BEFORE THE OIL CONSERVATION COMMISSION

EVIDENTIARY HEARING

JANUARY 16 – 17, 2025

CASE NO. 24912

EAST BLINEBRY DRINKARD UNIT NO. 37 WELL,
INCIDENT NO. NDHR1922141227, PERMIT NO. 1RP-5636

LEA COUNTY, NEW MEXICO

APACHE CORPORATION

APACHE CORPORATION'S PRE-HEARING STATEMENT

Apache Corporation ("Apache" or "Applicant"), (OGRID No. 873), through its undersigned attorneys, files its Pre-hearing Statement pursuant to 19.15.4.13.B NMAC.

APPEARANCES

APPLICANT	ATTORNEYS
Apache Corporation	Dalva L. Moellenberg Samantha H. Catalano Gallagher & Kennedy, P.A. 1239 Paseo de Peralta Santa Fe, New Mexico 87501 TEL: (505) 982-9523 FAX: (505) 983-6043

APPLICANT'S STATEMENT OF CASE

I. Background

Applicant seeks an order (a) striking the Oil Conservation Division's ("OCD") July 24, 2024 Conditions of Approval to Apache's May 8, 2024 Scope of Work for Additional Investigation; and (b) approving Apache's September 23, 2024 Additional Groundwater Delineation Work Plan with no Conditions. This cause stems from EBDU No. 37, Incident No. NDHR1922141227 (1RP-5636). Apache is the operator of the East Blinebry Drinkard Unit #037 well, also known as "EBDU #37" ("the Well"), API No. 30-025-06556, a water injection well, located in Section 13, Township 21 South, Range 37 East, in Lea County, New Mexico. Said area is located approximately 3 miles northeast of Eunice, New Mexico.

On July 14, 2019, Apache filed its C-141 Initial Response Form, thereby notifying the OCD of a release at a pipeline junction approximately 720 feet east of the Well (the "Release"). Apache submitted its Remediation Plan to OCD on October 29, 2019, which was approved by

OCD with conditions on December 23, 2019. The OCD approved Apache's 1RP-5636 Annual Groundwater Monitoring report, which contained groundwater monitoring reports from December 2019 through December 2020, and approved Apache's plan to continue monitoring through 2021. OCD approved Apache's Closure Report for the soil delineation on August 27, 2021 without conditions.

Prior to August 8, 2022, the OCD requested that Apache conduct further delineation at the site and install two additional groundwater monitoring wells. Apache installed the requested wells on or about November 30, 2022. On April 4, 2023, Apache installed an additional four monitoring wells at the request of OCD. Between November 29, 2023 and December 13, 2023, Apache installed fourteen (14) additional monitoring wells at locations approved by the OCD. Apache collected samples from all existing wells and submitted the results to OCD in January, 2024.

Following receipt of the January groundwater monitoring results, OCD informally requested that Apache conduct additional site evaluations. After further discussions between Apache and OCD, Apache submitted its proposed Scope of Work for Additional Investigation to the OCD on May 8, 2024. This Scope of Work reflected what Apache and the OCD had agreed upon one week earlier, which was a plan to install five (5) additional groundwater monitoring wells and a proposal to discontinue groundwater monitoring at the windmill.

On July 24, 2024, the OCD approved Apache's May 8, 2024 Scope of Work but added several Conditions of Approval, including installation of thirteen (13) or fourteen (14) additional groundwater monitoring wells – which was far more than what Apache and OCD had agreed upon in May 2024. Apache believes that installation of an additional thirteen (13) or fourteen (14) wells is unnecessary to complete the delineation required and will necessarily slow down the delineation process. To that end, Apache's counsel notified the OCD on August 6, 2024 that Apache had

concerns with the Conditions of Approval. Apache and OCD thereafter conferred regarding Apache's objections to the Conditions of Approval, including engaging in dispute resolution pursuant to 19.15.30.20 NMAC. In a good-faith attempt to address OCD's concerns, Apache submitted a revised work plan on September 23, 2024. The OCD summarily rejected this work plan without providing any substantive commentary or insights as to why the plan was inadequate.

The OCD has thus far managed the Release under section 19.15.29 NMAC, the "spill rule." This rule contains specific requirements for assessment, characterization, delineation, restoration and closure of an affected site. The characterization requirements pursuant to section 19.15.29.12.A do not require operators to investigate unrelated potential sources of contamination. OCD's Conditions of Approval require Apache to install wells for this purpose, which is unrelated to the Release at issue here.

Within 24 hours of receiving Apache's revised work plan, the OCD notified Apache that it intended to cancel all further meetings with Apache and terminate its efforts to resolve both parties' concerns. The OCD stated that if Apache would not comply with the Conditions of Approval in full, then it should file an application for adjudicatory hearing within seven (7) days to contest the OCD's Conditions of Approval on Apache's May 8, 2024 Scope of Work. Otherwise, OCD threatened to file a Notice of Violation if Apache did not formally contest the Conditions of Approval. Faced with this "take it or leave it" proposition and refusal to discuss Apache's revised plan with our consultant and expert on these topics, Apache thereafter filed its Application for Adjudicatory Hearing pursuant to 19.15.4.8 on October 1, 2024.

II. Hearing Testimony

Apache intends to call three (3) witnesses to testify on its behalf at the January 16, 2025, Oil Conservation Commission ("OCC") hearing. Apache's witnesses include Larry (Bruce)

Baker, former Senior Environmental Technician for Apache; Barrett Bole, Geologist and Environmental Supervisor at Apache; and John Grams, Senior Geologist at Terracon.

a. Larry (Bruce) Baker

Mr. Baker has a Bachelor of Science in Wildlife and Fishery Science from Eastern New Mexico University and a Master of Jurisprudence in Energy and Environmental Law from Texas A&M University. He has been working as an Environmental Technician since 2007 and began working for Apache in 2013. Mr. Baker's role at Apache included managing all OCD reportable releases, reviewing and writing delineation plans, managing contracts to conduct delineation and/or remediation projects in accordance with OCD regulations, and writing or reviewing closure reports for submission to OCD.

