06.09.2020
Parent Sample Id: 663811-009 — MS Sample Id: 663811-009 S — MSD Sample Id: 663811-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1370	1250	2670	104	2650	102	90-110	1	20	mg/kg	06.10.2020 11:22	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3128649 — Matrix: Solid — Date Prep: 06.10.2020
MB Sample Id: 7705184-1-BLK — LCS Sample Id: 7705184-1-BKS — LCSD Sample Id: 7705184-1-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	1000	100	1030	103	70-130	3	20	mg/kg	06.10.2020 21:17	
Diesel Range Organics (DRO)	<50.0	1000	937	94	934	93	70-130	0	20	mg/kg	06.10.2020 21:17	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	118		128		130		70-130	%	06.10.2020 21:17
o-Terphenyl	126		125		126		70-130	%	06.10.2020 21:17

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3128649 — Matrix: Solid — Date Prep: 06.10.2020
MB Sample Id: 7705184-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	06.10.2020 20:59	

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 663806

Larson and Associates, Inc.

Hayhurst

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3128649 Matrix: Soil Date Prep: 06.10.2020
Parent Sample Id: 663806-001 MS Sample Id: 663806-001 S MSD Sample Id: 663806-001 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)	<50.0	999	1030	103	1140	114	70-130	10	20	mg/kg	06.10.2020 22:13	
Diesel Range Organics (DRO)	<50.0	999	986	99	1070	107	70-130	8	20	mg/kg	06.10.2020 22:13	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	124		129		70-130	%	06.10.2020 22:13
o-Terphenyl	109		118		70-130	%	06.10.2020 22:13

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3128451 Matrix: Solid Date Prep: 06.09.2020
MB Sample Id: 7705039-1-BLK LCS Sample Id: 7705039-1-BKS LCSD Sample Id: 7705039-1-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	0.102	102	70-130	3	35	mg/kg	06.09.2020 13:37	
Toluene	<0.00200	0.100	0.0951	95	0.0932	93	70-130	2	35	mg/kg	06.09.2020 13:37	
Ethylbenzene	<0.00200	0.100	0.103	103	0.102	102	70-130	1	35	mg/kg	06.09.2020 13:37	
m,p-Xylenes	<0.00400	0.200	0.187	94	0.187	94	70-130	0	35	mg/kg	06.09.2020 13:37	
o-Xylene	<0.00200	0.100	0.0895	90	0.0904	90	70-130	1	35	mg/kg	06.09.2020 13:37	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	92		96		102		70-130	%	06.09.2020 13:37
4-Bromofluorobenzene	87		101		100		70-130	%	06.09.2020 13:37

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3128451 Matrix: Soil Date Prep: 06.09.2020
Parent Sample Id: 663794-001 MS Sample Id: 663794-001 S MSD Sample Id: 663794-001 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	0.0625	63	0.0648	65	70-130	4	35	mg/kg	06.09.2020 14:35	X
Toluene	0.00465	0.0996	0.0609	56	0.0563	52	70-130	8	35	mg/kg	06.09.2020 14:35	X
Ethylbenzene	0.00447	0.0996	0.0404	36	0.0395	35	70-130	2	35	mg/kg	06.09.2020 14:35	X
m,p-Xylenes	0.0280	0.199	0.0862	29	0.0847	28	70-130	2	35	mg/kg	06.09.2020 14:35	X
o-Xylene	0.0132	0.0996	0.0352	22	0.0358	23	70-130	2	35	mg/kg	06.09.2020 14:35	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	89		75		70-130	%	06.09.2020 14:35
4-Bromofluorobenzene	94		87		70-130	%	06.09.2020 14:35

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

№ 1179

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 6/8/20 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 20E0604

PROJECT LOCATION OR NAME: Haynest

LAI PROJECT #: 19-0180-03 COLLECTOR: DS/TJ

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	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 ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐	TCLP - PEST ☐ HERB ☐	TCLP VOC ☐	TOTAL METALS (RCRA) ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐	Semi-VOC ☐ OTHER LIST ☐	RCI ☐ TOX ☐	TCLP ☐ FLASHPOINT ☐	TDS ☐ TSS ☐	% MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDES ☐ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
S-13 0.5'		6/5/20	1130	S	1				X		X		X	X	X	X																		X		
S-13 1'		6/5/20	1135	S	1				X		X		X	X	X	X																		X		

TOTAL 2

RELINQUISHED BY:(Signature)	DATE/TIME 6/9/20 0951	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: 5.6/5.2 0.4 THERM#: DS
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: 06.09.2020 09.51.00 AM

Work Order #: 663806

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	5.2	
#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: 06.09.2020
Brianna Teel

Checklist reviewed by: Holly Taylor Date: 06.09.2020
Holly Taylor

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	648890-001		648890-002		648890-003		648890-004		648890-005		648890-006	
	Field Id:	S-9 (1')		S-9 (3')		S-9 (5')		S-9 (10')		S-8 (1')		S-8 (3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-09-20 13:51		Jan-09-20 13:52		Jan-09-20 13:53		Jan-09-20 13:54		Jan-09-20 14:17		Jan-09-20 14:18	
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30	
	Analyzed:	Jan-22-20 23:19		Jan-22-20 23:39		Jan-22-20 23:59		Jan-23-20 00:19		Jan-23-20 00:39		Jan-23-20 01:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00202	0.00202	<0.00199	0.00199	<0.00201	0.00201
Toluene		<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00202	0.00202	<0.00199	0.00199	<0.00201	0.00201
Ethylbenzene		<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00202	0.00202	<0.00199	0.00199	<0.00201	0.00201
m,p-Xylenes		<0.00397	0.00397	<0.00403	0.00403	<0.00402	0.00402	<0.00403	0.00403	<0.00398	0.00398	<0.00402	0.00402
o-Xylene		<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00202	0.00202	<0.00199	0.00199	<0.00201	0.00201
Total Xylenes		<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00202	0.00202	<0.00199	0.00199	<0.00201	0.00201
Total BTEX		<0.00198	0.00198	<0.00202	0.00202	<0.00201	0.00201	<0.00202	0.00202	<0.00199	0.00199	<0.00201	0.00201
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15	
	Analyzed:	Jan-14-20 21:24		Jan-14-20 20:57		Jan-14-20 21:34		Jan-14-20 21:43		Jan-14-20 21:52		Jan-14-20 23:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		4750	101	96.4	5.02	53.8	49.8	<49.7	49.7	306	49.5	31.6	4.96
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30	
	Analyzed:	Jan-18-20 12:01		Jan-18-20 13:03		Jan-18-20 13:24		Jan-18-20 13:45		Jan-18-20 14:06		Jan-18-20 14:27	
	Units/RL:	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	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		183	50.0	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		183	50.0	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0

Holly Taylor
Project Manager

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	648890-007		648890-008		648890-009		648890-010		648890-011		648890-012	
	Field Id:	S-8 (5')		S-8 (10')		S-7 (1')		S-7 (3')		S-7 (5')		S-7 (10')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-09-20 14:19		Jan-09-20 14:20		Jan-09-20 14:53		Jan-09-20 14:54		Jan-09-20 14:55		Jan-09-20 14:56	
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30	
	Analyzed:	Jan-23-20 01:20		Jan-23-20 01:40		Jan-23-20 02:00		Jan-23-20 02:20		Jan-23-20 03:39		Jan-23-20 03:59	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201
Toluene		<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201
m,p-Xylenes		<0.00399	0.00399	<0.00398	0.00398	<0.00396	0.00396	<0.00400	0.00400	<0.00398	0.00398	<0.00402	0.00402
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201
Total BTEX		<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00199	0.00199	<0.00201	0.00201
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15	
	Analyzed:	Jan-15-20 16:44		Jan-15-20 11:00		Jan-14-20 22:38		Jan-15-20 09:54		Jan-15-20 10:02		Jan-15-20 10:09	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		12.6	5.02	12.5	4.98	4540	100	<5.00	5.00	7.75	5.00	10.3	5.00
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30	
	Analyzed:	Jan-18-20 14:49		Jan-18-20 15:10		Jan-18-20 15:31		Jan-18-20 15:52		Jan-18-20 16:35		Jan-18-20 16:56	
	Units/RL:	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	<49.8	49.8	<50.0	50.0	<49.8	49.8
Diesel Range Organics (DRO)		<50.0	50.0	<49.9	49.9	622	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.9	49.9	50.3	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8
Total TPH		<50.0	50.0	<49.9	49.9	672	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8

Holly Taylor
Project Manager

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	648890-013		648890-014		648890-015		648890-016		648890-017		648890-018	
	Field Id:	S-4 (1')		S-4 (3')		S-4 (5')		S-4 (10')		S-5 (1')		S-5 (3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-09-20 15:30		Jan-09-20 15:31		Jan-09-20 15:32		Jan-09-20 15:33		Jan-09-20 15:51		Jan-09-20 15:52	
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:30	
	Analyzed:	Jan-23-20 04:19		Jan-23-20 04:39		Jan-23-20 05:00		Jan-23-20 05:20		Jan-23-20 05:40		Jan-23-20 06:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00198	0.00198	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200
Toluene		<0.00201	0.00201	<0.00198	0.00198	0.00444	0.00201	<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00198	0.00198	0.0371	0.00201	<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200
m,p-Xylenes		<0.00402	0.00402	<0.00397	0.00397	0.0213	0.00402	<0.00400	0.00400	<0.00397	0.00397	<0.00399	0.00399
o-Xylene		<0.00201	0.00201	<0.00198	0.00198	0.0292	0.00201	<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200
Total Xylenes		<0.00201	0.00201	<0.00198	0.00198	0.0505	0.00201	<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200
Total BTEX		<0.00201	0.00201	<0.00198	0.00198	0.0920	0.00201	<0.00200	0.00200	<0.00198	0.00198	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:15	
	Analyzed:	Jan-14-20 23:43		Jan-15-20 00:11		Jan-15-20 10:16		Jan-15-20 10:24		Jan-15-20 00:39		Jan-15-20 00:48	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		355	5.03	2830	99.6	6.10	5.00	15.7	5.00	6880	101	84.8	4.96
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30	
	Analyzed:	Jan-18-20 17:17		Jan-18-20 17:38		Jan-18-20 17:59		Jan-18-20 18:20		Jan-18-20 18:41		Jan-18-20 19:02	
	Units/RL:	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	177	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.8	49.8
Diesel Range Organics (DRO)		88.5	50.0	6540	50.0	<49.9	49.9	<49.9	49.9	671	50.0	<49.8	49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	426	50.0	<49.9	49.9	<49.9	49.9	92.0	50.0	<49.8	49.8
Total TPH		88.5	50.0	7140	50.0	<49.9	49.9	<49.9	49.9	763	50.0	<49.8	49.8

