

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

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

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

Incident ID	
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party Legacy Reserves, L.P.	OGRID 240974
Contact Name Steven Dittman	Contact Telephone 432-312-4757
Contact email sdittman@legacyp.com	Incident # (assigned by OCD) 1RP-4538
Contact mailing address 303 West Wall Street, Suite 1300	

Location of Release Source

Latitude 32.356572° N Longitude -103.149062° W
(NAD 83 in decimal degrees to 5 decimal places)

Site Name LMPSU 1 CTB	Site Type Injection Line
Date Release Discovered 12/18/16	API# (if applicable)

Unit Letter	Section	Township	Range	County
O	27	22S	37E	Lea

Surface Owner: ☐ State ☐ Federal ☐ Tribal ☒ Private (Name: Legacy Reserves, L.P. & Sims Properties, LLC)

Nature and Volume of Release

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

☐ Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
☒ Produced Water	Volume Released (bbls) 730 bbls	Volume Recovered (bbls) 660 bbls
	Is the concentration of total dissolved solids (TDS) in the produced water >10,000 mg/l?	☐ Yes ☒ No
☐ Condensate	Volume Released (bbls)	Volume Recovered (bbls)
☐ Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
☐ Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

An injection line developed a leak releasing fluid to the lease road.

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Oil Conservation Division

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Was this a major release as defined by 19.15.29.7(A) NMAC? ☒ Yes ☐ No	If YES, for what reason(s) does the responsible party consider this a major release? The release was greater than 25 bbls of liquid.
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)? Legacy gave immediate verbal notification to Kristen Lynch with the OCD.	

Initial Response

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

- ☒ The source of the release has been stopped.
- ☒ The impacted area has been secured to protect human health and the environment.
- ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices.
- ☒ All free liquids and recoverable materials have been removed and managed appropriately.

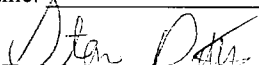
If all the actions described above have not been undertaken, explain why:

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

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

Printed Name: Steven Dittman

Title: Production Foreman

Signature: 

Date: 5/20/2019

email: sdittman@legacylp.com

Telephone: 432-312-4757

OCD Only

Received by: _____ Date: _____

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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?	_____ 44 (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.*

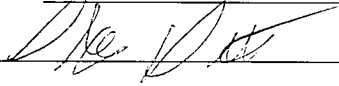
- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile 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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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: Steven DittmanTitle: Production ForemanSignature: Date: 5/20/2019email: sdittman@legacylp.comTelephone: 432-312-4757**OCD Only**

Received by: _____

Date: _____

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Remediation Plan

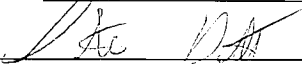
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

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

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

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

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

Printed Name: Steyen DittmanTitle: Production ForemanSignature: Date: 5/20/2019email: sdittman@legacylp.comTelephone: 432-312-4757
OCD Only

Received by: _____ Date: _____

☐ Approved

 ☐ Approved with Attached Conditions of Approval

 ☐ Denied

 ☐ Deferral Approved

Signature: _____

Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	nAB1636536488
District RP	
Facility ID	
Application ID	

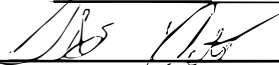
Closure

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

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

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

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

Printed Name: Steven Dittman Title: Production Foreman
 Signature:  Date: 5/20/2019
 email: sdittman@legacylp.com Telephone: 432-312-4757

OCD Only

Received by: _____ Date: _____

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

Closure Approved by:  Date: 11/23/2019

Printed Name: Bradford Billings Title: E.Spec.A

1RP-4538
CLOSURE REPORT
LMPSU 1 CTB
Produced Water Spill
Lea County, New Mexico

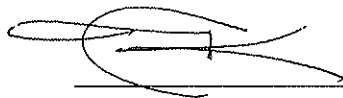
Latitude: N 32.356572°
Longitude: W -103.14906°

LAI Project No. 17-0175-39

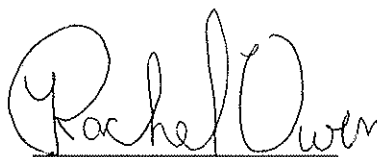
August 30, 2019

Prepared for:
Legacy Reserves Operating, LP
303 West Wall Street, Suite 1300
Midland, Texas 79701

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



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



Rachel E. Owen
Sr. Geoscientist

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Appendix B	EPI Work Plan
Appendix C	Laboratory Reports
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Appendix F	Grass Seed Receipt

1.0 INTRODUCTION

Larson & Associates Inc. (LAI) has prepared this closure report on behalf of Legacy Reserves Operating, LP (Legacy) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 for a produced water spill at the LMPSU 1 CTB (Site) located in Unit O (SE/4, SE/4), Section 27, Township 22 South, Range 37 East in Lea County, New Mexico. The geodetic position is North 32.356572° and West - 103.149062°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

1.1 Background

The release occurred on December 18, 2016, due to failure of an injection line. The failure allowed for approximately 730 barrels (bbl) of produced water to be released onto the lease road. Approximately 660 bbl were recovered. The spill area measured approximately 44, 500 square feet. The spill was reported to the OCD the day of the release (verbal communication with Kristen Lynch). The initial C-141 was submitted on December 22, 2016, and assigned remediation permit number 1RP-4538. Appendix presents the initial C-141.

On December 21, 2016, January 4, 2017 and January 5, 2017, personnel from Environment Plus, Inc. (EPI), Eunice, New Mexico, collected soil samples at seven (7) locations (SP1 through SP7). The samples were collected every 2 feet below ground surface (bgs) until refusal between approximately 2 and 22 feet bgs. The deepest sample from each location was delivered Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, and analyzed for chloride by titration method SM4500 CL-B.

Chloride tested above the delineation limit of 250 mg/Kg in the following samples:

- SP1, 4' (368 mg/Kg)
- SP2, 22' (304 mg/Kg)
- SP3, 4' (496 mg/Kg)

On March 6, 2017, EPI personnel collected soil samples at ten (10) locations (SPH1 through SPH10). The samples were collected at surface, 1 foot bgs, and 2 feet bgs. The surface sample and deepest sample from each location were delivered to Cardinal and analyzed for chloride by titration method SM4500 CL-B. Chloride tested below the delineation limit of 250 mg/Kg in all samples.

On an unknown date, EPI excavated soil from the spill area to a depth of about 2 feet bgs. Appendix B presents the EPI work plan.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,330 feet above mean sea level (msl);
- The topography slopes gently to the southeast;
- There are no surface water features within 1,000 feet of the Site;
- The soils are designated as "Ratliff-Wink fine sandy loams, 0 to 3 percent slopes", consisting of 0 to 4 inches of fine sandy loam underlain by 4 to 22 inches of clay loam;
- The geology is the Eolian and piedmont deposits (Holocene to middle Pleistocene) – interlayered eolian sands and piedmont-slope deposits;

- Groundwater occurs in the Ogallala formation at approximately 44 feet below ground surface (bgs)(2013);
- According to the New Mexico Office of the State Engineer (OSE) website the nearest groundwater well is located in Unit O (SW/4, SE/4), Section 27, Township 22 South, Range 37 East, approximately 0.04 miles west of the Site.

1.3 Remediation Levels

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

- Benzene 10 mg/Kg
- BTEX 50 mg/Kg
- TPH 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 April 6, 9, and 10, 2018, LAI personnel collected soil samples from twenty one (21) locations within the spill area (DP-1 through DP-21) using direct push technology (DPT). The samples were collected at 1 foot intervals to approximately 4 feet bgs and 2 foot intervals to approximately 12 feet bgs, depending on subsurface conditions. The soil samples were delivered under preservation and chain of custody to Xenco Laboratories (Xenco) in Midland, Texas. The upper sample from each location was analyzed for benzene, toluene, ethylbenzene and xylenes (BTEX) and total petroleum hydrocarbons (TPH) by EPA SW-846 Methods 8021B and 8015M, respectively. All samples were analyzed for chloride by EPA Method 300. Benzene and BTEX were reported below the OCD remediation levels of 10 mg/Kg and 50 mg/Kg, respectively, in Table 1 (19.15.29 NMAC). TPH was reported above the remediation level (100 mg/Kg) in samples DP-9, 0 to 1 foot bgs (381 mg/Kg) and DP-11, 0 to 1 foot bgs (195 mg/Kg). Chloride reported above the remediation limit of 600 mg/Kg in the following samples:

DP-17, 6 to 8 feet bgs (1,280 mg/Kg)	DP-18, 6 to 8 feet bgs (1,740 mg/Kg)
DP-19, 1 to 2 feet bgs (719 mg/Kg)	DP-20, 4 to 5 feet bgs (755 mg/Kg).

On May 11, 2018, LAI Personnel collected additional samples at DP-9 and DP-11 at 1 to 2 feet bgs and 2 to 3 feet bgs using DPT to complete delineation for TPH. TPH reported below the OCD remediation level in samples DP-9 and DP-11.

On June 5 and 6, 2018, Scarborough Drilling, Inc. (SDI) under supervision of LAI, collected additional soil samples with an air rotary rig at DP-3, DP-4, DP-12, DP-15, and DP-17 through DP-22. Soil samples were collected between approximately five (5) and thirty-five (35) feet bgs to achieve vertical delineation for chloride. Chloride reported below the remediation limit in all samples. Table 1 presents the delineation soil sample analytical data summary. Figure 2 presents an aerial map with soil sample locations.

3.0 REMEDIATION

Between April 4, 2019 and May 13, 2019, Etech Environmental & Safety Solutions, Inc. (Etech), under supervision of LAI personnel, used a backhoe to excavate soil from DP-3, DP-4, DP-9, DP-11, DP-12, DP-17, DP-18, DP-19 and DP-20. Etech excavated soil to the following depths and areas:

DP-3, 4 feet, 4 X 10.5 feet (42 square feet)	DP-17, 4 feet, 50 X 13 feet (651 square feet)
DP-4, 4 feet, 4 X 13 feet (52 square feet)	DP-18, 4 feet, 5 X 15 feet (75 square feet)
DP-9, 2 feet, 5 X 10 feet (50 square feet)	DP-19, 4 feet, 12.2 X 6 (73 square feet)
DP-11, 2 feet, 4.9 X 10 feet (49 square feet)	DP-20, 4 feet, 5 X 21 feet (105 square feet)
DP-12, 4 feet, 8 X 10 feet (80 square feet)	

Approximately 167 cubic yards of soil were disposed of at Lea Land, Inc., located south of US Highway 62/180 near Carlsbad, New Mexico.

On April 4, May 6, and May 13, 2019, LAI personnel collected five-point composite confirmation soil samples from the sidewalls (north, east, south, and west) and at the bottom of each excavation. The samples were delivered under preservation and chain of custody to (lab) and were analyzed for BTEX, TPH and chloride by EPA SW-846 Methods 8021B, 8015M and Method 300, respectively. All samples reported benzene, BTEX and TPH below the OCD remediation levels. Chloride in bottom samples ranged from <5.04 mg/Kg to 1,160 mg/Kg. Table 2 presents the confirmation soil analytical data summary. Figure 2 presents the excavations and confirmation sample locations.

4.0 EXCAVATION CLOSURE

On May 6 and 17, 2019, a 20 mil thickness polyethylene liner was installed in the bottom of the excavations at DP-12 and DP-17. Between May 6 and 13, 2019, Etech personnel filled the excavations on the road and well pad (DP-9, DP-11, DP-17, DP-18, DP-19, DP-20) with caliche that tested below 600 mg/Kg for chloride. The excavations in the pasture (DP-3, DP-4 and DP-12) were filled with caliche to approximately 2 feet bgs and finished with topsoil. LAI personnel seeded the excavations in the pasture to landowner requirements. Legacy requests no further action for 1RP-4538. Appendix E presents photographs. Appendix F presents the grass seed receipt.

Tables

Table 1
Delineation Soil Sample Analytical Data Summary
1RP-4538
Legacy Reserves, LMPSU 1CTB
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:				10	50				100	600
DP-1	0-1	4/9/2018	In-situ	<0.00200	<0.00200	<15.0	16.7	<15.0	16.7	<4.91
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.91
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.96
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	<4.96
	4-6	4/9/2018	In-situ	-	-	-	-	-	-	<4.97
DP-2	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<4.97
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.95
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.96
DP-3	0-1	4/9/2018	In-situ	<0.00200	<0.00200	<15.0	20.9	<15.0	20.9	31.7
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	102
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	239
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	329
	4-5	4/9/2018	In-situ	-	-	-	-	-	-	213
	10	6/6/2018	In-situ	-	-	-	-	-	-	721
	15	6/6/2018	In-situ	-	-	-	-	-	-	120
	20	6/6/2018	In-situ	-	-	-	-	-	-	522
	25	6/6/2018	In-situ	-	-	-	-	-	-	419
	30	6/6/2018	In-situ	-	-	-	-	-	-	935
	35	6/6/2018	In-situ	-	-	-	-	-	-	269
DP-4	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	24.7
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	465
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	486
	5	6/6/2018	In-situ	-	-	-	-	-	-	8.74
	10	6/6/2018	In-situ	-	-	-	-	-	-	131
	15	6/6/2018	In-situ	-	-	-	-	-	-	367
	20	6/6/2018	In-situ	-	-	-	-	-	-	242
	25	6/6/2018	In-situ	-	-	-	-	-	-	515
	30	6/6/2018	In-situ	-	-	-	-	-	-	1830
	35	6/6/2018	In-situ	-	-	-	-	-	-	517
DP-5	0-1	4/9/2018	In-situ	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<4.90
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.91
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	20.5
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	<5.00
	4-5	4/9/2018	In-situ	-	-	-	-	-	-	<4.98
DP-6	0-1	4/9/2018	In-situ	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<5.00
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	30.7
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	88.2
DP-7	0-1	4/9/2018	In-situ	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<4.95
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.98
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.90
DP-8	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	53	<15.0	53	<4.98
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	5.68
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<5.00
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	<4.95
DP-9	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	317	64.4	381	44.3
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	15.7
	1-2	5/11/2018	In-situ	-	-	<15.0	<15.0	<15.0	<15.0	-
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.94
	2-3	5/11/2018	In-situ	-	-	<15.0	<15.0	<15.0	<15.0	-

Table 1
Delineation Soil Sample Analytical Data Summary
1RP-4538
Legacy Reserves, LMPSU 1CTB
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:				10	50				100	600
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	<4.94
	4-6	4/9/2018	In-situ	-	-	-	-	-	-	<4.97
DP-10	0-1	4/9/2018	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<4.97
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	22.2
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.96
DP-11	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	160	35.3	195	<5.00
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.99
	1-2	5/11/2018	In-situ	-	-	<15.0	<15.0	<15.0	<15.0	-
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<5.00
	2-3	5/11/2018	In-situ	-	-	<15.0	<15.0	<15.0	<15.0	-
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	<4.99
	4-5	4/9/2018	In-situ	-	-	-	-	-	-	<5.00
DP-12	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	76.6	16.5	93.1	176
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	431
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	85.8
	5	6/6/2018	In-situ	-	-	-	-	-	-	579
	10	6/6/2018	In-situ	-	-	-	-	-	-	921
	15	6/6/2018	In-situ	-	-	-	-	-	-	1650
	20	6/6/2018	In-situ	-	-	-	-	-	-	1550
	25	6/6/2018	In-situ	-	-	-	-	-	-	1630
	30	6/6/2018	In-situ	-	-	-	-	-	-	743
	35	6/6/2018	In-situ	-	-	-	-	-	-	156
DP-13	0-1	4/9/2018	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<5.00
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<5.00
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.99
DP-14	0-1	4/9/2018	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<4.99
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.90
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.90
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	223
	4-5	4/9/2018	In-situ	-	-	-	-	-	-	19.5
DP-15	0-1	4/9/2018	In-situ	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<5.00
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.99
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	10.9
	3-4	4/9/2018	In-situ	-	-	-	-	-	-	128
	4-6	4/9/2018	In-situ	-	-	-	-	-	-	60.8
	6-8	4/9/2018	In-situ	-	-	-	-	-	-	554
	10	6/5/2018	In-situ	-	-	-	-	-	-	82.1
	15	6/5/2018	In-situ	-	-	-	-	-	-	84.8
	20	6/5/2018	In-situ	-	-	-	-	-	-	461
DP-16	0-1	4/9/2018	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<4.97
	1-2	4/9/2018	In-situ	-	-	-	-	-	-	<4.99
	2-3	4/9/2018	In-situ	-	-	-	-	-	-	<4.94
DP-17	0-1	4/10/2018	In-situ	<0.00200	<0.00200	<15.0	18.9	<15.0	18.9	33.3
	1-2	4/10/2018	In-situ	-	-	-	-	-	-	584
	2-3	4/10/2018	In-situ	-	-	-	-	-	-	1080
	3-4	4/10/2018	In-situ	-	-	-	-	-	-	289
	4-6	4/10/2018	In-situ	-	-	-	-	-	-	833
	6-8	4/10/2018	In-situ	-	-	-	-	-	-	1280
	10	6/6/2018	In-situ	-	-	-	-	-	-	1950

Table 1
Delineation Soil Sample Analytical Data Summary
1RP-4538
Legacy Reserves, LMPSU 1CTB
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:				10	50				100	600
	15	6/6/2018	In-situ	-	-	-	-	-	-	418
	20	6/6/2018	In-situ	-	-	-	-	-	-	847
	25	6/6/2018	In-situ	-	-	-	-	-	-	416
	30	6/6/2018	In-situ	-	-	-	-	-	-	423
	35	6/6/2018	In-situ	-	-	-	-	-	-	339
DP-18	0-1	4/10/2018	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	29.1
	1-2	4/10/2018	In-situ	-	-	-	-	-	-	256
	2-3	4/10/2018	In-situ	-	-	-	-	-	-	573
	3-4	4/10/2018	In-situ	-	-	-	-	-	-	746
	4-6	4/10/2018	In-situ	-	-	-	-	-	-	1120
	6-8	4/10/2018	In-situ	-	-	-	-	-	-	1740
	10	6/5/2018	In-situ	-	-	-	-	-	-	30.5
	15	6/5/2018	In-situ	-	-	-	-	-	-	166
	20	6/5/2018	In-situ	-	-	-	-	-	-	683
	25	6/5/2018	In-situ	-	-	-	-	-	-	261
	30	6/5/2018	In-situ	-	-	-	-	-	-	29.8
	35	6/5/2018	In-situ	-	-	-	-	-	-	34.9
DP-19	0-1	4/10/2018	In-situ	<0.00202	<0.00202	<15.0	64.1	<15.0	64.1	96.2
	1-2	4/10/2018	In-situ	-	-	-	-	-	-	719
	5	6/5/2018	In-situ	-	-	-	-	-	-	5.99
	10	6/5/2018	In-situ	-	-	-	-	-	-	775
	15	6/5/2018	In-situ	-	-	-	-	-	-	382
	20	6/5/2018	In-situ	-	-	-	-	-	-	29.8
	25	6/5/2018	In-situ	-	-	-	-	-	-	270
	30	6/5/2018	In-situ	-	-	-	-	-	-	217
	35	6/5/2018	In-situ	-	-	-	-	-	-	123
DP-20	1-2	4/10/2018	In-situ	-	-	-	-	-	-	368
	2-3	4/10/2018	In-situ	-	-	-	-	-	-	253
	3-4	4/10/2018	In-situ	-	-	-	-	-	-	282
	4-5	4/10/2018	In-situ	-	-	-	-	-	-	755
	10	6/5/2018	In-situ	-	-	-	-	-	-	343
	15	6/5/2018	In-situ	-	-	-	-	-	-	200
	20	6/5/2018	In-situ	-	-	-	-	-	-	87.9
	25	6/5/2018	In-situ	-	-	-	-	-	-	34.5
	30	6/5/2018	In-situ	-	-	-	-	-	-	26.1
DP-21	0-1	4/10/2018	In-situ	<0.00199	<0.00199	<14.9	<14.9	<14.9	<14.9	<4.92
	1-2	4/10/2018	In-situ	-	-	-	-	-	-	<4.90
	2-3	4/10/2018	In-situ	-	-	-	-	-	-	31.4
	3-4	4/10/2018	In-situ	-	-	-	-	-	-	366
	4-5	6/6/2018	In-situ	-	-	-	-	-	-	420
	5	6/6/2018	In-situ	-	-	-	-	-	-	239
	10	6/6/2018	In-situ	-	-	-	-	-	-	48.4
	15	6/6/2018	In-situ	-	-	-	-	-	-	37.1

Table 1
Delineation Soil Sample Analytical Data Summary
1RP-4538
Legacy Reserves, LMPSU 1CTB
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:				10	50				100	600
	20	6/6/2018	In-situ	-	-	-	-	-	-	56.3
DP-22	0	6/5/2018	In-situ	-	-	-	-	-	-	7.17
	5	6/5/2018	In-situ	-	-	-	-	-	-	439
	10	6/5/2018	In-situ	-	-	-	-	-	-	165
	15	6/5/2018	In-situ	-	-	-	-	-	-	15.8
	20	6/5/2018	In-situ	-	-	-	-	-	-	16.7
	25	6/5/2018	In-situ	-	-	-	-	-	-	5.18

Notes: Laboratory analysis performed by Xenco Laboratories, Lubbock, Texas by EPA 8021B (BTEX)

Method 8015M (TPH) and 300 (chloride)

Depth in feet below ground surface (bgs)

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

*: OCD delineation level

Bold and highlited denote concentration above remediation limit

Table 2
Confirmation Soil Sample Analytical Data Summary
1RP-4538
Legacy Reserves, LMPSU 1CTB
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:				10	50				100	600
DP-3.1 Sidewall North	2	4/5/2019	In-situ	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	27
DP-3.2 Sidewall East	2	4/5/2019	In-situ	<0.00199	0.0787	<14.9	<14.9	<14.9	<14.9	198.0
DP-3.3 Sidewall South	2	4/5/2019	In-situ	<0.00199	0.0445	<14.9	<14.9	<14.9	<14.9	19.5
DP-3.4 Sidewall West	2	4/5/2019	In-situ	<0.00200	0.00876	<15.0	<15.0	<15.0	<15.0	20.1
DP-3.5 Bottom	4	4/5/2019	In-situ	<0.00200	0.00639	<15.0	<15.0	<15.0	<15.0	82.5
DP-4.1 Sidewall North	2	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<4.96
DP-4.2 Sidewall East	2	4/5/2019	In-situ	<0.00201	0.132	<15.0	<15.0	<15.0	<15.0	23.9
DP-4.3 Sidewall South	2	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	5.42
DP-4.4 Sidewall West	2	4/5/2019	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	19.2
DP-4.5 Bottom	4	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	28.2
DP-9.1 Sidewall North	1	4/5/2019	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	14.2
DP-9.2 Sidewall East	1	4/5/2019	In-situ	<0.00198	<0.00198	<14.9	<14.9	<14.9	<14.9	5.73
DP-9.3 Sidewall South	1	4/5/2019	In-situ	<0.00202	<0.00202	<14.9	23.6	<14.9	23.6	<5.03
DP-9.4 Sidewall West	1	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	46.1	23	69.1	7.07
DP-9.5 Bottom	2	4/5/2019	In-situ	<0.00200	0.466	<15.0	22.3	<15.0	22.3	5.65
DP-11.1 Sidewall North	1	4/5/2019	In-situ	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	161
DP-11.2 Sidewall East	1	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<5.02
DP-11.3 Sidewall South	1	4/5/2019	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<5.00
DP-11.4 Sidewall West	1	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	30.9	17.8	48.7	279
DP-11.5 Bottom	2	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	28.0
DP-12.1 Sidewall North	2	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	11.1
DP-12.2 Sidewall East	2	4/5/2019	In-situ	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	290
DP-12.3 Sidewall South	2	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	69.1
DP-12.4 Sidewall West	2	4/5/2019	In-situ	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	13
DP-12.5 Bottom	4	4/5/2019	In-situ	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	978
DP-17.1 Sidewall North	2	4/5/2019	Excavated	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	780
	2	5/9/2019	In-Situ	--	--	--	--	--	--	320
DP-17.2 Sidewall East	2	4/5/2019	Excavated	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	1,180
	2	5/9/2019	In-Situ	--	--	--	--	--	--	590
DP-17.3 Sidewall South	2	4/5/2019	Excavated	<0.00201	<0.00201	<15.0	208	95.9	304	343
	2	4/5/2019	In-Situ	--	--	<26.0	<26.0	<26.0	<26.0	--
DP-17.4 Sidewall West	2	4/5/2019	Excavated	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	844
	2	5/9/2019	In-Situ	--	--	--	--	--	--	84.5
DP-17.5 Bottom	4	4/5/2019	In-Situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	959
	4	5/9/2019	In-Situ	<0.00105	<0.00631	<26.3	<26.3	<26.3	<26.3	682
	4	5/13/2019	In-situ	--	--	--	--	--	--	1,160
	4	5/13/2019	In-situ	--	--	--	--	--	--	917
DP-18.1 Sidewall North	2	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	275
DP-18.2 Sidewall East	2	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	419
DP-18.3 Sidewall South	2	4/5/2019	In-situ	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	460
DP-18.4 Sidewall West	2	4/5/2019	In-situ	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	205

Table 2
Confirmation Soil Sample Analytical Data Summary
1RP-4538
Legacy Reserves, LMPSU 1CTB
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	C6 - C35 (mg/Kg)	Chloride (mg/Kg)
Remediation Limit:				10	50				100	600
DP-18.5 Bottom	4	4/5/2019	In-situ	0.00204	0.00664	<15.0	<15.0	<15.0	<15.0	409
DP-19.1 Sidewall North	2	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	82.2
DP-19.2 Sidewall East	2	4/5/2019	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	113
DP-19.3 Sidewall South	2	4/5/2019	In-situ	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	437
DP-19.4 Sidewall West	2	4/5/2019	In-situ	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	241
DP-19.5 Bottom	4	4/5/2019	In-situ	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	542
DP-20.1 Sidewall North	2	4/5/2019	In-situ	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	5
DP-20.2 Sidewall East	2	4/5/2019	In-situ	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	61.2
DP-20.3 Sidewall South	2	4/5/2019	In-situ	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	162
DP-20.4 Sidewall West	2	4/5/2019	In-situ	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<5.04
DP-20.5 Bottom	4	4/5/2019	In-situ	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	23.4

Notes: Laboratory analysis performed by Xenco Laboratories, Lubbock, Texas by EPA 8021B (BTEX)

Method 8015M (TPH) and 300 (chloride)

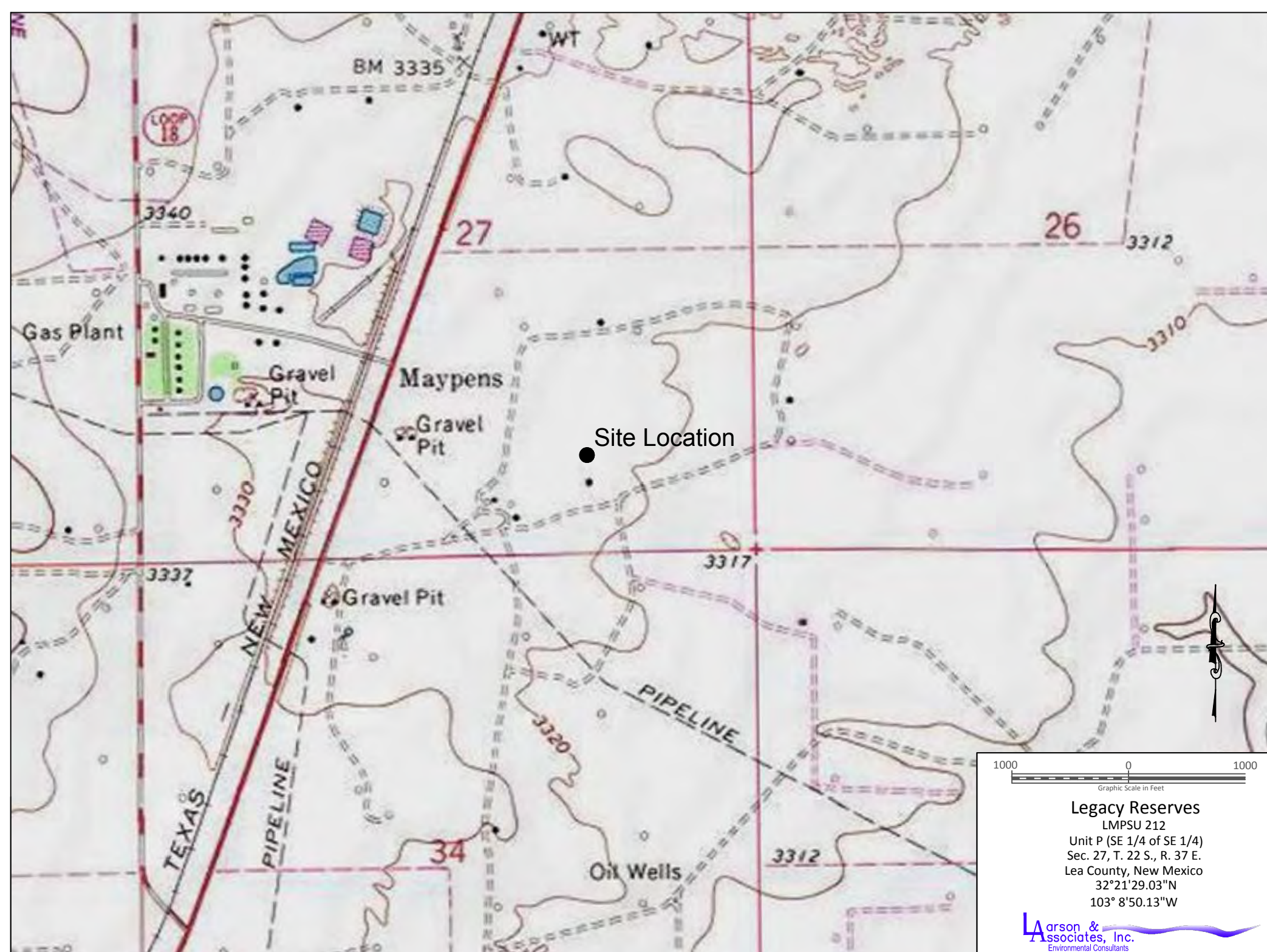
Depth in feet below ground surface (bgs)

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

*: OCD delineation level

Bold and highlited denote concentration above remediation limit

Figures



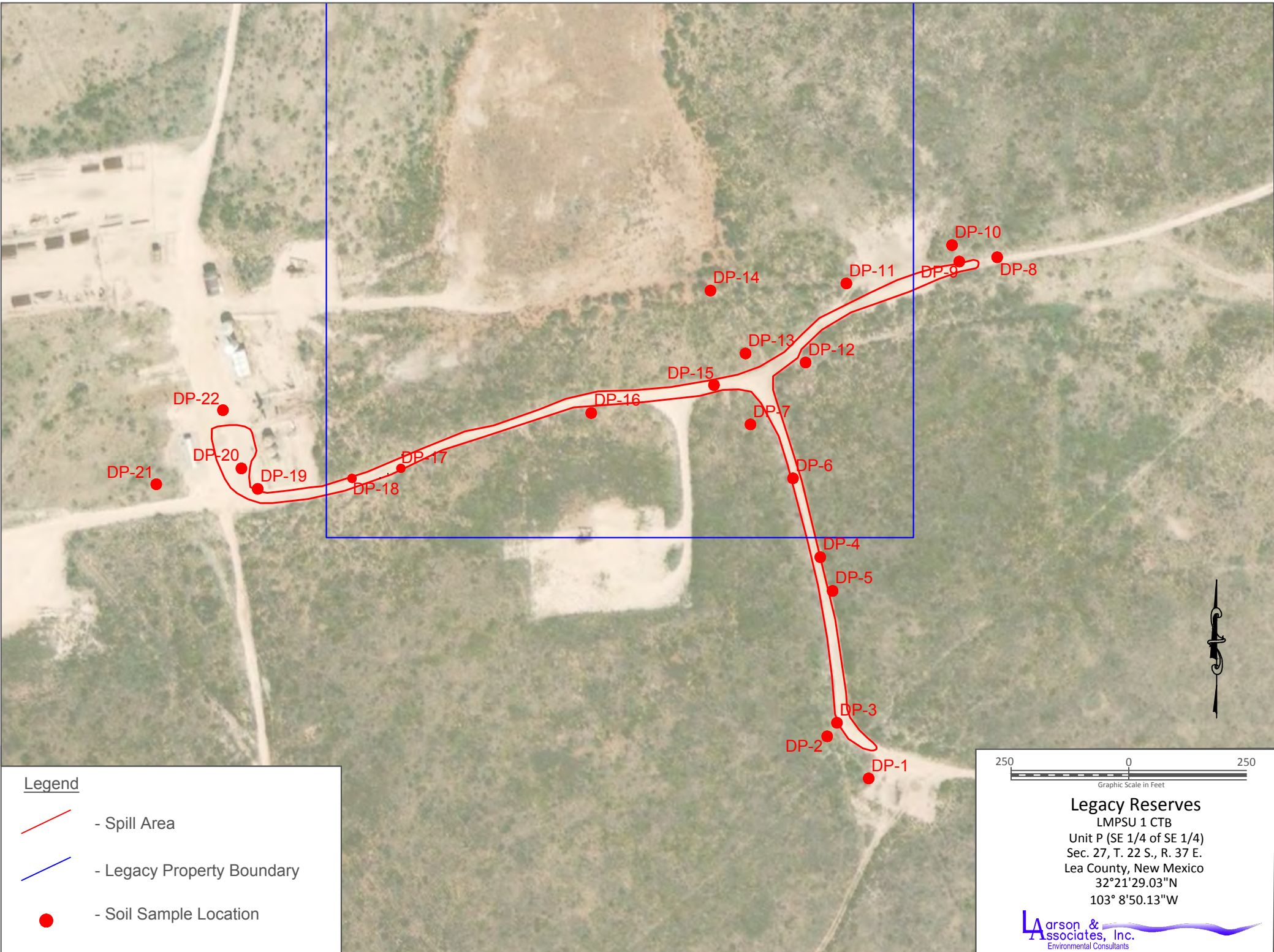


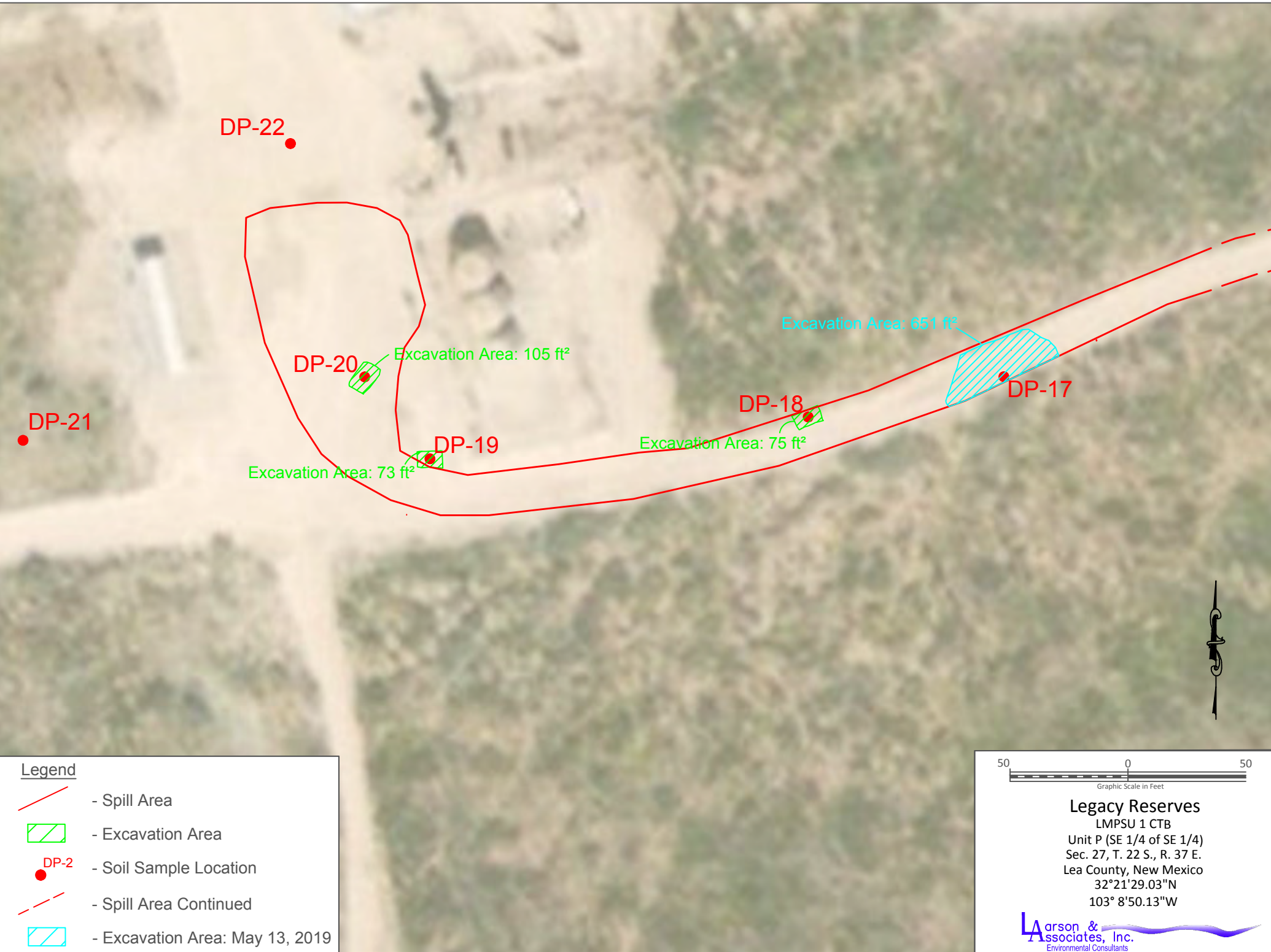
Figure 2 - Aerial Map Showing Soil Sample Locations and Property Boundary



Figure 3a- Zoomed Aerial Map Showing Soil Sample Locations and Excavation Areas



Figure 3b- Zoomed Aerial Map Showing Soil Sample Locations and Excavation Areas



Legend

- Spill Area
- Excavation Area
- DP-2 - Soil Sample Location
- Spill Area Continued
- Excavation Area: May 13, 2019



Legacy Reserves
LMPSU 1 CTB
Unit P (SE 1/4 of SE 1/4)
Sec. 27, T. 22 S., R. 37 E.
Lea County, New Mexico
32°21'29.03"N
103° 8'50.13"W



Figure 3c - Zoomed Aerial Map Showing Soil Sample Locations and Excavation Areas

Appendix A

Initial C-141

NM OIL CONSERVATION

ARTESIA DISTRICT

DEC 27 2016

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

State of New Mexico
Energy Minerals and Natural Resources

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

RECEIVED

Submit 1 Copy to appropriate District Office in accordance with 19.15.29 NMAC.