Mr. Baker's testimony will provide factual background related to Apache's initial work at the Release site. Mr. Baker was initially involved in this matter, as he was notified by an EHS technician of the Release and subsequently filed the C-141 initial response form with the OCD on July 26, 2019. Mr. Baker will testify about Apache's initial response to the Release and provide factual background about the initial remediation plan. Mr. Baker managed the impacted soil removal, liner installation and clean soil backfill project at the Release site and has first-hand knowledge of the project. Mr. Baker will further testify regarding correspondence between Apache and OCD on the current delineation plan that is at issue. Mr. Baker will additionally testify regarding the groundwater delineation and Apache's monitoring of groundwater through the drilling and installation of more than twenty groundwater monitoring wells and reporting to OCD. Mr. Baker may testify to any facts relevant to Apache's Application in this matter.

b. Barrett Bole

Mr. Bole is the Environmental Supervisor for Apache. He obtained a Bachelor of Science in 1993 and a Master of Science in 1997 in Geology from Sul Ross State University in Alpine, Texas. Mr. Bole has worked as an Environmental Technician, consultant, and project manager since 1998. He has installed thousands of groundwater monitoring wells and soil borings during his career. As Environmental Supervisor at Apache, Mr. Bole specializes in soil and groundwater delineation and/or remediation, Tier 2 and SPCC Plan preparations, pipeline compliance, due diligence, and the supervision of other Apache employees.

Mr. Bole's testimony will primarily focus on Apache's groundwater delineation efforts and the company's response to the Release. Although Mr. Bole is familiar with the entire project at issue in this matter, Mr. Bole came to manage the groundwater portion of the project in December 2023, when Mr. Bole led the installation of groundwater monitoring wells TMW-11 through TMW-24. Mr. Bole's testimony will include the initial groundwater monitoring completed by Apache and the results of the monitoring. Mr. Bole will describe Apache's continued efforts to delineate the groundwater plume and to comply with the OCD's requirements. Mr. Bole will describe the 24 groundwater monitoring wells installed by Apache and Apache's work to develop and properly survey and sample these wells. Mr. Bole will speak to the discussions between Apache and the OCD in April and May 2024, where both parties agreed to drill an additional five (5) monitoring wells. Mr. Bole will testify regarding the OCD's Conditions of Approval to the work plan from July 24, 2024, wherein the OCD required Apache drill an additional thirteen (13) monitoring wells within 90 days, increasing the number of monitoring wells at the site to 42. Mr. Bole will also describe Apache's subsequent communications with OCD prior to the filing of Apache's Application for this adjudicatory hearing, including Apache's September 2024 submittal of a revised work plan. Mr. Bole will testify regarding the reasonableness of Apache's revised

work plan and explain why the proposed additional wells are sufficient to gather enough data to being practical and efficient removal of the contaminants. Mr. Bole may testify to any facts relevant to Apache's Application in this matter.

c. John Grams

Mr. Grams is a Senior Geologist at Terracon and is the lead Environmental Consultant working with Apache on this matter. Mr. Grams holds a Bachelor of Science and a Master of Science in Geology and is a registered Professional Geologist in Texas and Minnesota. Mr. Grams has worked on site investigation and delineation or remediation projects since 1988. The majority of his work has been in oil and gas site investigation, delineation, /or remediation. Mr. Grams is an expert in groundwater delineation and/or remediation.

Mr. Grams' testimony will focus on the hydrology and geology relevant to this matter. More specifically, Mr. Grams will testify regarding the Release and Apache's initial removal of impacted soils. Mr. Grams will testify regarding the initial groundwater sampling and boring sites drilled to delineate contamination at the site. He will discuss the results of the groundwater samples and explain Apache's reasoning in its determination to drill additional groundwater monitoring wells. Mr. Grams will speak to Apache's reporting of its groundwater monitoring results to Apache, and to the OCD's requests of Apache to drill additional monitoring wells. Mr. Grams will testify regarding the direction of groundwater flow as it is relevant to the location of effective groundwater monitoring wells and boring sites. Mr. Grams will testify regarding the New Mexico water quality standards and discuss the groundwater sampling results from Apache's monitoring wells. Mr. Grams will testify regarding the 2023 groundwater survey, including Apache's addition of seventeen (17) additional groundwater monitoring wells in 2023. Mr. Grams will discuss the results of the groundwater monitoring in 2023 as well. Mr. Grams' testimony will

include a discussion of the reasonableness and sufficiency of Apache's 24 groundwater monitoring wells. Mr. Grams will explain the March, 2024 groundwater monitoring results and the subsequent communications between OCD and Apache, in which the parties discussed installing additional monitoring wells. Mr. Grams will discuss Apache's May 8, 2024 Scope of Work Plan to address the OCD's concerns, and the OCD's Conditions of Approval, dated July 24, 2024. Mr. Grams will discuss the locations of the OCD's proposed additional monitoring wells, which exceed the number of wells Apache and OCD agreed upon in their April and May 2024 discussions. He will explain why some of the proposed wells are not necessary to characterize the existence and/or extent of groundwater contamination at the site. Further, Mr. Grams will explain that some of the OCD's proposed well locations are unlikely to provide useful data about the Release at issue. Mr. Grams will further testify regarding Apache's September 2024 work plan, which proposed an additional six monitoring wells and for soil borings at locations to address the OCD's concerns. Mr. Grams will testify regarding the importance of proceeding with an aquifer pump test to determine the hydrology at the site. Mr. Grams will also discuss the most recent groundwater monitoring results from the fourth quarter of 2024. Mr. Grams may testify to any facts relevant to Apache's Application in this matter.

Apache appreciates the opportunity to present its witnesses at this adjudicatory hearing.

APPLICANT'S PROPOSED EVIDENCE

WITNESS Name and Expertise	ESTIMATED TIME	EXHIBITS
Larry (Bruce) Baker, former Senior Environmental Technician at Apache	Approximately 1 hour	7
Barrett Bole, Geologist, Environmental Supervisor at Apache	Approximately 1 hour	5
John Grams, Senior Geologist, Terracon	Approximately 2 hours	6

PROCEDURAL MATTERS

Applicant filed its Application with the Oil Conservation Division for Adjudicatory Hearing on October 1, 2024. The Oil Conservation Division, by and through its Director, ordered that Case No. 24912 be referred to the Commission. The Oil Conservation Division is represented in this matter by Mr. Jesse K. Tremaine. Applicant is aware of no other procedural matters that should be disposed of here.