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

Holly Taylor
Project Manager

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	648890-019		648890-020		648890-021		648890-022		648890-023		648890-024	
	Field Id:	S-5 (5')		S-5 (10')		S-6 (1')		S-6 (3')		S-6 (5')		S-6 (10')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-09-20 15:53		Jan-09-20 15:54		Jan-10-20 10:32		Jan-10-20 10:33		Jan-10-20 10:38		Jan-10-20 10:39	
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:30		Jan-22-20 10:30		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35	
	Analyzed:	Jan-23-20 06:20		Jan-23-20 06:40		Jan-23-20 09:59		Jan-23-20 10:19		Jan-23-20 10:39		Jan-23-20 11:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00199	0.00199
Toluene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00199	0.00199
Ethylbenzene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00199	0.00199
m,p-Xylenes		<0.00398	0.00398	<0.00397	0.00397	<0.00401	0.00401	<0.00396	0.00396	<0.00398	0.00398	<0.00398	0.00398
o-Xylene		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00199	0.00199
Total Xylenes		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00199	0.00199
Total BTEX		<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00199	0.00199
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:15		Jan-14-20 16:15		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20	
	Analyzed:	Jan-15-20 10:31		Jan-15-20 10:38		Jan-14-20 22:18		Jan-15-20 09:07		Jan-15-20 09:14		Jan-15-20 09:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		10.3	4.99	8.84	4.95	84.6	24.8	11.5	4.99	<5.03	5.03	6.01	5.01
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30	
	Analyzed:	Jan-18-20 19:23		Jan-18-20 19:43		Jan-18-20 21:29		Jan-18-20 22:32		Jan-18-20 22:53		Jan-18-20 23:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0
Diesel Range Organics (DRO)		<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0
Total TPH		<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0

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

Holly Taylor
Project Manager

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	648890-025		648890-026		648890-027		648890-028		648890-029		648890-030	
	Field Id:	S-1 (1')		S-1 (3')		S-1 (5')		S-1 (10')		S-2 (1')		S-2 (3')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-10-20 10:13		Jan-10-20 10:14		Jan-10-20 10:17		Jan-10-20 10:18		Jan-10-20 09:37		Jan-10-20 09:38	
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35	
	Analyzed:	Jan-23-20 11:20		Jan-23-20 11:40		Jan-23-20 12:00		Jan-23-20 12:20		Jan-23-20 12:40		Jan-23-20 13:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00201	0.00201
Toluene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00201	0.00201
Ethylbenzene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00201	0.00201
m,p-Xylenes		<0.00402	0.00402	<0.00402	0.00402	<0.00400	0.00400	<0.00403	0.00403	<0.00402	0.00402	<0.00402	0.00402
o-Xylene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00201	0.00201
Total Xylenes		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00201	0.00201
Total BTEX		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00202	0.00202	<0.00201	0.00201	<0.00201	0.00201
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20	
	Analyzed:	Jan-14-20 22:58		Jan-14-20 23:05		Jan-15-20 09:27		Jan-15-20 09:33		Jan-14-20 23:25		Jan-15-20 09:40	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		2280	49.8	63.2	50.0	7.98	5.00	<4.97	4.97	63.7	49.9	38.4	5.02
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30	
	Analyzed:	Jan-18-20 23:35		Jan-18-20 23:56		Jan-19-20 00:17		Jan-19-20 00:38		Jan-19-20 00:59		Jan-19-20 01:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8
Diesel Range Organics (DRO)		<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8
Total TPH		<49.8	49.8	<49.9	49.9	<49.9	49.9	<49.8	49.8	<50.0	50.0	<49.8	49.8

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

Holly Taylor
Project Manager

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	648890-031		648890-032		648890-033		648890-034		648890-035		648890-036	
	Field Id:	S-2(5')		S-2 (10')		S-3 (1')		S-3 (3')		S-3 (5')		S-3 (10')	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	Jan-09-20 10:04		Jan-10-20 10:05		Jan-10-20 09:37		Jan-10-20 09:38		Jan-10-20 09:43		Jan-10-20 09:44	
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35	
	Analyzed:	Jan-23-20 14:19		Jan-23-20 14:39		Jan-23-20 15:00		Jan-23-20 15:20		Jan-23-20 15:40		Jan-23-20 16:00	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200
Toluene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200
m,p-Xylenes		<0.00402	0.00402	<0.00402	0.00402	<0.00399	0.00399	<0.00402	0.00402	<0.00398	0.00398	<0.00399	0.00399
o-Xylene		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200
Total Xylenes		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200
Total BTEX		<0.00201	0.00201	<0.00201	0.00201	<0.00200	0.00200	<0.00201	0.00201	<0.00199	0.00199	<0.00200	0.00200
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:20	
	Analyzed:	Jan-15-20 10:00		Jan-15-20 10:07		Jan-15-20 00:24		Jan-15-20 00:31		Jan-15-20 10:13		Jan-15-20 10:20	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		<5.05	5.05	25.9	5.05	99.8	25.3	1700	50.0	37.5	4.97	<4.99	4.99
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30		Jan-17-20 17:30	
	Analyzed:	Jan-19-20 02:01		Jan-19-20 02:22		Jan-19-20 02:43		Jan-19-20 03:04		Jan-19-20 03:25		Jan-19-20 03:47	
	Units/RL:	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	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9
Diesel Range Organics (DRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9
Total TPH		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9

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

Holly Taylor
Project Manager

Certificate of Analysis Summary 648890

Larson and Associates, Inc., Midland, TX

Project Name: Hayhust SWD Gravitas

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue Jan-14-20 08:48 am
Report Date: 24-JAN-20
Project Manager: Holly Taylor

Analysis Requested															
	Lab Id:	648890-037		648890-038		648890-039		648890-040							
	Field Id:	S-10 (0.5')		S-10 (1')		S-11 (0.5')		S-11 (1')							
	Depth:														
	Matrix:	SOIL		SOIL		SOIL		SOIL							
	Sampled:	Jan-09-20 11:45		Jan-09-20 11:48		Jan-09-20 11:52		Jan-09-20 11:54							
BTEX by EPA 8021B	***Extracted:***	Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35		Jan-22-20 10:35							
	Analyzed:	Jan-23-20 16:20		Jan-23-20 16:40		Jan-23-20 17:01		Jan-23-20 17:21							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Benzene		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200						
Toluene		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200						
Ethylbenzene		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200						
m,p-Xylenes		<0.00404	0.00404	<0.00399	0.00399	<0.00398	0.00398	<0.00400	0.00400						
o-Xylene		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200						
Total Xylenes		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200						
Total BTEX		<0.00202	0.00202	<0.00200	0.00200	<0.00199	0.00199	<0.00200	0.00200						
Chloride by EPA 300	***Extracted:***	Jan-14-20 16:20		Jan-14-20 16:20		Jan-14-20 16:30		Jan-14-20 16:30							
	Analyzed:	Jan-15-20 10:27		Jan-15-20 10:33		Jan-15-20 10:45		Jan-15-20 10:53							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Chloride		7.55	4.98	21.4	5.00	6.91	5.00	<5.00	5.00						
TPH by SW8015 Mod	***Extracted:***	Jan-17-20 17:30		Jan-17-20 17:30		Jan-21-20 11:00		Jan-21-20 11:00							
	Analyzed:	Jan-19-20 04:08		Jan-19-20 04:30		Jan-21-20 20:05		Jan-21-20 20:26							
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL						
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.8	49.8						
Diesel Range Organics (DRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.8	49.8						
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.8	49.8						
Total TPH		<50.0	50.0	<50.0	50.0	<49.9	49.9	<49.8	49.8						

Holly Taylor
Project Manager

Analytical Report 648890

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Hayhust SWD Gravitas

19-0180-03

24-JAN-20

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-19-30), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2019-058), North Carolina (681), Arkansas (19-037-0)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (TX104704295-19-22), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-19-16)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-19-21)
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)

24-JAN-20

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

Reference: XENCO Report No(s): **648890**
Hayhust SWD Gravitas
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) 648890. 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. 648890 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,

Holly Taylor

Holly Taylor
Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.
Certified and approved by numerous States and Agencies.
A Small Business and Minority Status Company that delivers SERVICE and QUALITY

Houston - Dallas - Midland - San Antonio - Phoenix - Oklahoma - Latin America

Sample Cross Reference 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
S-9 (1')	S	01-09-20 13:51		648890-001
S-9 (3')	S	01-09-20 13:52		648890-002
S-9 (5')	S	01-09-20 13:53		648890-003
S-9 (10')	S	01-09-20 13:54		648890-004
S-8 (1')	S	01-09-20 14:17		648890-005
S-8 (3')	S	01-09-20 14:18		648890-006
S-8 (5')	S	01-09-20 14:19		648890-007
S-8 (10')	S	01-09-20 14:20		648890-008
S-7 (1')	S	01-09-20 14:53		648890-009
S-7 (3')	S	01-09-20 14:54		648890-010
S-7 (5')	S	01-09-20 14:55		648890-011
S-7 (10')	S	01-09-20 14:56		648890-012
S-4 (1')	S	01-09-20 15:30		648890-013
S-4 (3')	S	01-09-20 15:31		648890-014
S-4 (5')	S	01-09-20 15:32		648890-015
S-4 (10')	S	01-09-20 15:33		648890-016
S-5 (1')	S	01-09-20 15:51		648890-017
S-5 (3')	S	01-09-20 15:52		648890-018
S-5 (5')	S	01-09-20 15:53		648890-019
S-5 (10')	S	01-09-20 15:54		648890-020
S-6 (1')	S	01-10-20 10:32		648890-021
S-6 (3')	S	01-10-20 10:33		648890-022
S-6 (5')	S	01-10-20 10:38		648890-023
S-6 (10')	S	01-10-20 10:39		648890-024
S-1 (1')	S	01-10-20 10:13		648890-025
S-1 (3')	S	01-10-20 10:14		648890-026
S-1 (5')	S	01-10-20 10:17		648890-027
S-1 (10')	S	01-10-20 10:18		648890-028
S-2 (1')	S	01-10-20 09:37		648890-029
S-2 (3')	S	01-10-20 09:38		648890-030
S-2(5')	S	01-09-20 10:04		648890-031
S-2 (10')	S	01-10-20 10:05		648890-032
S-3 (1')	S	01-10-20 09:37		648890-033
S-3 (3')	S	01-10-20 09:38		648890-034
S-3 (5')	S	01-10-20 09:43		648890-035
S-3 (10')	S	01-10-20 09:44		648890-036
S-10 (0.5')	S	01-09-20 11:45		648890-037
S-10 (1')	S	01-09-20 11:48		648890-038
S-11 (0.5')	S	01-09-20 11:52		648890-039
S-11 (1')	S	01-09-20 11:54		648890-040

CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: Hayhust SWD Gravitas

Project ID: *19-0180-03*
Work Order Number(s): *648890*

Report Date: *24-JAN-20*
Date Received: *01/14/2020*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3114123 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected.
Samples affected are: 648890-015.
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3114247 BTEX by EPA 8021B
Soil samples were not received in Terracore kits and therefore were prepared by method 5030.
Lab Sample ID 648890-021 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).
m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.
Ethylbenzene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 648890-021, -022, -023, -024, -025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038, -039, -040.
The Laboratory Control Sample for m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-9 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-001 Date Collected: 01.09.20 13.51

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4750**	101	mg/kg	01.14.20 21.24		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 12.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	**183**	50.0	mg/kg	01.18.20 12.01		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 12.01	U	1
Total TPH	PHC635	**183**	50.0	mg/kg	01.18.20 12.01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	01.18.20 12.01	
o-Terphenyl	84-15-1	100	%	70-135	01.18.20 12.01	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-9 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-001	Date Collected:	01.09.20 13.51		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.22.20 23.19	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.22.20 23.19	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.22.20 23.19	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	01.22.20 23.19	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.22.20 23.19	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.22.20 23.19	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.22.20 23.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	94	%	70-130	01.22.20 23.19	
4-Bromofluorobenzene	460-00-4	108	%	70-130	01.22.20 23.19	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-9 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-002 Date Collected: 01.09.20 13.52

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**96.4**	5.02	mg/kg	01.14.20 20.57		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 13.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 13.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 13.03	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 13.03	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.18.20 13.03	
o-Terphenyl	84-15-1	106	%	70-135	01.18.20 13.03	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-9 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-002	Date Collected:	01.09.20 13.52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.22.20 23.39	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.22.20 23.39	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.22.20 23.39	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.22.20 23.39	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.22.20 23.39	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.22.20 23.39	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.22.20 23.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	87	%	70-130	01.22.20 23.39	
1,4-Difluorobenzene	540-36-3	108	%	70-130	01.22.20 23.39	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-9 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-003 Date Collected: 01.09.20 13.53

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**53.8**	49.8	mg/kg	01.14.20 21.34		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 13.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 13.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 13.24	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 13.24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	01.18.20 13.24	
o-Terphenyl	84-15-1	103	%	70-135	01.18.20 13.24	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-9 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-003	Date Collected:	01.09.20 13.53		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.22.20 23.59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.22.20 23.59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.22.20 23.59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.22.20 23.59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.22.20 23.59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.22.20 23.59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.22.20 23.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.22.20 23.59	
4-Bromofluorobenzene	460-00-4	88	%	70-130	01.22.20 23.59	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-9 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-004 Date Collected: 01.09.20 13.54

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<49.7	49.7	mg/kg	01.14.20 21.43	U	10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.18.20 13.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.18.20 13.45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.18.20 13.45	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.18.20 13.45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	01.18.20 13.45	
o-Terphenyl	84-15-1	110	%	70-135	01.18.20 13.45	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-9 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-004	Date Collected:	01.09.20 13.54		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.23.20 00.19	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.23.20 00.19	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.23.20 00.19	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.23.20 00.19	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.23.20 00.19	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.23.20 00.19	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.23.20 00.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	87	%	70-130	01.23.20 00.19	
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 00.19	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-8 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-005 Date Collected: 01.09.20 14.17

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**306**	49.5	mg/kg	01.14.20 21.52		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 14.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.18.20 14.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 14.06	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.18.20 14.06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	01.18.20 14.06	
o-Terphenyl	84-15-1	115	%	70-135	01.18.20 14.06	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-8 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-005	Date Collected:	01.09.20 14.17		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 00.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 00.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 00.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 00.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 00.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 00.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 00.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	83	%	70-130	01.23.20 00.39	
1,4-Difluorobenzene	540-36-3	111	%	70-130	01.23.20 00.39	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-8 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-006 Date Collected: 01.09.20 14.18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**31.6**	4.96	mg/kg	01.14.20 23.06		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 14.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.18.20 14.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 14.27	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.18.20 14.27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.18.20 14.27	
o-Terphenyl	84-15-1	104	%	70-135	01.18.20 14.27	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-8 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-006	Date Collected:	01.09.20 14.18		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 01.00	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 01.00	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 01.00	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 01.00	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 01.00	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 01.00	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 01.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84	%	70-130	01.23.20 01.00	
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 01.00	

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Hayhust SWD Gravitas

Sample Id: **S-8 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-007 Date Collected: 01.09.20 14.19

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.6**	5.02	mg/kg	01.15.20 16.44		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 14.49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.18.20 14.49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 14.49	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.18.20 14.49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.18.20 14.49	
o-Terphenyl	84-15-1	104	%	70-135	01.18.20 14.49	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-8 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-007	Date Collected:	01.09.20 14.19		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 01.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 01.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 01.20	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.23.20 01.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 01.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 01.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 01.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	01.23.20 01.20	
4-Bromofluorobenzene	460-00-4	83	%	70-130	01.23.20 01.20	

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Hayhust SWD Gravitas

Sample Id: **S-8 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-008 Date Collected: 01.09.20 14.20

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.5**	4.98	mg/kg	01.15.20 11.00		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 15.10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 15.10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 15.10	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 15.10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	01.18.20 15.10	
o-Terphenyl	84-15-1	108	%	70-135	01.18.20 15.10	

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Hayhust SWD Gravitas

Sample Id:	**S-8 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-008	Date Collected:	01.09.20 14.20		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 01.40	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 01.40	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 01.40	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 01.40	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 01.40	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 01.40	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 01.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 01.40	
4-Bromofluorobenzene	460-00-4	86	%	70-130	01.23.20 01.40	

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Hayhust SWD Gravitas

Sample Id: **S-7 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-009 Date Collected: 01.09.20 14.53

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4540**	100	mg/kg	01.14.20 22.38		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 15.31	U	1
Diesel Range Organics (DRO)	C10C28DRO	**622**	49.9	mg/kg	01.18.20 15.31		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**50.3**	49.9	mg/kg	01.18.20 15.31		1
Total TPH	PHC635	**672**	49.9	mg/kg	01.18.20 15.31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	01.18.20 15.31	
o-Terphenyl	84-15-1	117	%	70-135	01.18.20 15.31	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-7 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-009	Date Collected:	01.09.20 14.53		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.23.20 02.00	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.23.20 02.00	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.23.20 02.00	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	01.23.20 02.00	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.23.20 02.00	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.23.20 02.00	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.23.20 02.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	101	%	70-130	01.23.20 02.00	
1,4-Difluorobenzene	540-36-3	94	%	70-130	01.23.20 02.00	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-7 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-010 Date Collected: 01.09.20 14.54

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	01.15.20 09.54	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.18.20 15.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.18.20 15.52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.18.20 15.52	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.18.20 15.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	100	%	70-135	01.18.20 15.52	
o-Terphenyl	84-15-1	102	%	70-135	01.18.20 15.52	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-7 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-010	Date Collected:	01.09.20 14.54		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 02.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 02.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 02.20	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	01.23.20 02.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 02.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 02.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 02.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	90	%	70-130	01.23.20 02.20	
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 02.20	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-7 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-011 Date Collected: 01.09.20 14.55

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7.75**	5.00	mg/kg	01.15.20 10.02		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 16.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.18.20 16.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 16.35	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.18.20 16.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	103	%	70-135	01.18.20 16.35	
o-Terphenyl	84-15-1	108	%	70-135	01.18.20 16.35	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-7 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-011	Date Collected:	01.09.20 14.55		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 03.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 03.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 03.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 03.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 03.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 03.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 03.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.23.20 03.39	
4-Bromofluorobenzene	460-00-4	75	%	70-130	01.23.20 03.39	

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Hayhust SWD Gravitas

Sample Id: **S-7 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-012 Date Collected: 01.09.20 14.56

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	5.00	mg/kg	01.15.20 10.09		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.18.20 16.56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.18.20 16.56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.18.20 16.56	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.18.20 16.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.18.20 16.56	
o-Terphenyl	84-15-1	106	%	70-135	01.18.20 16.56	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-7 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-012	Date Collected:	01.09.20 14.56		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 03.59	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 03.59	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 03.59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 03.59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 03.59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 03.59	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 03.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	82	%	70-130	01.23.20 03.59	
1,4-Difluorobenzene	540-36-3	110	%	70-130	01.23.20 03.59	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-4 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-013 Date Collected: 01.09.20 15.30

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**355**	5.03	mg/kg	01.14.20 23.43		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 17.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	**88.5**	50.0	mg/kg	01.18.20 17.17		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 17.17	U	1
Total TPH	PHC635	**88.5**	50.0	mg/kg	01.18.20 17.17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.18.20 17.17	
o-Terphenyl	84-15-1	106	%	70-135	01.18.20 17.17	

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Hayhust SWD Gravitas

Sample Id:	**S-4 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-013	Date Collected:	01.09.20 15.30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 04.19	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 04.19	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 04.19	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 04.19	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 04.19	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 04.19	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 04.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	103	%	70-130	01.23.20 04.19	
1,4-Difluorobenzene	540-36-3	102	%	70-130	01.23.20 04.19	

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Hayhust SWD Gravitas

Sample Id: **S-4 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-014 Date Collected: 01.09.20 15.31