Form C-141
Revised August 8, 2011

Release Notification and Corrective Action

Name of Company: Legacy, L.P.		Contact: Ernest Barrientez	
Address: P.O. Box 10848 Midland, TX 79702		Telephone No. 432-853-0633	
Facility Name: LMPSU 1 CTB		Facility Type: Injection Line	
Surface Owner: Legacy		Mineral Owner:	API No.

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
O	27	22S	37E					Lea

Latitude: N 32.356572° Longitude: W 103.149062°

NATURE OF RELEASE

Type of Release: produced water	Volume of Release: 730 barrels	Volume Recovered: 660 barrels
Source of Release: injection line failed	Date and Hour of Occurrence: 12/18/16 @ unknown	Date and Hour of Discovery: 12/18/16 @ unknown 9:15 Am
Was Immediate Notice Given? ☒ Yes ☐ No ☐ Not Required	If YES, To Whom? Kristen Lynch, Tomas Oberding, OCD	
By Whom? Legacy	Date and Hour: 12/18/16	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse: Not Applicable	

If a Watercourse was Impacted, Describe Fully.* Not Applicable

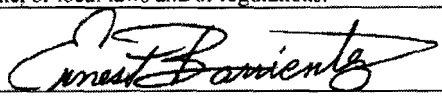
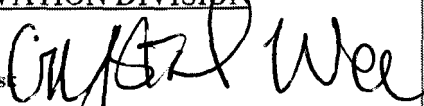
Describe Cause of Problem and Remedial Action Taken.*

An injection line developed a leak releasing fluid to lease road. A vacuum truck was dispatched to collect standing fluid.

Describe Area Affected and Cleanup Action Taken.*

Vacuum trucks were called to the location and was able to recover 660 barrels of the fluid from lease road and pasture. Surface contamination will be scraped up and samples will be collected from release area.

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

Signature: 	OIL CONSERVATION DIVISION	
Printed Name: Ernest Barrientez	Approved by Environmental Specialist: 	
Title: Production Foreman	Approval Date: 12/30/16	Expiration Date: N/A
E-mail Address: ebarrientez@legacyp.com	Conditions of Approval:	
Date: Dec. 22, 2016 Phone: 432-853-0633	delineation is needed before site ranking can be assessed	Attached ☒ COA's attached IRP-4538

* Attach Additional Sheets If Necessary

Operator/Responsible Party,

The OCD has received the form C-141 you provided on **12/27/16** regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number IRP-4538 has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District II office in Artesia on or before 2/3/17. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

- Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

- Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C₆ thru C₃₆), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

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

- Composite sampling is not generally allowed.

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

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

- Probable depth to shallowest protectable groundwater and lateral distance to nearest surface water. If there is an estimate of groundwater depth, the information used to arrive at that estimate must be provided. If there is a reasonable assumption that the depth to protectable water is 50 feet or less, the responsible party should anticipate the need for at least one groundwater monitoring well to be installed in the area of likely maximum contamination.

- If groundwater contamination is encountered, an additional investigation workplan may be required to determine the extents of that contamination. Groundwater and/or surface water samples, if any, must be analyzed by a competent laboratory for volatile organic hydrocarbons (typically Method 8260 full list), total dissolved solids, pH, major anions and cations including chloride and sulfate, dissolved iron, and dissolved manganese. The investigation workplan must provide the groundwater sampling method(s) and sample handling protocols. To the fullest extent possible, aqueous analyses must be undertaken using nominal method detection limits. As with the soil analyses, copies of the actual laboratory results must be provided including chain of custody documentation.

- Accurately scaled and well-drafted site maps must be provided providing the location of borings, test pits, monitoring wells, potentially impacted areas, and significant surface features including roads and site infrastructure that might limit either the release characterization or remedial efforts. Field sketches may be included in subsequent reporting, but should not be considered stand-alone documentation of the site's layout. Digital photographic documentation of the location and fieldwork is recommended, especially if unusual circumstances are encountered.

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

Jim Griswold

OCD Environmental Bureau Chief

1220 South St. Francis Drive

Santa Fe, New Mexico 87505

505-476-3465

jim.griswold@state.nm.us

Weaver, Crystal, EMNRD

From: Lynch, Kristen, EMNRD
Sent: Tuesday, December 27, 2016 1:20 PM
To: Weaver, Crystal, EMNRD; Bratcher, Mike, EMNRD; Billings, Bradford, EMNRD
Subject: Fw: LMPSU 1 CTB Initial C-141
Attachments: LMPSU 1 CTB Initial C-141.pdf

From: Daniel Dominguez <ddominguezepi@gmail.com>
Sent: Tuesday, December 27, 2016 9:50 AM
To: Lynch, Kristen, EMNRD; ebarrientez@legacylp.com; bboone.epi@gmail.com
Subject: LMPSU 1 CTB Initial C-141

Ms. Lynch,

Attached for your review is the Initial C-141 for the LMPSU 1 CTB, operated by Legacy.

--

Sincerely,
ENVIRONMENTAL PLUS, INC.

Daniel Dominguez
Environmental Consultant/Safety Director

Environmental Plus, Inc.
P.O. Box 1558
2100 Avenue 'O'
Eunice, NM 88231
(575) 631-0401 (Cell)
(575) 394-3481 (Office)
(575) 394-2601 (fax)

Appendix B

EPI Work Plan



ENVIRONMENTAL PLUS, INC.

21 December 2016

Ms. Kristen Lynch
Environmental Specialist
NMOCD
1625 N. French Drive
Hobbs, New Mexico 88240

**Re: Initial C-141
Legacy, L.P.
LMPSU 1 CTB
UL-O, Section 27, Township 22 South, Range 37 East
Lea County, New Mexico**

Ms. Lynch:

Environmental Plus, Inc. (EPI), on behalf of Mr. Ernest Barrientez, Legacy, L.P. (Legacy), submits the attached form C-141 for the above-referenced leak site, located on land owned by Legacy.

The site is located approximately five (5) miles south-east of Eunice, New Mexico (reference *Figure 1*). A search for water wells was completed utilizing the New Mexico Office of the State Engineer's website and a United States Geological Survey (USGS) database. There are eleven (11) wells located in the area surrounding the release site (reference *Table 1*). Also, no wells (domestic, agriculture or public) and no bodies of surface water exist within a 1,000-foot radius of the release site (reference *Figure 2*). Groundwater data indicated the average water depth is approximately 60 feet below ground surface (bgs). The attached site information and metrics form ranks the site in accordance with the NMOCD Guidelines for Remediation of Leaks, Spills and Releases (August 13, 1993).

Approximately 730 bbls of produced water were released when an injection line failed; approximately 660 bbls were recovered (reference *Figure 3* and attached photographs). Based on available information, it was projected distance between impacted soil and groundwater is approximately 60 vertical feet. Utilizing this information, NMOCD Recommended Remedial Action Levels (RRALs) for this Site were determined as follows:

Parameter	Recommended Remedial Action Level
Benzene	10 parts per million
BTEX	50 parts per million
TPH	1,000 parts per million
Chloride	500 parts per million

ENVIRONMENTAL PLUS, INC.

Should you have any questions or concerns please feel free to contact me at (575) 394-3481 or via e-mail at ddominguezepi@gmail.com or Mr. Ernest Barrientez at (432) 853-06331 or via e-mail at ebarrientez@legacylp.com. All official communication should be addressed to:

Mr. Ernest Barrientez
Legacy, L.P.
P.O. Box 10848
Midland, Texas 79702

Sincerely,

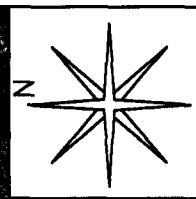
ENVIRONMENTAL PLUS, INC.

Daniel Dominguez
Environmental Consultant

cc: Ernest Barrientez – Production Foreman, Legacy, L.P.
File

FIGURES



Figure 1 Area Map Legacy, L.P. LMPSU 1 CTB	Lea County, New Mexico SW 1/4 of SE 1/4, Sec. 27, T22S, R37E N 32° 21' 23.67" W 103° 08' 56.61" Elevation: 3,330 feet amsl
DWG By: D Dominguez December 2016	REVISED:
0 3 6 Miles	SHEET 1 of 1
	

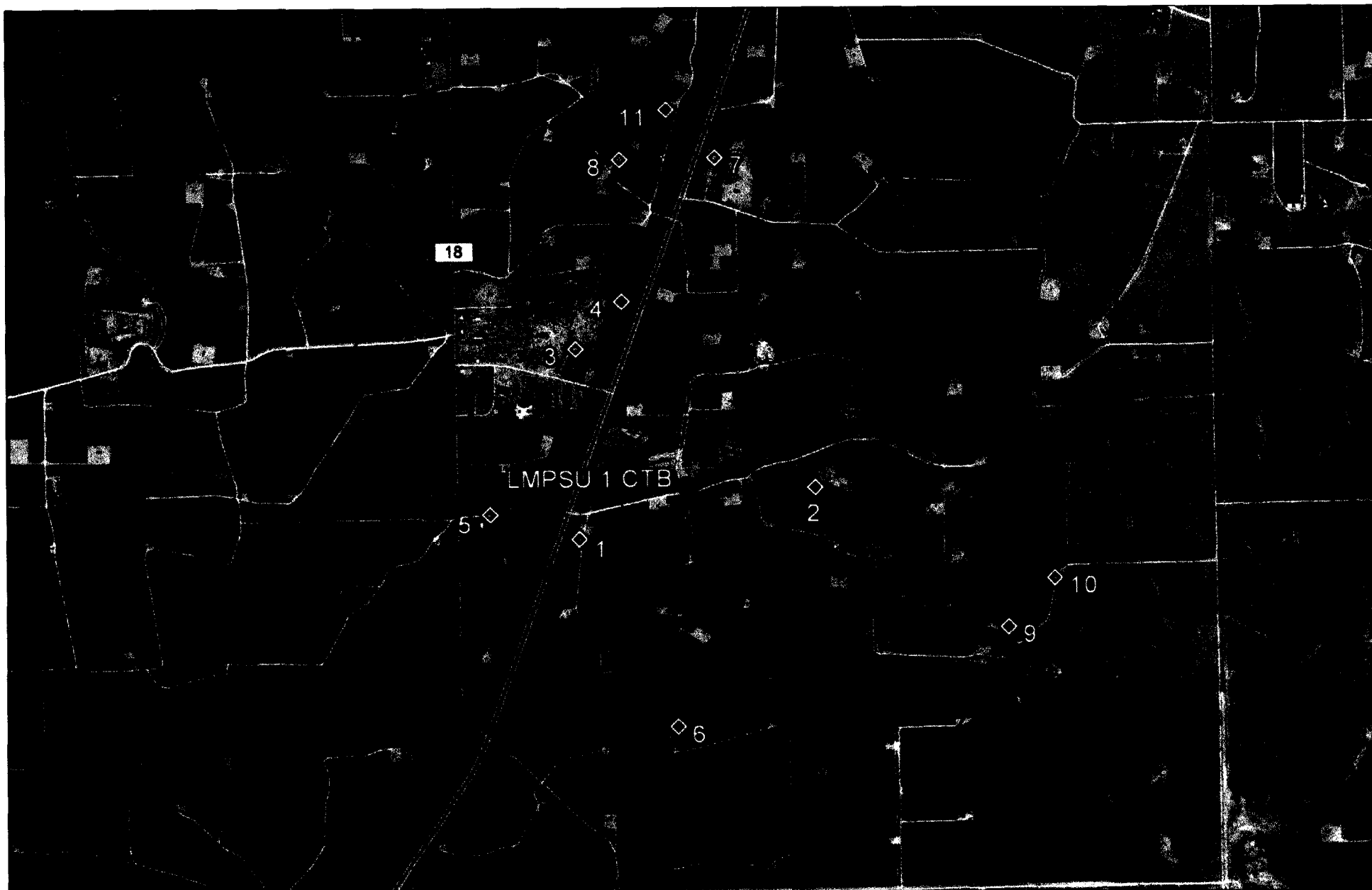
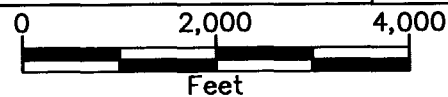


Figure 2
Site Location Map
Legacy, L.P.
LMPSU 1 CTB

Lea County, New Mexico
SW 1/4 of SE 1/4, Sec. 27, T22S, R37E
N 32° 21' 23.67" W 103° 08' 56.61"
Elevation: 3,330 feet amsl

DWG By: D Dominguez
December 2016

REVISED:



SHEET
1 of 1

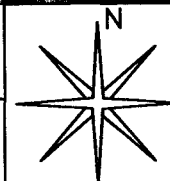


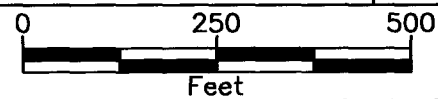


Figure 3
Site Map
Legacy, L.P.
LMPSU 1 CTB

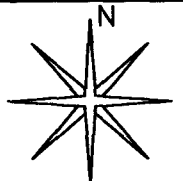
Lea County, New Mexico
SW 1/4 of SE 1/4, Sec. 27, T22S, R37E
N 32° 21' 23.67" W 103° 08' 56.61"
Elevation: 3,330 feet amsl

DWG By: D Dominguez
December 2016

REVISED:



SHEET
1 of 1



TABLES

TABLE 1

Well Data

Legacy, L.P. - LMPSU 1 CTB

Ref #	Well Number	Use	Diversion ^A	Owner	q64	q16	q4	Sec	Twsp	Rng	Easting	Northing	Distance ^B	Date Measured	Surface Elevation ^C	Depth to Water (ft bgs)
1	CP 00142	PLS	15	R.D. SIMS	1	2	1	34	22S	37E	673704	3581247	509	31-Dec-38	3,333	--
2	CP 00141	PDM	3	R.D. SIMS	4	4	4	27	22S	37E	674701	3581464	536	31-Dec-09	3,322	--
3	CP 00243	IND	32	VERSADO GAS PROCESSORS LLC	1	2	3	27	22S	37E	673690	3582051	752	17-Jan-02	3,335	54
4	CP 00009	IND	32	SKELLY OIL COMPANY	4	4	1	27	22S	37E	673883	3582253	835	17-Jan-02	3,340	52
5	CP 01157	DOM	1	BETHANY SKILES	1	1	1	34	22S	37E	673324	3581348	847	02-Apr-13	3,339	--
6	CP 00143	PLS	1	R.D. SIMS	1	1	4	34	22S	37E	674121	3580450	1,017	31-Dec-36	3,329	--
7	CP 00445	PRO	6.5	HAROLD E. JOHNSON	2	1	2	27	22S	37E	674277	3582863	1,401	--	3,340	--
8	CP 00384	PLS	5	WILLIAM E. JOHNSTON	2	2	1	27	22S	37E	673875	3582855	1,418	--	3,348	--
9	CP 00144	IRR	18	R.D. SIMS	2	4	1	35	22S	37E	675520	3580874	1,479	31-Dec-22	3,313	57
10	CP 00146	COM	5	R.D. SIMS	3	1	2	35	22S	37E	675715	3581083	1,597	31-Dec-48	3,318	67
11	CP 00382	PDL	5	WILLIAM E. JOHNSTON	3	3	4	22	22S	37E	674070	3583065	1,601	--	3,345	--

* = Data obtained from the New Mexico Office of the State Engineer Website (http://iwaters.ose.state.nm.us:7001/iWATERS/wr_RegisServlet1)

^A = In acre feet per annum

^B = In meters

^C = Elevation interpolated from USGS topographical map based on referenced location.

-- = Data not provided

PLS = Non 72-12-1 Livestock watering

PDM = Non 72-12-1 Domestic

IND = Industrial

DOM = 72-12-1 Domestic one household

IRR = Irrigation

COM = Commercial

PDL = Non 72-12-1 Domestic one household PDL = Non 72-12-1 Domestic & livestock

quarters are 1=NW, 2=NE, 3=SW, 4=SE; quarters are smallest to biggest

Shaded area indicates wells not shown in Figure 2

ATTACHMENTS

ATTACHMENT I
PHOTOGRAPHS



Photograph #1- Point of release



Photograph #2- Looking across release area.



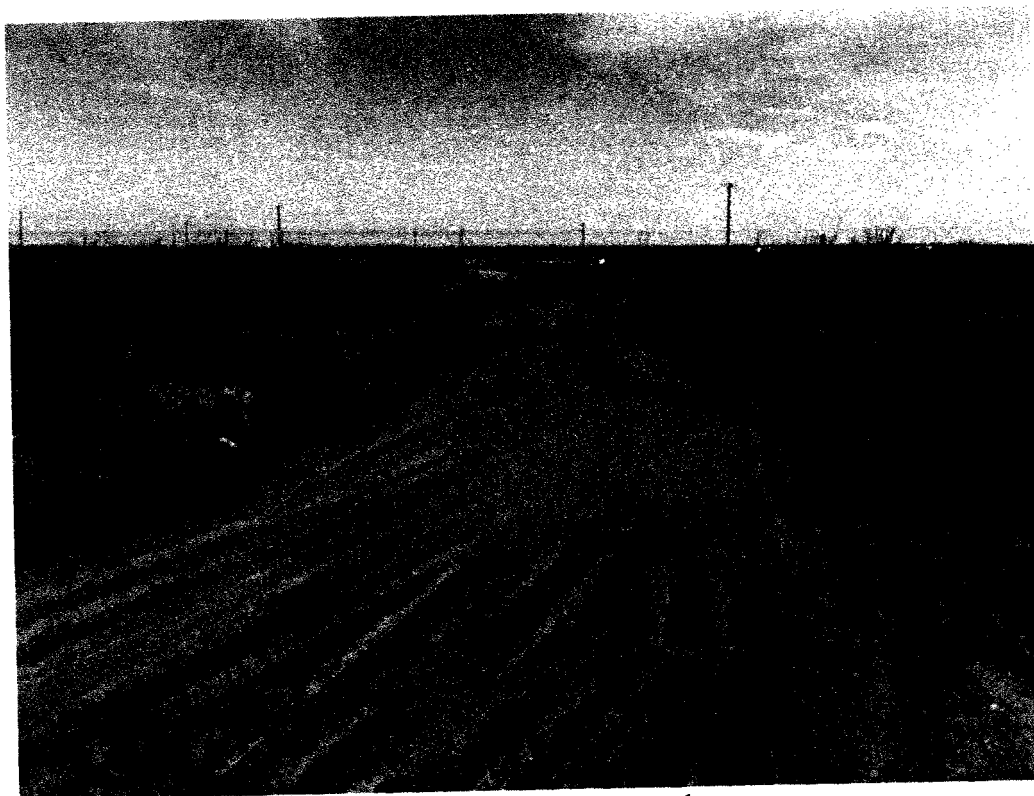
Photograph #3- Looking across release area.



Photograph #4- Looking across release area.



Photograph #5- Looking across release area.



Photograph #6- Looking across release area.



Photograph #7- Looking across release area.



Photograph #8- Looking across release area.

**ATTACHMENT II
INFORMATION AND METRICS
INITIAL C-141**



Site Information and Ranking

Site: LMPSU 1 CTB		API:	
Company: Legacy, L.P.			
Street Address:			
Mailing Address: P.O. Box 10848			
City, State, Zip: Midland, Texas 79702			
Representative: Ernest Barrientez		Telephone: 432-853-0633	
>25 bbls: Notify NMOCD verbally within 24 hrs and submit form C-141 within 15 days. (Also applies to unauthorized releases >500 mcf Natural Gas)			
5-25 bbls: Submit form C-141 within 15 days (Also applies to unauthorized releases of 50-500 mcf Natural Gas)			
Volume Released (bbls): 730		Volume Recovered (bbls): 660	
Occurrence Date and Time: 12-18-16			
Discovered Date and Time: 12-18-16			
NMOCD Rep Notified, Date and Time: Kristen Lynch, OCD on 12-18-16			
Who Notified NMOCD: Legacy			
NMOCD RP#:			
Leak, Spill, or Pit (LSP) Name: LMPSU 1 CTB			
Source of contamination: Injection Line		Type of Release: Produced Water	
Cause and Action Taken: Injection line failed, Vac truck called to clean up liquid			
Land Owner (BLM, ST, Fee, Other): Fee			
LSP Dimensions:			
LSP Area: ~ 61,000 square feet			
Latitude: N 32 21 23.67		Easting: 674164.28	
Longitude: W 103 8 56.61		Northing: 3581466.38	
Elevation: 3,330			
Feet from Section Lines:			
Location ¼ of ¼: SW/SE			
Unit Letter: O	Section: 27	Township: 22S	Range: 37E
County: Lea		State: NM	
Surface water or wells within 1000' radius of site: none			
Depth from land surface to ground water (DG): ~60'			
Depth of contamination (DC): unknown			
Depth to ground water (DG – DC = DtGW): ~60'			
1. Ground Water		2. Wellhead Protection Area	
If Depth to GW <50 feet: 20 points		If <1000' from water source, or; <200' from private domestic water source: 20 points	
If Depth to GW 50 to 99 feet: 10 points			
If Depth to GW >100 feet: 0 points		If >1000' from water source, or; >200' from private domestic water source: 0 points	
3. Distance to Surface Water Body			
		<200 horizontal feet: 20 points	
		200-100 horizontal feet: 10 points	
		>1000 horizontal feet: 0 points	
Site Rank (1+2+3) = 0+0+0=0			
Total Site Ranking Score and Acceptable Concentrations			
Contaminant	>10	10	0
Benzene	10 ppm	10 ppm	10 ppm
BTEX	50 ppm	50 ppm	50 ppm
TPH	100 ppm	1,000 ppm	5,000 ppm
Chloride	250 ppm	500 ppm	1,000 ppm

Appendix C

Laboratory Reports



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-001	581958-002	581958-003	581958-004	581958-005	581958-006
	<i>Field Id:</i>	DP-8 (0-1)	DP-8 (1-2)	DP-8 (2-3)	DP-8 (3-4)	DP-9 (0-1)	DP-9 (1-2)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-09-18 09:59	Apr-09-18 10:00	Apr-09-18 10:04	Apr-09-18 10:06	Apr-09-18 10:09	Apr-09-18 10:11
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-18 12:30				Apr-11-18 12:30	
	<i>Analyzed:</i>	Apr-11-18 16:05				Apr-11-18 16:24	
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	
Benzene		<0.00199 0.00199				<0.00199 0.00199	
Toluene		<0.00199 0.00199				<0.00199 0.00199	
Ethylbenzene		<0.00199 0.00199				<0.00199 0.00199	
m,p-Xylenes		<0.00398 0.00398				<0.00398 0.00398	
o-Xylene		<0.00199 0.00199				<0.00199 0.00199	
Total Xylenes		<0.00199 0.00199				<0.00199 0.00199	
Total BTEX		<0.00199 0.00199				<0.00199 0.00199	
Chloride by EPA 300	<i>Extracted:</i>	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30
	<i>Analyzed:</i>	Apr-11-18 21:39	Apr-11-18 21:44	Apr-11-18 21:50	Apr-11-18 21:55	Apr-11-18 22:00	Apr-11-18 22:16
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.98 4.98	5.68 4.94	<5.00 5.00	<4.95 4.95	44.3 4.99	15.7 4.95
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-11-18 16:00				Apr-11-18 16:00	
	<i>Analyzed:</i>	Apr-12-18 01:16				Apr-12-18 01:43	
	<i>Units/RL:</i>	mg/kg RL				mg/kg RL	
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0				<15.0 15.0	
Diesel Range Organics (DRO)		53.0 15.0				317 15.0	
Oil Range Hydrocarbons (ORO)		<15.0 15.0				64.4 15.0	
Total TPH		53.0 15.0				381 15.0	

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-007	581958-008	581958-009	581958-010	581958-011	581958-012
	<i>Field Id:</i>	DP-9 (2-3)	DP-9 (3-4)	DP-9 (4-6)	DP-10 (0-1)	DP-10 (1-2)	DP-10 (2-3)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-09-18 10:12	Apr-09-18 10:14	Apr-09-18 10:20	Apr-09-18 10:26	Apr-09-18 10:29	Apr-09-18 10:31
BTEX by EPA 8021B	<i>Extracted:</i>				Apr-12-18 08:00		
	<i>Analyzed:</i>				Apr-12-18 10:50		
	<i>Units/RL:</i>				mg/kg RL		
Benzene					<0.00201 0.00201		
Toluene					<0.00201 0.00201		
Ethylbenzene					<0.00201 0.00201		
m,p-Xylenes					<0.00402 0.00402		
o-Xylene					<0.00201 0.00201		
Total Xylenes					<0.00201 0.00201		
Total BTEX					<0.00201 0.00201		
Chloride by EPA 300	<i>Extracted:</i>	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30	Apr-11-18 17:30
	<i>Analyzed:</i>	Apr-11-18 22:21	Apr-11-18 22:37	Apr-11-18 22:43	Apr-11-18 22:48	Apr-11-18 22:53	Apr-11-18 22:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.94 4.94	<4.94 4.94	<4.97 4.97	<4.97 4.97	22.2 4.94	<4.96 4.96
TPH By SW8015 Mod	<i>Extracted:</i>				Apr-11-18 16:00		
	<i>Analyzed:</i>				Apr-12-18 02:11		
	<i>Units/RL:</i>				mg/kg RL		
Gasoline Range Hydrocarbons (GRO)					<15.0 15.0		
Diesel Range Organics (DRO)					<15.0 15.0		
Oil Range Hydrocarbons (ORO)					<15.0 15.0		
Total TPH					<15.0 15.0		

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

Houston - Dallas - San Antonio - Atlanta - Tampa - Boca Raton - Latin America - Odessa - Corpus Christi

Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-013	581958-014	581958-015	581958-016	581958-017	581958-018
	<i>Field Id:</i>	DP-4 (0-1)	DP-4 (1-2)	DP-4 (2-3)	DP-5 (0-1)	DP-5 (1-2)	DP-5 (2-3)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-06-18 11:47	Apr-06-18 11:49	Apr-06-18 11:51	Apr-06-18 12:23	Apr-06-18 12:26	Apr-06-18 12:28
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-12-18 08:00			Apr-12-18 08:00		
	<i>Analyzed:</i>	Apr-12-18 17:28			Apr-12-18 17:48		
	<i>Units/RL:</i>	mg/kg RL			mg/kg RL		
Benzene		<0.00199 0.00199			<0.00200 0.00200		
Toluene		<0.00199 0.00199			<0.00200 0.00200		
Ethylbenzene		<0.00199 0.00199			<0.00200 0.00200		
m,p-Xylenes		<0.00398 0.00398			<0.00399 0.00399		
o-Xylene		<0.00199 0.00199			<0.00200 0.00200		
Total Xylenes		<0.00199 0.00199			<0.00200 0.00200		
Total BTEX		<0.00199 0.00199			<0.00200 0.00200		
Chloride by EPA 300	<i>Extracted:</i>	Apr-11-18 17:30	Apr-11-18 17:30	Apr-12-18 13:20	Apr-12-18 13:20	Apr-12-18 13:20	Apr-12-18 13:20
	<i>Analyzed:</i>	Apr-11-18 23:04	Apr-11-18 23:09	Apr-12-18 16:56	Apr-12-18 17:02	Apr-12-18 17:07	Apr-12-18 17:12
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		24.7 5.00	465 4.95	486 4.93	<4.90 4.90	<4.91 4.91	20.5 4.99
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-11-18 16:00			Apr-11-18 16:00		
	<i>Analyzed:</i>	Apr-12-18 02:38			Apr-12-18 04:01		
	<i>Units/RL:</i>	mg/kg RL			mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0			<14.9 14.9		
Diesel Range Organics (DRO)		<15.0 15.0			<14.9 14.9		
Oil Range Hydrocarbons (ORO)		<15.0 15.0			<14.9 14.9		
Total TPH		<15.0 15.0			<14.9 14.9		

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-019	581958-020	581958-021	581958-022	581958-023	581958-024
	<i>Field Id:</i>	DP-5 (3-4)	DP-5 (4-5)	DP-6 (0-1)	DP-6 (1-2)	DP-6 (2-3)	DP-7 (0-1)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-06-18 12:30	Apr-06-18 12:33	Apr-06-18 12:59	Apr-06-18 13:00	Apr-06-18 13:02	Apr-06-18 13:05
BTEX by EPA 8021B	<i>Extracted:</i>			Apr-12-18 08:00			Apr-13-18 08:00
	<i>Analyzed:</i>			Apr-12-18 18:07			Apr-13-18 14:25
	<i>Units/RL:</i>			mg/kg RL			mg/kg RL
Benzene				<0.00202 0.00202			<0.00202 0.00202
Toluene				<0.00202 0.00202			<0.00202 0.00202
Ethylbenzene				<0.00202 0.00202			<0.00202 0.00202
m,p-Xylenes				<0.00403 0.00403			<0.00403 0.00403
o-Xylene				<0.00202 0.00202			<0.00202 0.00202
Total Xylenes				<0.00202 0.00202			<0.00202 0.00202
Total BTEX				<0.00202 0.00202			<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 13:20	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00
	<i>Analyzed:</i>	Apr-12-18 16:03	Apr-17-18 16:12	Apr-17-18 16:30	Apr-17-18 16:36	Apr-17-18 16:42	Apr-17-18 16:48
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<5.00 5.00	<4.98 4.98	<5.00 5.00	30.7 4.99	88.2 4.92	<4.95 4.95
TPH By SW8015 Mod	<i>Extracted:</i>			Apr-11-18 16:00			Apr-11-18 16:00
	<i>Analyzed:</i>			Apr-12-18 04:28			Apr-12-18 04:56
	<i>Units/RL:</i>			mg/kg RL			mg/kg RL
Gasoline Range Hydrocarbons (GRO)				<15.0 15.0			<15.0 15.0
Diesel Range Organics (DRO)				<15.0 15.0			<15.0 15.0
Oil Range Hydrocarbons (ORO)				<15.0 15.0			<15.0 15.0
Total TPH				<15.0 15.0			<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-025	581958-026	581958-027	581958-028	581958-029	581958-030
	<i>Field Id:</i>	DP-7 (1-2)	DP-7 (2-3)	DP-1 (0-1)	DP-1 (1-2)	DP-1 (2-3)	DP-1 (3-4)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-06-18 13:08	Apr-06-18 13:10	Apr-10-18 10:49	Apr-10-18 10:53	Apr-10-18 10:56	Apr-10-18 10:58
BTEX by EPA 8021B	<i>Extracted:</i>			Apr-12-18 08:00			
	<i>Analyzed:</i>			Apr-12-18 18:26			
	<i>Units/RL:</i>			mg/kg RL			
Benzene				<0.00200 0.00200			
Toluene				<0.00200 0.00200			
Ethylbenzene				<0.00200 0.00200			
m,p-Xylenes				<0.00401 0.00401			
o-Xylene				<0.00200 0.00200			
Total Xylenes				<0.00200 0.00200			
Total BTEX				<0.00200 0.00200			
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00
	<i>Analyzed:</i>	Apr-17-18 17:06	Apr-17-18 17:12	Apr-17-18 17:18	Apr-17-18 17:24	Apr-17-18 17:30	Apr-17-18 17:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.98 4.98	<4.90 4.90	<4.91 4.91	<4.91 4.91	<4.96 4.96	<4.96 4.96
TPH By SW8015 Mod	<i>Extracted:</i>			Apr-11-18 16:00			
	<i>Analyzed:</i>			Apr-12-18 05:25			
	<i>Units/RL:</i>			mg/kg RL			
Gasoline Range Hydrocarbons (GRO)				<15.0 15.0			
Diesel Range Organics (DRO)				16.7 15.0			
Oil Range Hydrocarbons (ORO)				<15.0 15.0			
Total TPH				16.7 15.0			