MASTER INDEX

Main Exhibit	Subexhibit/ Appendix	Material/Contents
A		**Larry (Bruce) Baker Resumé**
	A-1	C-141, July 26, 2019
	A-2	1RP-5636 Remediation Plan, Oct. 29, 2019
	A-3	Email from Mark Larson to Bradford Billings, Dec. 23, 2019
	A-4	Email correspondence Mark Larson and Bradford Billings, Aug. 7-13, 2020
	A-5	Soil Closure Report, Dec. 31, 2020
	A-6	Email from Bradford Billings to Mark Larson, Sept. 1, 2020
B		**Barrett Bole Resumé**
	B-1	Email from Michael Bratcher to Larry Baker and Barrett Bole, Oct. 3, 2022
	B-2	2023 Q4 Groundwater Monitoring Report, March 27, 2024
	B-3	Scope of Work for Additional Investigation, May 8, 2024
	B-4	Additional Groundwater Delineation Work Plan, Sept. 23, 2024
C		**John Grams Resumé**
	C-1	Annual Groundwater Monitoring Report, Dec. 23, 2020
	C-2	Scope of Work for Additional Monitoring Wells, April 5, 2023
	C-3	2024 Q4 Groundwater Monitoring Report, Jan. 8, 2025
	C-4	EBDU 37 Groundwater Flow Map, 2024
	C-5	EBDU 37 Existing and Proposed Monitoring Well Map, 2024
D		**Notice**
		Record of Notice of Adjudicatory Hearing

Respectfully submitted,

GALLAGHER & KENNEDY, PA

/s/ Dalva L. Moellenberg
Dalva L. Moellenberg
Samantha H. Catalano
DLM@gknet.com
Samantha.catalano@gknet.com
1239 Paseo de Peralta
Santa Fe, NM 87501-2758
(505) 982-9523
Attorneys for Apache Corporation

APACHE CORPORATION

PRE-HEARING EXHIBITS

PART 1

EXHIBITS:

A, A-1, A-2, A-3, A-4

LARRY BRUCE BAKER JR.

(432)-250-8384

Email ·brucebaker433@gmail.com

PROFESSIONAL EXPERIENCE

07/2013 – PRESENT

ENVIRONMENTAL SR. SPECIALIST, APACHE CORPORATION

- Ensure environmental compliance with state and federal regulations.
- Communicate with state and federal regulatory agencies to include BLM, NMSLO, NMED, TCEQ, RRC etc.
- Address NORM licensing requirements for sites in NM with State Radiation Control Board
- Develop and pursue regulatory approval for remediation plans through state and federal offices.
- Manage the hiring and onboarding of contract labor for site remediation.
- Develop budgets and manage high-cost environmental projects.
- Analyze sample data and site information to create solutions for environmental issues.
- Lead compliance with the Endangered Species Act regarding the Lesser Prairie Chicken and Dunes Sagebrush Lizard.
- Familiar with Oil and Gas Air Quality Regulations and Permits.
- Conduct interim reclamation on BLM surface.
- Asist reclamation team on reports and procedures for pad reclamation.

01/2011 – 07/2013

PROJECT MANAGER, RICE ENVIRONMENTAL CONSULTING AND SAFETY

- Consult with clients to ensure compliance with state and federal regulations.
- Develop and propose remediation plans in correspondence with clients and regulatory agencies.
- Coordinate with contractors and project leaders to ensure remediation objectives are achieved.
- Track cost to ensure projects stay within budget.
- Supervise, Mentor, and train employees.

05/2007 – 01/2011

ENVIRONMENTAL FIELD FOREMAN, RICE OPERATING COMPANY

- Coordinate with contractors on remediation projects.
- Provide site supervision of remediation projects.
- Interpret analytical data from soil samples.
- Draft reports to submit to regulatory agencies.

APACHE EXHIBIT A

EDUCATION

05/2005

BACHELOR OF SCIENCE, EASTERN NEW MEXICO UNIVERSITY

Major in Wildlife and Fishery Management

05/2021-5/2023

MASTER OF JURISPRUDENCE, TEXAS A&M COLLEGE OF LAW

Energy Law-Environmental Law and Energy Law and Policy

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	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Release Notification

Responsible Party

Responsible Party: Apache Corporation	OGRID 873
Contact Name: Bruce Baker	Contact Telephone: (432) 631-6982
Contact email: Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)*
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.4807053 Longitude: N -103.123085

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: EBDU #37 WIW	Site Type: Water Injection Well
Date Release Discovered: July 14, 2019	API # *3002506556*

Unit Letter	Section	Township	Range	County
E	12	21S	37E	LEA

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

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

Cause of Release

Isolation valve failure due to internal corrosion.

APACHE EXHIBIT A-1

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

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

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: Jeff Broom Title: Environmental Technician

Signature: _____ Date: 07/24/2019

Email: Jeffrey.Broom@apachecorp.com Telephone: (432) 664-4677

OCD Only

Received by: Dylan Rose-Coss Date: 08/09/2019

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	47 (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.

APACHE EXHIBIT A-2

Form C-141
Page 4

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	

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

Printed Name: Bruce Baker Title: Sr. Environmental Tech

Signature: Bruce Baker Date: 10/29/2019

email: Larry.Baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	

Remediation Plan

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

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

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

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

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

Printed Name: Bruce Baker Title: Sr. Environmental Tech

Signature: Bruce Baker Date: 10/29/2019

email: Larry.Baker@apachecorp.com Telephone: 432-631-6982

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

1RP-5636
REMEDIATION PLAN
East Blinebry Drinkard Unit #37
Produced Water Spill
Lea County, New Mexico

Latitude: N32.479569°
Longitude: W-103.122061°

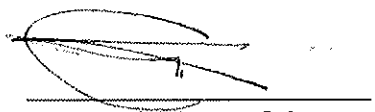
LAI Project No. 19-0112-49

October 29, 2019

Prepared for:

Apache Corporation
303 Veterans Airpark Lane
Midland, Texas 79705

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



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

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Tables

Figures

Appendices

1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this document on behalf of Apache Corporation (Apache) for remediation of a produced water spill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Unit E (SW/4, SW/4), Section 13, Township 21 South and Range 37 East in Lea County, New Mexico. The geodetic position is North 32.479569° and West -103.122061°. The surface ownership is private. Figure 1 presents a topographic map.

1.1 Background

The spill occurred at a pipeline junction and flowed west about 675 feet. Approximately 350 feet west of the origin the release flowed south about 450 feet before terminating in a low lying area. The volume of the release is unknown. A volume of fluid recovered is unknown. The release is considered major due to the unknown volume of the release. The release covered an area measuring approximately 25,000 square feet or approximately 0.57 acres. Apache submitted form C-141 to OCD on July 26, 2019. The release was assigned a remediation permit (RP) number of 1RP-5636. Appendix A presents the C-141.