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2830**	99.6	mg/kg	01.15.20 00.11		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	**177**	50.0	mg/kg	01.18.20 17.38		1
Diesel Range Organics (DRO)	C10C28DRO	**6540**	50.0	mg/kg	01.18.20 17.38		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**426**	50.0	mg/kg	01.18.20 17.38		1
Total TPH	PHC635	**7140**	50.0	mg/kg	01.18.20 17.38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	01.18.20 17.38	
o-Terphenyl	84-15-1	112	%	70-135	01.18.20 17.38	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-4 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-014	Date Collected:	01.09.20 15.31		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.23.20 04.39	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.23.20 04.39	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.23.20 04.39	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	01.23.20 04.39	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.23.20 04.39	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.23.20 04.39	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.23.20 04.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	128	%	70-130	01.23.20 04.39	
1,4-Difluorobenzene	540-36-3	85	%	70-130	01.23.20 04.39	

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Hayhust SWD Gravitas

Sample Id: **S-4 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-015 Date Collected: 01.09.20 15.32

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.10**	5.00	mg/kg	01.15.20 10.16		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 17.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 17.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 17.59	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 17.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	01.18.20 17.59	
o-Terphenyl	84-15-1	97	%	70-135	01.18.20 17.59	

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Hayhust SWD Gravitas

Sample Id:	**S-4 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-015	Date Collected:	01.09.20 15.32		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 05.00	U	1
Toluene	108-88-3	**0.00444**	0.00201	mg/kg	01.23.20 05.00		1
Ethylbenzene	100-41-4	**0.0371**	0.00201	mg/kg	01.23.20 05.00		1
m,p-Xylenes	179601-23-1	**0.0213**	0.00402	mg/kg	01.23.20 05.00		1
o-Xylene	95-47-6	**0.0292**	0.00201	mg/kg	01.23.20 05.00		1
Total Xylenes	1330-20-7	**0.0505**	0.00201	mg/kg	01.23.20 05.00		1
Total BTEX		**0.0920**	0.00201	mg/kg	01.23.20 05.00		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	136	%	70-130	01.23.20 05.00	**
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.23.20 05.00	

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Hayhust SWD Gravitas

Sample Id: **S-4 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-016 Date Collected: 01.09.20 15.33

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.7**	5.00	mg/kg	01.15.20 10.24		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 18.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 18.20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 18.20	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 18.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	01.18.20 18.20	
o-Terphenyl	84-15-1	100	%	70-135	01.18.20 18.20	

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Hayhust SWD Gravitas

Sample Id:	**S-4 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-016	Date Collected:	01.09.20 15.33		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 05.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 05.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 05.20	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	01.23.20 05.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 05.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 05.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 05.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	90	%	70-130	01.23.20 05.20	
1,4-Difluorobenzene	540-36-3	110	%	70-130	01.23.20 05.20	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-5 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-017 Date Collected: 01.09.20 15.51

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6880**	101	mg/kg	01.15.20 00.39		20

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 18.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	**671**	50.0	mg/kg	01.18.20 18.41		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	**92.0**	50.0	mg/kg	01.18.20 18.41		1
Total TPH	PHC635	**763**	50.0	mg/kg	01.18.20 18.41		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	01.18.20 18.41	
o-Terphenyl	84-15-1	119	%	70-135	01.18.20 18.41	

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Hayhust SWD Gravitas

Sample Id:	**S-5 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-017	Date Collected:	01.09.20 15.51		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.23.20 05.40	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.23.20 05.40	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.23.20 05.40	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	01.23.20 05.40	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.23.20 05.40	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.23.20 05.40	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.23.20 05.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	94	%	70-130	01.23.20 05.40	
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.23.20 05.40	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-5 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-018 Date Collected: 01.09.20 15.52

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**84.8**	4.96	mg/kg	01.15.20 00.48		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.18.20 19.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.18.20 19.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.18.20 19.02	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.18.20 19.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-135	01.18.20 19.02	
o-Terphenyl	84-15-1	113	%	70-135	01.18.20 19.02	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-5 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-018	Date Collected:	01.09.20 15.52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 06.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 06.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 06.00	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.23.20 06.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 06.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 06.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 06.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	01.23.20 06.00	
4-Bromofluorobenzene	460-00-4	88	%	70-130	01.23.20 06.00	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-5 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-019 Date Collected: 01.09.20 15.53

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	4.99	mg/kg	01.15.20 10.31		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 19.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 19.23	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 19.23	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 19.23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	01.18.20 19.23	
o-Terphenyl	84-15-1	99	%	70-135	01.18.20 19.23	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-5 (5')**
Lab Sample Id: 648890-019

Matrix: Soil
Date Collected: 01.09.20 15.53

Date Received: 01.14.20 08.48

Analytical Method: BTEX by EPA 8021B
Tech: KTL
Analyst: KTL
Seq Number: 3114123

Date Prep: 01.22.20 10.30

Prep Method: SW5030B
% Moisture:
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 06.20	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 06.20	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 06.20	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 06.20	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 06.20	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 06.20	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 06.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	92	%	70-130	01.23.20 06.20	
1,4-Difluorobenzene	540-36-3	115	%	70-130	01.23.20 06.20	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-5 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-020 Date Collected: 01.09.20 15.54

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.15 Basis: Wet Weight

Seq Number: 3113269

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**8.84**	4.95	mg/kg	01.15.20 10.38		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.18.20 19.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.18.20 19.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.18.20 19.43	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.18.20 19.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	01.18.20 19.43	
o-Terphenyl	84-15-1	103	%	70-135	01.18.20 19.43	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-5 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-020	Date Collected:	01.09.20 15.54		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.30	Basis:	Wet Weight
Seq Number:	3114123				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.23.20 06.40	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.23.20 06.40	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.23.20 06.40	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	01.23.20 06.40	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.23.20 06.40	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.23.20 06.40	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.23.20 06.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	82	%	70-130	01.23.20 06.40	
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 06.40	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-6 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-021 Date Collected: 01.10.20 10.32

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**84.6**	24.8	mg/kg	01.14.20 22.18		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 21.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.18.20 21.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 21.29	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.18.20 21.29	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	01.18.20 21.29	
o-Terphenyl	84-15-1	103	%	70-135	01.18.20 21.29	

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Hayhust SWD Gravitas

Sample Id:	**S-6 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-021	Date Collected:	01.10.20 10.32		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 09.59	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 09.59	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 09.59	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.23.20 09.59	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 09.59	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 09.59	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 09.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	01.23.20 09.59	
4-Bromofluorobenzene	460-00-4	76	%	70-130	01.23.20 09.59	

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Hayhust SWD Gravitas

Sample Id: **S-6 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-022 Date Collected: 01.10.20 10.33

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.5**	4.99	mg/kg	01.15.20 09.07		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 22.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 22.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 22.32	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 22.32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.18.20 22.32	
o-Terphenyl	84-15-1	105	%	70-135	01.18.20 22.32	

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Hayhust SWD Gravitas

Sample Id:	**S-6 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-022	Date Collected:	01.10.20 10.33		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.23.20 10.19	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.23.20 10.19	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.23.20 10.19	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	01.23.20 10.19	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.23.20 10.19	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.23.20 10.19	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.23.20 10.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	85	%	70-130	01.23.20 10.19	
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 10.19	

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Hayhust SWD Gravitas

Sample Id: **S-6 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-023 Date Collected: 01.10.20 10.38

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.03	5.03	mg/kg	01.15.20 09.14	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 22.53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 22.53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 22.53	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 22.53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	01.18.20 22.53	
o-Terphenyl	84-15-1	108	%	70-135	01.18.20 22.53	

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Hayhust SWD Gravitas

Sample Id:	**S-6 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-023	Date Collected:	01.10.20 10.38		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 10.39	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 10.39	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 10.39	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 10.39	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 10.39	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 10.39	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 10.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	86	%	70-130	01.23.20 10.39	
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 10.39	

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Hayhust SWD Gravitas

Sample Id: **S-6 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-024 Date Collected: 01.10.20 10.39

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.01**	5.01	mg/kg	01.15.20 09.20		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.18.20 23.14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.18.20 23.14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.18.20 23.14	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.18.20 23.14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	01.18.20 23.14	
o-Terphenyl	84-15-1	117	%	70-135	01.18.20 23.14	

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Hayhust SWD Gravitas

Sample Id:	**S-6 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-024	Date Collected:	01.10.20 10.39		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 11.00	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 11.00	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 11.00	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 11.00	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 11.00	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 11.00	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 11.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84	%	70-130	01.23.20 11.00	
1,4-Difluorobenzene	540-36-3	114	%	70-130	01.23.20 11.00	

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Hayhust SWD Gravitas

Sample Id: **S-1 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-025 Date Collected: 01.10.20 10.13

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2280**	49.8	mg/kg	01.14.20 22.58		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.18.20 23.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.18.20 23.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.18.20 23.35	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.18.20 23.35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	01.18.20 23.35	
o-Terphenyl	84-15-1	100	%	70-135	01.18.20 23.35	

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Hayhust SWD Gravitas

Sample Id:	**S-1 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-025	Date Collected:	01.10.20 10.13		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 11.20	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 11.20	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 11.20	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 11.20	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 11.20	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 11.20	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 11.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84	%	70-130	01.23.20 11.20	
1,4-Difluorobenzene	540-36-3	115	%	70-130	01.23.20 11.20	

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Hayhust SWD Gravitas

Sample Id: **S-1 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-026 Date Collected: 01.10.20 10.14

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**63.2**	50.0	mg/kg	01.14.20 23.05		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.18.20 23.56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.18.20 23.56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.18.20 23.56	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.18.20 23.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	01.18.20 23.56	
o-Terphenyl	84-15-1	99	%	70-135	01.18.20 23.56	

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Hayhust SWD Gravitas

Sample Id:	**S-1 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-026	Date Collected:	01.10.20 10.14		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 11.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 11.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 11.40	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 11.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 11.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 11.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 11.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	84	%	70-130	01.23.20 11.40	
1,4-Difluorobenzene	540-36-3	113	%	70-130	01.23.20 11.40	

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Hayhust SWD Gravitas

Sample Id: **S-1 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-027 Date Collected: 01.10.20 10.17

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7.98**	5.00	mg/kg	01.15.20 09.27		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.19.20 00.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.19.20 00.17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.19.20 00.17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.19.20 00.17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	01.19.20 00.17	
o-Terphenyl	84-15-1	95	%	70-135	01.19.20 00.17	