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-031	581958-032	581958-033	581958-034	581958-035	581958-036
	<i>Field Id:</i>	DP-1 (4-6)	DP-2 (0-1)	DP-2 (1-2)	DP-2 (2-3)	DP-3 (0-1)	DP-3 (1-2)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-10-18 11:00	Apr-10-18 11:03	Apr-10-18 11:04	Apr-10-18 11:07	Apr-10-18 11:10	Apr-10-18 11:12
BTEX by EPA 8021B	<i>Extracted:</i>		Apr-12-18 08:00			Apr-12-18 08:00	
	<i>Analyzed:</i>		Apr-12-18 18:46			Apr-12-18 19:05	
	<i>Units/RL:</i>		mg/kg RL			mg/kg RL	
Benzene			<0.00199 0.00199			<0.00200 0.00200	
Toluene			<0.00199 0.00199			<0.00200 0.00200	
Ethylbenzene			<0.00199 0.00199			<0.00200 0.00200	
m,p-Xylenes			<0.00398 0.00398			<0.00399 0.00399	
o-Xylene			<0.00199 0.00199			<0.00200 0.00200	
Total Xylenes			<0.00199 0.00199			<0.00200 0.00200	
Total BTEX			<0.00199 0.00199			<0.00200 0.00200	
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00
	<i>Analyzed:</i>	Apr-17-18 17:54	Apr-17-18 18:00	Apr-17-18 18:18	Apr-17-18 18:24	Apr-17-18 18:30	Apr-17-18 18:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.97 4.97	<4.97 4.97	<4.95 4.95	<4.96 4.96	31.7 4.94	102 4.98
TPH By SW8015 Mod	<i>Extracted:</i>		Apr-11-18 16:00			Apr-11-18 16:00	
	<i>Analyzed:</i>		Apr-12-18 05:51			Apr-12-18 06:18	
	<i>Units/RL:</i>		mg/kg RL			mg/kg RL	
Gasoline Range Hydrocarbons (GRO)			<15.0 15.0			<15.0 15.0	
Diesel Range Organics (DRO)			<15.0 15.0			20.9 15.0	
Oil Range Hydrocarbons (ORO)			<15.0 15.0			<15.0 15.0	
Total TPH			<15.0 15.0			20.9 15.0	

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Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

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Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-037	581958-038	581958-039	581958-040	581958-041	581958-042
	<i>Field Id:</i>	DP-3 (2-3)	DP-3 (3-4)	DP-3 (4-5)	DP-11 (0-1)	DP-11 (1-2)	DP-11 (2-3)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-10-18 11:15	Apr-10-18 11:18	Apr-10-18 11:22	Apr-09-18 10:38	Apr-09-18 10:41	Apr-09-18 10:42
BTEX by EPA 8021B	<i>Extracted:</i>				Apr-13-18 08:00		
	<i>Analyzed:</i>				Apr-13-18 13:08		
	<i>Units/RL:</i>				mg/kg RL		
Benzene					<0.00199 0.00199		
Toluene					<0.00199 0.00199		
Ethylbenzene					<0.00199 0.00199		
m,p-Xylenes					<0.00398 0.00398		
o-Xylene					<0.00199 0.00199		
Total Xylenes					<0.00199 0.00199		
Total BTEX					<0.00199 0.00199		
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:00	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30
	<i>Analyzed:</i>	Apr-17-18 18:42	Apr-17-18 18:48	Apr-17-18 18:54	Apr-17-18 19:30	Apr-17-18 19:47	Apr-17-18 19:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		239 4.96	329 5.00	213 5.00	<5.00 5.00	<4.99 4.99	<5.00 5.00
TPH By SW8015 Mod	<i>Extracted:</i>				Apr-11-18 16:00		
	<i>Analyzed:</i>				Apr-12-18 07:37		
	<i>Units/RL:</i>				mg/kg RL		
Gasoline Range Hydrocarbons (GRO)					<15.0 15.0		
Diesel Range Organics (DRO)					160 15.0		
Oil Range Hydrocarbons (ORO)					35.3 15.0		
Total TPH					195 15.0		

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-043	581958-044	581958-045	581958-046	581958-047	581958-048
	<i>Field Id:</i>	DP-11 (3-4)	DP-11 (4-5)	DP-12 (0-1)	DP-12 (1-2)	DP-12 (2-3)	DP-15 (0-1)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-09-18 10:48	Apr-09-18 10:52	Apr-09-18 11:22	Apr-09-18 11:25	Apr-09-18 11:27	Apr-09-18 11:38
BTEX by EPA 8021B	<i>Extracted:</i>			Apr-13-18 08:00			Apr-13-18 08:00
	<i>Analyzed:</i>			Apr-13-18 13:27			Apr-13-18 13:46
	<i>Units/RL:</i>			mg/kg RL			mg/kg RL
Benzene				<0.00199 0.00199			<0.00200 0.00200
Toluene				<0.00199 0.00199			<0.00200 0.00200
Ethylbenzene				<0.00199 0.00199			<0.00200 0.00200
m,p-Xylenes				<0.00398 0.00398			<0.00399 0.00399
o-Xylene				<0.00199 0.00199			<0.00200 0.00200
Total Xylenes				<0.00199 0.00199			<0.00200 0.00200
Total BTEX				<0.00199 0.00199			<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30
	<i>Analyzed:</i>	Apr-17-18 19:59	Apr-17-18 20:05	Apr-17-18 20:23	Apr-17-18 20:29	Apr-17-18 20:35	Apr-17-18 20:41
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.99 4.99	<5.00 5.00	176 4.99	431 4.99	85.8 4.98	<5.00 5.00
TPH By SW8015 Mod	<i>Extracted:</i>			Apr-11-18 16:00			Apr-11-18 16:00
	<i>Analyzed:</i>			Apr-12-18 08:04			Apr-12-18 08:30
	<i>Units/RL:</i>			mg/kg RL			mg/kg RL
Gasoline Range Hydrocarbons (GRO)				<15.0 15.0			<14.9 14.9
Diesel Range Organics (DRO)				76.6 15.0			<14.9 14.9
Oil Range Hydrocarbons (ORO)				16.5 15.0			<14.9 14.9
Total TPH				93.1 15.0			<14.9 14.9

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-049	581958-050	581958-051	581958-052	581958-053	581958-054
	<i>Field Id:</i>	DP-15 (1-2)	DP-15 (2-3)	DP-15 (3-4)	DP-15 (4-6)	DP-15 (6-8)	DP-13 (0-1)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-09-18 11:40	Apr-09-18 12:03	Apr-09-18 12:06	Apr-09-18 12:09	Apr-09-18 12:11	Apr-09-18 12:15
BTEX by EPA 8021B	<i>Extracted:</i>						Apr-13-18 08:00
	<i>Analyzed:</i>						Apr-13-18 14:06
	<i>Units/RL:</i>						mg/kg RL
Benzene							<0.00200 0.00200
Toluene							<0.00200 0.00200
Ethylbenzene							<0.00200 0.00200
m,p-Xylenes							<0.00401 0.00401
o-Xylene							<0.00200 0.00200
Total Xylenes							<0.00200 0.00200
Total BTEX							<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30
	<i>Analyzed:</i>	Apr-17-18 20:47	Apr-17-18 20:53	Apr-17-18 21:11	Apr-17-18 21:17	Apr-17-18 21:35	Apr-17-18 21:41
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<4.99 4.99	10.9 5.00	128 4.99	60.8 4.99	554 4.99	<5.00 5.00
TPH By SW8015 Mod	<i>Extracted:</i>						Apr-11-18 16:00
	<i>Analyzed:</i>						Apr-12-18 08:58
	<i>Units/RL:</i>						mg/kg RL
Gasoline Range Hydrocarbons (GRO)							<15.0 15.0
Diesel Range Organics (DRO)							<15.0 15.0
Oil Range Hydrocarbons (ORO)							<15.0 15.0
Total TPH							<15.0 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-055	581958-056	581958-057	581958-058	581958-059	581958-060
	<i>Field Id:</i>	DP-13 (1-2)	DP-13 (2-3)	DP-14 (0-1)	DP-14 (1-2)	DP-14 (2-3)	DP-14 (3-4)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-09-18 12:17	Apr-09-18 12:19	Apr-09-18 12:27	Apr-09-18 12:29	Apr-09-18 12:31	Apr-09-18 12:32
BTEX by EPA 8021B	<i>Extracted:</i>			Apr-13-18 08:00			
	<i>Analyzed:</i>			Apr-13-18 18:03			
	<i>Units/RL:</i>			mg/kg RL			
Benzene				<0.00199 0.00199			
Toluene				<0.00199 0.00199			
Ethylbenzene				<0.00199 0.00199			
m,p-Xylenes				<0.00398 0.00398			
o-Xylene				<0.00199 0.00199			
Total Xylenes				<0.00199 0.00199			
Total BTEX				<0.00199 0.00199			
Chloride by EPA 300	<i>Extracted:</i>	Apr-12-18 14:30	Apr-12-18 14:30	Apr-12-18 14:30	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00
	<i>Analyzed:</i>	Apr-17-18 21:47	Apr-17-18 21:53	Apr-17-18 21:59	Apr-16-18 21:56	Apr-16-18 22:14	Apr-16-18 22:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<5.00 5.00	<4.99 4.99	<4.99 4.99	<4.90 4.90	<4.90 4.90	223 4.90
TPH By SW8015 Mod	<i>Extracted:</i>			Apr-11-18 16:00			
	<i>Analyzed:</i>			Apr-12-18 09:26			
	<i>Units/RL:</i>			mg/kg RL			
Gasoline Range Hydrocarbons (GRO)				<15.0 15.0			
Diesel Range Organics (DRO)				<15.0 15.0			
Oil Range Hydrocarbons (ORO)				<15.0 15.0			
Total TPH				<15.0 15.0			

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-061	581958-062	581958-063	581958-064	581958-065	581958-066
	<i>Field Id:</i>	DP-14 (4-5)	DP-16 (0-1)	DP-16 (1-2)	DP-16 (2-3)	DP-19 (0-1)	DP-19 (1-2)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-09-18 12:37	Apr-09-18 12:40	Apr-09-18 12:41	Apr-09-18 12:44	Apr-10-18 10:56	Apr-10-18 11:00
BTEX by EPA 8021B	<i>Extracted:</i>		Apr-13-18 08:00			Apr-13-18 08:00	
	<i>Analyzed:</i>		Apr-13-18 17:24			Apr-13-18 17:44	
	<i>Units/RL:</i>		mg/kg RL			mg/kg RL	
Benzene			<0.00201 0.00201			<0.00202 0.00202	
Toluene			<0.00201 0.00201			<0.00202 0.00202	
Ethylbenzene			<0.00201 0.00201			<0.00202 0.00202	
m,p-Xylenes			<0.00402 0.00402			<0.00404 0.00404	
o-Xylene			<0.00201 0.00201			<0.00202 0.00202	
Total Xylenes			<0.00201 0.00201			<0.00202 0.00202	
Total BTEX			<0.00201 0.00201			<0.00202 0.00202	
Chloride by EPA 300	<i>Extracted:</i>	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00
	<i>Analyzed:</i>	Apr-16-18 22:26	Apr-16-18 22:32	Apr-16-18 22:50	Apr-16-18 22:56	Apr-16-18 23:02	Apr-16-18 23:08
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		19.5 4.97	<4.97 4.97	<4.99 4.99	<4.94 4.94	96.2 5.00	719 4.90
TPH By SW8015 Mod	<i>Extracted:</i>		Apr-11-18 16:00			Apr-11-18 16:00	
	<i>Analyzed:</i>		Apr-12-18 09:54			Apr-12-18 10:23	
	<i>Units/RL:</i>		mg/kg RL			mg/kg RL	
Gasoline Range Hydrocarbons (GRO)			<15.0 15.0			<15.0 15.0	
Diesel Range Organics (DRO)			<15.0 15.0			64.1 15.0	
Oil Range Hydrocarbons (ORO)			<15.0 15.0			<15.0 15.0	
Total TPH			<15.0 15.0			64.1 15.0	

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-067	581958-068	581958-069	581958-070	581958-071	581958-072
	<i>Field Id:</i>	DP-20 (0-1)	DP-20 (1-2)	DP-20 (2-3)	DP-20 (3-4)	DP-20 (4-5)	DP-17 (0-1)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-10-18 11:06	Apr-10-18 11:09	Apr-10-18 11:13	Apr-10-18 11:17	Apr-10-18 11:23	Apr-10-18 12:06
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-13-18 08:00					Apr-13-18 08:00
	<i>Analyzed:</i>	Apr-13-18 18:22					Apr-13-18 18:41
	<i>Units/RL:</i>	mg/kg RL					mg/kg RL
Benzene		<0.00199 0.00199					<0.00200 0.00200
Toluene		<0.00199 0.00199					<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199					<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398					<0.00401 0.00401
o-Xylene		<0.00199 0.00199					<0.00200 0.00200
Total Xylenes		<0.00199 0.00199					<0.00200 0.00200
Total BTEX		<0.00199 0.00199					<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00
	<i>Analyzed:</i>	Apr-16-18 23:13	Apr-16-18 23:19	Apr-16-18 23:37	Apr-16-18 23:43	Apr-17-18 00:01	Apr-17-18 00:07
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		243 4.90	368 4.90	253 4.90	282 5.00	755 4.92	33.3 5.00
TPH By SW8015 Mod	<i>Extracted:</i>	Apr-11-18 16:00					Apr-11-18 10:00
	<i>Analyzed:</i>	Apr-12-18 10:52					Apr-11-18 20:45
	<i>Units/RL:</i>	mg/kg RL					mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9					<15.0 15.0
Diesel Range Organics (DRO)		<14.9 14.9					18.9 15.0
Oil Range Hydrocarbons (ORO)		<14.9 14.9					<15.0 15.0
Total TPH		<14.9 14.9					18.9 15.0

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 581958

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-073	581958-074	581958-075	581958-076	581958-077	581958-078
	<i>Field Id:</i>	DP-17 (1-2)	DP-17 (2-3)	DP-17 (3-4)	DP-17 (4-6)	DP-17 (6-8)	DP-18 (0-1)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-10-18 12:11	Apr-10-18 12:14	Apr-10-18 12:16	Apr-10-18 12:18	Apr-10-18 12:20	Apr-10-18 12:23
BTEX by EPA 8021B	<i>Extracted:</i>						Apr-13-18 08:00
	<i>Analyzed:</i>						Apr-13-18 19:01
	<i>Units/RL:</i>						mg/kg RL
Benzene							<0.00201 0.00201
Toluene							<0.00201 0.00201
Ethylbenzene							<0.00201 0.00201
m,p-Xylenes							<0.00402 0.00402
o-Xylene							<0.00201 0.00201
Total Xylenes							<0.00201 0.00201
Total BTEX							<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 09:00	Apr-13-18 17:00
	<i>Analyzed:</i>	Apr-17-18 00:13	Apr-17-18 00:19	Apr-17-18 00:25	Apr-17-18 00:31	Apr-17-18 00:37	Apr-17-18 01:13
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		584 4.96	1080 5.00	289 4.99	833 5.00	1280 24.5	29.1 4.95
TPH By SW8015 Mod	<i>Extracted:</i>						Apr-11-18 10:00
	<i>Analyzed:</i>						Apr-11-18 21:12
	<i>Units/RL:</i>						mg/kg RL
Gasoline Range Hydrocarbons (GRO)							<15.0 15.0
Diesel Range Organics (DRO)							<15.0 15.0
Oil Range Hydrocarbons (ORO)							<15.0 15.0
Total TPH							<15.0 15.0

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Kelsey Brooks
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Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	581958-079	581958-080	581958-081	581958-082	581958-083	581958-084
	<i>Field Id:</i>	DP-18 (1-2)	DP-18 (2-3)	DP-18 (3-4)	DP-18 (4-6)	DP-18 (6-8)	DP-21 (0-1)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-10-18 12:26	Apr-10-18 12:29	Apr-10-18 12:32	Apr-10-18 12:36	Apr-10-18 12:38	Apr-10-18 12:40
BTEX by EPA 8021B	<i>Extracted:</i>						Apr-13-18 08:00
	<i>Analyzed:</i>						Apr-13-18 19:20
	<i>Units/RL:</i>						mg/kg RL
Benzene							<0.00199 0.00199
Toluene							<0.00199 0.00199
Ethylbenzene							<0.00199 0.00199
m,p-Xylenes							<0.00398 0.00398
o-Xylene							<0.00199 0.00199
Total Xylenes							<0.00199 0.00199
Total BTEX							<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	Apr-13-18 17:00	Apr-13-18 17:00	Apr-13-18 17:00	Apr-13-18 17:00	Apr-13-18 17:00	Apr-13-18 17:00
	<i>Analyzed:</i>	Apr-17-18 01:31	Apr-17-18 01:37	Apr-17-18 01:43	Apr-17-18 01:49	Apr-17-18 02:07	Apr-17-18 02:13
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		256 4.90	573 5.00	746 24.5	1120 4.97	1740 25.0	<4.92 4.92
TPH By SW8015 Mod	<i>Extracted:</i>						Apr-11-18 10:00
	<i>Analyzed:</i>						Apr-11-18 21:40
	<i>Units/RL:</i>						mg/kg RL
Gasoline Range Hydrocarbons (GRO)							<14.9 14.9
Diesel Range Organics (DRO)							<14.9 14.9
Oil Range Hydrocarbons (ORO)							<14.9 14.9
Total TPH							<14.9 14.9

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Kelsey Brooks
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Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Wed Apr-11-18 09:20 am

Report Date: 19-APR-18

Project Manager: Kelsey Brooks

Analysis Requested	Lab Id:	581958-085	581958-086	581958-087			
	Field Id:	DP-21 (1-2)	DP-21 (2-3)	DP-21 (3-4)			
	Depth:						
	Matrix:	SOIL	SOIL	SOIL			
	Sampled:	Apr-10-18 12:42	Apr-10-18 12:44	Apr-10-18 12:46			
Chloride by EPA 300	Extracted:	Apr-13-18 17:00	Apr-13-18 17:00	Apr-13-18 17:00			
	Analyzed:	Apr-17-18 02:19	Apr-17-18 02:25	Apr-17-18 02:37			
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		<4.90 4.90	31.4 5.00	366 4.93			

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Kelsey Brooks
Project Manager

Analytical Report 581958

for
Larson & Associates

Project Manager: Mark Larson

LMPSU 212

17-0175-39

19-APR-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-24), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



19-APR-18

Project Manager: **Mark Larson**

Larson & Associates

P.O. Box 50685

Midland, TX 79710

Reference: XENCO Report No(s): **581958**

LMPSU 212

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) 581958. 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. 581958 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,

Kelsey Brooks

Project Manager

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LMPSU 212

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
DP-8 (0-1)	S	04-09-18 09:59		581958-001
DP-8 (1-2)	S	04-09-18 10:00		581958-002
DP-8 (2-3)	S	04-09-18 10:04		581958-003
DP-8 (3-4)	S	04-09-18 10:06		581958-004
DP-9 (0-1)	S	04-09-18 10:09		581958-005
DP-9 (1-2)	S	04-09-18 10:11		581958-006
DP-9 (2-3)	S	04-09-18 10:12		581958-007
DP-9 (3-4)	S	04-09-18 10:14		581958-008
DP-9 (4-6)	S	04-09-18 10:20		581958-009
DP-10 (0-1)	S	04-09-18 10:26		581958-010
DP-10 (1-2)	S	04-09-18 10:29		581958-011
DP-10 (2-3)	S	04-09-18 10:31		581958-012
DP-4 (0-1)	S	04-06-18 11:47		581958-013
DP-4 (1-2)	S	04-06-18 11:49		581958-014
DP-4 (2-3)	S	04-06-18 11:51		581958-015
DP-5 (0-1)	S	04-06-18 12:23		581958-016
DP-5 (1-2)	S	04-06-18 12:26		581958-017
DP-5 (2-3)	S	04-06-18 12:28		581958-018
DP-5 (3-4)	S	04-06-18 12:30		581958-019
DP-5 (4-5)	S	04-06-18 12:33		581958-020
DP-6 (0-1)	S	04-06-18 12:59		581958-021
DP-6 (1-2)	S	04-06-18 13:00		581958-022
DP-6 (2-3)	S	04-06-18 13:02		581958-023
DP-7 (0-1)	S	04-06-18 13:05		581958-024
DP-7 (1-2)	S	04-06-18 13:08		581958-025
DP-7 (2-3)	S	04-06-18 13:10		581958-026
DP-1 (0-1)	S	04-10-18 10:49		581958-027
DP-1 (1-2)	S	04-10-18 10:53		581958-028
DP-1 (2-3)	S	04-10-18 10:56		581958-029
DP-1 (3-4)	S	04-10-18 10:58		581958-030
DP-1 (4-6)	S	04-10-18 11:00		581958-031
DP-2 (0-1)	S	04-10-18 11:03		581958-032
DP-2 (1-2)	S	04-10-18 11:04		581958-033
DP-2 (2-3)	S	04-10-18 11:07		581958-034
DP-3 (0-1)	S	04-10-18 11:10		581958-035
DP-3 (1-2)	S	04-10-18 11:12		581958-036
DP-3 (2-3)	S	04-10-18 11:15		581958-037
DP-3 (3-4)	S	04-10-18 11:18		581958-038
DP-3 (4-5)	S	04-10-18 11:22		581958-039
DP-11 (0-1)	S	04-09-18 10:38		581958-040
DP-11 (1-2)	S	04-09-18 10:41		581958-041
DP-11 (2-3)	S	04-09-18 10:42		581958-042
DP-11 (3-4)	S	04-09-18 10:48		581958-043

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LMPSU 212

DP-11 (4-5)	S	04-09-18 10:52	581958-044
DP-12 (0-1)	S	04-09-18 11:22	581958-045
DP-12 (1-2)	S	04-09-18 11:25	581958-046
DP-12 (2-3)	S	04-09-18 11:27	581958-047
DP-15 (0-1)	S	04-09-18 11:38	581958-048
DP-15 (1-2)	S	04-09-18 11:40	581958-049
DP-15 (2-3)	S	04-09-18 12:03	581958-050
DP-15 (3-4)	S	04-09-18 12:06	581958-051
DP-15 (4-6)	S	04-09-18 12:09	581958-052
DP-15 (6-8)	S	04-09-18 12:11	581958-053
DP-13 (0-1)	S	04-09-18 12:15	581958-054
DP-13 (1-2)	S	04-09-18 12:17	581958-055
DP-13 (2-3)	S	04-09-18 12:19	581958-056
DP-14 (0-1)	S	04-09-18 12:27	581958-057
DP-14 (1-2)	S	04-09-18 12:29	581958-058
DP-14 (2-3)	S	04-09-18 12:31	581958-059
DP-14 (3-4)	S	04-09-18 12:32	581958-060
DP-14 (4-5)	S	04-09-18 12:37	581958-061
DP-16 (0-1)	S	04-09-18 12:40	581958-062
DP-16 (1-2)	S	04-09-18 12:41	581958-063
DP-16 (2-3)	S	04-09-18 12:44	581958-064
DP-19 (0-1)	S	04-10-18 10:56	581958-065
DP-19 (1-2)	S	04-10-18 11:00	581958-066
DP-20 (0-1)	S	04-10-18 11:06	581958-067
DP-20 (1-2)	S	04-10-18 11:09	581958-068
DP-20 (2-3)	S	04-10-18 11:13	581958-069
DP-20 (3-4)	S	04-10-18 11:17	581958-070
DP-20 (4-5)	S	04-10-18 11:23	581958-071
DP-17 (0-1)	S	04-10-18 12:06	581958-072
DP-17 (1-2)	S	04-10-18 12:11	581958-073
DP-17 (2-3)	S	04-10-18 12:14	581958-074
DP-17 (3-4)	S	04-10-18 12:16	581958-075
DP-17 (4-6)	S	04-10-18 12:18	581958-076
DP-17 (6-8)	S	04-10-18 12:20	581958-077
DP-18 (0-1)	S	04-10-18 12:23	581958-078
DP-18 (1-2)	S	04-10-18 12:26	581958-079
DP-18 (2-3)	S	04-10-18 12:29	581958-080
DP-18 (3-4)	S	04-10-18 12:32	581958-081
DP-18 (4-6)	S	04-10-18 12:36	581958-082
DP-18 (6-8)	S	04-10-18 12:38	581958-083
DP-21 (0-1)	S	04-10-18 12:40	581958-084
DP-21 (1-2)	S	04-10-18 12:42	581958-085
DP-21 (2-3)	S	04-10-18 12:44	581958-086
DP-21 (3-4)	S	04-10-18 12:46	581958-087



CASE NARRATIVE

Client Name: *Larson & Associates*

Project Name: *LMPSU 212*

Project ID: 17-0175-39

Work Order Number(s): 581958

Report Date: 19-APR-18

Date Received: 04/11/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3046412 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3046466 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3046657 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Batch: LBA-3046862 Chloride by EPA 300

Lab Sample ID 581958-068 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 581958-058, -059, -060, -061, -062, -063, -064, -065, -066, -067, -068, -069, -070, -071, -072, -073, -074, -075, -076, -077.

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

Batch: LBA-3046865 Inorganic Anions by EPA 300

Lab Sample ID 581958-087 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 581958-078, -079, -080, -081, -082, -083, -084, -085, -086, -087.

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



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-8 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-001

Date Collected: 04.09.18 09.59

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.11.18 21.39	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 01.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	53.0	15.0	mg/kg	04.12.18 01.16		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 01.16	U	1
Total TPH	PHC635	53.0	15.0	mg/kg	04.12.18 01.16		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.12.18 01.16	
o-Terphenyl	84-15-1	96	%	70-135	04.12.18 01.16	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-8 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-001

Date Collected: 04.09.18 09.59

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.11.18 12.30

Basis: Wet Weight

Seq Number: 3046412

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.11.18 16.05	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.11.18 16.05	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.11.18 16.05	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.11.18 16.05	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.11.18 16.05	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.11.18 16.05	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.11.18 16.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	91	%	70-130	04.11.18 16.05		
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.11.18 16.05		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-8 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-002

Date Collected: 04.09.18 10.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.68	4.94	mg/kg	04.11.18 21.44		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-8 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-003

Date Collected: 04.09.18 10.04

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.11.18 21.50	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-8 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-004

Date Collected: 04.09.18 10.06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	04.11.18 21.55	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-9 (0-1)**
Lab Sample Id: 581958-005

Matrix: Soil
Date Collected: 04.09.18 10.09

Date Received: 04.11.18 09.20

Analytical Method: Chloride by EPA 300
Tech: SCM
Analyst: SCM
Seq Number: 3046421

Prep Method: E300P
% Moisture:
Date Prep: 04.11.18 17.30
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	44.3	4.99	mg/kg	04.11.18 22.00		1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3046457

Prep Method: TX1005P
% Moisture:
Date Prep: 04.11.18 16.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 01.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	317	15.0	mg/kg	04.12.18 01.43		1
Oil Range Hydrocarbons (ORO)	PHCG2835	64.4	15.0	mg/kg	04.12.18 01.43		1
Total TPH	PHC635	381	15.0	mg/kg	04.12.18 01.43		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	115	%	70-135	04.12.18 01.43		
o-Terphenyl	84-15-1	116	%	70-135	04.12.18 01.43		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-9 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-005

Date Collected: 04.09.18 10.09

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.11.18 12.30

Basis: Wet Weight

Seq Number: 3046412

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.11.18 16.24	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.11.18 16.24	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.11.18 16.24	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.11.18 16.24	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.11.18 16.24	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.11.18 16.24	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.11.18 16.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.11.18 16.24		
4-Bromofluorobenzene	460-00-4	90	%	70-130	04.11.18 16.24		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-9 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-006

Date Collected: 04.09.18 10.11

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.7	4.95	mg/kg	04.11.18 22.16		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-9 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-007

Date Collected: 04.09.18 10.12

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	04.11.18 22.21	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-9 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-008

Date Collected: 04.09.18 10.14

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	04.11.18 22.37	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-9 (4-6)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-009

Date Collected: 04.09.18 10.20

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	04.11.18 22.43	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-10 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-010

Date Collected: 04.09.18 10.26

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	04.11.18 22.48	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 02.11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 02.11	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 02.11	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 02.11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	04.12.18 02.11	
o-Terphenyl	84-15-1	99	%	70-135	04.12.18 02.11	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-10 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-010

Date Collected: 04.09.18 10.26

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.18 10.50	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.18 10.50	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.18 10.50	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.18 10.50	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.18 10.50	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.18 10.50	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.18 10.50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.12.18 10.50		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.12.18 10.50		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-10 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-011

Date Collected: 04.09.18 10.29

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.2	4.94	mg/kg	04.11.18 22.53		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-10 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-012

Date Collected: 04.09.18 10.31

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	04.11.18 22.58	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-4 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-013

Date Collected: 04.06.18 11.47

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	24.7	5.00	mg/kg	04.11.18 23.04		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 02.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 02.38	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 02.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 02.38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.12.18 02.38	
o-Terphenyl	84-15-1	92	%	70-135	04.12.18 02.38	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-4 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-013

Date Collected: 04.06.18 11.47

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.18 17.28	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.18 17.28	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.18 17.28	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.18 17.28	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.18 17.28	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.18 17.28	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.18 17.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.12.18 17.28		
1,4-Difluorobenzene	540-36-3	94	%	70-130	04.12.18 17.28		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-4 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-014

Date Collected: 04.06.18 11.49

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.18 17.30

Basis: Wet Weight

Seq Number: 3046421

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	465	4.95	mg/kg	04.11.18 23.09		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-4 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-015

Date Collected: 04.06.18 11.51

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 13.20

Basis: Wet Weight

Seq Number: 3046524

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	486	4.93	mg/kg	04.12.18 16.56		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-5 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-016

Date Collected: 04.06.18 12.23

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 13.20

Basis: Wet Weight

Seq Number: 3046524

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.12.18 17.02	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.12.18 04.01	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.12.18 04.01	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	04.12.18 04.01	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.12.18 04.01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-135	04.12.18 04.01	
o-Terphenyl	84-15-1	93	%	70-135	04.12.18 04.01	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-5 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-016

Date Collected: 04.06.18 12.23

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.18 17.48	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.18 17.48	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.18 17.48	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.12.18 17.48	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.18 17.48	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.18 17.48	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.18 17.48	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.12.18 17.48		
4-Bromofluorobenzene	460-00-4	89	%	70-130	04.12.18 17.48		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-5 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-017

Date Collected: 04.06.18 12.26

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 13.20

Basis: Wet Weight

Seq Number: 3046524

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	04.12.18 17.07	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-5 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-018

Date Collected: 04.06.18 12.28

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 13.20

Basis: Wet Weight

Seq Number: 3046524

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.5	4.99	mg/kg	04.12.18 17.12		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-5 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-019

Date Collected: 04.06.18 12.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 13.20

Basis: Wet Weight

Seq Number: 3046524

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.12.18 16.03	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-5 (4-5)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-020

Date Collected: 04.06.18 12.33

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.17.18 16.12	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-6 (0-1)**
Lab Sample Id: 581958-021

Matrix: Soil
Date Collected: 04.06.18 12.59

Date Received: 04.11.18 09.20

Analytical Method: Chloride by EPA 300
Tech: SCM
Analyst: SCM
Seq Number: 3046768

Prep Method: E300P
% Moisture:
Date Prep: 04.12.18 14.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 16.30	U	1

Analytical Method: TPH By SW8015 Mod
Tech: ARM
Analyst: ARM
Seq Number: 3046457

Prep Method: TX1005P
% Moisture:
Date Prep: 04.11.18 16.00
Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 04.28	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 04.28	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 04.28	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 04.28	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	102	%	70-135	04.12.18 04.28		
o-Terphenyl	84-15-1	100	%	70-135	04.12.18 04.28		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-6 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-021

Date Collected: 04.06.18 12.59

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.12.18 18.07	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.12.18 18.07	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.12.18 18.07	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.12.18 18.07	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.12.18 18.07	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.12.18 18.07	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.12.18 18.07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.12.18 18.07		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.12.18 18.07		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-6 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-022

Date Collected: 04.06.18 13.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.7	4.99	mg/kg	04.17.18 16.36		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-6 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-023

Date Collected: 04.06.18 13.02

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	88.2	4.92	mg/kg	04.17.18 16.42		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-7 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-024

Date Collected: 04.06.18 13.05

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	04.17.18 16.48	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 04.56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 04.56	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 04.56	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 04.56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.12.18 04.56	
o-Terphenyl	84-15-1	93	%	70-135	04.12.18 04.56	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-7 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-024

Date Collected: 04.06.18 13.05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.13.18 14.25	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.13.18 14.25	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.13.18 14.25	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.13.18 14.25	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.13.18 14.25	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.13.18 14.25	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.13.18 14.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.13.18 14.25		
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.13.18 14.25		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-7 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-025

Date Collected: 04.06.18 13.08

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.98	4.98	mg/kg	04.17.18 17.06	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-7 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-026

Date Collected: 04.06.18 13.10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.17.18 17.12	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-1 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-027

Date Collected: 04.10.18 10.49

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	04.17.18 17.18	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 05.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	16.7	15.0	mg/kg	04.12.18 05.25		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 05.25	U	1
Total TPH	PHC635	16.7	15.0	mg/kg	04.12.18 05.25		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.12.18 05.25	
o-Terphenyl	84-15-1	95	%	70-135	04.12.18 05.25	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-1 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-027

Date Collected: 04.10.18 10.49

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.18 18.26	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.18 18.26	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.18 18.26	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.12.18 18.26	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.18 18.26	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.18 18.26	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.18 18.26	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.12.18 18.26		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.12.18 18.26		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-1 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-028

Date Collected: 04.10.18 10.53

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.91	4.91	mg/kg	04.17.18 17.24	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-1 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-029

Date Collected: 04.10.18 10.56

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	04.17.18 17.30	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-1 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-030

Date Collected: 04.10.18 10.58

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	04.17.18 17.36	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-1 (4-6)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-031

Date Collected: 04.10.18 11.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	04.17.18 17.54	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-2 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-032

Date Collected: 04.10.18 11.03

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	04.17.18 18.00	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 05.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 05.51	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 05.51	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 05.51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.12.18 05.51	
o-Terphenyl	84-15-1	91	%	70-135	04.12.18 05.51	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-2 (0-1)**
Lab Sample Id: 581958-032

Matrix: Soil
Date Collected: 04.10.18 11.03

Date Received: 04.11.18 09.20

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.18 18.46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.18 18.46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.18 18.46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.18 18.46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.18 18.46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.18 18.46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.18 18.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.12.18 18.46		
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.12.18 18.46		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-2 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-033

Date Collected: 04.10.18 11.04

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.95	4.95	mg/kg	04.17.18 18.18	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-2 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-034

Date Collected: 04.10.18 11.07

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	04.17.18 18.24	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-3 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-035

Date Collected: 04.10.18 11.10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	31.7	4.94	mg/kg	04.17.18 18.30		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 06.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	20.9	15.0	mg/kg	04.12.18 06.18		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 06.18	U	1
Total TPH	PHC635	20.9	15.0	mg/kg	04.12.18 06.18		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.12.18 06.18	
o-Terphenyl	84-15-1	95	%	70-135	04.12.18 06.18	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-3 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-035

Date Collected: 04.10.18 11.10

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.12.18 08.00

Basis: Wet Weight

Seq Number: 3046466

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.18 19.05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.18 19.05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.18 19.05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.12.18 19.05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.18 19.05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.18 19.05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.18 19.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.12.18 19.05		
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.12.18 19.05		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-3 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-036

Date Collected: 04.10.18 11.12

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	102	4.98	mg/kg	04.17.18 18.36		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-3 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-037

Date Collected: 04.10.18 11.15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	239	4.96	mg/kg	04.17.18 18.42		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-3 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-038

Date Collected: 04.10.18 11.18

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	329	5.00	mg/kg	04.17.18 18.48		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-3 (4-5)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-039

Date Collected: 04.10.18 11.22

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.00

Basis: Wet Weight

Seq Number: 3046768

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	213	5.00	mg/kg	04.17.18 18.54		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-11 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-040

Date Collected: 04.09.18 10.38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 19.30	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 07.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	160	15.0	mg/kg	04.12.18 07.37		1
Oil Range Hydrocarbons (ORO)	PHCG2835	35.3	15.0	mg/kg	04.12.18 07.37		1
Total TPH	PHC635	195	15.0	mg/kg	04.12.18 07.37		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	108	%	70-135	04.12.18 07.37		
o-Terphenyl	84-15-1	104	%	70-135	04.12.18 07.37		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-11 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-040