On August 1, 2019, Apache personnel collected a groundwater sample from a windmill located about 300 feet south of the point of termination for the release. Cardinal Laboratories (Cardinal) in Hobbs, New Mexico, analyzed the sample for benzene, toluene, ethylbenzene, xylenes (BTEX), chloride and total dissolved solids (TDS) by EPA SW-846 Method 8021B (BTEX) and titration methods for chloride and TDS. BTEX was not reported above the analytical method reporting limits (RL). Chloride and TDS were reported at 232 milligrams per liter (mg/L) and 732 mg/L, respectively, and below the New Mexico Water Quality Control Commission (WQCC) domestic water quality standards of 250 mg/L and 1,000 mg/L, respectively. Table 1 presents the groundwater laboratory analysis. Appendix B presents the Cardinal laboratory report.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,420 feet above mean sea level (msl);
- The topography slopes gently towards the southwest;
- The nearest surface water feature is a low lying area about 500 feet southwest of the release origin;
- The soils are designated as “Kimbrough gravelly loam, dry, 0 to 3 percent slopes”, consisting of about 3 inches of gravelly loam, underlain by about 7 inches of loam and cemented material (caliche) to about 80 inches below ground surface (bgs), in descending order;
- The soil is not considered prime farmland;
- According to the Texas Bureau of Economic Geology Geologic Atlas of Texas Hobbs Sheet the surface geology is windblown sand (Holocene to middle Pleistocene) consisting of dark brown to grayish brown sand derived from the Blackwater Draw formation;
- Groundwater occurs in the Ogallala formation between about 55 feet bgs near the point of release to about 47 feet bgs near the point of termination;
- A fresh water well (windmill) is located about 300 feet south of the point of termination for the release and is not shown on the New Mexico Office of the State Engineer (OSE) website.

1.3 Remediation Levels

The following remediation standards are based on closure criteria for soils impacted by a release of unknown volume 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

2.1 Soil Samples

Between July 17, 2019 and July 25, 2019, Apache collected soil samples at eleven (11) locations (SP1 through SP11) from about 1 foot (SP6) to 16 feet (SP7) feet below ground surface (bgs). Apache personnel analyzed the samples for chloride by field titration method. Cardinal analyzed select soil samples for BTEX, total petroleum hydrocarbons (TPH), including gasoline rage organics (GRO), diesel range organics (DRO) and oil range organics (ORO) by EPA SW-846 Methods 8021B and 8015D, respectively, and chloride by titration method SM4500cl-B.

Benzene and BTEX were reported below the laboratory analytical method reporting limits and New Mexico Oil Conservation Division (OCD) cleanup limits of 10 milligrams per kilogram (mg/Kg) and 50 mg/Kg in Table 1 (19.15.29 NMAC). Chloride exceeded the OCD cleanup limit of 10,000 mg/Kg in samples SP1, 0 feet (16,962.74 mg/kg), SP2, o feet (28,800 mg/Kg) and SP5, 0 and 6 feet (10,100 mg/Kg) where groundwater is greater than 50 feet bgs and less than 100 feet bgs. Chloride exceeded the OCD cleanup limit of 600 mg/Kg where groundwater is less than 50 feet bgs soil samples from SP6, SP7, SP8, SP9 and SP11.

Apache excavated soil to approximately twelve (12) feet bgs from an area measuring approximately 4,431 square feet in the low area located near the termination of the release where groundwater was recorded at about 47 feet bgs. Approximately 2,300 cubic yards of soil was hauled to Sundance Disposal located east of Eunice, New Mexico. On August 7 and 8, 2019, Apache personnel used a track hoe to collect soil samples from the bottom of the excavation to approximately 22 feet bgs. Cardinal analyzed the samples and reported chloride at 544 mg/Kg and below the OCD cleanup limit of 600 mg/Kg at approximately 21 feet bgs. Table 2 presents the Cardinal analytical data summary. Figure 2 presents the spill area, soil sample locations SP1 through SP13 and excavation. Appendix B presents the Cardinal laboratory reports.

On August 14 and 15, 2019, LAI personnel advanced four (4) borings (1, 2, 3 and 4) near the terminal end of the release. The borings were advanced with direct push technology (DPT) between approximately 28 feet bgs (2) and 40 feet bgs (4) to observe groundwater. On August 18, 2019, groundwater was not observed in the borings and the borings were plugged with bentonite chips.

On August 27 and 28, 2019, Scarborough Drilling, Inc. (SDI), under direction from LAI, used an air rotary rig to drill three (3) borings (S-1 through S-3) along the south edge of the excavation. Soil samples were collected each 5 feet (i.e., 0, 5, 10, 15, 20, etc.) to approximately 40 and 50 feet bgs. The samples were delivered under preservation and chain of custody to Permian Basin Environmental Lab (PBEL) in Midland, Texas, which analyzed the samples for chloride by EPA Method 300. PBEL reported chloride below the OCD remediation limit (600 mg/Kg) in all samples. Groundwater was observed at about 46 feet bgs in boring S-1. Table 3 presents the PBEL analytical data summary. Figure 2 presents soil sample locations S-1 through S-3. Appendix C presents the PBEL report. Appendix D presents the boring logs.

On September 19, 2019, SDI advanced a borings (NB) north of the excavation (SP13) to approximately 48 feet bgs. LAI personnel collected soil samples at 45 and 48 feet bgs. Cardinal analyzed the samples for chloride by titration method SM4500cl-B and reported chloride 160 mg/Kg and 128 mg/Kg, in samples from 45 and 48 feet bgs, respectively. Table 2 presents the Cardinal laboratory analytical data summary. Figure 2 presents the boring location. Appendix B presents the Cardinal laboratory reports.

2.2 Groundwater Samples

On September 19, 2019, Scarborough drilled two (2) borings (TMW-1 and TMW2) for collecting groundwater samples. Boring TMW-1 was drilled south of the excavation and about 250 feet north of the windmill. Boring TMW-1 was drilled to approximately 71 feet bgs. Boring TMW-2 was drilled hydraulically up gradient (north) of the release to approximately 80 feet bgs. Temporary 2 inch threaded schedule 40 PVC casing and approximately 20 feet of 0.01 inch factory slotted screen was placed in the borings. The screens were positioned above and below the groundwater level observed during drilling. On September 23, 2019, groundwater was recorded at 46.18 feet bgs in well TMW-1 and 55.8 feet bgs in well TMW-2. The wells were developed by pumping with an electric submersible pump to remove fresh water introduced and sediment disturbed during drilling. Approximately 125 gallons of water were removed from each well and disposed in an OCD permitted Class II disposal well.