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Hayhust SWD Gravitas

Sample Id:	**S-1 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-027	Date Collected:	01.10.20 10.17		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 12.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 12.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 12.00	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	01.23.20 12.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 12.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 12.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 12.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	88	%	70-130	01.23.20 12.00	
1,4-Difluorobenzene	540-36-3	118	%	70-130	01.23.20 12.00	

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Hayhust SWD Gravitas

Sample Id: **S-1 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-028 Date Collected: 01.10.20 10.18

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	01.15.20 09.33	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.19.20 00.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.19.20 00.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.19.20 00.38	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.19.20 00.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	01.19.20 00.38	
o-Terphenyl	84-15-1	96	%	70-135	01.19.20 00.38	

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Hayhust SWD Gravitas

Sample Id:	**S-1 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-028	Date Collected:	01.10.20 10.18		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.23.20 12.20	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.23.20 12.20	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.23.20 12.20	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.23.20 12.20	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.23.20 12.20	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.23.20 12.20	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.23.20 12.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	81	%	70-130	01.23.20 12.20	
1,4-Difluorobenzene	540-36-3	111	%	70-130	01.23.20 12.20	

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Hayhust SWD Gravitas

Sample Id: **S-2 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-029 Date Collected: 01.10.20 09.37

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**63.7**	49.9	mg/kg	01.14.20 23.25		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.19.20 00.59	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.19.20 00.59	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.19.20 00.59	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.19.20 00.59	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	01.19.20 00.59	
o-Terphenyl	84-15-1	94	%	70-135	01.19.20 00.59	

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Hayhust SWD Gravitas

Sample Id:	**S-2 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-029	Date Collected:	01.10.20 09.37		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 12.40	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 12.40	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 12.40	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 12.40	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 12.40	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 12.40	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 12.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	01.23.20 12.40	
4-Bromofluorobenzene	460-00-4	84	%	70-130	01.23.20 12.40	

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Hayhust SWD Gravitas

Sample Id: **S-2 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-030 Date Collected: 01.10.20 09.38

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**38.4**	5.02	mg/kg	01.15.20 09.40		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.19.20 01.20	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.19.20 01.20	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.19.20 01.20	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.19.20 01.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	01.19.20 01.20	
o-Terphenyl	84-15-1	103	%	70-135	01.19.20 01.20	

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Hayhust SWD Gravitas

Sample Id:	**S-2 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-030	Date Collected:	01.10.20 09.38		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 13.00	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 13.00	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 13.00	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 13.00	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 13.00	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 13.00	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 13.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	114	%	70-130	01.23.20 13.00	
4-Bromofluorobenzene	460-00-4	78	%	70-130	01.23.20 13.00	

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Hayhust SWD Gravitas

Sample Id: **S-2(5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-031 Date Collected: 01.09.20 10.04

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.05	5.05	mg/kg	01.15.20 10.00	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.19.20 02.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.19.20 02.01	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.19.20 02.01	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.19.20 02.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	01.19.20 02.01	
o-Terphenyl	84-15-1	96	%	70-135	01.19.20 02.01	

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Hayhust SWD Gravitas

Sample Id:	**S-2(5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-031	Date Collected:	01.09.20 10.04		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 14.19	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 14.19	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 14.19	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 14.19	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 14.19	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 14.19	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 14.19	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	76	%	70-130	01.23.20 14.19	
1,4-Difluorobenzene	540-36-3	110	%	70-130	01.23.20 14.19	

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Hayhust SWD Gravitas

Sample Id: **S-2 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-032 Date Collected: 01.10.20 10.05

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**25.9**	5.05	mg/kg	01.15.20 10.07		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.19.20 02.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.19.20 02.22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.19.20 02.22	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.19.20 02.22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	01.19.20 02.22	
o-Terphenyl	84-15-1	91	%	70-135	01.19.20 02.22	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-2 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-032	Date Collected:	01.10.20 10.05		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 14.39	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 14.39	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 14.39	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 14.39	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 14.39	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 14.39	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 14.39	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	01.23.20 14.39	
4-Bromofluorobenzene	460-00-4	80	%	70-130	01.23.20 14.39	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-3 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-033 Date Collected: 01.10.20 09.37

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**99.8**	25.3	mg/kg	01.15.20 00.24		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.19.20 02.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.19.20 02.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.19.20 02.43	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.19.20 02.43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-135	01.19.20 02.43	
o-Terphenyl	84-15-1	99	%	70-135	01.19.20 02.43	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-3 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-033	Date Collected:	01.10.20 09.37		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 15.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 15.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 15.00	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.23.20 15.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 15.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 15.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 15.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	80	%	70-130	01.23.20 15.00	
1,4-Difluorobenzene	540-36-3	113	%	70-130	01.23.20 15.00	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-3 (3')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-034 Date Collected: 01.10.20 09.38

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1700**	50.0	mg/kg	01.15.20 00.31		10

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.19.20 03.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.19.20 03.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.19.20 03.04	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.19.20 03.04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	01.19.20 03.04	
o-Terphenyl	84-15-1	100	%	70-135	01.19.20 03.04	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-3 (3')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-034	Date Collected:	01.10.20 09.38		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.23.20 15.20	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.23.20 15.20	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.23.20 15.20	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.23.20 15.20	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.23.20 15.20	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.23.20 15.20	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.23.20 15.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	116	%	70-130	01.23.20 15.20	
4-Bromofluorobenzene	460-00-4	84	%	70-130	01.23.20 15.20	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-3 (5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-035 Date Collected: 01.10.20 09.43

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**37.5**	4.97	mg/kg	01.15.20 10.13		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.19.20 03.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.19.20 03.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.19.20 03.25	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.19.20 03.25	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	01.19.20 03.25	
o-Terphenyl	84-15-1	101	%	70-135	01.19.20 03.25	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-3 (5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-035	Date Collected:	01.10.20 09.43		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 15.40	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 15.40	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 15.40	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 15.40	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 15.40	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 15.40	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 15.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	01.23.20 15.40	
4-Bromofluorobenzene	460-00-4	83	%	70-130	01.23.20 15.40	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-3 (10')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-036 Date Collected: 01.10.20 09.44

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	01.15.20 10.20	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.19.20 03.47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.19.20 03.47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.19.20 03.47	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.19.20 03.47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	01.19.20 03.47	
o-Terphenyl	84-15-1	96	%	70-135	01.19.20 03.47	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-3 (10')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-036	Date Collected:	01.10.20 09.44		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 16.00	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 16.00	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 16.00	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.23.20 16.00	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 16.00	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 16.00	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 16.00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	112	%	70-130	01.23.20 16.00	
4-Bromofluorobenzene	460-00-4	81	%	70-130	01.23.20 16.00	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-10 (0.5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-037 Date Collected: 01.09.20 11.45

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**7.55**	4.98	mg/kg	01.15.20 10.27		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.19.20 04.08	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.19.20 04.08	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.19.20 04.08	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.19.20 04.08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	01.19.20 04.08	
o-Terphenyl	84-15-1	99	%	70-135	01.19.20 04.08	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-10 (0.5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-037	Date Collected:	01.09.20 11.45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.23.20 16.20	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.23.20 16.20	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.23.20 16.20	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	01.23.20 16.20	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.23.20 16.20	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.23.20 16.20	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.23.20 16.20	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	73	%	70-130	01.23.20 16.20	
1,4-Difluorobenzene	540-36-3	114	%	70-130	01.23.20 16.20	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-10 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-038 Date Collected: 01.09.20 11.48

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.20 Basis: Wet Weight

Seq Number: 3113271

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**21.4**	5.00	mg/kg	01.15.20 10.33		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: LRI % Moisture:

Analyst: ARM Date Prep: 01.17.20 17.30 Basis: Wet Weight

Seq Number: 3113770

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.19.20 04.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.19.20 04.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.19.20 04.30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.19.20 04.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	01.19.20 04.30	
o-Terphenyl	84-15-1	97	%	70-135	01.19.20 04.30	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-10 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-038	Date Collected:	01.09.20 11.48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 16.40	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 16.40	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 16.40	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.23.20 16.40	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 16.40	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 16.40	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 16.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	81	%	70-130	01.23.20 16.40	
1,4-Difluorobenzene	540-36-3	114	%	70-130	01.23.20 16.40	

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Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-11 (0.5')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-039 Date Collected: 01.09.20 11.52

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.30 Basis: Wet Weight

Seq Number: 3113275

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6.91**	5.00	mg/kg	01.15.20 10.45		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 01.21.20 11.00 Basis: Wet Weight

Seq Number: 3114054

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.21.20 20.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.21.20 20.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.21.20 20.05	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.21.20 20.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	01.21.20 20.05	
o-Terphenyl	84-15-1	87	%	70-135	01.21.20 20.05	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-11 (0.5')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-039	Date Collected:	01.09.20 11.52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.23.20 17.01	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.23.20 17.01	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.23.20 17.01	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.23.20 17.01	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.23.20 17.01	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.23.20 17.01	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.23.20 17.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	83	%	70-130	01.23.20 17.01	
1,4-Difluorobenzene	540-36-3	115	%	70-130	01.23.20 17.01	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id: **S-11 (1')** Matrix: Soil Date Received:01.14.20 08.48

Lab Sample Id: 648890-040 Date Collected: 01.09.20 11.54

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 01.14.20 16.30 Basis: Wet Weight

Seq Number: 3113275

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	01.15.20 10.53	U	1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 01.21.20 11.00 Basis: Wet Weight

Seq Number: 3114054

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.21.20 20.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.21.20 20.26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.21.20 20.26	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.21.20 20.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-135	01.21.20 20.26	
o-Terphenyl	84-15-1	81	%	70-135	01.21.20 20.26	

Certificate of Analytical Results 648890

Larson and Associates, Inc., Midland, TX

Hayhust SWD Gravitas

Sample Id:	**S-11 (1')**	Matrix:	Soil	Date Received:	01.14.20 08.48
Lab Sample Id:	648890-040	Date Collected:	01.09.20 11.54		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5030B
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	01.22.20 10.35	Basis:	Wet Weight
Seq Number:	3114247				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.23.20 17.21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.23.20 17.21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.23.20 17.21	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	01.23.20 17.21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.23.20 17.21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.23.20 17.21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.23.20 17.21	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	01.23.20 17.21	
4-Bromofluorobenzene	460-00-4	85	%	70-130	01.23.20 17.21	

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.