Date Collected: 04.09.18 10.38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.13.18 13.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.13.18 13.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.13.18 13.08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.13.18 13.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.13.18 13.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.13.18 13.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.13.18 13.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	95	%	70-130	04.13.18 13.08		
4-Bromofluorobenzene	460-00-4	92	%	70-130	04.13.18 13.08		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-11 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-041

Date Collected: 04.09.18 10.41

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.17.18 19.47	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-11 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-042

Date Collected: 04.09.18 10.42

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 19.53	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-11 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-043

Date Collected: 04.09.18 10.48

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.17.18 19.59	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-11 (4-5)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-044

Date Collected: 04.09.18 10.52

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 20.05	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-12 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-045

Date Collected: 04.09.18 11.22

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	176	4.99	mg/kg	04.17.18 20.23		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 08.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	76.6	15.0	mg/kg	04.12.18 08.04		1
Oil Range Hydrocarbons (ORO)	PHCG2835	16.5	15.0	mg/kg	04.12.18 08.04		1
Total TPH	PHC635	93.1	15.0	mg/kg	04.12.18 08.04		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.12.18 08.04	
o-Terphenyl	84-15-1	93	%	70-135	04.12.18 08.04	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-12 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-045

Date Collected: 04.09.18 11.22

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.13.18 13.27	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.13.18 13.27	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.13.18 13.27	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.13.18 13.27	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.13.18 13.27	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.13.18 13.27	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.13.18 13.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	93	%	70-130	04.13.18 13.27		
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.13.18 13.27		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-12 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-046

Date Collected: 04.09.18 11.25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	431	4.99	mg/kg	04.17.18 20.29		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-12 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-047

Date Collected: 04.09.18 11.27

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	85.8	4.98	mg/kg	04.17.18 20.35		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-048

Date Collected: 04.09.18 11.38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 20.41	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.12.18 08.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.12.18 08.30	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	04.12.18 08.30	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.12.18 08.30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.12.18 08.30	
o-Terphenyl	84-15-1	96	%	70-135	04.12.18 08.30	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-048

Date Collected: 04.09.18 11.38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.13.18 13.46	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.13.18 13.46	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.13.18 13.46	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.13.18 13.46	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.13.18 13.46	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.13.18 13.46	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.13.18 13.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.13.18 13.46		
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.13.18 13.46		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-049

Date Collected: 04.09.18 11.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.17.18 20.47	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-15 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-050

Date Collected: 04.09.18 12.03

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	10.9	5.00	mg/kg	04.17.18 20.53		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-051

Date Collected: 04.09.18 12.06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	128	4.99	mg/kg	04.17.18 21.11		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (4-6)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-052

Date Collected: 04.09.18 12.09

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	60.8	4.99	mg/kg	04.17.18 21.17		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (6-8)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-053

Date Collected: 04.09.18 12.11

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	554	4.99	mg/kg	04.17.18 21.35		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-13 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-054

Date Collected: 04.09.18 12.15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 21.41	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 08.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 08.58	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 08.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 08.58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.12.18 08.58	
o-Terphenyl	84-15-1	94	%	70-135	04.12.18 08.58	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-13 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-054

Date Collected: 04.09.18 12.15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.13.18 14.06	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.13.18 14.06	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.13.18 14.06	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.13.18 14.06	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.13.18 14.06	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.13.18 14.06	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.13.18 14.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	04.13.18 14.06		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.13.18 14.06		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-13 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-055

Date Collected: 04.09.18 12.17

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.17.18 21.47	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-13 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-056

Date Collected: 04.09.18 12.19

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.17.18 21.53	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-14 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-057

Date Collected: 04.09.18 12.27

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.12.18 14.30

Basis: Wet Weight

Seq Number: 3047003

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.17.18 21.59	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 09.26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 09.26	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 09.26	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 09.26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.12.18 09.26	
o-Terphenyl	84-15-1	91	%	70-135	04.12.18 09.26	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-14 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-057

Date Collected: 04.09.18 12.27

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.13.18 18.03	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.13.18 18.03	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.13.18 18.03	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.13.18 18.03	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.13.18 18.03	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.13.18 18.03	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.13.18 18.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	04.13.18 18.03		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.13.18 18.03		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-14 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-058

Date Collected: 04.09.18 12.29

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.16.18 21.56	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-14 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-059

Date Collected: 04.09.18 12.31

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.16.18 22.14	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-14 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-060

Date Collected: 04.09.18 12.32

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	223	4.90	mg/kg	04.16.18 22.20		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-14 (4-5)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-061

Date Collected: 04.09.18 12.37

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.5	4.97	mg/kg	04.16.18 22.26		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-16 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-062

Date Collected: 04.09.18 12.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.97	4.97	mg/kg	04.16.18 22.32	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 09.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.18 09.54	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 09.54	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.18 09.54	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-135	04.12.18 09.54	
o-Terphenyl	84-15-1	92	%	70-135	04.12.18 09.54	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-16 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-062

Date Collected: 04.09.18 12.40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.13.18 17.24	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.13.18 17.24	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.13.18 17.24	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.13.18 17.24	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.13.18 17.24	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.13.18 17.24	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.13.18 17.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.13.18 17.24		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.13.18 17.24		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-16 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-063

Date Collected: 04.09.18 12.41

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.99	4.99	mg/kg	04.16.18 22.50	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-16 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-064

Date Collected: 04.09.18 12.44

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.94	4.94	mg/kg	04.16.18 22.56	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-065

Date Collected: 04.10.18 10.56

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	96.2	5.00	mg/kg	04.16.18 23.02		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.18 10.23	U	1
Diesel Range Organics (DRO)	C10C28DRO	64.1	15.0	mg/kg	04.12.18 10.23		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.12.18 10.23	U	1
Total TPH	PHC635	64.1	15.0	mg/kg	04.12.18 10.23		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	04.12.18 10.23	
o-Terphenyl	84-15-1	99	%	70-135	04.12.18 10.23	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-065

Date Collected: 04.10.18 10.56

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.13.18 17.44	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.13.18 17.44	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.13.18 17.44	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.13.18 17.44	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.13.18 17.44	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.13.18 17.44	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.13.18 17.44	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.13.18 17.44		
1,4-Difluorobenzene	540-36-3	95	%	70-130	04.13.18 17.44		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-066

Date Collected: 04.10.18 11.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	719	4.90	mg/kg	04.16.18 23.08		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-067

Date Collected: 04.10.18 11.06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	243	4.90	mg/kg	04.16.18 23.13		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 16.00

Basis: Wet Weight

Seq Number: 3046457

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.12.18 10.52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.12.18 10.52	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	04.12.18 10.52	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.12.18 10.52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.12.18 10.52	
o-Terphenyl	84-15-1	94	%	70-135	04.12.18 10.52	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-067

Date Collected: 04.10.18 11.06

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.13.18 18.22	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.13.18 18.22	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.13.18 18.22	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.13.18 18.22	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.13.18 18.22	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.13.18 18.22	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.13.18 18.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	90	%	70-130	04.13.18 18.22		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.13.18 18.22		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-068

Date Collected: 04.10.18 11.09

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	368	4.90	mg/kg	04.16.18 23.19		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-069

Date Collected: 04.10.18 11.13

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	253	4.90	mg/kg	04.16.18 23.37		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-070

Date Collected: 04.10.18 11.17

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	282	5.00	mg/kg	04.16.18 23.43		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (4-5)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-071

Date Collected: 04.10.18 11.23

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	755	4.92	mg/kg	04.17.18 00.01		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-17 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-072

Date Collected: 04.10.18 12.06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.3	5.00	mg/kg	04.17.18 00.07		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 10.00

Basis: Wet Weight

Seq Number: 3046456

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.11.18 20.45	U	1
Diesel Range Organics (DRO)	C10C28DRO	18.9	15.0	mg/kg	04.11.18 20.45		1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.11.18 20.45	U	1
Total TPH	PHC635	18.9	15.0	mg/kg	04.11.18 20.45		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-135	04.11.18 20.45	
o-Terphenyl	84-15-1	100	%	70-135	04.11.18 20.45	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-17 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-072

Date Collected: 04.10.18 12.06

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.13.18 18.41	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.13.18 18.41	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.13.18 18.41	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.13.18 18.41	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.13.18 18.41	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.13.18 18.41	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.13.18 18.41	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	94	%	70-130	04.13.18 18.41		
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.13.18 18.41		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-17 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-073

Date Collected: 04.10.18 12.11

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	584	4.96	mg/kg	04.17.18 00.13		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-17 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-074

Date Collected: 04.10.18 12.14

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1080	5.00	mg/kg	04.17.18 00.19		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-17 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-075

Date Collected: 04.10.18 12.16

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	289	4.99	mg/kg	04.17.18 00.25		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-17 (4-6)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-076

Date Collected: 04.10.18 12.18

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	833	5.00	mg/kg	04.17.18 00.31		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-17 (6-8)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-077

Date Collected: 04.10.18 12.20

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 09.00

Basis: Wet Weight

Seq Number: 3046862

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1280	24.5	mg/kg	04.17.18 00.37		5



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-078

Date Collected: 04.10.18 12.23

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.1	4.95	mg/kg	04.17.18 01.13		1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 10.00

Basis: Wet Weight

Seq Number: 3046456

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.11.18 21.12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.11.18 21.12	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<15.0	15.0	mg/kg	04.11.18 21.12	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.11.18 21.12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	04.11.18 21.12	
o-Terphenyl	84-15-1	103	%	70-135	04.11.18 21.12	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-078

Date Collected: 04.10.18 12.23

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.13.18 19.01	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.13.18 19.01	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.13.18 19.01	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.13.18 19.01	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.13.18 19.01	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.13.18 19.01	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.13.18 19.01	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.13.18 19.01		
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.13.18 19.01		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-079

Date Collected: 04.10.18 12.26

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	256	4.90	mg/kg	04.17.18 01.31		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-080

Date Collected: 04.10.18 12.29

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	573	5.00	mg/kg	04.17.18 01.37		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-081

Date Collected: 04.10.18 12.32

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	746	24.5	mg/kg	04.17.18 01.43		5



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (4-6)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-082

Date Collected: 04.10.18 12.36

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1120	4.97	mg/kg	04.17.18 01.49		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (6-8)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-083

Date Collected: 04.10.18 12.38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1740	25.0	mg/kg	04.17.18 02.07		5



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-21 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-084

Date Collected: 04.10.18 12.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.92	4.92	mg/kg	04.17.18 02.13	U	1

Analytical Method: TPH By SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.11.18 10.00

Basis: Wet Weight

Seq Number: 3046456

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.11.18 21.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.11.18 21.40	U	1
Oil Range Hydrocarbons (ORO)	PHCG2835	<14.9	14.9	mg/kg	04.11.18 21.40	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.11.18 21.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	96	%	70-135	04.11.18 21.40	
o-Terphenyl	84-15-1	94	%	70-135	04.11.18 21.40	



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-21 (0-1)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-084

Date Collected: 04.10.18 12.40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: ALJ

% Moisture:

Analyst: ALJ

Date Prep: 04.13.18 08.00

Basis: Wet Weight

Seq Number: 3046657

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.13.18 19.20	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.13.18 19.20	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.13.18 19.20	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.13.18 19.20	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.13.18 19.20	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.13.18 19.20	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.13.18 19.20	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.13.18 19.20		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.13.18 19.20		



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-21 (1-2)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-085

Date Collected: 04.10.18 12.42

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.90	4.90	mg/kg	04.17.18 02.19	U	1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-21 (2-3)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-086

Date Collected: 04.10.18 12.44

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	31.4	5.00	mg/kg	04.17.18 02.25		1



Certificate of Analytical Results 581958



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-21 (3-4)**

Matrix: Soil

Date Received: 04.11.18 09.20

Lab Sample Id: 581958-087

Date Collected: 04.10.18 12.46

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: OJS

% Moisture:

Analyst: OJS

Date Prep: 04.13.18 17.00

Basis: Wet Weight

Seq Number: 3046865

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	366	4.93	mg/kg	04.17.18 02.37		1

- 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

Larson & Associates
LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3046421

MB Sample Id: 7642456-1-BLK

Matrix: Solid

LCS Sample Id: 7642456-1-BKS

Prep Method: E300P

Date Prep: 04.11.18

LCSD Sample Id: 7642456-1-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	237	95	246	98	90-110	4	20	mg/kg	04.11.18 20:35	

Analytical Method: Chloride by EPA 300

Seq Number: 3046524

MB Sample Id: 7642479-1-BLK

Matrix: Solid

LCS Sample Id: 7642479-1-BKS

Prep Method: E300P

Date Prep: 04.12.18

LCSD Sample Id: 7642479-1-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	256	102	262	105	90-110	2	20	mg/kg	04.12.18 14:17	

Analytical Method: Chloride by EPA 300

Seq Number: 3046768

MB Sample Id: 7642495-1-BLK

Matrix: Solid

LCS Sample Id: 7642495-1-BKS

Prep Method: E300P

Date Prep: 04.12.18

LCSD Sample Id: 7642495-1-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	268	107	250	100	90-110	7	20	mg/kg	04.17.18 16:00	

Analytical Method: Chloride by EPA 300

Seq Number: 3047003

MB Sample Id: 7642496-1-BLK

Matrix: Solid

LCS Sample Id: 7642496-1-BKS

Prep Method: E300P

Date Prep: 04.12.18

LCSD Sample Id: 7642496-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	263	105	264	106	90-110	0	20	mg/kg	04.17.18 19:18	

Analytical Method: Chloride by EPA 300

Seq Number: 3046862

MB Sample Id: 7642626-1-BLK

Matrix: Solid

LCS Sample Id: 7642626-1-BKS

Prep Method: E300P

Date Prep: 04.13.18

LCSD Sample Id: 7642626-1-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	247	99	260	104	90-110	5	20	mg/kg	04.16.18 21:44	

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

Larson & Associates
LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3046865

MB Sample Id: 7642633-1-BLK

Matrix: Solid

LCS Sample Id: 7642633-1-BKS

Prep Method: E300P

Date Prep: 04.13.18

LCSD Sample Id: 7642633-1-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	270	108	258	103	90-110	5	20	mg/kg	04.17.18 01:01	

Analytical Method: Chloride by EPA 300

Seq Number: 3046421

Parent Sample Id: 581958-005

Matrix: Soil

MS Sample Id: 581958-005 S

Prep Method: E300P

Date Prep: 04.11.18

MSD Sample Id: 581958-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	44.3	250	288	97	291	99	90-110	1	20	mg/kg	04.11.18 22:05	

Analytical Method: Chloride by EPA 300

Seq Number: 3046421

Parent Sample Id: 582043-010

Matrix: Soil

MS Sample Id: 582043-010 S

Prep Method: E300P

Date Prep: 04.11.18

MSD Sample Id: 582043-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	386	245	622	96	614	93	90-110	1	20	mg/kg	04.11.18 20:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3046524

Parent Sample Id: 581958-019

Matrix: Soil

MS Sample Id: 581958-019 S

Prep Method: E300P

Date Prep: 04.12.18

MSD Sample Id: 581958-019 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	245	98	251	100	90-110	2	20	mg/kg	04.12.18 16:09	

Analytical Method: Chloride by EPA 300

Seq Number: 3046524

Parent Sample Id: 582074-001

Matrix: Soil

MS Sample Id: 582074-001 S

Prep Method: E300P

Date Prep: 04.12.18

MSD Sample Id: 582074-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	543	249	786	98	794	101	90-110	1	20	mg/kg	04.12.18 14:33	

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



QC Summary 581958

Larson & Associates LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3046768

Parent Sample Id: 581958-020

Matrix: Soil

MS Sample Id: 581958-020 S

Prep Method: E300P

Date Prep: 04.12.18

MSD Sample Id: 581958-020 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.98	249	255	102	255	102	90-110	0	20	mg/kg	04.17.18 16:18	

Analytical Method: Chloride by EPA 300

Seq Number: 3046768

Parent Sample Id: 581958-030

Matrix: Soil

MS Sample Id: 581958-030 S

Prep Method: E300P

Date Prep: 04.12.18

MSD Sample Id: 581958-030 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.96	248	251	101	259	104	90-110	3	20	mg/kg	04.17.18 17:42	

Analytical Method: Chloride by EPA 300

Seq Number: 3047003

Parent Sample Id: 581958-040

Matrix: Soil

MS Sample Id: 581958-040 S

Prep Method: E300P

Date Prep: 04.12.18

MSD Sample Id: 581958-040 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	253	101	258	103	90-110	2	20	mg/kg	04.17.18 19:36	

Analytical Method: Chloride by EPA 300

Seq Number: 3047003

Parent Sample Id: 581958-050

Matrix: Soil

MS Sample Id: 581958-050 S

Prep Method: E300P

Date Prep: 04.12.18

MSD Sample Id: 581958-050 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.9	250	271	104	277	106	90-110	2	20	mg/kg	04.17.18 20:59	

Analytical Method: Chloride by EPA 300

Seq Number: 3046862

Parent Sample Id: 581958-058

Matrix: Soil

MS Sample Id: 581958-058 S

Prep Method: E300P

Date Prep: 04.13.18

MSD Sample Id: 581958-058 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<4.90	245	343	140	322	131	90-110	6	20	mg/kg	04.16.18 22:02	X

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

$[D] = 100 * (C - A) / B$
 $RPD = 200 * | (C - E) / (C + E) |$
 $[D] = 100 * (C) / [B]$

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



QC Summary 581958

Larson & Associates LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3046862

Parent Sample Id: 581958-068

Matrix: Soil

MS Sample Id: 581958-068 S

Prep Method: E300P

Date Prep: 04.13.18

MSD Sample Id: 581958-068 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	368	245	649	115	688	131	90-110	6	20	mg/kg	04.16.18 23:25	X

Analytical Method: Chloride by EPA 300

Seq Number: 3046865

Parent Sample Id: 581958-078

Matrix: Soil

MS Sample Id: 581958-078 S

Prep Method: E300P

Date Prep: 04.13.18

MSD Sample Id: 581958-078 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	29.1	248	363	135	385	144	90-110	6	20	mg/kg	04.17.18 01:19	X

Analytical Method: Chloride by EPA 300

Seq Number: 3046865

Parent Sample Id: 581958-087

Matrix: Soil

MS Sample Id: 581958-087 S

Prep Method: E300P

Date Prep: 04.13.18

MSD Sample Id: 581958-087 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	366	247	720	143	722	144	90-110	0	20	mg/kg	04.17.18 02:43	X

Analytical Method: TPH By SW8015 Mod

Seq Number: 3046456

MB Sample Id: 7642442-1-BLK

Matrix: Solid

LCS Sample Id: 7642442-1-BKS

Prep Method: TX1005P

Date Prep: 04.11.18

LCSD Sample Id: 7642442-1-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	1030	103	1020	102	70-135	1	20	mg/kg	04.11.18 11:34	
Diesel Range Organics (DRO)	<15.0	1000	1050	105	1070	107	70-135	2	20	mg/kg	04.11.18 11:34	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	93		113		114		70-135	%	04.11.18 11:34
o-Terphenyl	96		111		108		70-135	%	04.11.18 11:34

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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$

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



QC Summary 581958

Larson & Associates LMPSU 212

Analytical Method: TPH By SW8015 Mod

Seq Number: 3046457

MB Sample Id: 7642444-1-BLK

Matrix: Solid

LCS Sample Id: 7642444-1-BKS

Prep Method: TX1005P

Date Prep: 04.11.18

LCSD Sample Id: 7642444-1-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	1070	107	1060	106	70-135	1	20	mg/kg	04.12.18 00:22	
Diesel Range Organics (DRO)	<15.0	1000	1110	111	1090	109	70-135	2	20	mg/kg	04.12.18 00:22	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane	95		121		117		70-135	%	04.12.18 00:22			
o-Terphenyl	99		113		116		70-135	%	04.12.18 00:22			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3046456

Parent Sample Id: 581765-001

Matrix: Soil

MS Sample Id: 581765-001 S

Prep Method: TX1005P

Date Prep: 04.11.18

MSD Sample Id: 581765-001 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)	<15.0	997	1020	102	973	97	70-135	5	20	mg/kg	04.11.18 12:58	
Diesel Range Organics (DRO)	<15.0	997	1060	106	1020	102	70-135	4	20	mg/kg	04.11.18 12:58	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			116		111		70-135	%	04.11.18 12:58			
o-Terphenyl			112		107		70-135	%	04.11.18 12:58			

Analytical Method: TPH By SW8015 Mod

Seq Number: 3046457

Parent Sample Id: 581958-013

Matrix: Soil

MS Sample Id: 581958-013 S

Prep Method: TX1005P

Date Prep: 04.11.18

MSD Sample Id: 581958-013 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	998	1020	102	1020	102	70-135	0	20	mg/kg	04.12.18 03:06	
Diesel Range Organics (DRO)	<15.0	998	1110	111	1120	112	70-135	1	20	mg/kg	04.12.18 03:06	
Surrogate			MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date			
1-Chlorooctane			118		117		70-135	%	04.12.18 03:06			
o-Terphenyl			106		106		70-135	%	04.12.18 03:06			

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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * |(C-E) / (C+E)|$
 $[D] = 100 * (C) / [B]$

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

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

Larson & Associates
LMPSU 212

Analytical Method: BTEX by EPA 8021B

Seq Number: 3046412

MB Sample Id: 7642454-1-BLK

Matrix: Solid

LCS Sample Id: 7642454-1-BKS

Prep Method: SW5030B

Date Prep: 04.11.18

LCSD Sample Id: 7642454-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.118	117	0.118	117	70-130	0	35	mg/kg	04.11.18 08:17	
Toluene	<0.00201	0.101	0.115	114	0.114	113	70-130	1	35	mg/kg	04.11.18 08:17	
Ethylbenzene	<0.00201	0.101	0.116	115	0.114	113	70-130	2	35	mg/kg	04.11.18 08:17	
m,p-Xylenes	<0.00402	0.201	0.237	118	0.232	115	70-130	2	35	mg/kg	04.11.18 08:17	
o-Xylene	<0.00201	0.101	0.118	117	0.116	115	70-130	2	35	mg/kg	04.11.18 08:17	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits			Units	Analysis Date	
1,4-Difluorobenzene	99		108		107		70-130			%	04.11.18 08:17	
4-Bromofluorobenzene	75		96		100		70-130			%	04.11.18 08:17	

Analytical Method: BTEX by EPA 8021B

Seq Number: 3046466

MB Sample Id: 7642499-1-BLK

Matrix: Solid

LCS Sample Id: 7642499-1-BKS

Prep Method: SW5030B

Date Prep: 04.12.18

LCSD Sample Id: 7642499-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.101	0.108	107	0.108	107	70-130	0	35	mg/kg	04.12.18 07:54	
Toluene	<0.00201	0.101	0.103	102	0.104	103	70-130	1	35	mg/kg	04.12.18 07:54	
Ethylbenzene	<0.00201	0.101	0.103	102	0.103	102	70-130	0	35	mg/kg	04.12.18 07:54	
m,p-Xylenes	<0.00402	0.201	0.211	105	0.209	103	70-130	1	35	mg/kg	04.12.18 07:54	
o-Xylene	<0.00201	0.101	0.108	107	0.106	105	70-130	2	35	mg/kg	04.12.18 07:54	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	100		103		99		70-130	%	04.12.18 07:54			
4-Bromofluorobenzene	81		101		100		70-130	%	04.12.18 07:54			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3046657

MB Sample Id: 7642623-1-BLK

Matrix: Solid

LCS Sample Id: 7642623-1-BKS

Prep Method: SW5030B

Date Prep: 04.13.18

LCSD Sample Id: 7642623-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.108	107	0.102	102	70-130	6	35	mg/kg	04.13.18 09:54	
Toluene	<0.00202	0.101	0.104	103	0.0991	99	70-130	5	35	mg/kg	04.13.18 09:54	
Ethylbenzene	<0.00202	0.101	0.106	105	0.0999	100	70-130	6	35	mg/kg	04.13.18 09:54	
m,p-Xylenes	<0.00403	0.202	0.216	107	0.204	102	70-130	6	35	mg/kg	04.13.18 09:54	
o-Xylene	<0.00202	0.101	0.109	108	0.103	103	70-130	6	35	mg/kg	04.13.18 09:54	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date			
1,4-Difluorobenzene	93		101		92		70-130	%	04.13.18 09:54			
4-Bromofluorobenzene	72		99		91		70-130	%	04.13.18 09:54			

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



QC Summary 581958

Larson & Associates LMPSU 212

Analytical Method: BTEX by EPA 8021B

Seq Number: 3046412

Parent Sample Id: 581765-012

Matrix: Soil

MS Sample Id: 581765-012 S

Prep Method: SW5030B

Date Prep: 04.11.18

MSD Sample Id: 581765-012 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	0.100	0.0867	87	0.0956	96	70-130	10	35	mg/kg	04.11.18 09:07	
Toluene	<0.00200	0.100	0.0809	81	0.0896	90	70-130	10	35	mg/kg	04.11.18 09:07	
Ethylbenzene	<0.00200	0.100	0.0805	81	0.0868	87	70-130	8	35	mg/kg	04.11.18 09:07	
m,p-Xylenes	<0.00401	0.200	0.165	83	0.177	89	70-130	7	35	mg/kg	04.11.18 09:07	
o-Xylene	<0.00200	0.100	0.0810	81	0.0888	89	70-130	9	35	mg/kg	04.11.18 09:07	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	105		108		70-130	%	04.11.18 09:07
4-Bromofluorobenzene	98		98		70-130	%	04.11.18 09:07

Analytical Method: BTEX by EPA 8021B

Seq Number: 3046466

Parent Sample Id: 581958-010

Matrix: Soil

MS Sample Id: 581958-010 S

Prep Method: SW5030B

Date Prep: 04.12.18

MSD Sample Id: 581958-010 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	0.0994	0.0878	88	0.0932	93	70-130	6	35	mg/kg	04.12.18 08:32	
Toluene	<0.00199	0.0994	0.0814	82	0.0833	83	70-130	2	35	mg/kg	04.12.18 08:32	
Ethylbenzene	<0.00199	0.0994	0.0725	73	0.0746	75	70-130	3	35	mg/kg	04.12.18 08:32	
m,p-Xylenes	<0.00398	0.199	0.145	73	0.148	74	70-130	2	35	mg/kg	04.12.18 08:32	
o-Xylene	<0.00199	0.0994	0.0757	76	0.0746	75	70-130	1	35	mg/kg	04.12.18 08:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		107		70-130	%	04.12.18 08:32
4-Bromofluorobenzene	99		104		70-130	%	04.12.18 08:32

Analytical Method: BTEX by EPA 8021B

Seq Number: 3046657

Parent Sample Id: 581958-024

Matrix: Soil

MS Sample Id: 581958-024 S

Prep Method: SW5030B

Date Prep: 04.13.18

MSD Sample Id: 581958-024 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	0.0947	95	0.0868	87	70-130	9	35	mg/kg	04.13.18 11:12	
Toluene	<0.00200	0.0998	0.0891	89	0.0816	82	70-130	9	35	mg/kg	04.13.18 11:12	
Ethylbenzene	<0.00200	0.0998	0.0880	88	0.0790	79	70-130	11	35	mg/kg	04.13.18 11:12	
m,p-Xylenes	<0.00399	0.200	0.179	90	0.159	80	70-130	12	35	mg/kg	04.13.18 11:12	
o-Xylene	<0.00200	0.0998	0.0902	90	0.0795	80	70-130	13	35	mg/kg	04.13.18 11:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	108		97		70-130	%	04.13.18 11:12
4-Bromofluorobenzene	102		96		70-130	%	04.13.18 11:12

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

$[D] = 100 * (C-A) / B$
 $RPD = 200 * | (C-E) / (C+E) |$
 $[D] = 100 * (C) / [B]$

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

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

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

Data Reported to:

DATE: 4-10-2018 PAGE 2 OF 7
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: LMPSU 212
LAI PROJECT # 17-0175-39 COLLECTOR: JW/PS

PAGE 2 OF 7

581958

CHAIN-OF-CUSTODY

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION		ANALYSES		FIELD NOTES	
☐ Yes ☒ No								☐ BTEX ☒ TRPH 418.1 ☐ GASOLINE MOD 8015 ☐ DIESEL - MOD 8015 ☐ VOC 8260 ☐ SVOC 8270 ☐ 8081 PESTICIDES ☐ 8082 PCBs ☐ TCLP - METALS ☐ TCLP - PEST ☐ TOTAL METALS (RCRA) ☐ LEAD - TOTAL ☐ RCI ☐ TDS ☐ pH ☐ EXPLOSIVES ☐ CHLORIDE		☐ MTBE ☐ TPH 1005 ☐ TPH 1006 ☒ MOD ☐ HOLDPAH ☐ 8151 HERBICIDES ☐ Semi-VOC ☐ OTHER LIST ☐ D.W. 200.8 ☐ FLASHPOINT ☐ % MOISTURE ☐ PECHLORATE ☐ ANIONS ☐ ALKALINITY	
TIME ZONE:		Lab #		Date		Time		Matrix		# of Containers	
MST											
Field Sample I.D.											
DP-4 (0-1)				4/6/18		11:47		S		1	
(1-2)											
(2-3)						11:51					
DP-5 (0-1)						12:23					
(1-2)						12:26					
(2-3)						12:28					
(3-4)						12:30					
(4-5)						12:33					
DP-6 (0-1)						12:49					
(1-2)						13:00					
(2-3)						13:02					
DP-7 (0-1)						13:05					
(1-2)						13:08					
(2-3)						13:10					
TOTAL											
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME	
Jesse Winkler		4/10/18		Jesse Winkler		4/10/18		Jesse Winkler		4/10/18	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME	
Jesse Winkler		4/10/18		Jesse Winkler		4/10/18		Jesse Winkler		4/10/18	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME	
TURN AROUND TIME		NORMAL		1 DAY		2 DAY		OTHER			
LABORATORY USE ONLY:		REC		Temp: 1.4		IR ID: R-8		SED			
		CUS		CF: (0.6: -0.2°C)							
		C _v		(6-23: +0.2°C)							
		H _v		Corrected Temp: 1.2							

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

Data Reported to:

DATE: 4-10-2018 PAGE 3 OF 7
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: LMPSU 212
LAI PROJECT #: 17-0175-39 COLLECTOR: JW/DS

50/50

CHAIN-OF-CUSTODY

[illegible]

Data Reported to:

DATE: 4-10-2018 PAGE 4 OF 7
PO #: _____ LAB WORK ORDER #: _____
PROJECT LOCATION OR NAME: UMPSU 212
LAI PROJECT #: 17-0175-39 COLLECTOR: JW1PS

581958

CHAIN-OF-CUSTODY

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		TIME ZONE: Time zone/State:		PRESERVATION		ANALYSES		FIELD NOTES
Yes	No							HCl	HNO ₃	H ₂ SO ₄ ☐ NaOH ☐	ICE	
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers							
DP-11 (0-1)		4/10/18	10:38	S	1							
(1-2)			10:41									
(2-3)			10:42									
(3-4)			10:48									
(4-5)			10:52									
DP-12 (0-1)			11:22									
(1-2)			11:25									
(2-3)			11:27									
DP-13 (0-1)			11:38									
(1-2)			11:40									
(2-3)			12:03									
(3-4)			12:04									
(4-6)			12:09									
(6-8)			12:11									
TOTAL												
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY		
Jesse Winkler		4/10/18		Jesse Winkler		4/10/18		NORMAL ☒		RECEIVED Temp: 14		IR ID: R-8
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		1 DAY ☐		CUSTC CF: (0-6: -0.2°C)		
								2 DAY ☐		(6-23: +0.2°C)		
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		OTHER ☐		Corrected Temp: 1.2		
Jesse Winkler												

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

Data Reported to:

DATE: 4/10/2018 PAGE 6 OF 7
PO #: LAB WORK ORDER #:
PROJECT LOCATION OR NAME: CMPSN 212
LAI PROJECT #: 17-0179-39 COLLECTOR: JWP/PS

856185

CHAIN-OF-CUSTODY

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION		ANALYSES		FIELD NOTES			
☐ Yes ☒ No								BTEX ☒ MTBE ☐ TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☒ DIESEL - MOD 8015 ☒ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ D.W. 200.8 ☐ TCLP ☐ LEAD - TOTAL ☐ FLASHPOINT ☐ RCL ☐ TOX ☐ % MOISTURE ☐ CYANIDE ☐ TDS ☐ TSS ☐ PECTHLORATE ☐ PH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ ANIONS ☐ ALKALINITY ☐ CHLORIDE ☒ W3DO					
TIME ZONE: Time zone/State:		Lab #		Date		Time		Matrix		# of Containers			
MST													
Field Sample I.D.													
DP-19 (0-1)				4110118		10:54		S		1			
(1-2)						11:00				X			
DP-20 (0-1)						11:04				X			
(1-2)						11:13				X			
(3-4)						11:17							
(4-5)						11:23							
DP-17 (0-1)						12:04				X			
(1-2)						12:11				X			
(2-3)						12:14				X			
(3-4)						12:14							
(4-6)						12:18							
(6-8)						12:20							
TOTAL													
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME		TURN AROUND TIME		LABORATORY USE ONLY:			
Cassia Winkler		4/10/18		J. Winkler		09:20		NORMAL ☒ 1 DAY ☐ 2 DAY ☐ OTHER ☐		RECEIVED Temp: 1.4 CF: (0-6: -0.2°C) (6-23: +0.2°C) IR ID: R-8			
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME							
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)		DATE/TIME							
XENCO													

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

Data Reported to:

DATE: 4/10/2018 PAGE 7 OF 7
PO #: LAB WORK ORDER #:
PROJECT LOCATION OR NAME: LMP54 212
LAI PROJECT #: 17-0175-39 COLLECTOR: JW/PDS

50958

CHAIN-OF-CUSTODY

TRRP report?		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER		PRESERVATION		ANALYSES		FIELD NOTES																					
☐ Yes ☒ No								BTEX ☒ MTBE ☐ TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☒ DIESEL - MOD 8015 ☒ VOC 8260 ☐ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ TCLP - METALS (RCRA) ☐ TCLP VOC ☐ TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RQI ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ pH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PECTHLORATE ☐ CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐		TIME ZONE: Time zone/State:		Lab #		Date		Time		Matrix		# of Containers		HCl		HNO ₃		H ₂ SO ₄ ☐ NaOH ☐		ICE		UNPRESERVED	
RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature)		DATE/TIME 4/10/18		RECEIVED BY: (Signature) RECEIVED BY: (Signature)		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18									
RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature)		DATE/TIME 4/10/18		RECEIVED BY: (Signature) RECEIVED BY: (Signature)		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18									
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RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature)		DATE/TIME 4/10/18		RECEIVED BY: (Signature) RECEIVED BY: (Signature)		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18									
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RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature)		DATE/TIME 4/10/18		RECEIVED BY: (Signature) RECEIVED BY: (Signature)		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18		DATE/TIME 4/10/18									
RELINQUISHED BY: (Signature) RELINQUISHED BY: (Signature																															



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Larson & Associates

Date/ Time Received: 04/11/2018 09:20:00 AM

Work Order #: 581958

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)?	1.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	No
#18 Water VOC samples have zero headspace?	N/A

TPH received in bulk container

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

Analyst:

PH Device/Lot#:

Checklist completed by:

Katie Lowe

Date: 04/11/2018

Checklist reviewed by:

Kelsey Brooks

Date: 04/16/2018



Certificate of Analysis Summary 588203

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id:

Contact: Mark Larson

Project Location: 17-0175-39

Date Received in Lab: Tue Jun-05-18 04:30 pm

Report Date: 07-JUN-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	588203-001	588203-002	588203-003	588203-004	588203-005	588203-006
	<i>Field Id:</i>	DP-15 (10 ft)	DP-15 (15 ft)	DP-15 (20ft)	DP-18 (10 ft)	DP-18 (15 ft)	DP-18 (20 ft)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-05-18 10:25	Jun-05-18 10:27	Jun-05-18 10:28	Jun-05-18 10:56	Jun-05-18 10:58	Jun-05-18 11:00
Chloride by EPA 300	<i>Extracted:</i>	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00
	<i>Analyzed:</i>	Jun-06-18 15:58	Jun-06-18 16:14	Jun-06-18 16:19	Jun-06-18 16:25	Jun-06-18 16:30	Jun-06-18 16:46
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		82.1 4.95	84.8 4.95	461 4.96	30.5 4.95	166 4.92	683 4.98

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

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 588203

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id:

Contact: Mark Larson

Project Location: 17-0175-39

Date Received in Lab: Tue Jun-05-18 04:30 pm

Report Date: 07-JUN-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	588203-007	588203-008	588203-009	588203-010	588203-011	588203-012
	<i>Field Id:</i>	DP-18 (25 ft)	DP-18 (30 ft)	DP-18 (35 ft)	DP-19 (5 ft)	DP-15 (10 ft)	DP-19 (15 ft)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-05-18 11:04	Jun-05-18 11:06	Jun-05-18 11:03	Jun-05-18 12:10	Jun-05-18 12:12	Jun-05-18 12:15
Chloride by EPA 300	<i>Extracted:</i>	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00
	<i>Analyzed:</i>	Jun-06-18 16:52	Jun-06-18 16:57	Jun-06-18 17:03	Jun-06-18 17:08	Jun-06-18 17:30	Jun-06-18 17:13
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		261 4.91	29.8 4.98	34.9 4.96	5.99 4.99	775 24.8	382 4.97

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 588203

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id:

Contact: Mark Larson

Project Location: 17-0175-39

Date Received in Lab: Tue Jun-05-18 04:30 pm

Report Date: 07-JUN-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	588203-013	588203-014	588203-015	588203-016	588203-017	588203-018
	<i>Field Id:</i>	DP-19 (20 ft)	DP-19 (25 ft)	DP-19 (30 ft)	DP-19 (35 ft)	DP-20 (10 ft)	DP-20 (15 ft)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-05-18 12:18	Jun-05-18 12:21	Jun-05-18 12:25	Jun-05-18 12:30	Jun-05-18 12:38	Jun-05-18 12:40
Chloride by EPA 300	<i>Extracted:</i>	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 11:00
	<i>Analyzed:</i>	Jun-06-18 17:42	Jun-06-18 17:58	Jun-06-18 18:10	Jun-06-18 18:15	Jun-06-18 18:21	Jun-06-18 18:26
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		29.8 4.93	270 4.97	217 4.99	123 4.97	343 4.99	200 5.00

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 588203

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id:

Contact: Mark Larson

Project Location: 17-0175-39

Date Received in Lab: Tue Jun-05-18 04:30 pm

Report Date: 07-JUN-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	588203-019	588203-020	588203-021	588203-022	588203-023	588203-024
	<i>Field Id:</i>	DP-20 (20 ft)	DP-20 (25 ft)	DP-20 (30 ft)	DP-22 (0 ft)	DP-22 (5 ft)	DP-22 (10 ft)
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Jun-05-18 12:42	Jun-05-18 12:45	Jun-05-18 12:48	Jun-05-18 13:02	Jun-05-18 13:04	Jun-05-18 13:06
Chloride by EPA 300	<i>Extracted:</i>	Jun-06-18 11:00	Jun-06-18 11:00	Jun-06-18 17:15	Jun-06-18 17:15	Jun-06-18 17:15	Jun-06-18 17:15
	<i>Analyzed:</i>	Jun-06-18 18:32	Jun-06-18 18:37	Jun-06-18 19:09	Jun-06-18 19:26	Jun-06-18 19:31	Jun-06-18 19:36
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		87.9 4.96	34.5 4.99	26.1 5.00	7.17 4.97	439 4.98	165 5.00

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Kelsey Brooks
Project Manager



Certificate of Analysis Summary 588203

Larson & Associates, Midland, TX

Project Name: LMPSU 212



Project Id:

Contact: Mark Larson

Project Location: 17-0175-39

Date Received in Lab: Tue Jun-05-18 04:30 pm

Report Date: 07-JUN-18

Project Manager: Kelsey Brooks

<i>Analysis Requested</i>	<i>Lab Id:</i>	588203-025	588203-026	588203-027			
	<i>Field Id:</i>	DP-22 (15 ft)	DP-22 (20 ft)	DP-22 (25 ft)			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Jun-05-18 13:07	Jun-05-18 13:09	Jun-05-18 13:13			
Chloride by EPA 300	<i>Extracted:</i>	Jun-06-18 17:15	Jun-06-18 17:15	Jun-06-18 17:15			
	<i>Analyzed:</i>	Jun-06-18 19:42	Jun-06-18 19:58	Jun-06-18 20:03			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		15.8 4.99	16.7 4.99	5.18 4.95			

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Kelsey Brooks
Project Manager

Analytical Report 588203

for
Larson & Associates

Project Manager: Mark Larson

LMPSU 212

07-JUN-18

Collected By: Client



1211 W. Florida Ave, Midland TX 79701

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-26), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-17-16), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-17-12)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-17-16)
Xenco-Odessa (EPA Lab Code: TX00158): Texas (T104704400-18-14)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-17-3)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429)
Xenco-Lakeland: Florida (E84098)



07-JUN-18

Project Manager: **Mark Larson**

Larson & Associates

P.O. Box 50685

Midland, TX 79710

Reference: XENCO Report No(s): **588203**

LMPSU 212

Project Address: 17-0175-39

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) 588203. 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. 588203 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,

Kelsey Brooks

Project Manager

Recipient of the Prestigious Small Business Administration Award of Excellence in 1994.

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A Small Business and Minority Status Company that delivers SERVICE and QUALITY

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Larson & Associates, Midland, TX

LMPSU 212

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
DP-15 (10 ft)	S	06-05-18 10:25		588203-001
DP-15 (15 ft)	S	06-05-18 10:27		588203-002
DP-15 (20ft)	S	06-05-18 10:28		588203-003
DP-18 (10 ft)	S	06-05-18 10:56		588203-004
DP-18 (15 ft)	S	06-05-18 10:58		588203-005
DP-18 (20 ft)	S	06-05-18 11:00		588203-006
DP-18 (25 ft)	S	06-05-18 11:04		588203-007
DP-18 (30 ft)	S	06-05-18 11:06		588203-008
DP-18 (35 ft)	S	06-05-18 11:03		588203-009
DP-19 (5 ft)	S	06-05-18 12:10		588203-010
DP-15 (10 ft)	S	06-05-18 12:12		588203-011
DP-19 (15 ft)	S	06-05-18 12:15		588203-012
DP-19 (20 ft)	S	06-05-18 12:18		588203-013
DP-19 (25 ft)	S	06-05-18 12:21		588203-014
DP-19 (30 ft)	S	06-05-18 12:25		588203-015
DP-19 (35 ft)	S	06-05-18 12:30		588203-016
DP-20 (10 ft)	S	06-05-18 12:38		588203-017
DP-20 (15 ft)	S	06-05-18 12:40		588203-018
DP-20 (20 ft)	S	06-05-18 12:42		588203-019
DP-20 (25 ft)	S	06-05-18 12:45		588203-020
DP-20 (30 ft)	S	06-05-18 12:48		588203-021
DP-22 (0 ft)	S	06-05-18 13:02		588203-022
DP-22 (5 ft)	S	06-05-18 13:04		588203-023
DP-22 (10 ft)	S	06-05-18 13:06		588203-024
DP-22 (15 ft)	S	06-05-18 13:07		588203-025
DP-22 (20 ft)	S	06-05-18 13:09		588203-026
DP-22 (25 ft)	S	06-05-18 13:13		588203-027



CASE NARRATIVE

Client Name: Larson & Associates

Project Name: LMPSU 212

Project ID:
Work Order Number(s): 588203

Report Date: 07-JUN-18
Date Received: 06/05/2018

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3052587 Inorganic Anions by EPA 300

Lab Sample ID 588277-004 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 588203-021, -022, -023, -024, -025, -026, -027.

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



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (10 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-001

Date Collected: 06.05.18 10.25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	82.1	4.95	mg/kg	06.06.18 15.58		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (15 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-002

Date Collected: 06.05.18 10.27

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	84.8	4.95	mg/kg	06.06.18 16.14		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (20ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-003

Date Collected: 06.05.18 10.28

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	461	4.96	mg/kg	06.06.18 16.19		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (10 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-004

Date Collected: 06.05.18 10.56

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.5	4.95	mg/kg	06.06.18 16.25		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (15 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-005

Date Collected: 06.05.18 10.58

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	166	4.92	mg/kg	06.06.18 16.30		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (20 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-006

Date Collected: 06.05.18 11.00

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	683	4.98	mg/kg	06.06.18 16.46		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (25 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-007

Date Collected: 06.05.18 11.04

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	261	4.91	mg/kg	06.06.18 16.52		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (30 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-008

Date Collected: 06.05.18 11.06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.8	4.98	mg/kg	06.06.18 16.57		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-18 (35 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-009

Date Collected: 06.05.18 11.03

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.9	4.96	mg/kg	06.06.18 17.03		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (5 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-010

Date Collected: 06.05.18 12.10

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.99	4.99	mg/kg	06.06.18 17.08		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-15 (10 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-011

Date Collected: 06.05.18 12.12

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	775	24.8	mg/kg	06.06.18 17.30		5



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (15 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-012

Date Collected: 06.05.18 12.15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	382	4.97	mg/kg	06.06.18 17.13		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (20 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-013

Date Collected: 06.05.18 12.18

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	29.8	4.93	mg/kg	06.06.18 17.42		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-19 (25 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-014

Date Collected: 06.05.18 12.21

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	270	4.97	mg/kg	06.06.18 17.58		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-19 (30 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-015

Date Collected: 06.05.18 12.25

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	217	4.99	mg/kg	06.06.18 18.10		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-19 (35 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-016

Date Collected: 06.05.18 12.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	123	4.97	mg/kg	06.06.18 18.15		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (10 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-017

Date Collected: 06.05.18 12.38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	343	4.99	mg/kg	06.06.18 18.21		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (15 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-018

Date Collected: 06.05.18 12.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	200	5.00	mg/kg	06.06.18 18.26		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (20 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-019

Date Collected: 06.05.18 12.42

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	87.9	4.96	mg/kg	06.06.18 18.32		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-20 (25 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-020

Date Collected: 06.05.18 12.45

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 11.00

Basis: Wet Weight

Seq Number: 3052576

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	34.5	4.99	mg/kg	06.06.18 18.37		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-20 (30 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-021

Date Collected: 06.05.18 12.48

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	26.1	5.00	mg/kg	06.06.18 19.09		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-22 (0 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-022

Date Collected: 06.05.18 13.02

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.17	4.97	mg/kg	06.06.18 19.26		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-22 (5 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-023

Date Collected: 06.05.18 13.04

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	439	4.98	mg/kg	06.06.18 19.31		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX LMPSU 212

Sample Id: **DP-22 (10 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-024

Date Collected: 06.05.18 13.06

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	165	5.00	mg/kg	06.06.18 19.36		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-22 (15 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-025

Date Collected: 06.05.18 13.07

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	15.8	4.99	mg/kg	06.06.18 19.42		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-22 (20 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-026

Date Collected: 06.05.18 13.09

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	16.7	4.99	mg/kg	06.06.18 19.58		1



Certificate of Analytical Results 588203



Larson & Associates, Midland, TX

LMPSU 212

Sample Id: **DP-22 (25 ft)**

Matrix: Soil

Date Received: 06.05.18 16.30

Lab Sample Id: 588203-027

Date Collected: 06.05.18 13.13

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 06.06.18 17.15

Basis: Wet Weight

Seq Number: 3052587

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.18	4.95	mg/kg	06.06.18 20.03		1

- 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

Larson & Associates
LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3052576

MB Sample Id: 7656095-1-BLK

Matrix: Solid

LCS Sample Id: 7656095-1-BKS

Prep Method: E300P

Date Prep: 06.06.18

LCSD Sample Id: 7656095-1-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	274	110	274	110	90-110	0	20	mg/kg	06.06.18 15:47	

Analytical Method: Chloride by EPA 300

Seq Number: 3052576

MB Sample Id: 7656153-1-BLK

Matrix: Solid

LCS Sample Id: 7656153-1-BKS

Prep Method: E300P

Date Prep: 06.06.18

LCSD Sample Id: 7656153-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	262	105	262	105	90-110	0	20	mg/kg	06.06.18 18:59	

Analytical Method: Chloride by EPA 300

Seq Number: 3052576

Parent Sample Id: 588203-001

Matrix: Soil

MS Sample Id: 588203-001 S

Prep Method: E300P

Date Prep: 06.06.18

MSD Sample Id: 588203-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	82.1	248	345	106	345	106	90-110	0	20	mg/kg	06.06.18 16:03	

Analytical Method: Chloride by EPA 300

Seq Number: 3052576

Parent Sample Id: 588203-012

Matrix: Soil

MS Sample Id: 588203-012 S

Prep Method: E300P

Date Prep: 06.06.18

MSD Sample Id: 588203-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	382	249	651	108	634	101	90-110	3	20	mg/kg	06.06.18 17:19	

Analytical Method: Chloride by EPA 300

Seq Number: 3052587

Parent Sample Id: 588203-021

Matrix: Soil

MS Sample Id: 588203-021 S

Prep Method: E300P

Date Prep: 06.06.18

MSD Sample Id: 588203-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	26.1	250	305	112	296	108	90-110	3	20	mg/kg	06.06.18 19:15	X

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



QC Summary 588203

Larson & Associates

LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3052587

Parent Sample Id: 588277-004

Matrix: Soil

MS Sample Id: 588277-004 S

Prep Method: E300P

Date Prep: 06.06.18

MSD Sample Id: 588277-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	280	112	243	97	90-110	14	20	mg/kg	06.06.18 20:30	X

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

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

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

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

Date Reported to:

DATE: 6-5-18 PAGE 1 OF 2
PO#: _____ LAB WORK ORDER#: _____
PROJECT LOCATION OR NAME: LMPSU 212
LAI PROJECT #: 17-0175-39 COLLECTOR: ASht

CHAIN-OF-CUSTODY

588203

Nº 0182

TRRP report?
☐ Yes ☒ No

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

TIME ZONE:
Time zone/State:

Mst

Field
Sample I.D.

Lab #

Date

Time

Matrix

of Containers

HCl

HNO₃

H₂SO₄ ☐ NaOH ☐

ICE

UNPRESERVED

ANALYSES

BTEX ☐ MTBE ☐

TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐

GASOLINE MOD 8015 ☐

DIESEL - MOD 8015 ☐

OIL - MOD 8015 ☐

VOC 8260 ☐

SVOC 8270 ☐

8081 PESTICIDES ☐

8082 PCBs ☐

TBLP - METALS (RCRA) ☐

TCLP - METALS (RCRA) ☐

TOX ☐

FLASHPOINT ☐

% MOISTURE ☐

HEXAVALENT CHROMIUM ☐

PECHLORATE ☐

CHLORIDES ☐

ANIONS ☐

ALKALINITY ☐

FIELD NOTES

DP-15 (10ft)

(15ft)

(20ft)

DP-16 (10ft)

(15ft)

(20ft)

(25ft)

(30ft)

(35ft)

DP-19 (5ft)

(10ft)

(15ft)

(20ft)

(25ft)

(30ft)

(35ft)

TOTAL

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

RELINQUISHED BY: (Signature)

LABORATORY: Xeno

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

DATE/TIME

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

RECEIVED BY: (Signature)

TURN AROUND TIME

NORMAL ☐

1 DAY ☐

2 DAY ☒

OTHER ☐

LABORATORY USE ONLY

RECEIVING TEMP: 65.0

THERM #: 18

CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED

CARRIER BILL #

HAND DELIVERED



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

Data Reported to:

DATE: 6-5-18
PO#:
PROJECT LOCATION OR NAME: LMPSU 212
LAI PROJECT #: 17-0175-39
COLLECTOR: ASmr
PAGE 2 OF 2

588903

CHAIN-OF-CUSTODY

Nº 0183

TRRP report? ☐ Yes ☒ No		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER	
TIME ZONE: Mst		Time zone/State:			
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers
DP-19 (35ft)		6-5-18	12:30	S	1
DP-20 (10)			12:38		
(15ft)			12:40		
(20ft)			12:42		
(25ft)			12:45		
(30ft)			12:48		
DP-22 (0ft)			13:02		
(5ft)			13:04		
(10ft)			13:06		
(15ft)			13:07		
(20ft)			13:09		
(25ft)			13:13		
TOTAL					
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
LABORATORY: X 210					
ANALYSES					
BTEX ☐ MTBE ☐					
TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐					
GASOLINE MOD 8015 ☐					
DIESEL - MOD 8015 ☐					
OIL - MOD 8015 ☐					
VOC 8260 ☐					
SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐					
8081 PESTICIDES ☐ 8151 HERBICIDES ☐					
TBLP - PCBs ☐					
TCLP - METALS (RCRA) ☐ 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 ☐ PETCHLORATE ☐					
CHLORIDE ANIONS ☐ ALKALINITY ☐					
FIELD NOTES					
1300					
TURN AROUND TIME					
NORMAL ☐					
1 DAY ☐					
2 DAY ☒					
OTHER ☐					
LABORATORY USE ONLY					
RECEIVING TEMP: 62.3/60.0					
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED					
☐ CARRIER BILL #					
☐ HAND DELIVERED					



XENCO Laboratories
Prelogin/Nonconformance Report- Sample Log-In



Client: Larson & Associates

Date/ Time Received: 06/05/2018 04:30:00 PM

Work Order #: 588203

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)?	6.3
#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
#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

Brianna Teel

Date: 06/05/2018

Checklist reviewed by:

Kelsey Brooks

Kelsey Brooks

Date: 06/06/2018



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-001	620188-002	620188-003	620188-004	620188-005	620188-006
	<i>Field Id:</i>	DP-20.1 (2')	DP-20.2 (2')	DP-20.3 (2')	DP-20.4 (2')	DP-20.5 (4')	DP-19.1 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 12:52	Apr-04-19 12:54	Apr-04-19 12:55	Apr-04-19 12:57	Apr-04-19 12:59	Apr-04-19 13:11
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00
	<i>Analyzed:</i>	Apr-12-19 01:42	Apr-12-19 04:14	Apr-12-19 04:33	Apr-12-19 05:47	Apr-12-19 06:06	Apr-12-19 06:25
	<i>Units/RL:</i>	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	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199
Toluene		<0.00201 0.00201	<0.00198 0.00198	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199
Ethylbenzene		<0.00201 0.00201	<0.00198 0.00198	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199
m,p-Xylenes		<0.00402 0.00402	<0.00397 0.00397	<0.00396 0.00396	<0.00404 0.00404	<0.00398 0.00398	<0.00398 0.00398
o-Xylene		<0.00201 0.00201	<0.00198 0.00198	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199
Total Xylenes		<0.00201 0.00201	<0.00198 0.00198	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199
Total BTEX		<0.00201 0.00201	<0.00198 0.00198	<0.00198 0.00198	<0.00202 0.00202	<0.00199 0.00199	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40
	<i>Analyzed:</i>	Apr-06-19 00:18	Apr-06-19 00:39	Apr-06-19 00:46	Apr-06-19 00:52	Apr-06-19 00:59	Apr-06-19 01:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		5.00 4.95	61.2 5.04	162 5.00	<5.04 5.04	23.4 5.01	82.2 5.01
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00
	<i>Analyzed:</i>	Apr-07-19 13:30	Apr-07-19 14:27	Apr-07-19 14:46	Apr-07-19 15:05	Apr-07-19 15:24	Apr-07-19 15:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0

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

Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-007	620188-008	620188-009	620188-010	620188-011	620188-012
	<i>Field Id:</i>	DP-19.2 (2')	DP-19.3 (2')	DP-19.4 (2')	DP-19.5 (4')	DP-18.1 (2')	DP-18.2 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 13:13	Apr-04-19 13:15	Apr-04-19 13:20	Apr-04-19 13:22	Apr-04-19 13:26	Apr-04-19 13:28
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00	Apr-11-19 09:00
	<i>Analyzed:</i>	Apr-12-19 06:44	Apr-12-19 07:03	Apr-12-19 07:23	Apr-12-19 07:42	Apr-12-19 08:01	Apr-12-19 08:20
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00402 0.00402	<0.00403 0.00403	<0.00402 0.00402	<0.00402 0.00402	<0.00401 0.00401	<0.00400 0.00400
o-Xylene		<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200
Total Xylenes		<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200
Total BTEX		<0.00201 0.00201	<0.00202 0.00202	<0.00201 0.00201	<0.00201 0.00201	<0.00200 0.00200	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40
	<i>Analyzed:</i>	Apr-06-19 01:27	Apr-06-19 01:33	Apr-06-19 01:40	Apr-06-19 01:47	Apr-06-19 01:54	Apr-06-19 02:14
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		113 4.96	437 5.02	241 5.02	542 5.00	275 5.01	419 4.98
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00
	<i>Analyzed:</i>	Apr-07-19 16:03	Apr-07-19 16:22	Apr-08-19 06:27	Apr-07-19 17:00	Apr-07-19 17:57	Apr-07-19 18:16
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0

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Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-013	620188-014	620188-015	620188-016	620188-017	620188-018
	<i>Field Id:</i>	DP-18.3 (2')	DP-18.4 (2')	DP-18.5 (4')	DP-17.1(2')	DP-17.2 (2')	DP-17.3 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 13:30	Apr-04-19 13:33	Apr-04-19 13:35	Apr-04-19 13:38	Apr-04-19 13:40	Apr-04-19 13:41
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 09:00	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30
	<i>Analyzed:</i>	Apr-12-19 08:39	Apr-12-19 23:27	Apr-12-19 23:46	Apr-12-19 12:05	Apr-12-19 12:24	Apr-12-19 12:43
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	0.00204 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	0.00206 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201
m,p-Xylenes		<0.00400 0.00400	<0.00400 0.00400	<0.00398 0.00398	<0.00397 0.00397	<0.00402 0.00402	<0.00402 0.00402
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	0.00254 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	0.00254 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	0.00664 0.00199	<0.00198 0.00198	<0.00201 0.00201	<0.00201 0.00201
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 15:40
	<i>Analyzed:</i>	Apr-06-19 02:21	Apr-06-19 02:41	Apr-06-19 02:48	Apr-06-19 02:55	Apr-06-19 03:02	Apr-06-19 03:09
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		460 4.99	205 4.97	409 5.01	780 5.01	1180 24.8	343 5.04
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00	Apr-07-19 10:00
	<i>Analyzed:</i>	Apr-07-19 18:35	Apr-07-19 18:54	Apr-07-19 19:13	Apr-07-19 19:32	Apr-07-19 19:51	Apr-08-19 06:46
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	208 15.0
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	95.9 15.0
Total TPH		<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	304 15.0

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Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-019	620188-020	620188-021	620188-022	620188-023	620188-024
	<i>Field Id:</i>	DP-17.4 (2')	DP-17.5 (4')	DP-12.1 (2')	DP-12.2 (2')	DP-12.3 (2')	DP-12.4 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 13:42	Apr-04-19 13:43	Apr-04-19 13:51	Apr-04-19 13:53	Apr-04-19 13:54	Apr-04-19 13:57
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30
	<i>Analyzed:</i>	Apr-12-19 13:02	Apr-12-19 13:21	Apr-12-19 13:40	Apr-12-19 13:59	Apr-12-19 14:18	Apr-12-19 15:32
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Toluene		<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Ethylbenzene		<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
m,p-Xylenes		<0.00401 0.00401	<0.00398 0.00398	<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398	<0.00397 0.00397
o-Xylene		<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Total Xylenes		<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Total BTEX		<0.00200 0.00200	<0.00199 0.00199	<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 15:40	Apr-05-19 15:40	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30
	<i>Analyzed:</i>	Apr-06-19 03:15	Apr-06-19 03:22	Apr-06-19 04:24	Apr-06-19 04:44	Apr-06-19 04:51	Apr-06-19 04:58
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		844 24.9	959 25.1	11.1 5.00	290 4.98	69.1 5.04	13.0 5.02
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-07-19 10:00	Apr-07-19 10:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00
	<i>Analyzed:</i>	Apr-07-19 20:29	Apr-07-19 20:48	Apr-12-19 20:09	Apr-12-19 21:06	Apr-12-19 21:25	Apr-12-19 21:44
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0
Total TPH		<14.9 14.9	<15.0 15.0	<15.0 15.0	<14.9 14.9	<15.0 15.0	<15.0 15.0

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Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-025	620188-026	620188-027	620188-028	620188-029	620188-030
	<i>Field Id:</i>	DP-12.5 (4')	DP-11.1 (1')	DP-11.2 (1')	DP-11.3 (1')	DP-11.4 (1')	DP-11.5 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 13:58	Apr-04-19 14:03	Apr-04-19 14:05	Apr-04-19 14:07	Apr-04-19 14:09	Apr-04-19 14:11
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30
	<i>Analyzed:</i>	Apr-12-19 15:51	Apr-12-19 16:10	Apr-12-19 16:30	Apr-12-19 16:49	Apr-12-19 17:08	Apr-12-19 17:27
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200
Toluene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200
m,p-Xylenes		<0.00403 0.00403	<0.00404 0.00404	<0.00398 0.00398	<0.00402 0.00402	<0.00398 0.00398	<0.00400 0.00400
o-Xylene		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200
Total Xylenes		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200
Total BTEX		<0.00202 0.00202	<0.00202 0.00202	<0.00199 0.00199	<0.00201 0.00201	<0.00199 0.00199	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30
	<i>Analyzed:</i>	Apr-06-19 05:04	Apr-06-19 05:25	Apr-06-19 05:32	Apr-06-19 05:38	Apr-06-19 05:45	Apr-06-19 05:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		978 25.2	161 4.95	<5.02 5.02	<5.00 5.00	279 5.00	28.0 4.95
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00
	<i>Analyzed:</i>	Apr-12-19 22:04	Apr-12-19 22:24	Apr-12-19 22:43	Apr-13-19 23:02	Apr-13-19 23:22	Apr-13-19 23:41
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	30.9 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	17.8 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	48.7 15.0	<15.0 15.0

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Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-031	620188-032	620188-033	620188-034	620188-035	620188-036
	<i>Field Id:</i>	DP-9.1 (1')	DP-9.2 (1')	DP-9.3 (1')	DP-9.4 (1')	DP-9.5 (2')	DP-4.1 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 14:16	Apr-04-19 14:17	Apr-04-19 14:20	Apr-04-19 14:23	Apr-04-19 14:26	Apr-04-19 14:43
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 15:30	Apr-11-19 17:00	Apr-11-19 17:00	Apr-11-19 17:00
	<i>Analyzed:</i>	Apr-12-19 17:46	Apr-12-19 18:05	Apr-12-19 18:24	Apr-12-19 20:56	Apr-12-19 21:15	Apr-12-19 21:34
	<i>Units/RL:</i>	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	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	0.0485 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00402 0.00402	<0.00396 0.00396	<0.00403 0.00403	<0.00400 0.00400	0.293 0.00400	<0.00399 0.00399
o-Xylene		<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	0.124 0.00200	<0.00200 0.00200
Total Xylenes		<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	0.417 0.00200	<0.00200 0.00200
Total BTEX		<0.00201 0.00201	<0.00198 0.00198	<0.00202 0.00202	<0.00200 0.00200	0.466 0.00200	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30
	<i>Analyzed:</i>	Apr-06-19 05:59	Apr-06-19 06:19	Apr-06-19 06:26	Apr-06-19 06:46	Apr-06-19 06:53	Apr-06-19 07:00
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		14.2 4.99	5.73 5.03	<5.03 5.03	7.07 5.03	5.65 5.01	<4.96 4.96
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00
	<i>Analyzed:</i>	Apr-13-19 00:40	Apr-13-19 01:00	Apr-13-19 01:19	Apr-13-19 01:39	Apr-13-19 01:58	Apr-13-19 02:18
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	<15.0 15.0	<15.0 15.0	<15.0 15.0
Diesel Range Organics (DRO)		<15.0 15.0	<14.9 14.9	23.6 14.9	46.1 15.0	22.3 15.0	<15.0 15.0
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<14.9 14.9	<14.9 14.9	23.0 15.0	<15.0 15.0	<15.0 15.0
Total TPH		<15.0 15.0	<14.9 14.9	23.6 14.9	69.1 15.0	22.3 15.0	<15.0 15.0

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Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39

Contact: Mark Larson

Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am

Report Date: 16-APR-19

Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-037	620188-038	620188-039	620188-040	620188-041	620188-042
	<i>Field Id:</i>	DP-4.2 (2')	DP-4.3 (2')	DP-4.4 (2')	DP-4.5 (4')	DP-3.1 (2')	DP-3.2 (2')
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	Apr-04-19 14:45	Apr-04-19 14:46	Apr-04-19 14:48	Apr-04-19 14:50	Apr-04-19 14:35	Apr-04-19 14:37
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 17:00	Apr-11-19 17:00	Apr-11-19 17:00	Apr-11-19 17:00	Apr-11-19 17:00	Apr-11-19 17:00
	<i>Analyzed:</i>	Apr-12-19 21:53	Apr-12-19 22:12	Apr-12-19 22:31	Apr-12-19 22:50	Apr-12-19 23:09	Apr-12-19 23:28
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Toluene		<0.00201 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Ethylbenzene		0.0152 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	0.00576 0.00199
m,p-Xylenes		0.0839 0.00402	<0.00401 0.00401	<0.00402 0.00402	<0.00398 0.00398	<0.00397 0.00397	0.0533 0.00398
o-Xylene		0.0333 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	0.0196 0.00199
Total Xylenes		0.117 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	0.0729 0.00199
Total BTEX		0.132 0.00201	<0.00200 0.00200	<0.00201 0.00201	<0.00199 0.00199	<0.00198 0.00198	0.0787 0.00199
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 16:30	Apr-05-19 17:00	Apr-05-19 17:00
	<i>Analyzed:</i>	Apr-06-19 07:07	Apr-06-19 07:14	Apr-06-19 07:21	Apr-06-19 07:27	Apr-06-19 08:29	Apr-06-19 08:49
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		23.9 4.97	5.42 5.04	19.2 5.05	28.2 5.04	27.0 4.96	198 5.04
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-12-19 07:00	Apr-08-19 16:00	Apr-08-19 16:00
	<i>Analyzed:</i>	Apr-13-19 02:38	Apr-13-19 02:58	Apr-13-19 03:17	Apr-13-19 03:37	Apr-09-19 04:46	Apr-09-19 05:05
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Diesel Range Organics (DRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Motor Oil Range Hydrocarbons (MRO)		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9
Total TPH		<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<15.0 15.0	<14.9 14.9

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Holly Taylor
Project Manager



Certificate of Analysis Summary 620188

Larson and Associates, Inc., Midland, TX

Project Name: LMPSU 212



Project Id: 17-0175-39
Contact: Mark Larson
Project Location:

Date Received in Lab: Fri Apr-05-19 09:19 am
Report Date: 16-APR-19
Project Manager: Holly Taylor

<i>Analysis Requested</i>	<i>Lab Id:</i>	620188-043	620188-044	620188-045			
	<i>Field Id:</i>	DP-3.3 (2')	DP- 3.4 (2')	DP-3.5 (4')			
	<i>Depth:</i>						
	<i>Matrix:</i>	SOIL	SOIL	SOIL			
	<i>Sampled:</i>	Apr-04-19 14:38	Apr-04-19 14:40	Apr-04-19 14:42			
BTEX by EPA 8021B	<i>Extracted:</i>	Apr-11-19 17:00	Apr-11-19 17:00	Apr-11-19 17:00			
	<i>Analyzed:</i>	Apr-13-19 01:01	Apr-13-19 01:20	Apr-12-19 20:37			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200			
Toluene		0.00240 0.00199	<0.00200 0.00200	<0.00200 0.00200			
Ethylbenzene		0.00569 0.00199	<0.00200 0.00200	<0.00200 0.00200			
m,p-Xylenes		0.0268 0.00398	0.00632 0.00400	0.00438 0.00401			
o-Xylene		0.00957 0.00199	0.00244 0.00200	0.00201 0.00200			
Total Xylenes		0.0364 0.00199	0.00876 0.00200	0.00639 0.00200			
Total BTEX		0.0445 0.00199	0.00876 0.00200	0.00639 0.00200			
Chloride by EPA 300	<i>Extracted:</i>	Apr-05-19 17:00	Apr-05-19 17:00	Apr-05-19 17:00			
	<i>Analyzed:</i>	Apr-06-19 08:56	Apr-06-19 09:03	Apr-06-19 09:09			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Chloride		19.5 5.01	20.1 4.96	82.5 5.04			
TPH by SW8015 Mod	<i>Extracted:</i>	Apr-08-19 16:00	Apr-08-19 16:00	Apr-08-19 16:00			
	<i>Analyzed:</i>	Apr-09-19 05:25	Apr-09-19 05:44	Apr-09-19 06:42			
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL			
Gasoline Range Hydrocarbons (GRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0			
Diesel Range Organics (DRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0			
Motor Oil Range Hydrocarbons (MRO)		<14.9 14.9	<15.0 15.0	<15.0 15.0			
Total TPH		<14.9 14.9	<15.0 15.0	<15.0 15.0			

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Holly Taylor
Project Manager

Analytical Report 620188

for
Larson and Associates, Inc.

Project Manager: Mark Larson

LMPSU 212

17-0175-39

16-APR-19

Collected By: Client



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

Xenco-Houston (EPA Lab Code: TX00122):
Texas (T104704215-18-28), Arizona (AZ0765), Florida (E871002-24), Louisiana (03054)
Oklahoma (2017-142)

Xenco-Dallas (EPA Lab Code: TX01468):
Texas (T104704295-18-17), Arizona (AZ0809), Arkansas (17-063-0)

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-18-14)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-18-18)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-18-18)
Xenco-San Antonio (EPA Lab Code: TNI02385): Texas (T104704534-18-4)
Xenco Phoenix (EPA Lab Code: AZ00901): Arizona (AZ0757)
Xenco-Phoenix Mobile (EPA Lab Code: AZ00901): Arizona (AZM757)
Xenco-Atlanta (LELAP Lab ID #04176)
Xenco-Tampa: Florida (E87429), North Carolina (483)
Xenco-Lakeland: Florida (E84098)



16-APR-19

Project Manager: **Mark Larson**

Larson and Associates, Inc.