On September 24, 2019, LAI personnel collected groundwater samples with dedicated disposable bailers. The samples were delivered under preservation and chain of custody to DHL Analytical in Round Rock, Texas, which analyzed the samples for BTEX, chloride and TDS.

The laboratory reported BTEX less than the analytical method RL and WQCC human health standards in samples TMW-1 and TMW-2. Chloride and TDS were reported at was reported in TMW-1 at 37.4 mg/L and 400 mg/L, respectively, and below the WQCC domestic water quality standards of 250 mg/L and 1,000 mg/L, respectively. Chloride and TDS were reported in TMW-2 (up gradient) at 338 mg/L and 1,220 mg/L, respectively, and above the WQCC domestic water quality standards of 250 mg/L and 1,000 mg/L, respectively. Table 1 presents the groundwater sample analytical data summary. Figure 2 presents the boring locations. Appendix D presents the boring logs and monitoring well records. Appendix E presents the DHL laboratory report.

3.0 REMEDIATION PLAN

Apache proposes the following:

1. Excavate soil (Area 1) to 4 feet bgs between SP1 and SP13 depending on the depth and hardness of the caliche;

2. Collect soil samples for about every 200 square feet of the excavation sidewalls for analysis of BTEX, TPH and chloride;
3. Install 20 mill thickness polyethylene liner in bottom of excavation (Area 1), backfill with caliche to 2 feet bgs and to ground surface with clean soil containing chloride less than 600 mg/Kg;
4. Backfill excavation (Area 2) to approximately 5 feet bgs with caliche, to approximately 2 feet bgs with compacted clay and to surface with clean soil containing chloride less than 600 mg/Kg;
5. Seed excavations to landowner specifications;
6. Monitor groundwater quality in TMW-1 and TMW-2 on a quarterly (4 times per year) schedule for a period of two (2) years, analyze groundwater samples for BTEX, chloride and TDS and submit reports to OCD within 45 following receipt of the laboratory reports.

Figure 3 presents the excavation areas and depths.

Tables

Table 1
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37
Lea County, New Mexico

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)
QCC Standard:		*0.01	*0.75	*0.75	*0.62	**250	**1,000
(') Windmill	8/1/2019	<0.001	<0.001	<0.001	<0.003	232	732
(²) TMW-1	9/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	37.4	400
(²) TMW-2	9/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	338	1,220

Notes:
(') analysis performed by Cardinal Laboratories, Hobbs, New Mexico, by EPA SW-846 Method 8021B (BTEX) and titration methods (chloride and TDS)
(²) analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride)
All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)
< values - denotes concentration is less than method reporting limit (RL).
* - Human health standard
** - Domestic water quality standard

Table 2
Apache Laboratory Soil Sample Analytical Data Summary
Apache Corp., EBDU 37
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)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Level:				**10**	**50**				**100**	**600**
BG 1	0	07/19/2019	In-situ	--	--	--	--	--	--	<16.0
	1		In-situ	<0.05	<0.600	<10.0	91.5	43.3	134.8	528
	2		In-situ	--	--	--	--	--	--	32.0
	3		In-situ	--	--	--	--	--	--	16.0
	4		In-situ	--	--	--	--	--	--	80.0
SP1	0	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	16,962.74
	5		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	400
	10		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	96.0
SP2	0	07/25/2019	In-situ	<0.05	2.713	<10.0	<10.0	<10.0	<10.0	28,800
	5	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	1,150
	10	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	272
SP3	0	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	>10
	5	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	2,720
	10	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	192
	15	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	80
SP4	0	07/17/2019	In-situ	--	--	--	--	--	--	17,322
	1		In-situ	--	--	--	--	--	--	8,757
	2		In-situ	--	--	--	--	--	--	5,143
	3		In-situ	--	--	--	--	--	--	>2.0
	3.5		In-situ	--	--	--	--	--	--	4,876
	4		In-situ	--	--	--	--	--	--	5,128
SP5	0	07/19/2019	In-situ	<0.05	<0.600	<10.0	996	339	1,335	10,100
	2		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	5,200
	4		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	4,240
	6		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	10,100
	8		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	9,330

Table 2
Apache Laboratory Soil Sample Analytical Data Summary
Apache Corp., EBDU 37
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)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Level:				**10**	**50**				**100**	**600**
	10		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	3,840
	12		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	1,420
	14		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	3,532
SP6	0	07/19/2019	In-situ	--	--	--	--	--	--	>2.0
	1		In-situ	--	--	--	--	--	--	>2.0
SP7	0	07/22/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	>2.0
	2		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	3,089
	4		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	5,758
	6		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	6,777
	8		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	5,998
	10		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	3,748
	12		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	4,026
	14		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	3,781
	16		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	4,482
SP8	5	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	4,240
	10		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	2,240
	15		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	1,090
SP9	5	07/25/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	6,160
	10		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	5,520
	15		In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	2,800
SP10	5	07/25/2019	In-situ	--	--	--	--	--	--	6,621
	10		In-situ	--	--	--	--	--	--	7,173
SP11	5	07/25/2019	In-situ	--	--	--	--	--	--	7,745
	10		In-situ	--	--	--	--	--	--	7,053

Table 2
Apache Laboratory Soil Sample Analytical Data Summary
Apache Corp., EBDU 37
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)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Level:				**10**	**50**				**100**	**600**
SP-13	15	08/28/2019	In-Situ	*<0.050	*<0.600	*<10.0	*<10.0	*<10.0	*<10.0	2,880
(S-4/NB)	20	08/28/2019	In-Situ	*<0.050	*<0.600	*<10.0	*<10.0	*<10.0	*<10.0	4,600
	25	08/28/2019	In-Situ	*<0.050	*<0.600	*<10.0	*<10.0	*<10.0	*<10.0	3,120
	30	08/28/2019	In-Situ	*<0.050	*<0.600	*<10.0	*<10.0	*<10.0	*<10.0	4,360
	35	08/28/2019	In-Situ	*<0.050	*<0.600	*<10.0	*<10.0	*<10.0	*<10.0	5,280
	40	08/28/2019	In-Situ	*<0.050	*<0.600	*<10.0	*<10.0	*<10.0	*<10.0	3,040
	45	09/19/2018	In-Situ	--	--	--	--	--	--	160
	48	09/19/2018	In-Situ	--	--	--	--	--	--	128
Excavation Samples										
B0	12	08/07/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	32.0
B1	12	08/07/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	32.0
B2	12	08/07/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	48.0
B10	12	08/07/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	16.0
B11	12	08/07/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	<16.0
B 15	13	08/08/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	720
	15	08/08/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	1,840
	17	08/08/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	1,950
	19	08/08/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	3,800
	21	08/08/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	544
	22	08/08/2019	In-situ	<0.05	<0.600	<10.0	<10.0	<10.0	<10.0	*3,440