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

QC Summary 648890

Larson and Associates, Inc.

Hayhust SWD Gravitas

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113269 — Matrix: Solid — Date Prep: 01.14.20
MB Sample Id: 7694340-1-BLK — LCS Sample Id: 7694340-1-BKS — LCSD Sample Id: 7694340-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	253	101	253	101	90-110	0	20	mg/kg	01.14.20 20:38	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113271 — Matrix: Solid — Date Prep: 01.14.20
MB Sample Id: 7694341-1-BLK — LCS Sample Id: 7694341-1-BKS — LCSD Sample Id: 7694341-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<0.858	250	256	102	257	103	90-110	0	20	mg/kg	01.14.20 21:45	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113275 — Matrix: Solid — Date Prep: 01.14.20
MB Sample Id: 7694342-1-BLK — LCS Sample Id: 7694342-1-BKS — LCSD Sample Id: 7694342-1-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	254	102	256	102	90-110	1	20	mg/kg	01.15.20 01:44	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113269 — Matrix: Soil — Date Prep: 01.14.20
Parent Sample Id: 648890-002 — MS Sample Id: 648890-002 S — MSD Sample Id: 648890-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	96.4	251	359	105	362	106	90-110	1	20	mg/kg	01.14.20 21:06	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113269 — Matrix: Soil — Date Prep: 01.14.20
Parent Sample Id: 648890-006 — MS Sample Id: 648890-006 S — MSD Sample Id: 648890-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	31.6	248	297	107	298	107	90-110	0	20	mg/kg	01.14.20 23:15	

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 648890

Larson and Associates, Inc.

Hayhust SWD Gravitas

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113271 — Matrix: Soil — Date Prep: 01.14.20
Parent Sample Id: 648902-009 — MS Sample Id: 648902-009 S — MSD Sample Id: 648902-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	16.3	250	285	107	286	108	90-110	0	20	mg/kg	01.14.20 22:05	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113271 — Matrix: Soil — Date Prep: 01.14.20
Parent Sample Id: 648902-012 — MS Sample Id: 648902-012 S — MSD Sample Id: 648902-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.48	248	277	108	276	108	90-110	0	20	mg/kg	01.14.20 23:38	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113275 — Matrix: Soil — Date Prep: 01.14.20
Parent Sample Id: 648902-016 — MS Sample Id: 648902-016 S — MSD Sample Id: 648902-016 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	8.78	250	284	110	285	110	90-110	0	20	mg/kg	01.15.20 02:12	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3113275 — Matrix: Soil — Date Prep: 01.14.20
Parent Sample Id: 648902-018 — MS Sample Id: 648902-018 S — MSD Sample Id: 648902-018 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	3.04	250	270	107	269	106	90-110	0	20	mg/kg	01.15.20 04:21	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113768 — Matrix: Solid — Date Prep: 01.17.20
MB Sample Id: 7694684-1-BLK — LCS Sample Id: 7694684-1-BKS — LCSD Sample Id: 7694684-1-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)	<15.0	1000	1090	109	1140	114	70-135	4	20	mg/kg	01.18.20 11:19	
Diesel Range Organics (DRO)	<15.0	1000	1070	107	1080	108	70-135	1	20	mg/kg	01.18.20 11:19	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		107		120		70-135	%	01.18.20 11:19
o-Terphenyl	113		107		100		70-135	%	01.18.20 11:19

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 648890

Larson and Associates, Inc.

Hayhust SWD Gravitas

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113770 — Matrix: Solid — Date Prep: 01.17.20
MB Sample Id: 7694685-1-BLK — LCS Sample Id: 7694685-1-BKS — LCSD Sample Id: 7694685-1-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	1180	118	1100	110	70-135	7	20	mg/kg	01.18.20 20:46	
Diesel Range Organics (DRO)	<15.0	1000	1040	104	1120	112	70-135	7	20	mg/kg	01.18.20 20:46	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	113		115		109		70-135	%	01.18.20 20:46
o-Terphenyl	122		110		108		70-135	%	01.18.20 20:46

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114054 — Matrix: Solid — Date Prep: 01.21.20
MB Sample Id: 7694873-1-BLK — LCS Sample Id: 7694873-1-BKS — LCSD Sample Id: 7694873-1-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)	<15.0	1000	953	95	972	97	70-135	2	20	mg/kg	01.21.20 11:58	
Diesel Range Organics (DRO)	<15.0	1000	722	72	721	72	70-135	0	20	mg/kg	01.21.20 11:58	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	86		86		99		70-135	%	01.21.20 11:58
o-Terphenyl	87		79		77		70-135	%	01.21.20 11:58

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113768 — Matrix: Solid — Date Prep: 01.17.20
MB Sample Id: 7694684-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.18.20 10:58	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113770 — Matrix: Solid — Date Prep: 01.17.20
MB Sample Id: 7694685-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.18.20 20:25	

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

Final 1.000

QC Summary 648890

Larson and Associates, Inc.

Hayhust SWD Gravitas

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114054 — Matrix: Solid — Date Prep: 01.21.20
MB Sample Id: 7694873-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.21.20 11:37	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113768 — Matrix: Soil — Date Prep: 01.17.20
Parent Sample Id: 648890-001 — MS Sample Id: 648890-001 S — MSD Sample Id: 648890-001 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)	17.1	999	1170	115	1350	134	70-135	14	20	mg/kg	01.18.20 12:22	
Diesel Range Organics (DRO)	183	999	1170	99	1290	111	70-135	10	20	mg/kg	01.18.20 12:22	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		126		70-135	%	01.18.20 12:22
o-Terphenyl	89		125		70-135	%	01.18.20 12:22

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3113770 — Matrix: Soil — Date Prep: 01.17.20
Parent Sample Id: 648890-021 — MS Sample Id: 648890-021 S — MSD Sample Id: 648890-021 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)	19.0	999	1180	116	1170	115	70-135	1	20	mg/kg	01.18.20 21:50	
Diesel Range Organics (DRO)	15.1	999	1030	102	1010	100	70-135	2	20	mg/kg	01.18.20 21:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	112		110		70-135	%	01.18.20 21:50
o-Terphenyl	106		105		70-135	%	01.18.20 21:50

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3114054 — Matrix: Soil — Date Prep: 01.21.20
Parent Sample Id: 649567-021 — MS Sample Id: 649567-021 S — MSD Sample Id: 649567-021 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)	<15.0	997	1000	100	1010	101	70-135	1	20	mg/kg	01.21.20 13:02	
Diesel Range Organics (DRO)	23.7	997	909	89	913	89	70-135	0	20	mg/kg	01.21.20 13:02	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	90		90		70-135	%	01.21.20 13:02
o-Terphenyl	81		84		70-135	%	01.21.20 13:02

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 648890

Larson and Associates, Inc.

Hayhust SWD Gravitas

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3114123 — Matrix: Solid — Date Prep: 01.22.20
MB Sample Id: 7694915-1-BLK — LCS Sample Id: 7694915-1-BKS — LCSD Sample Id: 7694915-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.101	101	0.111	111	70-130	9	35	mg/kg	01.22.20 21:00	
Toluene	<0.000456	0.100	0.0897	90	0.0982	98	70-130	9	35	mg/kg	01.22.20 21:00	
Ethylbenzene	<0.000565	0.100	0.0840	84	0.0921	92	70-130	9	35	mg/kg	01.22.20 21:00	
m,p-Xylenes	<0.00101	0.200	0.166	83	0.181	91	70-130	9	35	mg/kg	01.22.20 21:00	
o-Xylene	<0.000344	0.100	0.0834	83	0.0909	91	70-130	9	35	mg/kg	01.22.20 21:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	107		108		106		70-130	%	01.22.20 21:00
4-Bromofluorobenzene	80		91		88		70-130	%	01.22.20 21:00

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3114247 — Matrix: Solid — Date Prep: 01.22.20
MB Sample Id: 7694917-1-BLK — LCS Sample Id: 7694917-1-BKS — LCSD Sample Id: 7694917-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.110	110	0.110	110	70-130	0	35	mg/kg	01.23.20 07:40	
Toluene	<0.000456	0.100	0.0996	100	0.0994	99	70-130	0	35	mg/kg	01.23.20 07:40	
Ethylbenzene	<0.000565	0.100	0.0928	93	0.0930	93	70-130	0	35	mg/kg	01.23.20 07:40	
m,p-Xylenes	<0.00101	0.200	0.182	91	0.184	92	70-130	1	35	mg/kg	01.23.20 07:40	
o-Xylene	<0.000344	0.100	0.0930	93	0.0936	94	70-130	1	35	mg/kg	01.23.20 07:40	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		109		110		70-130	%	01.23.20 07:40
4-Bromofluorobenzene	75		93		92		70-130	%	01.23.20 07:40

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5030B
Seq Number: 3114123 — Matrix: Soil — Date Prep: 01.22.20
Parent Sample Id: 648890-001 — MS Sample Id: 648890-001 S — MSD Sample Id: 648890-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000384	0.0998	0.0959	96	0.0928	93	70-130	3	35	mg/kg	01.22.20 21:40	
Toluene	0.000456	0.0998	0.0874	87	0.0900	90	70-130	3	35	mg/kg	01.22.20 21:40	
Ethylbenzene	<0.000564	0.0998	0.0759	76	0.0780	78	70-130	3	35	mg/kg	01.22.20 21:40	
m,p-Xylenes	<0.00101	0.200	0.151	76	0.152	76	70-130	1	35	mg/kg	01.22.20 21:40	
o-Xylene	<0.000344	0.0998	0.0782	78	0.0810	81	70-130	4	35	mg/kg	01.22.20 21:40	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		104		70-130	%	01.22.20 21:40
4-Bromofluorobenzene	101		113		70-130	%	01.22.20 21:40

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 648890

Larson and Associates, Inc.