P. O. Box 50685

Midland, TX 79710

Reference: XENCO Report No(s): **620188**

LMPSU 212

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) 620188. 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. 620188 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

Project Manager

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Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
DP-20.1 (2')	S	04-04-19 12:52		620188-001
DP-20.2 (2')	S	04-04-19 12:54		620188-002
DP-20.3 (2')	S	04-04-19 12:55		620188-003
DP-20.4 (2')	S	04-04-19 12:57		620188-004
DP-20.5 (4')	S	04-04-19 12:59		620188-005
DP-19.1 (2')	S	04-04-19 13:11		620188-006
DP-19.2 (2')	S	04-04-19 13:13		620188-007
DP-19.3 (2')	S	04-04-19 13:15		620188-008
DP-19.4 (2')	S	04-04-19 13:20		620188-009
DP-19.5 (4')	S	04-04-19 13:22		620188-010
DP-18.1 (2')	S	04-04-19 13:26		620188-011
DP-18.2 (2')	S	04-04-19 13:28		620188-012
DP-18.3 (2')	S	04-04-19 13:30		620188-013
DP-18.4 (2')	S	04-04-19 13:33		620188-014
DP-18.5 (4')	S	04-04-19 13:35		620188-015
DP-17.1(2')	S	04-04-19 13:38		620188-016
DP-17.2 (2')	S	04-04-19 13:40		620188-017
DP-17.3 (2')	S	04-04-19 13:41		620188-018
DP-17.4 (2')	S	04-04-19 13:42		620188-019
DP-17.5 (4')	S	04-04-19 13:43		620188-020
DP-12.1 (2')	S	04-04-19 13:51		620188-021
DP-12.2 (2')	S	04-04-19 13:53		620188-022
DP-12.3 (2')	S	04-04-19 13:54		620188-023
DP-12.4 (2')	S	04-04-19 13:57		620188-024
DP-12.5 (4')	S	04-04-19 13:58		620188-025
DP-11.1 (1')	S	04-04-19 14:03		620188-026
DP-11.2 (1')	S	04-04-19 14:05		620188-027
DP-11.3 (1')	S	04-04-19 14:07		620188-028
DP-11.4 (1')	S	04-04-19 14:09		620188-029
DP-11.5 (2')	S	04-04-19 14:11		620188-030
DP-9.1 (1')	S	04-04-19 14:16		620188-031
DP-9.2 (1')	S	04-04-19 14:17		620188-032
DP-9.3 (1')	S	04-04-19 14:20		620188-033
DP-9.4 (1')	S	04-04-19 14:23		620188-034
DP-9.5 (2')	S	04-04-19 14:26		620188-035
DP-4.1 (2')	S	04-04-19 14:43		620188-036
DP-4.2 (2')	S	04-04-19 14:45		620188-037
DP-4.3 (2')	S	04-04-19 14:46		620188-038
DP-4.4 (2')	S	04-04-19 14:48		620188-039
DP-4.5 (4')	S	04-04-19 14:50		620188-040
DP-3.1 (2')	S	04-04-19 14:35		620188-041
DP-3.2 (2')	S	04-04-19 14:37		620188-042
DP-3.3 (2')	S	04-04-19 14:38		620188-043



Sample Cross Reference 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

DP- 3.4 (2')	S	04-04-19 14:40	620188-044
DP-3.5 (4')	S	04-04-19 14:42	620188-045



CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: LMPSU 212

Project ID: 17-0175-39
Work Order Number(s): 620188

Report Date: 16-APR-19
Date Received: 04/05/2019

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3084868 Chloride by EPA 300

Lab Sample ID 620188-011 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620188-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018, -019, -020.

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

Batch: LBA-3084871 Chloride by EPA 300

Lab Sample ID 620188-031 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered below QC limits Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620188-021, -022, -023, -024, -025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038, -039, -040.

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

Chloride, Nitrate as N, Nitrite as N Relative Percent Difference (RPD) between matrix spike and duplicate were above quality control limits.

Samples in the analytical batch are: 620188-021, -022, -023, -024, -025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038, -039, -040

Batch: LBA-3084875 Inorganic Anions by EPA 300

Chloride Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.

Samples in the analytical batch are: 620188-041, -042, -043, -044, -045

Lab Sample ID 620216-003 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD).

Chloride recovered below QC limits in the Matrix Spike. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620188-041, -042, -043, -044, -045.

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



CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: LMPSU 212

Project ID: 17-0175-39
Work Order Number(s): 620188

Report Date: 16-APR-19
Date Received: 04/05/2019

Batch: LBA-3085489 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

Lab Sample ID 620188-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). o-Xylene recovered below QC limits in the Matrix Spike. Ethylbenzene, m,p-Xylenes 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: 620188-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013.

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

Batch: LBA-3085517 BTEX by EPA 8021B

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.

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

Samples affected are: 620188-015.

Lab Sample ID 620188-014 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Ethylbenzene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 620188-014, -015, -016, -017, -018, -019, -020, -021, -022, -023, -024, -025, -026.

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

Batch: LBA-3085551 BTEX by EPA 8021B

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

Samples affected are: 620188-035, 620188-037, 620188-039, 620188-044, 620188-041, 620188-043, 620188-040.

Soil samples were not received in Terracore kits and therefore were prepared by method 5030.



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-001

Date Collected: 04.04.19 12.52

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.00	4.95	mg/kg	04.06.19 00.18		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 13.30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 13.30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 13.30	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 13.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	97	%	70-135	04.07.19 13.30		
o-Terphenyl	84-15-1	96	%	70-135	04.07.19 13.30		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-001

Date Collected: 04.04.19 12.52

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 01.42	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 01.42	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 01.42	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 01.42	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 01.42	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 01.42	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 01.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.12.19 01.42		
4-Bromofluorobenzene	460-00-4	96	%	70-130	04.12.19 01.42		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-002

Date Collected: 04.04.19 12.54

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	61.2	5.04	mg/kg	04.06.19 00.39		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 14.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 14.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 14.27	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 14.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	04.07.19 14.27		
o-Terphenyl	84-15-1	91	%	70-135	04.07.19 14.27		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-002

Date Collected: 04.04.19 12.54

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.12.19 04.14	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.12.19 04.14	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.12.19 04.14	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.12.19 04.14	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.12.19 04.14	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.12.19 04.14	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.12.19 04.14	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.12.19 04.14		
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.12.19 04.14		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-003

Date Collected: 04.04.19 12.55

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	162	5.00	mg/kg	04.06.19 00.46		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 14.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 14.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 14.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 14.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	04.07.19 14.46		
o-Terphenyl	84-15-1	91	%	70-135	04.07.19 14.46		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-003

Date Collected: 04.04.19 12.55

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.12.19 04.33	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.12.19 04.33	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.12.19 04.33	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.12.19 04.33	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.12.19 04.33	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.12.19 04.33	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.12.19 04.33	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.12.19 04.33		
4-Bromofluorobenzene	460-00-4	102	%	70-130	04.12.19 04.33		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-004

Date Collected: 04.04.19 12.57

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.04	5.04	mg/kg	04.06.19 00.52	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 15.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 15.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 15.05	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 15.05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.07.19 15.05	
o-Terphenyl	84-15-1	93	%	70-135	04.07.19 15.05	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-004

Date Collected: 04.04.19 12.57

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.12.19 05.47	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.12.19 05.47	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.12.19 05.47	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.12.19 05.47	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.12.19 05.47	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.12.19 05.47	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.12.19 05.47	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.12.19 05.47		
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.12.19 05.47		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-005

Date Collected: 04.04.19 12.59

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.4	5.01	mg/kg	04.06.19 00.59		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 15.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 15.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 15.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 15.24	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.07.19 15.24		
o-Terphenyl	84-15-1	93	%	70-135	04.07.19 15.24		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-20.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-005

Date Collected: 04.04.19 12.59

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 06.06	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 06.06	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 06.06	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 06.06	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 06.06	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 06.06	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 06.06	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		95	%	70-130	04.12.19 06.06	
1,4-Difluorobenzene	540-36-3		97	%	70-130	04.12.19 06.06	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-006

Date Collected: 04.04.19 13.11

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	82.2	5.01	mg/kg	04.06.19 01.20		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 15.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 15.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 15.44	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 15.44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.07.19 15.44	
o-Terphenyl	84-15-1	91	%	70-135	04.07.19 15.44	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-006

Date Collected: 04.04.19 13.11

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 06.25	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 06.25	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 06.25	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 06.25	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 06.25	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 06.25	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 06.25	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	84	%	70-130	04.12.19 06.25		
1,4-Difluorobenzene	540-36-3	81	%	70-130	04.12.19 06.25		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-007

Date Collected: 04.04.19 13.13

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	113	4.96	mg/kg	04.06.19 01.27		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 16.03	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 16.03	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 16.03	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 16.03	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.07.19 16.03		
o-Terphenyl	84-15-1	89	%	70-135	04.07.19 16.03		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-007

Date Collected: 04.04.19 13.13

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 06.44	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 06.44	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 06.44	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 06.44	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 06.44	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 06.44	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 06.44	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3		100	%	70-130	04.12.19 06.44	
4-Bromofluorobenzene	460-00-4		105	%	70-130	04.12.19 06.44	



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Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-008

Date Collected: 04.04.19 13.15

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	437	5.02	mg/kg	04.06.19 01.33		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.07.19 16.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.07.19 16.22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.07.19 16.22	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.07.19 16.22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	92	%	70-135	04.07.19 16.22		
o-Terphenyl	84-15-1	92	%	70-135	04.07.19 16.22		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-008

Date Collected: 04.04.19 13.15

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.12.19 07.03	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.12.19 07.03	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.12.19 07.03	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.12.19 07.03	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.12.19 07.03	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.12.19 07.03	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.12.19 07.03	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.12.19 07.03		
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.12.19 07.03		



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Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-009

Date Collected: 04.04.19 13.20

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	241	5.02	mg/kg	04.06.19 01.40		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.08.19 06.27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.08.19 06.27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.08.19 06.27	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.08.19 06.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	94	%	70-135	04.08.19 06.27		
o-Terphenyl	84-15-1	91	%	70-135	04.08.19 06.27		



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Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-009

Date Collected: 04.04.19 13.20

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 07.23	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 07.23	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 07.23	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 07.23	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 07.23	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 07.23	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 07.23	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.12.19 07.23		
1,4-Difluorobenzene	540-36-3	92	%	70-130	04.12.19 07.23		



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Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-010

Date Collected: 04.04.19 13.22

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	542	5.00	mg/kg	04.06.19 01.47		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 17.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 17.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 17.00	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 17.00	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.07.19 17.00		
o-Terphenyl	84-15-1	91	%	70-135	04.07.19 17.00		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-19.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-010

Date Collected: 04.04.19 13.22

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 07.42	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 07.42	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 07.42	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 07.42	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 07.42	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 07.42	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 07.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	04.12.19 07.42		
4-Bromofluorobenzene	460-00-4	102	%	70-130	04.12.19 07.42		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-011

Date Collected: 04.04.19 13.26

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	275	5.01	mg/kg	04.06.19 01.54		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 17.57	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 17.57	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 17.57	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 17.57	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.07.19 17.57		
o-Terphenyl	84-15-1	91	%	70-135	04.07.19 17.57		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-011

Date Collected: 04.04.19 13.26

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 08.01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 08.01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 08.01	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.12.19 08.01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 08.01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 08.01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 08.01	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		102	%	70-130	04.12.19 08.01	
1,4-Difluorobenzene	540-36-3		100	%	70-130	04.12.19 08.01	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-012

Date Collected: 04.04.19 13.28

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	419	4.98	mg/kg	04.06.19 02.14		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 18.16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 18.16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 18.16	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 18.16	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	90	%	70-135	04.07.19 18.16	
o-Terphenyl		84-15-1	87	%	70-135	04.07.19 18.16	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-012

Date Collected: 04.04.19 13.28

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 08.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 08.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 08.20	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.12.19 08.20	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 08.20	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 08.20	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 08.20	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		102	%	70-130	04.12.19 08.20	
1,4-Difluorobenzene	540-36-3		100	%	70-130	04.12.19 08.20	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-013

Date Collected: 04.04.19 13.30

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	460	4.99	mg/kg	04.06.19 02.21		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.07.19 18.35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.07.19 18.35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.07.19 18.35	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.07.19 18.35	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	90	%	70-135	04.07.19 18.35		
o-Terphenyl	84-15-1	88	%	70-135	04.07.19 18.35		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-013

Date Collected: 04.04.19 13.30

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 09.00

Basis: Wet Weight

Seq Number: 3085489

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 08.39	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 08.39	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 08.39	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.12.19 08.39	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 08.39	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 08.39	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 08.39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	04.12.19 08.39		
4-Bromofluorobenzene	460-00-4	101	%	70-130	04.12.19 08.39		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-014

Date Collected: 04.04.19 13.33

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	205	4.97	mg/kg	04.06.19 02.41		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 18.54	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 18.54	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 18.54	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 18.54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	89	%	70-135	04.07.19 18.54		
o-Terphenyl	84-15-1	88	%	70-135	04.07.19 18.54		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-014

Date Collected: 04.04.19 13.33

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 23.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 23.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 23.27	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.12.19 23.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 23.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 23.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 23.27	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3		98	%	70-130	04.12.19 23.27	
4-Bromofluorobenzene	460-00-4		97	%	70-130	04.12.19 23.27	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-015

Date Collected: 04.04.19 13.35

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	409	5.01	mg/kg	04.06.19 02.48		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 19.13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 19.13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 19.13	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 19.13	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3		90	%	70-135	04.07.19 19.13	
o-Terphenyl	84-15-1		88	%	70-135	04.07.19 19.13	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-18.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-015

Date Collected: 04.04.19 13.35

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	0.00204	0.00199	mg/kg	04.12.19 23.46		1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 23.46	U	1
Ethylbenzene	100-41-4	0.00206	0.00199	mg/kg	04.12.19 23.46		1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 23.46	U	1
o-Xylene	95-47-6	0.00254	0.00199	mg/kg	04.12.19 23.46		1
Total Xylenes	1330-20-7	0.00254	0.00199	mg/kg	04.12.19 23.46		1
Total BTEX		0.00664	0.00199	mg/kg	04.12.19 23.46		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	83		%	70-130	04.12.19 23.46	
4-Bromofluorobenzene	460-00-4	66		%	70-130	04.12.19 23.46	**



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.1(2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-016

Date Collected: 04.04.19 13.38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	780	5.01	mg/kg	04.06.19 02.55		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 19.32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 19.32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 19.32	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 19.32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	90	%	70-135	04.07.19 19.32		
o-Terphenyl	84-15-1	89	%	70-135	04.07.19 19.32		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.1(2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-016

Date Collected: 04.04.19 13.38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.12.19 12.05	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.12.19 12.05	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.12.19 12.05	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.12.19 12.05	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.12.19 12.05	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.12.19 12.05	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.12.19 12.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.12.19 12.05		
4-Bromofluorobenzene	460-00-4	95	%	70-130	04.12.19 12.05		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-017

Date Collected: 04.04.19 13.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1180	24.8	mg/kg	04.06.19 03.02		5

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 19.51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 19.51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 19.51	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 19.51	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	90	%	70-135	04.07.19 19.51	
o-Terphenyl		84-15-1	89	%	70-135	04.07.19 19.51	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-017

Date Collected: 04.04.19 13.40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 12.24	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 12.24	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 12.24	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 12.24	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 12.24	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 12.24	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 12.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.12.19 12.24		
4-Bromofluorobenzene	460-00-4	98	%	70-130	04.12.19 12.24		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-018

Date Collected: 04.04.19 13.41

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	343	5.04	mg/kg	04.06.19 03.09		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.08.19 06.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	208	15.0	mg/kg	04.08.19 06.46		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	95.9	15.0	mg/kg	04.08.19 06.46		1
Total TPH	PHC635	304	15.0	mg/kg	04.08.19 06.46		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.08.19 06.46		
o-Terphenyl	84-15-1	93	%	70-135	04.08.19 06.46		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-018

Date Collected: 04.04.19 13.41

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 12.43	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 12.43	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 12.43	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 12.43	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 12.43	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 12.43	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 12.43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.12.19 12.43		
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.12.19 12.43		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-019

Date Collected: 04.04.19 13.42

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	844	24.9	mg/kg	04.06.19 03.15		5

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.07.19 20.29	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.07.19 20.29	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.07.19 20.29	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.07.19 20.29	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.07.19 20.29		
o-Terphenyl	84-15-1	90	%	70-135	04.07.19 20.29		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-019

Date Collected: 04.04.19 13.42

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 13.02	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 13.02	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 13.02	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.12.19 13.02	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 13.02	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 13.02	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 13.02	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	93	%	70-130	04.12.19 13.02		
1,4-Difluorobenzene	540-36-3	91	%	70-130	04.12.19 13.02		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-020

Date Collected: 04.04.19 13.43

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 15.40

Basis: Wet Weight

Seq Number: 3084868

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	959	25.1	mg/kg	04.06.19 03.22		5

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.07.19 10.00

Basis: Wet Weight

Seq Number: 3085082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.07.19 20.48	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.07.19 20.48	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.07.19 20.48	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.07.19 20.48	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	92	%	70-135	04.07.19 20.48	
o-Terphenyl		84-15-1	91	%	70-135	04.07.19 20.48	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-17.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-020

Date Collected: 04.04.19 13.43

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 13.21	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 13.21	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 13.21	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 13.21	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 13.21	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 13.21	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 13.21	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3		100	%	70-130	04.12.19 13.21	
4-Bromofluorobenzene	460-00-4		101	%	70-130	04.12.19 13.21	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-021

Date Collected: 04.04.19 13.51

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	11.1	5.00	mg/kg	04.06.19 04.24		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.19 20.09	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.19 20.09	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.12.19 20.09	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.19 20.09	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.12.19 20.09		
o-Terphenyl	84-15-1	92	%	70-135	04.12.19 20.09		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-021

Date Collected: 04.04.19 13.51

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 13.40	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 13.40	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 13.40	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 13.40	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 13.40	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 13.40	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 13.40	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.12.19 13.40		
1,4-Difluorobenzene	540-36-3	100	%	70-130	04.12.19 13.40		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-022

Date Collected: 04.04.19 13.53

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	290	4.98	mg/kg	04.06.19 04.44		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.12.19 21.06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.12.19 21.06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.12.19 21.06	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.12.19 21.06	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	88	%	70-135	04.12.19 21.06		
o-Terphenyl	84-15-1	88	%	70-135	04.12.19 21.06		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-022

Date Collected: 04.04.19 13.53

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 13.59	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 13.59	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 13.59	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.12.19 13.59	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 13.59	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 13.59	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 13.59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	101	%	70-130	04.12.19 13.59		
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.12.19 13.59		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-023

Date Collected: 04.04.19 13.54

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	69.1	5.04	mg/kg	04.06.19 04.51		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.19 21.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.19 21.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.12.19 21.25	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.19 21.25	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	89	%	70-135	04.12.19 21.25	
o-Terphenyl		84-15-1	89	%	70-135	04.12.19 21.25	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-023

Date Collected: 04.04.19 13.54

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 14.18	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 14.18	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 14.18	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 14.18	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 14.18	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 14.18	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 14.18	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3		95	%	70-130	04.12.19 14.18	
4-Bromofluorobenzene	460-00-4		90	%	70-130	04.12.19 14.18	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-024

Date Collected: 04.04.19 13.57

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	13.0	5.02	mg/kg	04.06.19 04.58		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.19 21.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.19 21.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.12.19 21.44	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.19 21.44	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	93	%	70-135	04.12.19 21.44	
o-Terphenyl		84-15-1	93	%	70-135	04.12.19 21.44	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-024

Date Collected: 04.04.19 13.57

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.12.19 15.32	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.12.19 15.32	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.12.19 15.32	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.12.19 15.32	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.12.19 15.32	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.12.19 15.32	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.12.19 15.32	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	96	%	70-130	04.12.19 15.32		
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.12.19 15.32		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-025

Date Collected: 04.04.19 13.58

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	978	25.2	mg/kg	04.06.19 05.04		5

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.19 22.04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.19 22.04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.12.19 22.04	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.19 22.04	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	89	%	70-135	04.12.19 22.04	
o-Terphenyl		84-15-1	90	%	70-135	04.12.19 22.04	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-12.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-025

Date Collected: 04.04.19 13.58

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.12.19 15.51	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.12.19 15.51	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.12.19 15.51	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.12.19 15.51	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.12.19 15.51	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.12.19 15.51	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.12.19 15.51	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	94	%	70-130	04.12.19 15.51		
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.12.19 15.51		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.1 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-026

Date Collected: 04.04.19 14.03

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	161	4.95	mg/kg	04.06.19 05.25		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.19 22.24	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.19 22.24	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.12.19 22.24	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.19 22.24	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3		85	%	70-135	04.12.19 22.24	
o-Terphenyl	84-15-1		84	%	70-135	04.12.19 22.24	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.1 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-026

Date Collected: 04.04.19 14.03

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.12.19 16.10	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.12.19 16.10	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.12.19 16.10	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	04.12.19 16.10	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.12.19 16.10	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.12.19 16.10	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.12.19 16.10	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	86	%	70-130	04.12.19 16.10		
4-Bromofluorobenzene	460-00-4	80	%	70-130	04.12.19 16.10		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.2 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-027

Date Collected: 04.04.19 14.05

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.02	5.02	mg/kg	04.06.19 05.32	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.12.19 22.43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.12.19 22.43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.12.19 22.43	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.12.19 22.43	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.12.19 22.43		
o-Terphenyl	84-15-1	91	%	70-135	04.12.19 22.43		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.2 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-027

Date Collected: 04.04.19 14.05

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 16.30	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 16.30	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 16.30	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 16.30	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 16.30	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 16.30	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 16.30	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	78	%	70-130	04.12.19 16.30		
1,4-Difluorobenzene	540-36-3	82	%	70-130	04.12.19 16.30		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.3 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-028

Date Collected: 04.04.19 14.07

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.00	5.00	mg/kg	04.06.19 05.38	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 23.02	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 23.02	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 23.02	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 23.02	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-135	04.13.19 23.02	
o-Terphenyl	84-15-1	92	%	70-135	04.13.19 23.02	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.3 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-028

Date Collected: 04.04.19 14.07

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 16.49	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 16.49	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 16.49	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 16.49	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 16.49	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 16.49	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 16.49	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.12.19 16.49		
4-Bromofluorobenzene	460-00-4	102	%	70-130	04.12.19 16.49		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.4 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-029

Date Collected: 04.04.19 14.09

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	279	5.00	mg/kg	04.06.19 05.45		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 23.22	U	1
Diesel Range Organics (DRO)	C10C28DRO	30.9	15.0	mg/kg	04.13.19 23.22		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	17.8	15.0	mg/kg	04.13.19 23.22		1
Total TPH	PHC635	48.7	15.0	mg/kg	04.13.19 23.22		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.13.19 23.22	
o-Terphenyl	84-15-1	87	%	70-135	04.13.19 23.22	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.4 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-029

Date Collected: 04.04.19 14.09

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 17.08	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 17.08	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 17.08	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 17.08	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 17.08	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 17.08	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 17.08	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.12.19 17.08		
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.12.19 17.08		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.5 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-030

Date Collected: 04.04.19 14.11

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	28.0	4.95	mg/kg	04.06.19 05.52		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 23.41	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 23.41	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 23.41	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 23.41	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-135	04.13.19 23.41		
o-Terphenyl	84-15-1	90	%	70-135	04.13.19 23.41		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-11.5 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-030

Date Collected: 04.04.19 14.11

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 17.27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 17.27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 17.27	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.12.19 17.27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 17.27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 17.27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 17.27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	100	%	70-130	04.12.19 17.27		
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.12.19 17.27		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.1 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-031

Date Collected: 04.04.19 14.16

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	14.2	4.99	mg/kg	04.06.19 05.59		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 00.40	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 00.40	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 00.40	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 00.40	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	86	%	70-135	04.13.19 00.40	
o-Terphenyl	84-15-1	84	%	70-135	04.13.19 00.40	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.1 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-031

Date Collected: 04.04.19 14.16

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 17.46	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 17.46	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 17.46	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 17.46	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 17.46	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 17.46	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 17.46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	97	%	70-130	04.12.19 17.46		
1,4-Difluorobenzene	540-36-3	97	%	70-130	04.12.19 17.46		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.2 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-032

Date Collected: 04.04.19 14.17

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.73	5.03	mg/kg	04.06.19 06.19		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.13.19 01.00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.13.19 01.00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.13.19 01.00	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.13.19 01.00	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	89	%	70-135	04.13.19 01.00	
o-Terphenyl		84-15-1	88	%	70-135	04.13.19 01.00	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.2 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-032

Date Collected: 04.04.19 14.17

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.12.19 18.05	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.12.19 18.05	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.12.19 18.05	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	04.12.19 18.05	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.12.19 18.05	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.12.19 18.05	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.12.19 18.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	99	%	70-130	04.12.19 18.05		
4-Bromofluorobenzene	460-00-4	99	%	70-130	04.12.19 18.05		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.3 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-033

Date Collected: 04.04.19 14.20

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<5.03	5.03	mg/kg	04.06.19 06.26	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.13.19 01.19	U	1
Diesel Range Organics (DRO)	C10C28DRO	23.6	14.9	mg/kg	04.13.19 01.19		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.13.19 01.19	U	1
Total TPH	PHC635	23.6	14.9	mg/kg	04.13.19 01.19		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	93	%	70-135	04.13.19 01.19		
o-Terphenyl	84-15-1	92	%	70-135	04.13.19 01.19		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.3 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-033

Date Collected: 04.04.19 14.20

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 15.30

Basis: Wet Weight

Seq Number: 3085517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	04.12.19 18.24	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	04.12.19 18.24	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	04.12.19 18.24	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	04.12.19 18.24	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	04.12.19 18.24	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	04.12.19 18.24	U	1
Total BTEX		<0.00202	0.00202	mg/kg	04.12.19 18.24	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	84	%	70-130	04.12.19 18.24		
1,4-Difluorobenzene	540-36-3	88	%	70-130	04.12.19 18.24		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.4 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-034

Date Collected: 04.04.19 14.23

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	7.07	5.03	mg/kg	04.06.19 06.46		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 01.39	U	1
Diesel Range Organics (DRO)	C10C28DRO	46.1	15.0	mg/kg	04.13.19 01.39		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	23.0	15.0	mg/kg	04.13.19 01.39		1
Total TPH	PHC635	69.1	15.0	mg/kg	04.13.19 01.39		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-135	04.13.19 01.39		
o-Terphenyl	84-15-1	90	%	70-135	04.13.19 01.39		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.4 (1')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-034

Date Collected: 04.04.19 14.23

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 20.56	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 20.56	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 20.56	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	04.12.19 20.56	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 20.56	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 20.56	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 20.56	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.12.19 20.56		
4-Bromofluorobenzene	460-00-4	122	%	70-130	04.12.19 20.56		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.5 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-035

Date Collected: 04.04.19 14.26

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.65	5.01	mg/kg	04.06.19 06.53		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 01.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	22.3	15.0	mg/kg	04.13.19 01.58		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 01.58	U	1
Total TPH	PHC635	22.3	15.0	mg/kg	04.13.19 01.58		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-135	04.13.19 01.58		
o-Terphenyl	84-15-1	88	%	70-135	04.13.19 01.58		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-9.5 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-035

Date Collected: 04.04.19 14.26

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 21.15	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 21.15	U	1
Ethylbenzene	100-41-4	0.0485	0.00200	mg/kg	04.12.19 21.15		1
m,p-Xylenes	179601-23-1	0.293	0.00400	mg/kg	04.12.19 21.15		1
o-Xylene	95-47-6	0.124	0.00200	mg/kg	04.12.19 21.15		1
Total Xylenes	1330-20-7	0.417	0.00200	mg/kg	04.12.19 21.15		1
Total BTEX		0.466	0.00200	mg/kg	04.12.19 21.15		1
		% Recovery					
Surrogate	Cas Number		Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	115	%	70-130	04.12.19 21.15		
4-Bromofluorobenzene	460-00-4	263	%	70-130	04.12.19 21.15	**	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-036

Date Collected: 04.04.19 14.43

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<4.96	4.96	mg/kg	04.06.19 07.00	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 02.18	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 02.18	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 02.18	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 02.18	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	83	%	70-135	04.13.19 02.18		
o-Terphenyl	84-15-1	81	%	70-135	04.13.19 02.18		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-036

Date Collected: 04.04.19 14.43

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 21.34	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 21.34	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 21.34	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	04.12.19 21.34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 21.34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 21.34	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 21.34	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	103	%	70-130	04.12.19 21.34		
4-Bromofluorobenzene	460-00-4	123	%	70-130	04.12.19 21.34		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-037

Date Collected: 04.04.19 14.45

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.9	4.97	mg/kg	04.06.19 07.07		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 02.38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 02.38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 02.38	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 02.38	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	96	%	70-135	04.13.19 02.38		
o-Terphenyl	84-15-1	96	%	70-135	04.13.19 02.38		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-037

Date Collected: 04.04.19 14.45

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 21.53	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 21.53	U	1
Ethylbenzene	100-41-4	0.0152	0.00201	mg/kg	04.12.19 21.53		1
m,p-Xylenes	179601-23-1	0.0839	0.00402	mg/kg	04.12.19 21.53		1
o-Xylene	95-47-6	0.0333	0.00201	mg/kg	04.12.19 21.53		1
Total Xylenes	1330-20-7	0.117	0.00201	mg/kg	04.12.19 21.53		1
Total BTEX		0.132	0.00201	mg/kg	04.12.19 21.53		1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3		117	%	70-130	04.12.19 21.53	
4-Bromofluorobenzene	460-00-4		163	%	70-130	04.12.19 21.53	**



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-038

Date Collected: 04.04.19 14.46

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5.42	5.04	mg/kg	04.06.19 07.14		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 02.58	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 02.58	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 02.58	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 02.58	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	87	%	70-135	04.13.19 02.58	
o-Terphenyl		84-15-1	86	%	70-135	04.13.19 02.58	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-038

Date Collected: 04.04.19 14.46

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 22.12	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 22.12	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 22.12	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	04.12.19 22.12	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	04.12.19 22.12	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	04.12.19 22.12	U	1
Total BTEX		<0.00200	0.00200	mg/kg	04.12.19 22.12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	04.12.19 22.12		
4-Bromofluorobenzene	460-00-4	118	%	70-130	04.12.19 22.12		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-039

Date Collected: 04.04.19 14.48

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.2	5.05	mg/kg	04.06.19 07.21		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 03.17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 03.17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 03.17	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 03.17	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	87	%	70-135	04.13.19 03.17		
o-Terphenyl	84-15-1	86	%	70-135	04.13.19 03.17		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-039

Date Collected: 04.04.19 14.48

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	04.12.19 22.31	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	04.12.19 22.31	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	04.12.19 22.31	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	04.12.19 22.31	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	04.12.19 22.31	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	04.12.19 22.31	U	1
Total BTEX		<0.00201	0.00201	mg/kg	04.12.19 22.31	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3		99	%	70-130	04.12.19 22.31	
4-Bromofluorobenzene	460-00-4		131	%	70-130	04.12.19 22.31	**



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-040

Date Collected: 04.04.19 14.50

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 16.30

Basis: Wet Weight

Seq Number: 3084871

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	28.2	5.04	mg/kg	04.06.19 07.27		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.12.19 07.00

Basis: Wet Weight

Seq Number: 3085687

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.13.19 03.37	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.13.19 03.37	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.13.19 03.37	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.13.19 03.37	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-135	04.13.19 03.37		
o-Terphenyl	84-15-1	87	%	70-135	04.13.19 03.37		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-4.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-040

Date Collected: 04.04.19 14.50

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 22.50	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 22.50	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	04.12.19 22.50	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	04.12.19 22.50	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	04.12.19 22.50	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	04.12.19 22.50	U	1
Total BTEX		<0.00199	0.00199	mg/kg	04.12.19 22.50	U	1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		148	%	70-130	04.12.19 22.50	**
1,4-Difluorobenzene	540-36-3		99	%	70-130	04.12.19 22.50	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-041

Date Collected: 04.04.19 14.35

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 17.00

Basis: Wet Weight

Seq Number: 3084875

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.0	4.96	mg/kg	04.06.19 08.29		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.08.19 16.00

Basis: Wet Weight

Seq Number: 3085090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.09.19 04.46	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.09.19 04.46	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.09.19 04.46	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.09.19 04.46	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-135	04.09.19 04.46	
o-Terphenyl	84-15-1	90	%	70-135	04.09.19 04.46	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.1 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-041

Date Collected: 04.04.19 14.35

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	04.12.19 23.09	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	04.12.19 23.09	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	04.12.19 23.09	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	04.12.19 23.09	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	04.12.19 23.09	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	04.12.19 23.09	U	1
Total BTEX		<0.00198	0.00198	mg/kg	04.12.19 23.09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	98	%	70-130	04.12.19 23.09		
4-Bromofluorobenzene	460-00-4	142	%	70-130	04.12.19 23.09	**	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-042

Date Collected: 04.04.19 14.37

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 17.00

Basis: Wet Weight

Seq Number: 3084875

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	198	5.04	mg/kg	04.06.19 08.49		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.08.19 16.00

Basis: Wet Weight

Seq Number: 3085090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.09.19 05.05	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.09.19 05.05	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.09.19 05.05	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.09.19 05.05	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	91	%	70-135	04.09.19 05.05		
o-Terphenyl	84-15-1	87	%	70-135	04.09.19 05.05		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.2 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-042

Date Collected: 04.04.19 14.37

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.12.19 23.28	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	04.12.19 23.28	U	1
Ethylbenzene	100-41-4	0.00576	0.00199	mg/kg	04.12.19 23.28		1
m,p-Xylenes	179601-23-1	0.0533	0.00398	mg/kg	04.12.19 23.28		1
o-Xylene	95-47-6	0.0196	0.00199	mg/kg	04.12.19 23.28		1
Total Xylenes	1330-20-7	0.0729	0.00199	mg/kg	04.12.19 23.28		1
Total BTEX		0.0787	0.00199	mg/kg	04.12.19 23.28		1
		% Recovery					
Surrogate	Cas Number			Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4		103	%	70-130	04.12.19 23.28	
1,4-Difluorobenzene	540-36-3		107	%	70-130	04.12.19 23.28	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-043

Date Collected: 04.04.19 14.38

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 17.00

Basis: Wet Weight

Seq Number: 3084875

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	19.5	5.01	mg/kg	04.06.19 08.56		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.08.19 16.00

Basis: Wet Weight

Seq Number: 3085090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<14.9	14.9	mg/kg	04.09.19 05.25	U	1
Diesel Range Organics (DRO)	C10C28DRO	<14.9	14.9	mg/kg	04.09.19 05.25	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<14.9	14.9	mg/kg	04.09.19 05.25	U	1
Total TPH	PHC635	<14.9	14.9	mg/kg	04.09.19 05.25	U	1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3		90	%	70-135	04.09.19 05.25	
o-Terphenyl	84-15-1		87	%	70-135	04.09.19 05.25	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.3 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-043

Date Collected: 04.04.19 14.38

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	04.13.19 01.01	U	1
Toluene	108-88-3	0.00240	0.00199	mg/kg	04.13.19 01.01		1
Ethylbenzene	100-41-4	0.00569	0.00199	mg/kg	04.13.19 01.01		1
m,p-Xylenes	179601-23-1	0.0268	0.00398	mg/kg	04.13.19 01.01		1
o-Xylene	95-47-6	0.00957	0.00199	mg/kg	04.13.19 01.01		1
Total Xylenes	1330-20-7	0.0364	0.00199	mg/kg	04.13.19 01.01		1
Total BTEX		0.0445	0.00199	mg/kg	04.13.19 01.01		1
Surrogate	Cas Number	% Recovery		Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	156		%	70-130	04.13.19 01.01	**
1,4-Difluorobenzene	540-36-3	104		%	70-130	04.13.19 01.01	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP- 3.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-044

Date Collected: 04.04.19 14.40

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 17.00

Basis: Wet Weight

Seq Number: 3084875

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	20.1	4.96	mg/kg	04.06.19 09.03		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.08.19 16.00

Basis: Wet Weight

Seq Number: 3085090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.09.19 05.44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.09.19 05.44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.09.19 05.44	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.09.19 05.44	U	1
Surrogate		Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane		111-85-3	89	%	70-135	04.09.19 05.44	
o-Terphenyl		84-15-1	86	%	70-135	04.09.19 05.44	



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP- 3.4 (2')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-044