Notes: analysis performed by Cardinal Laboratories, Hobbs, New Mexico, by Method by EPA SW-846 Method 8021B (BTEX), 8015D (TPH) and SM4500cl-B (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
<: denotes concentration less than analytical method reporting limit
* Represents possible cross contamination from trackhoe during sample collection
Highlighted denotes concentration above chloride remediation level (600 mg/Kg) in Table 1 (19.15.29 NMAC)

Table 3
LAI Analytical Data Summary
Apache Corp., EBDU 37
Lea County, New Mexico

Sample	Depth (Feet)	Collection Date	Status (mg/Kg)	Chloride (mg/Kg)
Remediation Level:				**600**
S-1	0	08/27/2019	In-situ	67.6
	5		In-situ	58.3
	10		In-situ	16.1
	15		In-situ	9.81
	20		In-situ	14.0
	25		In-situ	11.0
	30		In-situ	12.9
	35		In-situ	5.65
	40		In-situ	8.16
	45		In-situ	21.0
	50		In-situ	3.90
S-2	0	08/27/2019	In-situ	10.1
	5		In-situ	22.3
	10		In-situ	9.43
	15		In-situ	1.28
	20		In-situ	2.46
	25		In-situ	<1.06
	30		In-situ	3.67
	35		In-situ	5.10
	40		In-situ	2.89
S-3	0	08/27/2019	In-Situ	2.62
	5		In-Situ	1.68
	10		In-Situ	1.31
	15		In-Situ	<1.01
	20		In-Situ	1.24
	25		In-Situ	<1.05
	30		In-Situ	<1.08
	35		In-Situ	<1.09
	40		In-Situ	1.23

Notes: analysis performed by Permian Basin Environmental Lab, Midland, Texas, by EPA Method 300
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
<: denotes concentration less than analytical method reporting limit