Hayhust SWD Gravitas

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5030B

Seq Number: 3114247 Matrix: Soil Date Prep: 01.22.20

Parent Sample Id: 648890-021 MS Sample Id: 648890-021 S MSD Sample Id: 648890-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000384	0.0998	0.0898	90	0.0888	90	70-130	1	35	mg/kg	01.23.20 08:20	
Toluene	0.000611	0.0998	0.0788	78	0.0768	77	70-130	3	35	mg/kg	01.23.20 08:20	
Ethylbenzene	<0.000564	0.0998	0.0697	70	0.0678	68	70-130	3	35	mg/kg	01.23.20 08:20	X
m,p-Xylenes	<0.00101	0.200	0.134	67	0.132	67	70-130	2	35	mg/kg	01.23.20 08:20	X
o-Xylene	0.000411	0.0998	0.0676	67	0.0664	67	70-130	2	35	mg/kg	01.23.20 08:20	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		111		70-130	%	01.23.20 08:20
4-Bromofluorobenzene	92		92		70-130	%	01.23.20 08:20

MS/MSD Percent Recovery	[D] = 100*(C-A) / B	LCS = Laboratory Control Sample	MS = Matrix Spike
Relative Percent Difference	RPD = 200* | (C-E) / (C+E) |	A = Parent Result	B = Spike Added
LCS/LCSD Recovery	[D] = 100 * (C) / [B]	C = MS/LCS Result	D = MSD/LCSD % Rec
Log Difference	Log Diff. = Log(Sample Duplicate) - Log(Original Sample)	E = MSD/LCSD Result	

648690

№ 0904

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 1/14/2020 PAGE 1 OF 3

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: Haynest SWD Gravitas

LAI PROJECT #: 19.0180.03 COLLECTOR: DS/EC

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

PRESERVATION: HCl, HNO_3, H_2SO_4 ☐ NaOH ☐, ICE, UNPRESSERVED

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 ☐ | 8082 PCBS ☐ | 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 ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ CYANIDE ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
S-9 (1')		1/9/20	1351	S	1				X		X	
S-9 (3')			1352									
S-9 (5')			1353									
S-9 (10')			1354									
S-8 (1')			1417									
S-8 (3')			1418									
S-8 (5')			1419									
S-8 (10')			1420									
S-7 (1')			1453									
S-7 (3')			1454									
S-7 (5')			1455									
S-7 (10')			1456									
S-4 (1')			1530									
S-4 (5')			1531									
S-4 (5')			1532									
TOTAL					15							

RELINQUISHED BY:(Signature) Rachel Cruz DATE/TIME 1/14/20 RECEIVED BY: (Signature) [illegible] 648

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 ☒ 5 days

LABORATORY USE ONLY:
RECEIVING TEMP: 1.7 THERM#: 126
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

№ 0905

648890

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 1/14/2020 PAGE 2 OF 3
PO#: LAB WORK ORDER#:
PROJECT LOCATION OR NAME: Hayhurst SWD Gravitas
LAI PROJECT #: 19-0180-03 COLLECTOR: DS EC

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	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 ☐	8082 PCBS ☐	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
S-4 (10')		1/9/20	1533	S	1				X		X		X	X	X													X	
S-5 (1')		1/9/20	1551																										
S-5 (3')		1/9/20	1552																										
S-5 (5')		1/9/20	1553																										
S-5 (10')		1/9/20	1554																										
S-6 (1')		1/10/20	1032																										
S-6 (3')		1/10/20	1033																										
S-6 (5')		1/10/20	1038																										
S-6 (10')		1/10/20	1039																										
S-1 (1')		1/10/20	1013																										
S-1 (3')		1/10/20	1014																										
S-1 (5')		1/10/20	1017																										
S-1 (10')		1/10/20	1018																										
S-2 (1')		1/10/20	0937																										
S-2 (3')		1/10/20	0938																										
TOTAL	15																												

RELINQUISHED BY:(Signature) Rachel Owen DATE/TIME 1/14/20 / 8:48 RECEIVED BY: (Signature) [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 ☒ 5 days

LABORATORY USE ONLY:
RECEIVING TEMP: 1.7 THERM#: R8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Nº 0906

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 1/14/2020 PAGE 3 OF 3

PO#: LAB WORK ORDER#: 20A0890

PROJECT LOCATION OR NAME: Hughurst SWD

LAI PROJECT #: 19.0180.03 COLLECTOR: DS/EC

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	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 ☐	8082 PCBS ☐	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
S-2 (5')		1/10/20	1004	S	1				X		X		X	X	X													X		
S-2 (10')			1005																											
S-3 (1')			0937																											
S-3 (3')			0938																											
S-3 (5')			0943																											
S-3 (10')			0944																											
S-10 (0.5)			1145																											
S-10 (1')			1148																											
S-11 (0.5)			1152																											
S-11 (1')			1154																											
TOTAL					10																									

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
Rachel Owens	1/14/20	[illegible]
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 ☒
5 day

LABORATORY USE ONLY:
RECEIVING TEMP: 1.7 THERM#: 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: 01/14/2020 08:48:00 AM

Work Order #: 648890

Acceptable Temperature Range: 0 - 6 degC
Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : R8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	1.7
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 01/14/2020

Brianna Teel

Checklist reviewed by: Holly Taylor Date: 01/14/2020

Holly Taylor

Certificate of Analysis Summary 661562

Larson and Associates, Inc., Midland, TX

Project Name: HH NM SWD,Chevron

Project Id: 19-0180-03
Contact: Mark Larson
Project Location:

Date Received in Lab: Thu 05.14.2020 10:44
Report Date: 05.19.2020 14:11
Project Manager: Holly Taylor

Analysis Requested									
	Lab Id:	661562-001		661562-002					
	Field Id:	SP-12 (0-0.5')		SP-12 (0.5-1')					
	Depth:								
	Matrix:	SOIL		SOIL					
	Sampled:	05.13.2020 12:10		05.13.2020 12:11					
BTEX by EPA 8021B	***Extracted:***	05.18.2020 17:45		05.18.2020 08:00					
	Analyzed:	05.19.2020 06:09		05.18.2020 22:50					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00199	0.00199	<0.00198	0.00198				
Toluene		<0.00199	0.00199	<0.00198	0.00198				
Ethylbenzene		<0.00199	0.00199	<0.00198	0.00198				
m,p-Xylenes		<0.00398	0.00398	<0.00397	0.00397				
o-Xylene		<0.00199	0.00199	<0.00198	0.00198				
Total Xylenes		<0.00199	0.00199	<0.00198	0.00198				
Total BTEX		<0.00199	0.00199	<0.00198	0.00198				
Chloride by EPA 300	***Extracted:***	05.14.2020 15:05		05.14.2020 15:05					
	Analyzed:	05.15.2020 02:08		05.15.2020 02:13					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		616	25.2	346	24.9				
TPH by SW8015 Mod	***Extracted:***	05.14.2020 17:00		05.14.2020 17:00					
	Analyzed:	05.15.2020 14:58		05.15.2020 15:33					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<50.0	50.0				
Diesel Range Organics (DRO)		<50.0	50.0	<50.0	50.0				
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<50.0	50.0				
Total TPH		<50.0	50.0	<50.0	50.0				

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

Holly Taylor
Project Manager

Analytical Report 661562

for

Larson and Associates, Inc.

Project Manager: Mark Larson

HH NM SWD,Chevron

19-0180-03

05.19.2020

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 (20-035-0)

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)

05.19.2020

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

Reference: XENCO Report No(s): **661562**
HH NM SWD,Chevron
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) 661562. 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. 661562 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,

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 661562

Larson and Associates, Inc., Midland, TX

HH NM SWD,Chevron

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
SP-12 (0-0.5')	S	05.13.2020 12:10		661562-001
SP-12 (0.5-1')	S	05.13.2020 12:11		661562-002

CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: HH NM SWD,Chevron

Project ID: *19-0180-03*
Work Order Number(s): *661562*

Report Date: *05.19.2020*
Date Received: *05.14.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3126332 BTEX by EPA 8021B

Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene Relative Percent Difference (RPD) between matrix spike and duplicate were above quality control limits.
Samples in the analytical batch are: 661562-001

Lab Sample ID 661562-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 661562-001.
The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3126361 BTEX by EPA 8021B

Surrogate 4-Bromofluorobenzene recovered below QC limits. Samples affected are: 7703609-1-BLK.

Certificate of Analytical Results 661562

Larson and Associates, Inc., Midland, TX

HH NM SWD,Chevron

Sample Id: **SP-12 (0-0.5')** Matrix: Soil Date Received:05.14.2020 10:44

Lab Sample Id: 661562-001 Date Collected: 05.13.2020 12:10

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 05.14.2020 15:05 Basis: Wet Weight

Seq Number: 3126007

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**616**	25.2	mg/kg	05.15.2020 02:08		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 05.14.2020 17:00 Basis: Wet Weight

Seq Number: 3126160

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.15.2020 14:58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.15.2020 14:58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.15.2020 14:58	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.15.2020 14:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	05.15.2020 14:58	
o-Terphenyl	84-15-1	107	%	70-130	05.15.2020 14:58	

Certificate of Analytical Results 661562

Larson and Associates, Inc., Midland, TX

HH NM SWD,Chevron

Sample Id:	**SP-12 (0-0.5')**	Matrix:	Soil	Date Received:	05.14.2020 10:44
Lab Sample Id:	661562-001	Date Collected:	05.13.2020 12:10		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	05.18.2020 17:45	Basis:	Wet Weight
Seq Number:	3126332				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	05.19.2020 06:09	UXF	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	05.19.2020 06:09	UXF	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	05.19.2020 06:09	UXF	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	05.19.2020 06:09	UXF	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	05.19.2020 06:09	UXF	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	05.19.2020 06:09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	05.19.2020 06:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	05.19.2020 06:09	
4-Bromofluorobenzene	460-00-4	100	%	70-130	05.19.2020 06:09	

Certificate of Analytical Results 661562

Larson and Associates, Inc., Midland, TX

HH NM SWD,Chevron

Sample Id: **SP-12 (0.5-1')** Matrix: Soil Date Received:05.14.2020 10:44

Lab Sample Id: 661562-002 Date Collected: 05.13.2020 12:11

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: CHE % Moisture:

Analyst: CHE Date Prep: 05.14.2020 15:05 Basis: Wet Weight

Seq Number: 3126007

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**346**	24.9	mg/kg	05.15.2020 02:13		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P

Tech: DVM % Moisture:

Analyst: ARM Date Prep: 05.14.2020 17:00 Basis: Wet Weight

Seq Number: 3126160

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	05.15.2020 15:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	05.15.2020 15:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	05.15.2020 15:33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	05.15.2020 15:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-130	05.15.2020 15:33	
o-Terphenyl	84-15-1	103	%	70-130	05.15.2020 15:33	

Certificate of Analytical Results 661562

Larson and Associates, Inc., Midland, TX

HH NM SWD,Chevron

Sample Id:	**SP-12 (0.5-1')**	Matrix:	Soil	Date Received:	05.14.2020 10:44
Lab Sample Id:	661562-002	Date Collected:	05.13.2020 12:11		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	05.18.2020 08:00	Basis:	Wet Weight
Seq Number:	3126361				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	05.18.2020 22:50	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	05.18.2020 22:50	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	05.18.2020 22:50	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	05.18.2020 22:50	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	05.18.2020 22:50	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	05.18.2020 22:50	U	1
Total BTEX		<0.00198	0.00198	mg/kg	05.18.2020 22:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	05.18.2020 22:50	
4-Bromofluorobenzene	460-00-4	97	%	70-130	05.18.2020 22:50	

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

QC Summary 661562

Larson and Associates, Inc.