Date Collected: 04.04.19 14.40

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.13.19 01.20	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.13.19 01.20	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.13.19 01.20	U	1
m,p-Xylenes	179601-23-1	0.00632	0.00400	mg/kg	04.13.19 01.20		1
o-Xylene	95-47-6	0.00244	0.00200	mg/kg	04.13.19 01.20		1
Total Xylenes	1330-20-7	0.00876	0.00200	mg/kg	04.13.19 01.20		1
Total BTEX		0.00876	0.00200	mg/kg	04.13.19 01.20		1
		% Recovery					
Surrogate	Cas Number		Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	159	%	70-130	04.13.19 01.20	**	
1,4-Difluorobenzene	540-36-3	102	%	70-130	04.13.19 01.20		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-045

Date Collected: 04.04.19 14.42

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

% Moisture:

Analyst: SPC

Date Prep: 04.05.19 17.00

Basis: Wet Weight

Seq Number: 3084875

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	82.5	5.04	mg/kg	04.06.19 09.09		1

Analytical Method: TPH by SW8015 Mod

Prep Method: TX1005P

Tech: ARM

% Moisture:

Analyst: ARM

Date Prep: 04.08.19 16.00

Basis: Wet Weight

Seq Number: 3085090

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<15.0	15.0	mg/kg	04.09.19 06.42	U	1
Diesel Range Organics (DRO)	C10C28DRO	<15.0	15.0	mg/kg	04.09.19 06.42	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<15.0	15.0	mg/kg	04.09.19 06.42	U	1
Total TPH	PHC635	<15.0	15.0	mg/kg	04.09.19 06.42	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	90	%	70-135	04.09.19 06.42		
o-Terphenyl	84-15-1	87	%	70-135	04.09.19 06.42		



Certificate of Analytical Results 620188



Larson and Associates, Inc., Midland, TX

LMPSU 212

Sample Id: **DP-3.5 (4')**

Matrix: Soil

Date Received: 04.05.19 09.19

Lab Sample Id: 620188-045

Date Collected: 04.04.19 14.42

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5030B

Tech: SCM

% Moisture:

Analyst: SCM

Date Prep: 04.11.19 17.00

Basis: Wet Weight

Seq Number: 3085551

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	04.12.19 20.37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	04.12.19 20.37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	04.12.19 20.37	U	1
m,p-Xylenes	179601-23-1	0.00438	0.00401	mg/kg	04.12.19 20.37		1
o-Xylene	95-47-6	0.00201	0.00200	mg/kg	04.12.19 20.37		1
Total Xylenes	1330-20-7	0.00639	0.00200	mg/kg	04.12.19 20.37		1
Total BTEX		0.00639	0.00200	mg/kg	04.12.19 20.37		1
		% Recovery					
Surrogate	Cas Number		Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	04.12.19 20.37		
1,4-Difluorobenzene	540-36-3	101	%	70-130	04.12.19 20.37		

- 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 620188

Larson and Associates, Inc. LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3084868

MB Sample Id: 7675242-1-BLK

Matrix: Solid

LCS Sample Id: 7675242-1-BKS

Prep Method: E300P

Date Prep: 04.05.19

LCSD Sample Id: 7675242-1-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	237	95	248	99	90-110	5	20	mg/kg	04.06.19 00:05	

Analytical Method: Chloride by EPA 300

Seq Number: 3084871

MB Sample Id: 7675245-1-BLK

Matrix: Solid

LCS Sample Id: 7675245-1-BKS

Prep Method: E300P

Date Prep: 04.05.19

LCSD Sample Id: 7675245-1-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	235	94	246	98	90-110	5	20	mg/kg	04.06.19 04:10	

Analytical Method: Chloride by EPA 300

Seq Number: 3084875

MB Sample Id: 7675246-1-BLK

Matrix: Solid

LCS Sample Id: 7675246-1-BKS

Prep Method: E300P

Date Prep: 04.05.19

LCSD Sample Id: 7675246-1-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	250	100	240	96	90-110	4	20	mg/kg	04.06.19 08:15	

Analytical Method: Chloride by EPA 300

Seq Number: 3084868

Parent Sample Id: 620188-001

Matrix: Soil

MS Sample Id: 620188-001 S

Prep Method: E300P

Date Prep: 04.05.19

MSD Sample Id: 620188-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	5.00	248	285	113	268	106	90-110	6	20	mg/kg	04.06.19 00:25	X

Analytical Method: Chloride by EPA 300

Seq Number: 3084868

Parent Sample Id: 620188-011

Matrix: Soil

MS Sample Id: 620188-011 S

Prep Method: E300P

Date Prep: 04.05.19

MSD Sample Id: 620188-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	275	251	515	96	516	96	90-110	0	20	mg/kg	04.06.19 02:01	

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



QC Summary 620188

Larson and Associates, Inc. LMPSU 212

Analytical Method: Chloride by EPA 300

Seq Number: 3084871

Parent Sample Id: 620188-021

Matrix: Soil

MS Sample Id: 620188-021 S

Prep Method: E300P

Date Prep: 04.05.19

MSD Sample Id: 620188-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	11.1	250	228	87	262	100	90-110	14	20	mg/kg	04.06.19 04:30	X

Analytical Method: Chloride by EPA 300

Seq Number: 3084871

Parent Sample Id: 620188-031

Matrix: Soil

MS Sample Id: 620188-031 S

Prep Method: E300P

Date Prep: 04.05.19

MSD Sample Id: 620188-031 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	14.2	250	177	65	256	97	90-110	36	20	mg/kg	04.06.19 06:06	XF

Analytical Method: Chloride by EPA 300

Seq Number: 3084875

Parent Sample Id: 620188-041

Matrix: Soil

MS Sample Id: 620188-041 S

Prep Method: E300P

Date Prep: 04.05.19

MSD Sample Id: 620188-041 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	27.0	248	214	75	285	104	90-110	28	20	mg/kg	04.06.19 08:35	XF

Analytical Method: Chloride by EPA 300

Seq Number: 3084875

Parent Sample Id: 620216-003

Matrix: Soil

MS Sample Id: 620216-003 S

Prep Method: E300P

Date Prep: 04.05.19

MSD Sample Id: 620216-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	21.7	252	203	72	266	97	90-110	27	20	mg/kg	04.06.19 10:11	XF

Analytical Method: TPH by SW8015 Mod

Seq Number: 3085082

MB Sample Id: 7675268-1-BLK

Matrix: Solid

LCS Sample Id: 7675268-1-BKS

Prep Method: TX1005P

Date Prep: 04.07.19

LCSD Sample Id: 7675268-1-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)	<8.00	1000	959	96	993	99	70-135	3	20	mg/kg	04.07.19 12:52	
Diesel Range Organics (DRO)	<8.13	1000	1020	102	1060	106	70-135	4	20	mg/kg	04.07.19 12:52	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		123		127		70-135	%	04.07.19 12:52
o-Terphenyl	103		119		122		70-135	%	04.07.19 12:52

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

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

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



QC Summary 620188

Larson and Associates, Inc. LMPSU 212

Analytical Method: TPH by SW8015 Mod

Seq Number: 3085090

MB Sample Id: 7675365-1-BLK

Matrix: Solid

LCS Sample Id: 7675365-1-BKS

Prep Method: TX1005P

Date Prep: 04.08.19

LCSD Sample Id: 7675365-1-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)	<8.00	1000	968	97	1010	101	70-135	4	20	mg/kg	04.09.19 01:35	
Diesel Range Organics (DRO)	<8.13	1000	1050	105	1110	111	70-135	6	20	mg/kg	04.09.19 01:35	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1-Chlorooctane	104		127		123		70-135	%	04.09.19 01:35			
o-Terphenyl	106		122		128		70-135	%	04.09.19 01:35			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3085687

MB Sample Id: 7675745-1-BLK

Matrix: Solid

LCS Sample Id: 7675745-1-BKS

Prep Method: TX1005P

Date Prep: 04.12.19

LCSD Sample Id: 7675745-1-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)	<8.00	1000	1050	105	1010	101	70-135	4	20	mg/kg	04.12.19 19:31	
Diesel Range Organics (DRO)	<8.13	1000	1090	109	1050	105	70-135	4	20	mg/kg	04.12.19 19:31	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1-Chlorooctane	111		124		125		70-135	%	04.12.19 19:31			
o-Terphenyl	113		112		113		70-135	%	04.12.19 19:31			

Analytical Method: TPH by SW8015 Mod

Seq Number: 3085082

Parent Sample Id: 620188-001

Matrix: Soil

MS Sample Id: 620188-001 S

Prep Method: TX1005P

Date Prep: 04.07.19

MSD Sample Id: 620188-001 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)	<7.98	997	941	94	942	94	70-135	0	20	mg/kg	04.07.19 13:49	
Diesel Range Organics (DRO)	<8.10	997	1010	101	1020	102	70-135	1	20	mg/kg	04.07.19 13:49	
Surrogate			MS %Rec	MS Flag		MSD %Rec	MSD Flag		Limits	Units	Analysis Date	
1-Chlorooctane			119			119			70-135	%	04.07.19 13:49	
o-Terphenyl			109			114			70-135	%	04.07.19 13:49	

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

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

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



QC Summary 620188

Larson and Associates, Inc. LMPSU 212

Analytical Method: TPH by SW8015 Mod

Seq Number: 3085090

Parent Sample Id: 620070-001

Matrix: Soil

MS Sample Id: 620070-001 S

Prep Method: TX1005P

Date Prep: 04.08.19

MSD Sample Id: 620070-001 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)	<7.99	999	921	92	927	93	70-135	1	20	mg/kg	04.09.19 02:33	
Diesel Range Organics (DRO)	<8.12	999	1020	102	1020	102	70-135	0	20	mg/kg	04.09.19 02:33	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	116		118		70-135	%	04.09.19 02:33
o-Terphenyl	95		109		70-135	%	04.09.19 02:33

Analytical Method: TPH by SW8015 Mod

Seq Number: 3085687

Parent Sample Id: 620188-021

Matrix: Soil

MS Sample Id: 620188-021 S

Prep Method: TX1005P

Date Prep: 04.12.19

MSD Sample Id: 620188-021 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)	<7.99	999	969	97	982	98	70-135	1	20	mg/kg	04.12.19 20:28	
Diesel Range Organics (DRO)	<8.12	999	1020	102	1020	102	70-135	0	20	mg/kg	04.12.19 20:28	

Surrogate

	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	117		118		70-135	%	04.12.19 20:28
o-Terphenyl	113		116		70-135	%	04.12.19 20:28

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085489

MB Sample Id: 7675646-1-BLK

Matrix: Solid

LCS Sample Id: 7675646-1-BKS

Prep Method: SW5030B

Date Prep: 04.11.19

LCSD Sample Id: 7675646-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000382	0.0992	0.0890	90	0.0924	93	70-130	4	35	mg/kg	04.11.19 23:50	
Toluene	<0.000452	0.0992	0.0900	91	0.0930	93	70-130	3	35	mg/kg	04.11.19 23:50	
Ethylbenzene	<0.000560	0.0992	0.0833	84	0.0860	86	70-130	3	35	mg/kg	04.11.19 23:50	
m,p-Xylenes	<0.00101	0.198	0.165	83	0.171	86	70-130	4	35	mg/kg	04.11.19 23:50	
o-Xylene	<0.000342	0.0992	0.0837	84	0.0879	88	70-130	5	35	mg/kg	04.11.19 23:50	

Surrogate

	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	91		97		100		70-130	%	04.11.19 23:50
4-Bromofluorobenzene	86		92		98		70-130	%	04.11.19 23:50

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

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

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



QC Summary 620188

Larson and Associates, Inc.
LMPSU 212

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085517

MB Sample Id: 7675655-1-BLK

Matrix: Solid

LCS Sample Id: 7675655-1-BKS

Prep Method: SW5030B

Date Prep: 04.11.19

LCSD Sample Id: 7675655-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.0873	87	0.0883	89	70-130	1	35	mg/kg	04.12.19 09:35	
Toluene	<0.000457	0.100	0.0875	88	0.0881	88	70-130	1	35	mg/kg	04.12.19 09:35	
Ethylbenzene	<0.000566	0.100	0.0808	81	0.0808	81	70-130	0	35	mg/kg	04.12.19 09:35	
m,p-Xylenes	<0.00102	0.200	0.161	81	0.161	81	70-130	0	35	mg/kg	04.12.19 09:35	
o-Xylene	<0.000345	0.100	0.0818	82	0.0840	84	70-130	3	35	mg/kg	04.12.19 09:35	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1,4-Difluorobenzene	91		97		100		70-130	%	04.12.19 09:35			
4-Bromofluorobenzene	86		92		99		70-130	%	04.12.19 09:35			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085551

MB Sample Id: 7675680-1-BLK

Matrix: Solid

LCS Sample Id: 7675680-1-BKS

Prep Method: SW5030B

Date Prep: 04.11.19

LCSD Sample Id: 7675680-1-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	0.0998	0.0924	93	0.0938	95	70-130	2	35	mg/kg	04.12.19 18:44	
Toluene	<0.00200	0.0998	0.0895	90	0.0915	92	70-130	2	35	mg/kg	04.12.19 18:44	
Ethylbenzene	<0.000564	0.0998	0.0957	96	0.0962	97	70-130	1	35	mg/kg	04.12.19 18:44	
m,p-Xylenes	<0.00101	0.200	0.211	106	0.203	103	70-130	4	35	mg/kg	04.12.19 18:44	
o-Xylene	<0.000344	0.0998	0.107	107	0.103	104	70-130	4	35	mg/kg	04.12.19 18:44	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date	Flag		
1,4-Difluorobenzene	104		99		99		70-130	%	04.12.19 18:44			
4-Bromofluorobenzene	111		105		105		70-130	%	04.12.19 18:44			

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085489

Parent Sample Id: 620188-001

Matrix: Soil

MS Sample Id: 620188-001 S

Prep Method: SW5030B

Date Prep: 04.11.19

MSD Sample Id: 620188-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000386	0.100	0.0734	73	0.0815	81	70-130	10	35	mg/kg	04.12.19 00:28	
Toluene	<0.000457	0.100	0.0737	74	0.0790	78	70-130	7	35	mg/kg	04.12.19 00:28	
Ethylbenzene	<0.000566	0.100	0.0682	68	0.0699	69	70-130	2	35	mg/kg	04.12.19 00:28	X
m,p-Xylenes	<0.00102	0.200	0.135	68	0.137	68	70-130	1	35	mg/kg	04.12.19 00:28	X
o-Xylene	<0.000345	0.100	0.0691	69	0.0704	70	70-130	2	35	mg/kg	04.12.19 00:28	X
Surrogate			MS %Rec	MS Flag		MSD %Rec	MSD Flag	Limits		Units	Analysis Date	
1,4-Difluorobenzene			97			100		70-130		%	04.12.19 00:28	
4-Bromofluorobenzene			95			99		70-130		%	04.12.19 00:28	

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



QC Summary 620188

Larson and Associates, Inc. LMPSU 212

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085517

Parent Sample Id: 620188-014

Matrix: Soil

MS Sample Id: 620188-014 S

Prep Method: SW5030B

Date Prep: 04.11.19

MSD Sample Id: 620188-014 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.000385	0.100	0.0732	73	0.0736	73	70-130	1	35	mg/kg	04.12.19 22:13	
Toluene	<0.000456	0.100	0.0720	72	0.0721	71	70-130	0	35	mg/kg	04.12.19 22:13	
Ethylbenzene	<0.000565	0.100	0.0654	65	0.0649	64	70-130	1	35	mg/kg	04.12.19 22:13	X
m,p-Xylenes	<0.00101	0.200	0.129	65	0.128	63	70-130	1	35	mg/kg	04.12.19 22:13	X
o-Xylene	<0.000344	0.100	0.0657	66	0.0650	64	70-130	1	35	mg/kg	04.12.19 22:13	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	99		100		70-130	%	04.12.19 22:13
4-Bromofluorobenzene	98		101		70-130	%	04.12.19 22:13

Analytical Method: BTEX by EPA 8021B

Seq Number: 3085551

Parent Sample Id: 620188-045

Matrix: Soil

MS Sample Id: 620188-045 S

Prep Method: SW5030B

Date Prep: 04.11.19

MSD Sample Id: 620188-045 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00201	0.100	0.0842	84	0.0891	88	70-130	6	35	mg/kg	04.12.19 19:22	
Toluene	<0.000457	0.100	0.0823	82	0.0878	87	70-130	6	35	mg/kg	04.12.19 19:22	
Ethylbenzene	0.000792	0.100	0.0857	85	0.0912	90	70-130	6	35	mg/kg	04.12.19 19:22	
m,p-Xylenes	0.00438	0.201	0.178	86	0.187	90	70-130	5	35	mg/kg	04.12.19 19:22	
o-Xylene	0.00201	0.100	0.0904	88	0.0949	92	70-130	5	35	mg/kg	04.12.19 19:22	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		99		70-130	%	04.12.19 19:22
4-Bromofluorobenzene	110		110		70-130	%	04.12.19 19:22

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

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

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

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

Aarson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 4/5/2019

PAGE 2 OF 3

PO#:

LAB WORK ORDER#:

PROJECT LOCATION OR NAME: LN 350 212

LAI PROJECT #: 17-D-75-39

COLLECTOR: RD

TRRP report? ☐ Yes ☒ No		S=SOIL W=WATER A=AIR		P=PAINT SL=SLUDGE OT=OTHER	
TIME ZONE: Time zone/State: MST					
Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers
DP-17.1 (a')	44/19	13:38	S		
DP-17.2 (a')		13:40			
DP-17.3 (a')		13:41			
DP-17.4 (a')		13:42			
DP-17.5 (4')		13:43			
DP-18.1 (a')		13:51			
DP-18.2 (a')		13:53			
DP-18.3 (a')		13:54			
DP-18.4 (a')		13:57			
DP-18.5 (4')		13:58			
DP-11.1 (1')		14:03			
DP-11.2 (1')		14:05			
DP-11.3 (1')		14:07			
DP-11.4 (1')		14:09			
DP-11.5 (a')		14:11			
TOTAL 15					
RELINQUISHED BY: (Signature) <i>[Signature]</i>		DATE/TIME 9/19/19		RECEIVED BY: (Signature) <i>[Signature]</i>	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)		DATE/TIME		RECEIVED BY: (Signature)	
LABORATORY: <i>[Signature]</i>		DATE/TIME		RECEIVED BY: (Signature)	
TURN AROUND TIME NORMAL ☒ 1 DAY ☒ 2 DAY ☐ OTHER ☐ 1 DAY ☒ 2 DAY ☐ OTHER ☐					
LABORATORY USE ONLY: RECEIVING TEMP: 13 THERM: 18 CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED ☐ CARRIER BILL # ☐ HAND DELIVERED					
ANALYSES BTEX ☒ MTBE ☐ TPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐ GASOLINE MOD 8015 ☒ DIESEL - MOD 8015 ☒ OIL - MOD 8015 ☒ VOC 8280 ☒ SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ TBLP - METALS (RCRA) ☐ TCLP VOC ☐ TOTAL METALS (RCRA) ☐ OTHER LIST ☐ LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ RCL ☐ TOX ☐ FLASHPOINT ☐ TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ PH ☐ HEXAVALENT CHROMIUM ☐ EXPLOSIVES ☐ PENTACHLORATE ☐ CHLORIDES ☐ ANIONS ☐ ALKALINITY ☐					
FIELD NOTES 3:00					



XENCO Laboratories

Prelogin/Nonconformance Report- Sample Log-In



Client: Larson and Associates, Inc.

Date/ Time Received: 04/05/2019 09:19:00 AM

Work Order #: 620188

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)?	1.3
#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
#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

Brianna Teel

Date: 04/05/2019

Checklist reviewed by:

Holly Taylor

Holly Taylor

Date: 04/08/2019

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



Analytical Report

Prepared for:

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

Project: LMPSU 212
Project Number: 17-0175-39
Location: None Given
Lab Order Number: 9E10001



NELAP/TCEQ # T104704516-18-9

Report Date: 05/22/19

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-17.2 (2')	9E10001-01	Soil	05/09/19 10:53	05-10-2019 08:26
DP-17.4 (2')	9E10001-02	Soil	05/09/19 12:52	05-10-2019 08:26
DP-17.1 (2')	9E10001-03	Soil	05/09/19 14:53	05-10-2019 08:26
DP-17.3 (2')	9E10001-04	Soil	05/09/19 15:05	05-10-2019 08:26
DP-17.5 (4')	9E10001-05	Soil	05/09/19 15:10	05-10-2019 08:26

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

Project: LMPUSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.2 (2')
9E10001-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	590	1.06	mg/kg dry	1	P9E1010	05/10/19	05/11/19	EPA 300.0
% Moisture	6.0	0.1	%	1	P9E1009	05/10/19	05/10/19	ASTM D2216

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.4 (2')
9E10001-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	84.5	1.02	mg/kg dry	1	P9E1010	05/10/19	05/11/19	EPA 300.0	
% Moisture	2.0	0.1	%	1	P9E1009	05/10/19	05/10/19	ASTM D2216	

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.1 (2')
9E10001-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Chloride	320	5.56	mg/kg dry	5	P9E1010	05/10/19	05/11/19	EPA 300.0
% Moisture	10.0	0.1	%	1	P9E1009	05/10/19	05/10/19	ASTM D2216

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.3 (2')
9E10001-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

% Moisture	4.0	0.1	%	1	P9E1009	05/10/19	05/10/19	ASTM D2216
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Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.0	mg/kg dry	1	P9E2201	05/22/19	05/22/19	TPH 8015M
>C12-C28	ND	26.0	mg/kg dry	1	P9E2201	05/22/19	05/22/19	TPH 8015M
>C28-C35	ND	26.0	mg/kg dry	1	P9E2201	05/22/19	05/22/19	TPH 8015M
Surrogate: 1-Chlorooctane		79.0 %	70-130		P9E2201	05/22/19	05/22/19	TPH 8015M
Surrogate: o-Terphenyl		90.2 %	70-130		P9E2201	05/22/19	05/22/19	TPH 8015M
Total Petroleum Hydrocarbon C6-C35	ND	26.0	mg/kg dry	1	[CALC]	05/22/19	05/22/19	calc

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.5 (4')
9E10001-05 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.00105	mg/kg dry	1	P9E1404	05/14/19	05/14/19	EPA 8021B	
Toluene	ND	0.00105	mg/kg dry	1	P9E1404	05/14/19	05/14/19	EPA 8021B	
Ethylbenzene	ND	0.00105	mg/kg dry	1	P9E1404	05/14/19	05/14/19	EPA 8021B	
Xylene (p/m)	ND	0.00211	mg/kg dry	1	P9E1404	05/14/19	05/14/19	EPA 8021B	
Xylene (o)	ND	0.00105	mg/kg dry	1	P9E1404	05/14/19	05/14/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		101 %	75-125		P9E1404	05/14/19	05/14/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		113 %	75-125		P9E1404	05/14/19	05/14/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	682	1.05	mg/kg dry	1	P9E1010	05/10/19	05/11/19	EPA 300.0	
% Moisture	5.0	0.1	%	1	P9E1009	05/10/19	05/10/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.3	mg/kg dry	1	P9E1401	05/14/19	05/15/19	TPH 8015M	
>C12-C28	ND	26.3	mg/kg dry	1	P9E1401	05/14/19	05/15/19	TPH 8015M	
>C28-C35	ND	26.3	mg/kg dry	1	P9E1401	05/14/19	05/15/19	TPH 8015M	
Surrogate: 1-Chlorooctane		126 %	70-130		P9E1401	05/14/19	05/15/19	TPH 8015M	
Surrogate: o-Terphenyl		142 %	70-130		P9E1401	05/14/19	05/15/19	TPH 8015M	S-GC
Total Petroleum Hydrocarbon C6-C35	ND	26.3	mg/kg dry	1	[CALC]	05/14/19	05/15/19	calc	

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

Project: LMPSU 212
Project Number: 17-0175-39
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
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Batch P9E1404 - General Preparation (GC)

Blank (P9E1404-BLK1)

Prepared & Analyzed: 05/14/19

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	0.0521		"	0.0600		86.8	75-125			
Surrogate: 4-Bromofluorobenzene	0.0577		"	0.0600		96.2	75-125			

LCS (P9E1404-BS1)

Prepared & Analyzed: 05/14/19

Benzene	0.118	0.00100	mg/kg wet	0.100		118	70-130			
Toluene	0.118	0.00100	"	0.100		118	70-130			
Ethylbenzene	0.107	0.00100	"	0.100		107	70-130			
Xylene (p/m)	0.200	0.00200	"	0.200		100	70-130			
Xylene (o)	0.113	0.00100	"	0.100		113	70-130			
Surrogate: 1,4-Difluorobenzene	0.0659		"	0.0600		110	75-125			
Surrogate: 4-Bromofluorobenzene	0.0652		"	0.0600		109	75-125			

LCS Dup (P9E1404-BSD1)

Prepared & Analyzed: 05/14/19

Benzene	0.116	0.00100	mg/kg wet	0.100		116	70-130	1.86	20	
Toluene	0.115	0.00100	"	0.100		115	70-130	1.86	20	
Ethylbenzene	0.116	0.00100	"	0.100		116	70-130	8.22	20	
Xylene (p/m)	0.195	0.00200	"	0.200		97.3	70-130	2.71	20	
Xylene (o)	0.113	0.00100	"	0.100		113	70-130	0.354	20	
Surrogate: 4-Bromofluorobenzene	0.0628		"	0.0600		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.0725		"	0.0600		121	75-125			

Calibration Blank (P9E1404-CCB1)

Prepared & Analyzed: 05/14/19

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	0.0518		"	0.0600		86.3	75-125			
Surrogate: 4-Bromofluorobenzene	0.0589		"	0.0600		98.2	75-125			

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

Project: LMPSU 212
Project Number: 17-0175-39
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
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Batch P9E1404 - General Preparation (GC)

Calibration Blank (P9E1404-CCB2)		Prepared & Analyzed: 05/14/19								
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	0.0487		"	0.0600		81.2	75-125			
Surrogate: 4-Bromofluorobenzene	0.0535		"	0.0600		89.2	75-125			

Calibration Check (P9E1404-CCV1)		Prepared & Analyzed: 05/14/19								
Benzene	0.108	0.00100	mg/kg wet	0.100		108	80-120			
Toluene	0.109	0.00100	"	0.100		109	80-120			
Ethylbenzene	0.109	0.00100	"	0.100		109	80-120			
Xylene (p/m)	0.181	0.00200	"	0.200		90.7	80-120			
Xylene (o)	0.105	0.00100	"	0.100		105	80-120			
Surrogate: 4-Bromofluorobenzene	0.0588		"	0.0600		98.0	75-125			
Surrogate: 1,4-Difluorobenzene	0.0633		"	0.0600		105	75-125			

Calibration Check (P9E1404-CCV2)		Prepared & Analyzed: 05/14/19								
Benzene	0.111	0.00100	mg/kg wet	0.100		111	80-120			
Toluene	0.114	0.00100	"	0.100		114	80-120			
Ethylbenzene	0.112	0.00100	"	0.100		112	80-120			
Xylene (p/m)	0.194	0.00200	"	0.200		96.8	80-120			
Xylene (o)	0.107	0.00100	"	0.100		107	80-120			
Surrogate: 4-Bromofluorobenzene	0.0590		"	0.0600		98.4	75-125			
Surrogate: 1,4-Difluorobenzene	0.0604		"	0.0600		101	75-125			

Calibration Check (P9E1404-CCV3)		Prepared: 05/14/19 Analyzed: 05/15/19								
Benzene	0.112	0.00100	mg/kg wet	0.100		112	80-120			
Toluene	0.117	0.00100	"	0.100		117	80-120			
Ethylbenzene	0.115	0.00100	"	0.100		115	80-120			
Xylene (p/m)	0.199	0.00200	"	0.200		99.5	80-120			
Xylene (o)	0.114	0.00100	"	0.100		114	80-120			
Surrogate: 1,4-Difluorobenzene	0.0770		"	0.0600		128	75-125			
Surrogate: 4-Bromofluorobenzene	0.0634		"	0.0600		106	75-125			

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Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

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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
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Batch P9E1404 - General Preparation (GC)

Matrix Spike (P9E1404-MS1)		Source: 9E10010-06		Prepared: 05/14/19		Analyzed: 05/15/19	
Benzene	0.0660	0.00115	mg/kg dry	0.115	ND	57.4	80-120
Toluene	0.0563	0.00115	"	0.115	ND	49.0	80-120
Ethylbenzene	0.0741	0.00115	"	0.115	ND	64.4	80-120
Xylene (p/m)	0.132	0.00230	"	0.230	ND	57.4	80-120
Xylene (o)	0.0702	0.00115	"	0.115	ND	61.0	80-120
<i>Surrogate: 1,4-Difluorobenzene</i>		<i>0.0683</i>	<i>"</i>	<i>0.0690</i>		<i>99.1</i>	<i>75-125</i>
<i>Surrogate: 4-Bromofluorobenzene</i>		<i>0.0633</i>	<i>"</i>	<i>0.0690</i>		<i>91.8</i>	<i>75-125</i>

Matrix Spike Dup (P9E1404-MSD1)	Source: 9E10010-06			Prepared: 05/14/19	Analyzed: 05/15/19				
Benzene	0.0685	0.00115	mg/kg dry	0.115	ND	59.6	80-120	3.66	20
Toluene	0.0598	0.00115	"	0.115	ND	52.1	80-120	6.04	20
Ethylbenzene	0.0765	0.00115	"	0.115	ND	66.6	80-120	3.24	20
Xylene (p/m)	0.120	0.00230	"	0.230	ND	52.0	80-120	9.73	20
Xylene (o)	0.0682	0.00115	"	0.115	ND	59.3	80-120	2.86	20
Surrogate: 1,4-Difluorobenzene	0.0785		"	0.0690		114	75-125		
Surrogate: 4-Bromofluorobenzene	0.0743		"	0.0690		108	75-125		

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Project: LMPSU 212
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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
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Batch P9E1009 - * DEFAULT PREP *****

Blank (P9E1009-BLK1)

Prepared & Analyzed: 05/10/19

% Moisture	ND	0.1	%
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Duplicate (P9E1009-DUP1)

Source: 9E10001-05

Prepared & Analyzed: 05/10/19

% Moisture	5.0	0.1	%	5.0	0.00	20
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Batch P9E1010 - * DEFAULT PREP *****

Blank (P9E1010-BLK1)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	ND	1.00	mg/kg wet
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LCS (P9E1010-BS1)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	412	1.00	mg/kg wet	400	103	80-120
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LCS Dup (P9E1010-BSD1)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	413	1.00	mg/kg wet	400	103	80-120	0.143	20
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Calibration Blank (P9E1010-CCB1)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	0.00		mg/kg wet
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Calibration Blank (P9E1010-CCB2)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	0.00		mg/kg wet
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Calibration Check (P9E1010-CCV1)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	20.5	0.100	mg/kg wet	20.0	102	0-200
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Calibration Check (P9E1010-CCV2)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	20.7	0.100	mg/kg wet	20.0	103	0-200
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Larson & Associates, Inc.
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Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

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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
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Batch P9E1010 - * DEFAULT PREP *****

Calibration Check (P9E1010-CCV3)

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	21.1	0.100	mg/kg wet	20.0		105	0-200		
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Matrix Spike (P9E1010-MS1)

Source: 9E10001-01

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	1190	1.06	mg/kg dry	532	590	113	80-120		
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Matrix Spike (P9E1010-MS2)

Source: 9E04014-19

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	6240	11.8	mg/kg dry	1180	4960	109	80-120		
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Matrix Spike Dup (P9E1010-MSD1)

Source: 9E10001-01

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	1140	1.06	mg/kg dry	532	590	103	80-120	4.27	20
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Matrix Spike Dup (P9E1010-MSD2)

Source: 9E04014-19

Prepared: 05/10/19 Analyzed: 05/11/19

Chloride	6200	11.8	mg/kg dry	1180	4960	105	80-120	0.783	20
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Midland TX, 79710

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P9E1401 - TX 1005

Blank (P9E1401-BLK1)

Prepared & Analyzed: 05/14/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	126		"	100		126	70-130			
Surrogate: o-Terphenyl	68.4		"	50.0		137	70-130			S-GC

LCS (P9E1401-BS1)

Prepared & Analyzed: 05/14/19

C6-C12	2130	25.0	mg/kg wet	2000		106	75-125			
>C12-C28	2180	25.0	"	2000		109	75-125			
Surrogate: 1-Chlorooctane	123		"	100		123	70-130			
Surrogate: o-Terphenyl	57.3		"	50.0		115	70-130			

LCS Dup (P9E1401-BSD1)

Prepared & Analyzed: 05/14/19

C6-C12	2130	25.0	mg/kg wet	2000		107	75-125	0.135	20	
>C12-C28	2190	25.0	"	2000		109	75-125	0.317	20	
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	59.0		"	50.0		118	70-130			

Calibration Blank (P9E1401-CCB1)

Prepared & Analyzed: 05/14/19

C6-C12	9.53		mg/kg wet							
>C12-C28	19.8		"							
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	64.3		"	50.0		129	70-130			

Calibration Blank (P9E1401-CCB2)

Prepared: 05/14/19 Analyzed: 05/15/19

C6-C12	8.68		mg/kg wet							
>C12-C28	23.6		"							
Surrogate: 1-Chlorooctane	113		"	100		113	70-130			
Surrogate: o-Terphenyl	62.6		"	50.0		125	70-130			

Larson & Associates, Inc.
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Midland TX, 79710

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

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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
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Batch P9E1401 - TX 1005

Calibration Check (P9E1401-CCV1)

Prepared & Analyzed: 05/14/19

C6-C12	1100	25.0	mg/kg wet	1000		110	85-115			
>C12-C28	1100	25.0	"	1000		110	85-115			
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	57.4		"	50.0		115	70-130			

Calibration Check (P9E1401-CCV2)

Prepared: 05/14/19 Analyzed: 05/15/19

C6-C12	1070	25.0	mg/kg wet	1000		107	85-115			
>C12-C28	1120	25.0	"	1000		112	85-115			
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	55.4		"	50.0		111	70-130			

Calibration Check (P9E1401-CCV3)

Prepared: 05/14/19 Analyzed: 05/15/19

C6-C12	1070	25.0	mg/kg wet	1000		107	85-115			
>C12-C28	1140	25.0	"	1000		114	85-115			
Surrogate: 1-Chlorooctane	114		"	100		114	70-130			
Surrogate: o-Terphenyl	57.6		"	50.0		115	70-130			

Duplicate (P9E1401-DUP1)

Source: 9E13006-03

Prepared: 05/14/19 Analyzed: 05/15/19

C6-C12	ND	147	mg/kg dry		ND				20	
>C12-C28	1040	147	"		237			126	20	
Surrogate: 1-Chlorooctane	117		"	118		99.8	70-130			
Surrogate: o-Terphenyl	67.8		"	58.8		115	70-130			

Batch P9E2201 - TX 1005

Blank (P9E2201-BLK1)

Prepared & Analyzed: 05/22/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	94.5		"	100		94.5	70-130			
Surrogate: o-Terphenyl	51.2		"	50.0		102	70-130			

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P9E2201 - TX 1005

LCS (P9E2201-BS1)

Prepared & Analyzed: 05/22/19

C6-C12	1080	25.0	mg/kg wet	1000		108	75-125			
>C12-C28	1120	25.0	"	1000		112	75-125			
Surrogate: 1-Chlorooctane	120		"	100		120	70-130			
Surrogate: o-Terphenyl	47.9		"	50.0		95.9	70-130			

LCS Dup (P9E2201-BSD1)

Prepared & Analyzed: 05/22/19

C6-C12	1080	25.0	mg/kg wet	1000		108	75-125	0.242	20	
>C12-C28	1130	25.0	"	1000		113	75-125	0.623	20	
Surrogate: 1-Chlorooctane	124		"	100		124	70-130			
Surrogate: o-Terphenyl	48.6		"	50.0		97.3	70-130			

Larson & Associates, Inc.
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Project: LMPSU 212
Project Number: 17-0175-39
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Notes and Definitions

S-GC Surrogate recovery outside of control limits. The data was accepted based on valid recovery of the remaining surrogate.