Figures

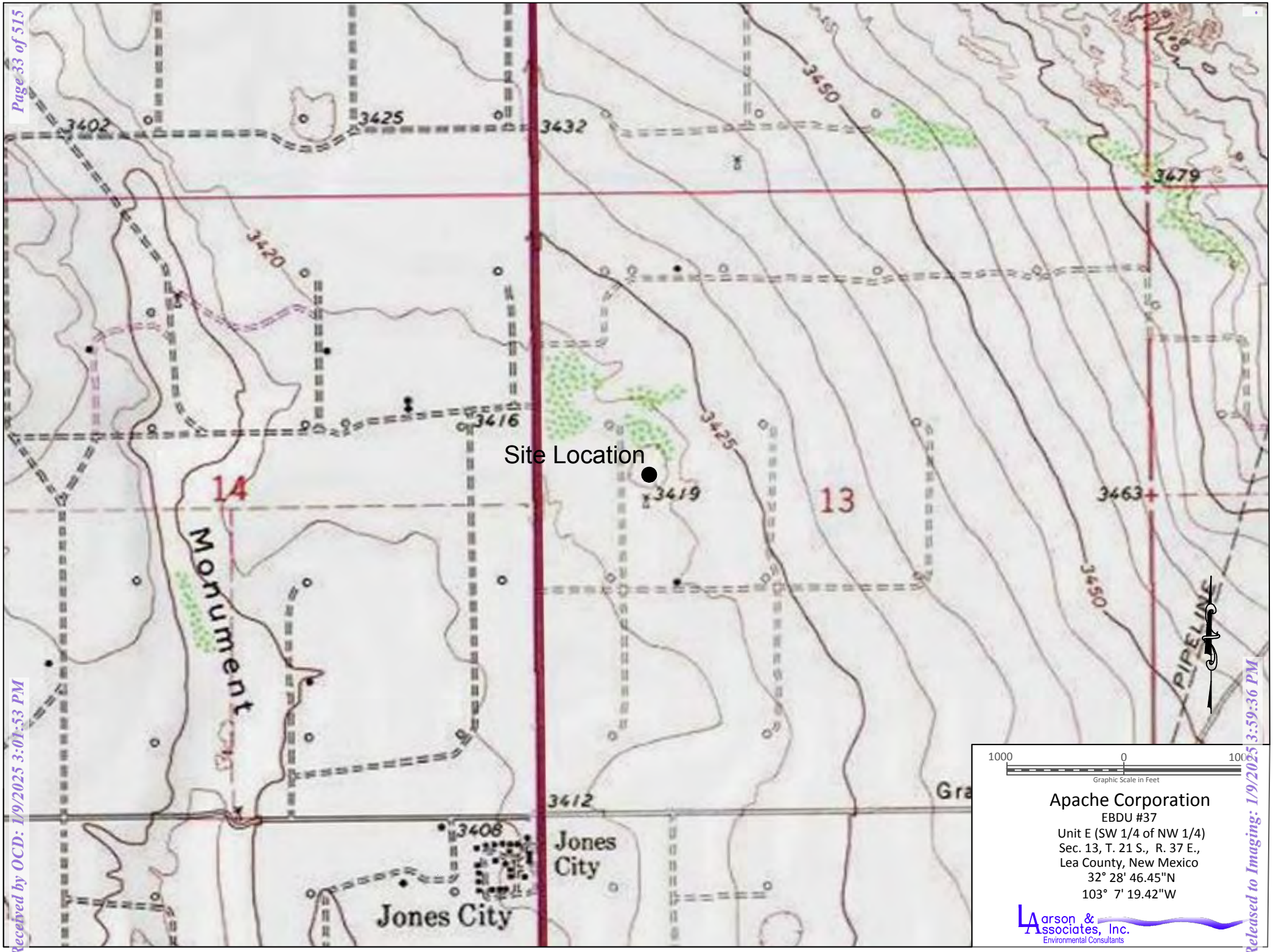

Figure 1 - Topographic Map

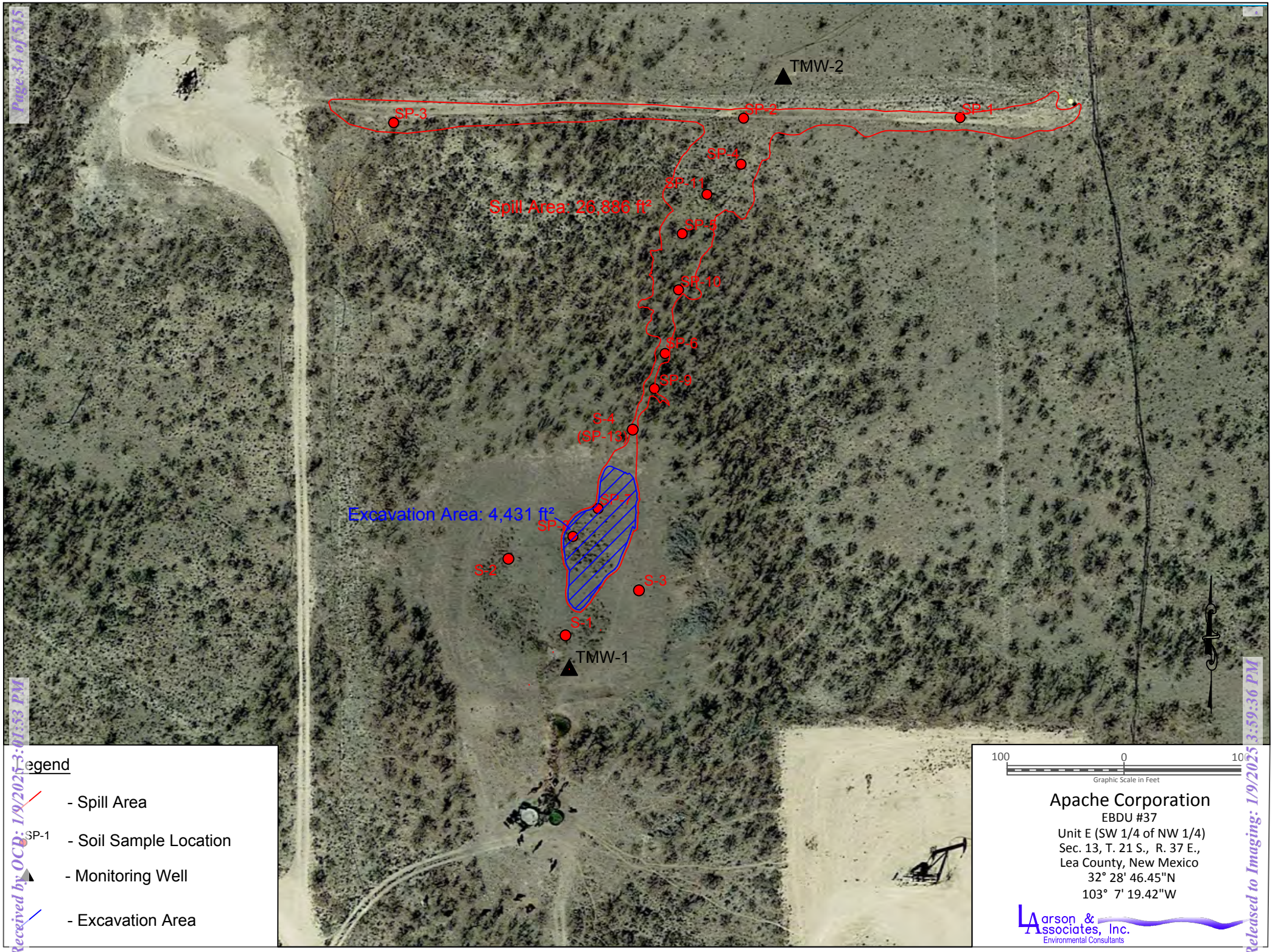

Figure 2 - Aerial Map Showing Soil Sample Locations

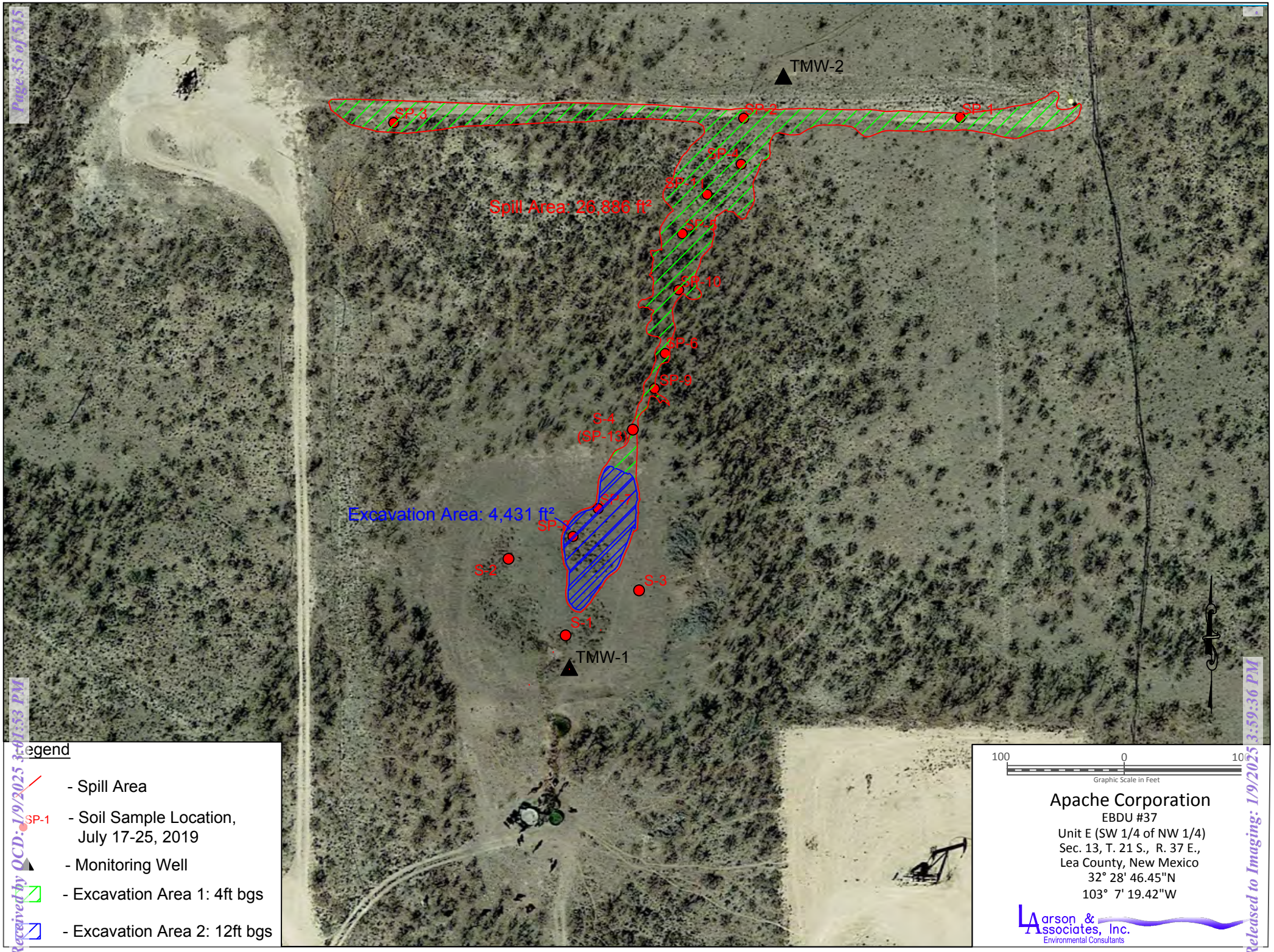

Figure 3 - Aerial Map Showing Excavation Areas

Appendix A

Initial C-141

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Release Notification

Responsible Party

Responsible Party: Apache Corporation	OGRID 873
Contact Name: Bruce Baker	Contact Telephone: (432) 631-6982
Contact email: Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)*
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.4807053 Longitude: N -103.123085

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: EBDU #37 WIW	Site Type: Water Injection Well
Date Release Discovered: July 14, 2019	API # *3002506556*

Unit Letter	Section	Township	Range	County
E	12	21S	37E	LEA

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

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

Cause of Release

Isolation valve failure due to internal corrosion.

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Via email given to NM OCD by Bruce Baker, Senior Environmental Technician, Apache Corporation

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: Jeff Broom Title: Environmental Technician

Signature: _____ Date: 07/24/2019

Email: Jeffrey.Broom@apachecorp.com Telephone: (432) 664-4677

OCD Only

Received by: Dylan Rose-Coss Date: 08/09/2019

Appendix B

Cardinal Laboratory Reports

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 24, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 07/19/19 17:14.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/17/2019
Reported:	07/24/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Celey D. Keene
Project Location:	NOT GIVEN		

Sample ID: BG 1 @ SURFACE (H902502-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	07/23/2019	ND	416	104	400	0.00	

Sample ID: BG 1 @ 2' (H902502-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	07/23/2019	ND	416	104	400	0.00	

Sample ID: BG 1 @ 3' (H902502-03)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	07/23/2019	ND	416	104	400	0.00	

Sample ID: BG 1 @ 4' (H902502-04)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/23/2019	ND	416	104	400	0.00	

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Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

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Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: APACHE CORPORATION	**BILL TO**		ANALYSIS REQUEST
Project Manager: BRUCE BAKER	P.O. #:		
Address:	Company:		
City: State: Zip:	Attn:		
Phone #: Fax #:	Address:		
Project #: Project Owner:	City:		
Project Name: EBDU 37 WIW	State: Zip:		
Project Location: EBDU 37 WIW	Phone #:		
Sampler Name: JEFF BROWN	Fax #:		

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		CL										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME											
H902502																									
01	BG1 @ Surface		1			✓							7-17-19	1452	✓										
02	BG1 @ 2'		1			✓							7-17-19	1454	✓										
03	BG1 @ 3'		1			✓							7-17-19	1455	✓										
04	BG1 @ 4'		1			✓							7-17-19	1500	✓										

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Jeff Brown	Date: 7-19-19	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 1714		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		

Delivered By: (Circle One)
Sampler - UPS - Bus - Other: 4.2°C / 5.2°C corrected

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) CH #97

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 26, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 07/19/19 17:14.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ SURFACE (H902503-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**10100**	16.0	07/23/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<50.0	50.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	**996**	50.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	**339**	50.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *70.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *122 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