HH NM SWD,Chevron

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3126007 — Matrix: Solid — Date Prep: 05.14.2020
MB Sample Id: 7703342-1-BLK — LCS Sample Id: 7703342-1-BKS — LCSD Sample Id: 7703342-1-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	243	97	236	94	90-110	3	20	mg/kg	05.14.2020 23:35	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3126007 — Matrix: Soil — Date Prep: 05.14.2020
Parent Sample Id: 661555-004 — MS Sample Id: 661555-004 S — MSD Sample Id: 661555-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	58.4	252	298	95	292	93	90-110	2	20	mg/kg	05.14.2020 23:52	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3126007 — Matrix: Soil — Date Prep: 05.14.2020
Parent Sample Id: 661555-011 — MS Sample Id: 661555-011 S — MSD Sample Id: 661555-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	174	249	425	101	426	101	90-110	0	20	mg/kg	05.15.2020 01:16	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3126160 — Matrix: Solid — Date Prep: 05.14.2020
MB Sample Id: 7703367-1-BLK — LCS Sample Id: 7703367-1-BKS — LCSD Sample Id: 7703367-1-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	934	93	928	93	70-130	1	20	mg/kg	05.15.2020 08:53	
Diesel Range Organics (DRO)	<50.0	1000	897	90	897	90	70-130	0	20	mg/kg	05.15.2020 08:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		117		117		70-130	%	05.15.2020 08:53
o-Terphenyl	107		111		112		70-130	%	05.15.2020 08:53

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3126160 — Matrix: Solid — Date Prep: 05.14.2020
MB Sample Id: 7703367-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	05.15.2020 08:34	

MS/MSD Percent Recovery — [D] = 100*(C-A) / B — LCS = Laboratory Control Sample — MS = Matrix Spike
Relative Percent Difference — RPD = 200* | (C-E) / (C+E) | — A = Parent Result — B = Spike Added
LCS/LCSD Recovery — [D] = 100 * (C) / [B] — C = MS/LCS Result — D = MSD/LCSD % Rec
Log Difference — Log Diff. = Log(Sample Duplicate) - Log(Original Sample) — E = MSD/LCSD Result

QC Summary 661562

Larson and Associates, Inc.

HH NM SWD,Chevron

Analytical Method: **TPH by SW8015 Mod** Prep Method: SW8015P
Seq Number: 3126160 Matrix: Soil Date Prep: 05.14.2020
Parent Sample Id: 661563-001 MS Sample Id: 661563-001 S MSD Sample Id: 661563-001 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)	<49.8	996	923	93	933	94	70-130	1	20	mg/kg	05.15.2020 09:50	
Diesel Range Organics (DRO)	<49.8	996	903	91	913	92	70-130	1	20	mg/kg	05.15.2020 09:50	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		119		70-130	%	05.15.2020 09:50
o-Terphenyl	108		108		70-130	%	05.15.2020 09:50

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3126361 Matrix: Solid Date Prep: 05.18.2020
MB Sample Id: 7703609-1-BLK LCS Sample Id: 7703609-1-BKS LCSD Sample Id: 7703609-1-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	0.0989	99	0.119	119	70-130	18	35	mg/kg	05.18.2020 17:29	
Toluene	<0.00200	0.100	0.103	103	0.110	110	70-130	7	35	mg/kg	05.18.2020 17:29	
Ethylbenzene	<0.00200	0.100	0.109	109	0.114	114	70-130	4	35	mg/kg	05.18.2020 17:29	
m,p-Xylenes	<0.00400	0.200	0.203	102	0.212	106	70-130	4	35	mg/kg	05.18.2020 17:29	
o-Xylene	<0.00200	0.100	0.0989	99	0.103	103	70-130	4	35	mg/kg	05.18.2020 17:29	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	85		96		101		70-130	%	05.18.2020 17:29
4-Bromofluorobenzene	55	**	124		122		70-130	%	05.18.2020 17:29

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3126332 Matrix: Solid Date Prep: 05.18.2020
MB Sample Id: 7703600-1-BLK LCS Sample Id: 7703600-1-BKS LCSD Sample Id: 7703600-1-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	0.0953	95	0.0998	100	70-130	5	35	mg/kg	05.19.2020 04:07	
Toluene	<0.00200	0.100	0.0954	95	0.0996	100	70-130	4	35	mg/kg	05.19.2020 04:07	
Ethylbenzene	<0.00200	0.100	0.0879	88	0.0914	91	70-130	4	35	mg/kg	05.19.2020 04:07	
m,p-Xylenes	<0.00400	0.200	0.177	89	0.183	92	70-130	3	35	mg/kg	05.19.2020 04:07	
o-Xylene	<0.00200	0.100	0.0868	87	0.0908	91	70-130	5	35	mg/kg	05.19.2020 04:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		106		106		70-130	%	05.19.2020 04:07
4-Bromofluorobenzene	94		96		98		70-130	%	05.19.2020 04:07

MS/MSD Percent Recovery [D] = 100*(C-A) / B LCS = Laboratory Control Sample MS = Matrix Spike
Relative Percent Difference RPD = 200* | (C-E) / (C+E) | A = Parent Result B = Spike Added
LCS/LCSD Recovery [D] = 100 * (C) / [B] C = MS/LCS Result D = MSD/LCSD % Rec
Log Difference Log Diff. = Log(Sample Duplicate) - Log(Original Sample) E = MSD/LCSD Result

QC Summary 661562

Larson and Associates, Inc.

HH NM SWD,Chevron

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3126361 Matrix: Soil Date Prep: 05.18.2020
Parent Sample Id: 661697-011 MS Sample Id: 661697-011 S MSD Sample Id: 661697-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0931	93	0.0841	84	70-130	10	35	mg/kg	05.18.2020 18:28	
Toluene	<0.00199	0.0996	0.0927	93	0.0891	89	70-130	4	35	mg/kg	05.18.2020 18:28	
Ethylbenzene	<0.00199	0.0996	0.0900	90	0.0894	90	70-130	1	35	mg/kg	05.18.2020 18:28	
m,p-Xylenes	<0.00398	0.199	0.166	83	0.164	82	70-130	1	35	mg/kg	05.18.2020 18:28	
o-Xylene	<0.00199	0.0996	0.0822	83	0.0802	80	70-130	2	35	mg/kg	05.18.2020 18:28	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	97		102		70-130	%	05.18.2020 18:28
4-Bromofluorobenzene	113		94		70-130	%	05.18.2020 18:28

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A
Seq Number: 3126332 Matrix: Soil Date Prep: 05.18.2020
Parent Sample Id: 661562-001 MS Sample Id: 661562-001 S MSD Sample Id: 661562-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.0235	24	0.0616	62	70-130	90	35	mg/kg	05.19.2020 04:48	XF
Toluene	<0.00200	0.0998	0.0119	12	0.0572	58	70-130	131	35	mg/kg	05.19.2020 04:48	XF
Ethylbenzene	<0.00200	0.0998	0.00542	5	0.0500	50	70-130	161	35	mg/kg	05.19.2020 04:48	XF
m,p-Xylenes	<0.00399	0.200	0.0105	5	0.0990	50	70-130	162	35	mg/kg	05.19.2020 04:48	XF
o-Xylene	<0.00200	0.0998	0.00599	6	0.0485	49	70-130	156	35	mg/kg	05.19.2020 04:48	XF

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	116		111		70-130	%	05.19.2020 04:48
4-Bromofluorobenzene	100		97		70-130	%	05.19.2020 04:48

MS/MSD Percent Recovery [D] = 100*(C-A) / B
Relative Percent Difference RPD = 200* | (C-E) / (C+E) |
LCS/LCSD Recovery [D] = 100 * (C) / [B]
Log Difference 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

№ 1153

20K562

CHAIN-OF-CUSTODY

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

DATE: 5/14/2020 PAGE 1 OF 1

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: HHNM SWD, Chevron

LAI PROJECT #: 19-0180-03 COLLECTOR: RD

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	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 ☐	8082 PCBS ☐	8151 HERBICIDES ☐	TBLP - METALS (RCRA) ☐	TCLP - PEST ☐	TCLP VOC ☐	HERB ☐	TOTAL METALS (RCRA) ☐	Semi-VOC ☐	LEAD - TOTAL ☐	OTHER LIST ☐	D.W. 200.8 ☐	RCI ☐	TOX ☐	TCLP ☐	TDS ☐	FLASHPOINT ☐	TSS ☐	pH ☐	% MOISTURE ☐	EXPLOSIVES ☐	CYANIDE ☐	HEXAVALENT CHROMIUM ☐	CHLORIDES	PECHLORATE ☐	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
SP-12(0-0.5')		5/13/20	12:10	S	1				X		X			X	X	X																								X				
SP-12(0.5-1')		5/13/20	12:11	S	1				X		X			X	X	X																								X				

TOTAL 2

RELINQUISHED BY:(Signature) Rachel Owen DATE/TIME 5-14-20/1044 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 X
1 DAY ☐
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:
RECEIVING TEMP: 3.6/3.3 THERM#: 89
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: 05.14.2020 10.44.00 AM

Work Order #: 661562

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)?	3.3	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	BTEX was in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**N/A**	
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 05.14.2020

Brianna Teel

Checklist reviewed by: Holly Taylor Date: 05.18.2020

Holly Taylor

Appendix C

Photographs

Location sign viewing north

Spill area viewing east

Spill area viewing north

Spill area viewing northeast/east