DET Analyte DETECTED

ND Analyte NOT DETECTED at or above the reporting limit

NR Not Reported

dry Sample results reported on a dry weight basis

RPD Relative Percent Difference

LCS Laboratory Control Spike

MS Matrix Spike

Dup Duplicate

Report Approved By:



Date:

5/22/2019

Brent Barron, Laboratory Director/Technical Director

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If you have received this material in error, please notify us immediately at 432-686-7235.

Page 17 of 18

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



Analytical Report

Prepared for:

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

Project: LMPSU 212
Project Number: 17-0175-39

Location:

Lab Order Number: 9E15010



NELAP/TCEQ # T104704516-18-9

Report Date: 05/30/19

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
DP-17.5 (4') Composite 1	9E15010-01	Soil	05/13/19 12:45	05-15-2019 10:36
DP-17.5 (4') Composite 2	9E15010-02	Soil	05/13/19 12:53	05-15-2019 10:36

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.5 (4') Composite 1

9E15010-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.0220	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Toluene	ND	0.0220	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Ethylbenzene	ND	0.0220	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Xylene (p/m)	ND	0.0440	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Xylene (o)	ND	0.0220	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		95.6 %		75-125	P9E2402	05/24/19	05/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		100 %		75-125	P9E2402	05/24/19	05/25/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	1160	5.49	mg/kg dry	5	P9E2209	05/22/19	05/23/19	EPA 300.0	
% Moisture	9.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	27.5	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	27.5	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	27.5	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		94.9 %		70-130	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		109 %		70-130	P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	27.5	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

DP-17.5 (4') Composite 2
9E15010-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Permian Basin Environmental Lab, L.P.

Organics by GC

Benzene	ND	0.0215	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Toluene	ND	0.0215	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Ethylbenzene	ND	0.0215	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Xylene (p/m)	ND	0.0430	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Xylene (o)	ND	0.0215	mg/kg dry	20	P9E2402	05/24/19	05/25/19	EPA 8021B	
Surrogate: 4-Bromofluorobenzene		103 %	75-125		P9E2402	05/24/19	05/25/19	EPA 8021B	
Surrogate: 1,4-Difluorobenzene		110 %	75-125		P9E2402	05/24/19	05/25/19	EPA 8021B	

General Chemistry Parameters by EPA / Standard Methods

Chloride	917	5.38	mg/kg dry	5	P9E2209	05/22/19	05/23/19	EPA 300.0	
% Moisture	7.0	0.1	%	1	P9E1602	05/16/19	05/16/19	ASTM D2216	

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M

C6-C12	ND	26.9	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C12-C28	ND	26.9	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
>C28-C35	ND	26.9	mg/kg dry	1	P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: 1-Chlorooctane		92.8 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Surrogate: o-Terphenyl		106 %	70-130		P9E1802	05/18/19	05/18/19	TPH 8015M	
Total Petroleum Hydrocarbon C6-C35	ND	26.9	mg/kg dry	1	[CALC]	05/18/19	05/18/19	calc	

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

Project: LMPSU 212
Project Number: 17-0175-39
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
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Batch P9E2402 - General Preparation (GC)

Blank (P9E2402-BLK1)

Prepared & Analyzed: 05/24/19

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	0.0589		"	0.0600		98.1	75-125			
Surrogate: 4-Bromofluorobenzene	0.0519		"	0.0600		86.5	75-125			

LCS (P9E2402-BS1)

Prepared & Analyzed: 05/24/19

Benzene	0.103	0.00100	mg/kg wet	0.100		103	70-130			
Toluene	0.103	0.00100	"	0.100		103	70-130			
Ethylbenzene	0.114	0.00100	"	0.100		114	70-130			
Xylene (p/m)	0.169	0.00200	"	0.200		84.6	70-130			
Xylene (o)	0.0975	0.00100	"	0.100		97.5	70-130			
Surrogate: 1,4-Difluorobenzene	0.0674		"	0.0600		112	75-125			
Surrogate: 4-Bromofluorobenzene	0.0682		"	0.0600		114	75-125			

LCS Dup (P9E2402-BSD1)

Prepared & Analyzed: 05/24/19

Benzene	0.104	0.00100	mg/kg wet	0.100		104	70-130	0.116	20	
Toluene	0.104	0.00100	"	0.100		104	70-130	1.13	20	
Ethylbenzene	0.115	0.00100	"	0.100		115	70-130	0.752	20	
Xylene (p/m)	0.170	0.00200	"	0.200		85.0	70-130	0.407	20	
Xylene (o)	0.0970	0.00100	"	0.100		97.0	70-130	0.432	20	
Surrogate: 1,4-Difluorobenzene	0.0691		"	0.0600		115	75-125			
Surrogate: 4-Bromofluorobenzene	0.0662		"	0.0600		110	75-125			

Calibration Blank (P9E2402-CCB1)

Prepared & Analyzed: 05/24/19

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	0.0537		"	0.0600		89.5	75-125			
Surrogate: 4-Bromofluorobenzene	0.0569		"	0.0600		94.8	75-125			

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

Project: LMPSU 212
Project Number: 17-0175-39
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
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Batch P9E2402 - General Preparation (GC)

Calibration Blank (P9E2402-CCB2)

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.00		mg/kg wet							
Toluene	0.00		"							
Ethylbenzene	0.00		"							
Xylene (p/m)	0.00		"							
Xylene (o)	0.00		"							
Surrogate: 4-Bromofluorobenzene	0.0628		"	0.0600		105	75-125			
Surrogate: 1,4-Difluorobenzene	0.0702		"	0.0600		117	75-125			

Calibration Check (P9E2402-CCV2)

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.0992	0.00100	mg/kg wet	0.100		99.2	80-120			
Toluene	0.0983	0.00100	"	0.100		98.3	80-120			
Ethylbenzene	0.0945	0.00100	"	0.100		94.5	80-120			
Xylene (p/m)	0.161	0.00200	"	0.200		80.6	80-120			
Xylene (o)	0.0929	0.00100	"	0.100		92.9	80-120			
Surrogate: 1,4-Difluorobenzene	0.0662		"	0.0600		110	75-125			
Surrogate: 4-Bromofluorobenzene	0.0634		"	0.0600		106	75-125			

Calibration Check (P9E2402-CCV3)

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	0.0961	0.00100	mg/kg wet	0.100		96.1	80-120			
Toluene	0.0944	0.00100	"	0.100		94.4	80-120			
Ethylbenzene	0.0936	0.00100	"	0.100		93.6	80-120			
Xylene (p/m)	0.161	0.00200	"	0.200		80.4	80-120			
Xylene (o)	0.0922	0.00100	"	0.100		92.2	80-120			
Surrogate: 4-Bromofluorobenzene	0.0627		"	0.0600		104	75-125			
Surrogate: 1,4-Difluorobenzene	0.0647		"	0.0600		108	75-125			

Matrix Spike (P9E2402-MS1)

Source: 9E15009-31

Prepared: 05/24/19 Analyzed: 05/25/19

Benzene	2.03	0.0206	mg/kg dry	2.06	ND	98.7	80-120			
Toluene	2.08	0.0206	"	2.06	ND	101	80-120			
Ethylbenzene	2.27	0.0206	"	2.06	ND	110	80-120			
Xylene (p/m)	3.48	0.0412	"	4.12	0.0266	83.8	80-120			
Xylene (o)	1.87	0.0206	"	2.06	0.0165	89.7	80-120			
Surrogate: 4-Bromofluorobenzene	0.0614		"	0.0619		99.2	75-125			
Surrogate: 1,4-Difluorobenzene	0.0706		"	0.0619		114	75-125			

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

Project: LMPSU 212
Project Number: 17-0175-39
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
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Batch P9E2402 - General Preparation (GC)

Matrix Spike Dup (P9E2402-MSD1)	Source: 9E15009-31			Prepared: 05/24/19		Analyzed: 05/25/19				
Benzene	2.12	0.0206	mg/kg dry	2.06	ND	103	80-120	4.10	20	
Toluene	2.13	0.0206	"	2.06	ND	103	80-120	2.16	20	
Ethylbenzene	2.37	0.0206	"	2.06	ND	115	80-120	4.41	20	
Xylene (p/m)	3.56	0.0412	"	4.12	0.0266	85.8	80-120	2.34	20	
Xylene (o)	1.98	0.0206	"	2.06	0.0165	95.0	80-120	5.78	20	
Surrogate: 1,4-Difluorobenzene	0.0671		"	0.0619		108	75-125			
Surrogate: 4-Bromofluorobenzene	0.0635		"	0.0619		103	75-125			

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

Project: LMPSU 212
Project Number: 17-0175-39
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
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Batch P9E1602 - * DEFAULT PREP *****

Blank (P9E1602-BLK1)

Prepared & Analyzed: 05/16/19

% Moisture ND 0.1 %

Duplicate (P9E1602-DUP1)

Source: 9E15008-01

Prepared & Analyzed: 05/16/19

% Moisture 13.0 0.1 % 14.0 7.41 20

Duplicate (P9E1602-DUP2)

Source: 9E15009-45

Prepared & Analyzed: 05/16/19

% Moisture 21.0 0.1 % 20.0 4.88 20

Duplicate (P9E1602-DUP3)

Source: 9E15011-01

Prepared & Analyzed: 05/16/19

% Moisture 11.0 0.1 % 11.0 0.00 20

Batch P9E2209 - * DEFAULT PREP *****

Blank (P9E2209-BLK1)

Prepared & Analyzed: 05/22/19

Chloride ND 1.00 mg/kg wet

LCS (P9E2209-BS1)

Prepared & Analyzed: 05/22/19

Chloride 395 1.00 mg/kg wet 400 98.6 80-120

LCS Dup (P9E2209-BSD1)

Prepared & Analyzed: 05/22/19

Chloride 402 1.00 mg/kg wet 400 101 80-120 1.88 20

Calibration Blank (P9E2209-CCB1)

Prepared & Analyzed: 05/22/19

Chloride 0.00 mg/kg wet

Calibration Blank (P9E2209-CCB2)

Prepared: 05/22/19 Analyzed: 05/23/19

Chloride 0.00 mg/kg wet

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

Project: LMPUSU 212
Project Number: 17-0175-39
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 P9E2209 - *** DEFAULT PREP ***										
Calibration Check (P9E2209-CCV1)				Prepared & Analyzed: 05/22/19						
Chloride	20.2		mg/kg	20.0		101	0-200			
Calibration Check (P9E2209-CCV2)				Prepared: 05/22/19 Analyzed: 05/23/19						
Chloride	19.6		mg/kg	20.0		97.8	0-200			
Calibration Check (P9E2209-CCV3)				Prepared: 05/22/19 Analyzed: 05/23/19						
Chloride	20.0		mg/kg	20.0		100	0-200			
Matrix Spike (P9E2209-MS1)		Source: 9E15009-34		Prepared: 05/22/19 Analyzed: 05/23/19						
Chloride	702	1.23	mg/kg dry	617	144	90.4	80-120			
Matrix Spike (P9E2209-MS2)		Source: 9E15009-44		Prepared: 05/22/19 Analyzed: 05/23/19						
Chloride	9040	30.5	mg/kg dry	3050	6300	89.8	80-120			
Matrix Spike Dup (P9E2209-MSD1)		Source: 9E15009-34		Prepared: 05/22/19 Analyzed: 05/23/19						
Chloride	720	1.23	mg/kg dry	617	144	93.4	80-120	2.59	20	
Matrix Spike Dup (P9E2209-MSD2)		Source: 9E15009-44		Prepared: 05/22/19 Analyzed: 05/23/19						
Chloride	9310	30.5	mg/kg dry	3050	6300	98.5	80-120	2.89	20	

Larson & Associates, Inc.
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Midland TX, 79710

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P9E1802 - TX 1005

Blank (P9E1802-BLK1)

Prepared & Analyzed: 05/18/19

C6-C12	ND	25.0	mg/kg wet							
>C12-C28	ND	25.0	"							
>C28-C35	ND	25.0	"							
Surrogate: 1-Chlorooctane	95.7		"	100		95.7	70-130			
Surrogate: o-Terphenyl	52.2		"	50.0		104	70-130			

LCS (P9E1802-BS1)

Prepared & Analyzed: 05/18/19

C6-C12	1080	25.0	mg/kg wet	1000		108	75-125			
>C12-C28	1070	25.0	"	1000		107	75-125			
Surrogate: 1-Chlorooctane	123		"	100		123	70-130			
Surrogate: o-Terphenyl	46.0		"	50.0		91.9	70-130			

LCS Dup (P9E1802-BS1)

Prepared & Analyzed: 05/18/19

C6-C12	1190	25.0	mg/kg wet	1000		119	75-125	9.90	20	
>C12-C28	1120	25.0	"	1000		112	75-125	4.78	20	
Surrogate: 1-Chlorooctane	108		"	100		108	70-130			
Surrogate: o-Terphenyl	51.0		"	50.0		102	70-130			

Calibration Blank (P9E1802-CCB1)

Prepared & Analyzed: 05/18/19

C6-C12	10.7		mg/kg wet							
>C12-C28	7.98		"							
Surrogate: 1-Chlorooctane	95.8		"	100		95.8	70-130			
Surrogate: o-Terphenyl	52.2		"	50.0		104	70-130			

Calibration Blank (P9E1802-CCB2)

Prepared & Analyzed: 05/18/19

C6-C12	10.6		mg/kg wet							
>C12-C28	14.8		"							
Surrogate: 1-Chlorooctane	100		"	100		100	70-130			
Surrogate: o-Terphenyl	54.5		"	50.0		109	70-130			

Larson & Associates, Inc.
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Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

Total Petroleum Hydrocarbons C6-C35 by EPA Method 8015M - Quality Control
Permian Basin Environmental Lab, L.P.

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch P9E1802 - TX 1005

Calibration Check (P9E1802-CCV1)

Prepared & Analyzed: 05/18/19

C6-C12	498	25.0	mg/kg wet	500		99.6	85-115			
>C12-C28	529	25.0	"	500		106	85-115			
Surrogate: 1-Chlorooctane	110		"	100		110	70-130			
Surrogate: o-Terphenyl	49.1		"	50.0		98.3	70-130			

Calibration Check (P9E1802-CCV2)

Prepared & Analyzed: 05/18/19

C6-C12	561	25.0	mg/kg wet	500		112	85-115			
>C12-C28	554	25.0	"	500		111	85-115			
Surrogate: 1-Chlorooctane	115		"	100		115	70-130			
Surrogate: o-Terphenyl	51.5		"	50.0		103	70-130			

Calibration Check (P9E1802-CCV3)

Prepared: 05/18/19 Analyzed: 05/19/19

C6-C12	503	25.0	mg/kg wet	500		101	85-115			
>C12-C28	503	25.0	"	500		101	85-115			
Surrogate: 1-Chlorooctane	97.0		"	100		97.0	70-130			
Surrogate: o-Terphenyl	43.7		"	50.0		87.5	70-130			

Duplicate (P9E1802-DUP1)

Source: 9E16007-01

Prepared: 05/18/19 Analyzed: 05/19/19

C6-C12	ND	29.1	mg/kg dry		13.8				20	
>C12-C28	15.1	29.1	"		17.1			12.6	20	
Surrogate: 1-Chlorooctane	102		"	116		87.5	70-130			
Surrogate: o-Terphenyl	57.5		"	58.1		98.9	70-130			

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

Project: LMPSU 212
Project Number: 17-0175-39
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

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

Report Approved By:



Date:

5/30/2019

Brent Barron, Laboratory Director/Technical Director

This material is intended only for the use of the individual (s) or entity to whom it is addressed, and may contain information that is privileged and confidential.

If you have received this material in error, please notify us immediately at 432-686-7235.

Page 13 of 13

RELINQUISHED BY: (Signature) <i>Robert Owen</i>	DATE/TIME <i>5/15/19 10:31p</i>	RECEIVED BY: (Signature)	TURN AROUND TIME NORMAL ☒ 1 DAY ☐ 2 DAY ☐ OTHER ☐
RELINQUISHED BY: (Signature)	DATE/TIME	RECEIVED BY: (Signature)	
RELINQUISHED BY: (Signature)	DATE/TIME <i>5/15/19 10:36</i>	RECEIVED BY: (Signature) <i>[Signature]</i>	
LABORATORY: <i>DBCL</i>			
LABORATORY USE ONLY: RECEIVING TEMP: <i>1.6/2.6</i> THERM#: CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED ☐ CARRIER BILL # <i>251</i> ☐ HAND DELIVERED			

Appendix D
Photographs



Site Location



EPI Photograph Prior to Remediation Viewing South, October 6, 2017



Site Prior to Remediation Viewing West, November 8, 2017



Site Prior to Remediation Viewing Northeast, November 8, 2017



Site Prior to Remediation Viewing North, November 8, 2017



DP-3 Excavation Viewing West, May 6, 2019



DP-4 Excavation Viewing North, May 6, 2019



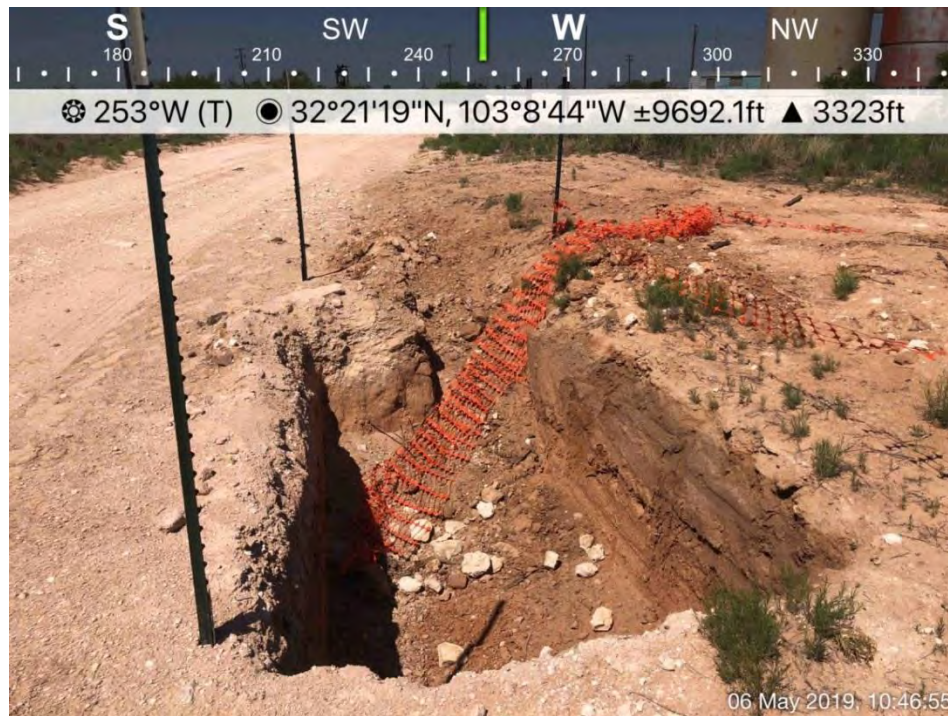
DP-9 Excavation Viewing West, May 6, 2019



DP-11 Excavation viewing West, May 6, 2019



DP-12 Excavation Viewing Southwest, May 6, 2019



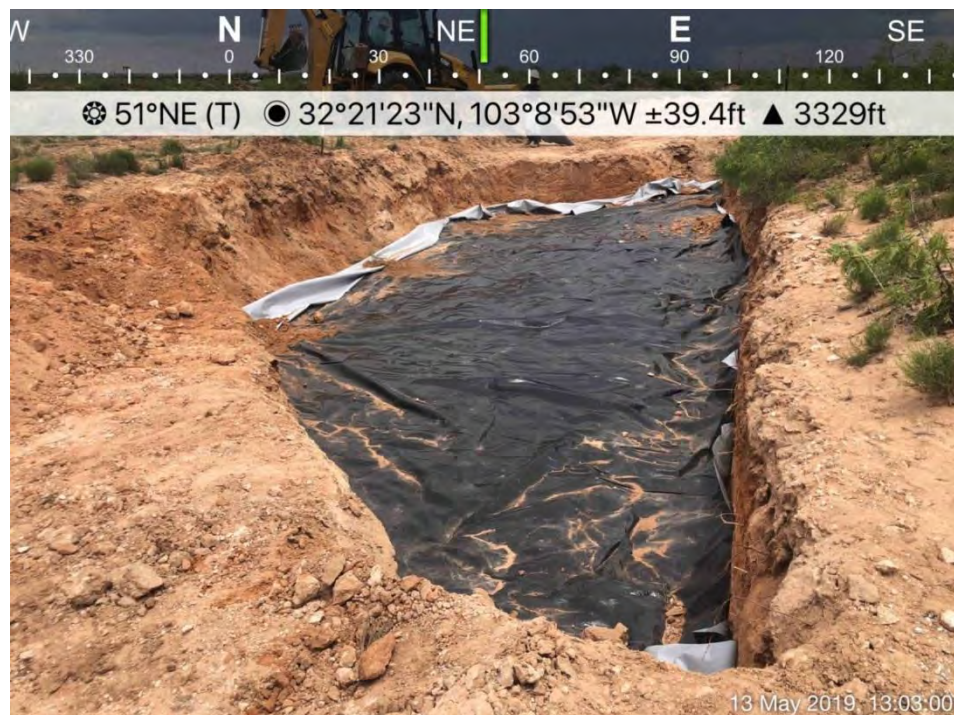
DP-18 Excavation Viewing West, May 6, 2018



DP-19 Excavation Viewing Southeast, May 6, 2019



DP-20 Excavation viewing North, May 6, 2019



DP-17 Excavation Viewing Northeast, May 13, 2019



Backfilled and Seeded Area near DP-3 Viewing West, May 28, 2019



Backfilled and Seeded Area near DP-4 Viewing North, May 28, 2019



Backfilled Area near DP-9 Viewing Northeast, May 9, 2019



Backfilled Area near DP-11 Viewing West, May 9, 2019



Backfilled and Seeded Area near DP-12 Viewing Southwest, May 28, 2019



Backfilled Area near DP-18 Viewing North, May 9, 2019



Backfilled Area near DP-19 viewing East, May 9, 2019



Backfilled Area near DP-20 viewing North, May 9, 2019

Appendix E
Waste Manifests

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

Basin

NON-HAZARDOUS WASTE MANIFEST

NO

129642

1. PAGE ___ OF ___

2. TRAILER NO. 8

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3. COMPANY NAME
Legacy Reserves

PHONE NO.
(432) 699-5200

4. ADDRESS
303 West Wall St. # 1400

CITY
Midland

STATE
TX

ZIP
79702

5. PICK-UP DATE
5/13/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. Non-Regulated, Non-Hazardous Waste

b.

c.

d. 22,920 22,340

8. CONTAINERS
No. Type

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

12. COMMENTS OR SPECIAL INSTRUCTIONS:
LMPSU 212

13. WASTE PROFILE NO.

14.

IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

PHONE NO

24-HOUR EMERGENCY NO.

Joe Ontiveros

575-887-4048

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

SIGNATURE

DATE

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16. **TRANSPORTER (1)**

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS
(432) 990-2746

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Hilda Villa

SIGNATURE

Hilda Villa

DATE

5/13/2019

17. **TRANSPORTER (2)**

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

DATE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

CELL NO.

DATE

5/13/2019

TIME

10:30

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

Basin 8

NON-HAZARDOUS WASTE MANIFEST

NO **129258**

1. PAGE ___ OF ___

2. TRAILER NO. **8**

G
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3. COMPANY NAME
Legacy Reserves

PHONE NO.
(432) 689-5200

4. ADDRESS
303 West Wall St. # 1400

CITY STATE ZIP
Midland TX 79702

5. PICK-UP DATE
4/5/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. **Non-Regulated, Non-Hazardous Waste**

b.

c.

d. **18,920 20,640**

8. CONTAINERS
No. Type

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

12. COMMENTS OR SPECIAL INSTRUCTIONS:
LMPSU 212

13. WASTE PROFILE NO.

14.

IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

PHONE NO

24-HOUR EMERGENCY NO.

Joe Ontiveros

575-887-4048

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

SIGNATURE

DATE

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16. **TRANSPORTER (1)**

NAME:

ETECH ENVR.

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

**ROBBY RUNNELS
(432) 999-2746**

EMERGENCY PHONE:

17. **TRANSPORTER (2)**

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Hilda Villa

SIGNATURE

Hilda Villa

DATE

4/5/2019

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

DATE

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Lea Land, LLC

ADDRESS:

**Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM**

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

Antonio Gonzalez

CELL NO.

DATE **4/5/2019**

TIME

9:45

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

Basin
9

NON-HAZARDOUS WASTE MANIFEST

NO

129259

1. PAGE ___ OF ___

2. TRAILER NO.

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3. COMPANY NAME
Legacy Reserves

PHONE NO.
(432) 689-5200

4. ADDRESS
303 West Wall St. # 1400

CITY
Midland

STATE
TX

ZIP
79702

5. PICK-UP DATE
4/5/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. Non-Regulated, Non Hazardous Waste

b.

c.

d.

19,360 21,880

8. CONTAINERS
No. Type

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

12. COMMENTS OR SPECIAL INSTRUCTIONS:
LMPSU 212

13. WASTE PROFILE NO.

14. IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

PHONE NO

24-HOUR EMERGENCY NO.

Joe Ontiveros

575-887-4048

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

SIGNATURE

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16. TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS
(432) 999-2746

EMERGENCY PHONE:

17. TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Shawn Corron

SIGNATURE

DATE

4/5/2019

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

DATE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

CELL NO.

DATE

4/5/2019

TIME

4:55

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

4/8/2019

Basin 8

NON-HAZARDOUS WASTE MANIFEST

NO

129293

1. PAGE ___ OF ___

2. TRAILER NO.

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3. COMPANY NAME
Legacy Reserves
PHONE NO.
(432) 689-5200

4. ADDRESS
303 West Wall St. # 1400
CITY STATE ZIP
Midland TX 79702

5. PICK-UP DATE
4/8/2019
6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

8. CONTAINERS
No. Type

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

a. Non-Regulated, Non Hazardous Waste

1

CM

b.

c.

d. WT: 23,260 22,780

12. COMMENTS OR SPECIAL INSTRUCTIONS:

LMPSU 212

13. WASTE PROFILE NO.

14.

IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

PHONE NO

24-HOUR EMERGENCY NO.

Joe Ontiveros

575-887-4048

15. GENERATOR'S CERTIFICATION: I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

SIGNATURE

DATE

16. TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT: ROBBY RUNNELS
(432) 999-2746

EMERGENCY PHONE:

18. TRANSPORTER (1): Acknowledgment of receipt of material

PRINTED/TYPED NAME

Hilda Villa

SIGNATURE

Hilda Villa

DATE

4/8/2019

17. TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

19. TRANSPORTER (2): Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. DISPOSAL FACILITY'S CERTIFICATION: I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

Santa Monzalez

CELL NO.

DATE 4/8/2019

TIME

10:20

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST

NO

129600

1. PAGE ___ OF ___

2. TRAILER NO. 9

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3. COMPANY NAME

Legacy Reserves

PHONE NO.

(432) 689-5200

4. ADDRESS

303 West Wall St # 1400

CITY

Midland

STATE

TX

ZIP

79702

5. PICK-UP DATE

5/9/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. Non-Regulated, Non-Hazardous Waste

b.

c.

d. 22,980

8. CONTAINERS

No.

Type

9. TOTAL

QUANTITY

10. UNIT

Wt/Vol.

11. TEXAS

WASTE ID #

12. COMMENTS OR SPECIAL INSTRUCTIONS:

LMPSU 212

13. WASTE PROFILE NO.

14.

IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

Joe Ontiveros

PHONE NO

875-887-4048

24-HOUR EMERGENCY NO.

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

SIGNATURE

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16.

TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS
(432) 999-2746

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Hilda Villa

SIGNATURE

Hilda Villa

DATE

5/9/2019

17.

TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

Hilda Villa

CELL NO.

DATE 5/9/2019

TIME

4:20

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

Basin
9

NON-HAZARDOUS WASTE MANIFEST

NO

129500

1. PAGE ___ OF ___

2. TRAILER NO.

G

3. COMPANY NAME
Legacy Reserves

4. ADDRESS
303 West Wall St. # 1400

5. PICK-UP DATE
4/15/2019

E

PHONE NO.
(432) 689-5200

CITY STATE ZIP
Midland TX 79702

6. TNRCC I.D. NO.

N

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

8. CONTAINERS
No. Type

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

a. Non-Regulated, Non-Hazardous Waste

1

CM

b.

c.

R

d. 23400

12. COMMENTS OR SPECIAL INSTRUCTIONS:
LMPSU 212

13. WASTE PROFILE NO.

A

14. IN CASE OF EMERGENCY OR SPILL, CONTACT

T

NAME
Joe Ontiveros

PHONE NO
575-887-4048

24-HOUR EMERGENCY NO.

O

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

R

PRINTED/TYPED NAME

SIGNATURE

DATE

T

16. TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS
(432) 999-2748

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Luis Tovar

SIGNATURE

DATE

4/15/2019

17. TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

CELL NO.

DATE

TIME

4/15/2019

4.00

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

NON-HAZARDOUS WASTE MANIFEST

NO

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1. PAGE ___ OF ___

2. TRAILER NO.

Basin 9

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3. COMPANY NAME
Legacy Reserves

PHONE NO.
(432) 689-5200

4. ADDRESS
303 West Wall St. # 1400

CITY STATE ZIP
Midland TX 79702

5. PICK-UP DATE
5/9/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. Non-Regulated, Non Hazardous Waste

b.

c.

d. 24940

8. CONTAINERS
No. Type

1 CM

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

12. COMMENTS OR SPECIAL INSTRUCTIONS:
LMPSU 212

13. WASTE PROFILE NO.

14. IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

Joe Ontiveros

PHONE NO

575-887-4048

24-HOUR EMERGENCY NO.

15. GENERATOR'S CERTIFICATION: I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

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16. TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS
(432) 999-2746

EMERGENCY PHONE:

17. TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

18. TRANSPORTER (1): Acknowledgment of receipt of material

PRINTED/TYPED NAME

Hilda Villa

SIGNATURE

Hilda Villa

DATE

5/9/2019

19. TRANSPORTER (2): Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. DISPOSAL FACILITY'S CERTIFICATION: I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

Amelia Gonzalez

CELL NO.

DATE

5/9/2019

TIME

12:30

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

• LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

BASIN
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NON-HAZARDOUS WASTE MANIFEST

NO

129651

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2. TRAILER NO.

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3. COMPANY NAME
Legacy Reserves

PHONE NO.
(432) 699-5200

4. ADDRESS
303 West Wall St. # 1400

CITY
Midland

STATE
TX

ZIP
79702

5. PICK-UP DATE
5/13/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. Non-Regulated, Non-Hazardous Waste

b.

c.

d.

12. COMMENTS OR SPECIAL INSTRUCTIONS:
LMPSU 212

13. WASTE PROFILE NO.

14. IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

PHONE NO

24-HOUR EMERGENCY NO.

Joe Ontiveros

575-887-4048

15. **GENERATOR'S CERTIFICATION:** I Hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

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16. TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS
(432) 999-2746

EMERGENCY PHONE:

17. TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Luis Tovar

SIGNATURE

DATE

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

DATE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I Hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

CELL NO.

DATE

TIME

Sanchez Gonzalez

5/13/2019

2:30

LEA LAND DISPOSAL SITE NEW MEXICO

MILE MARKER #64 US HWY 62/180 • 30 MILES EAST OF CARLSBAD, NM • PHONE (575) 887-4048

LEA LAND, LLC

1300 WEST MAIN STREET • OKLAHOMA CITY, OK 73106 • PHONE (405) 236-4257

BDR Eagle

NON-HAZARDOUS WASTE MANIFEST

NO

129665

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2. TRAILER NO. U

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3. COMPANY NAME

Legacy Reserves

PHONE NO.

(432) 899-5200

4. ADDRESS

303 West Wall St # 1400

CITY

Midland

STATE

TX

ZIP

79702

5. PICK-UP DATE

5/14/2019

6. TNRCC I.D. NO.

7. NAME OR DESCRIPTION OF WASTE SHIPPED:

a. Non-Regulated, Non Hazardous Waste

b.

c.

d. 2214D

8. CONTAINERS
No. Type

1

CM

9. TOTAL
QUANTITY

10. UNIT
Wt/Vol.

11. TEXAS
WASTE ID #

12. COMMENTS OR SPECIAL INSTRUCTIONS:

LMPSU 212

13. WASTE PROFILE NO.

14.

IN CASE OF EMERGENCY OR SPILL, CONTACT

NAME

Joe Ontiveros

PHONE NO

675-887-4048

24-HOUR EMERGENCY NO.

15. **GENERATOR'S CERTIFICATION:** I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations, including applicable state regulations, and are the same materials previously approved by LEA LAND, LLC

PRINTED/TYPED NAME

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16.

TRANSPORTER (1)

NAME:

ETECH ENVR

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

ROBBY RUNNELS

(432) 999-2740

EMERGENCY PHONE:

18. **TRANSPORTER (1):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

Ignacio Gonzalez

SIGNATURE

DATE

5/14/2019

17.

TRANSPORTER (2)

NAME:

TEXAS I.D. NO.

IN CASE OF EMERGENCY CONTACT:

EMERGENCY PHONE:

19. **TRANSPORTER (2):** Acknowledgment of receipt of material

PRINTED/TYPED NAME

SIGNATURE

DATE

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Lea Land, LLC

ADDRESS:

Mile Marker 64, U.S. Hwy 62/180,
30 Miles East of Carlsbad, NM

PHONE:

575-887-4048

PERMIT NO.

WM-01-035 - New Mexico

20. COMMENTS

21. **DISPOSAL FACILITY'S CERTIFICATION:** I hereby certify that the above described wastes were delivered to this facility, that the facility is authorized and permitted to receive such wastes.

AUTHORIZED SIGNATURE

Aranda Monzalez

CELL NO.

DATE

5/14/2019

TIME

9:30

Appendix F

Grass Seed Receipt

BUNK'S FEED BARN
3128 S. EUNICE HWY
HOBBS, NM 88240
575-397-1228 Fax: 575-397-1250
www.bunksfeedbarn.com

5/28/2019
Invoice #: 553564
Page: 1

Ship To:
Rapid Sale

Bill To:
Rapid Sale

Phone:
Cust PO:
Reference:

Terms:
Ship Via:

Salesperson:

Stock Code	Description	Taxable	Quantity	Price	Extended
1339	BLM #3 GRASS MIX 1#	Y	2.00	9.75	19.50

SubTotal: 19.50

Tax: 1.07

Shipping: 0.00

Total: 20.57

Credit: 0.00 Cash: 0.00 Check: 0.00 Charge: 20.57 Debit: 0.00

Balance: 0.00

THANK YOU FOR SHOPPING AT BUNK'S FEED BARN

BURK'S FEED BARN
3128 S. LUNICE HWY
HOBBS, NM 88240
575-397-1228

Sale

Merchant ID: 542929800729196

Term ID: LK360125

May 28, 2019

11:55 AM

Batch#: 000524

Inv #: 000020

VISA

Entry Method: S

XXXXXXXXXXXX9837

Seq. #: 0020

Appr Code: 028308

Total: \$

20.57

AVS Code: U

APPROVED

Customer Copy

THANK YOU!