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Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ 2' (H902503-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5200**	16.0	07/23/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	<10.0	10.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	<10.0	10.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *68.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *71.0 %* *37.6-147*

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Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ 4' (H902503-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4240**	16.0	07/23/2019	ND	432	108	400	3.77	QM-07

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	<10.0	10.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	<10.0	10.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *68.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *71.8 %* *37.6-147*

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Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ 6' (H902503-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**10100**	16.0	07/23/2019	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	<10.0	10.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	<10.0	10.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *68.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *72.0 %* *37.6-147*

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Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ 8' (H902503-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**9330**	16.0	07/23/2019	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	<10.0	10.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	<10.0	10.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *69.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *71.4 %* *37.6-147*

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CARDINAL Laboratories

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Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ 10' (H902503-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3840**	16.0	07/23/2019	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	<10.0	10.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	<10.0	10.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *68.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *71.0 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 5 @ 12' (H902503-07)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *108 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1420**	16.0	07/23/2019	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/23/2019	ND	185	92.3	200	4.28	
DRO >C10-C28*	<10.0	10.0	07/23/2019	ND	178	89.0	200	4.70	
EXT DRO >C28-C36	<10.0	10.0	07/23/2019	ND					

Surrogate: 1-Chlorooctane *65.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *69.1 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

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PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/19/2019	Sampling Date:	07/19/2019
Reported:	07/26/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: BG 1 @ 1' (H902503-08)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/25/2019	ND	1.70	84.8	2.00	2.64	
Toluene*	<0.050	0.050	07/25/2019	ND	1.68	84.1	2.00	4.45	
Ethylbenzene*	<0.050	0.050	07/25/2019	ND	1.56	78.2	2.00	6.27	
Total Xylenes*	<0.150	0.150	07/25/2019	ND	5.02	83.6	6.00	6.25	
Total BTEX	<0.300	0.300	07/25/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *107 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**528**	16.0	07/23/2019	ND	432	108	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/24/2019	ND	187	93.3	200	2.77	
DRO >C10-C28*	**91.5**	10.0	07/24/2019	ND	188	94.1	200	1.57	
EXT DRO >C28-C36	**43.3**	10.0	07/24/2019	ND					

Surrogate: 1-Chlorooctane *61.6 %* *41-142*

Surrogate: 1-Chlorooctadecane *70.5 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	APACHE CORPORATION	**BILL TO**	
Project Manager:	BRUCE BAKER	P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	EBDU 37 WIW	State: Zip:	
Project Location:	EBDU 37 WIW	Phone #:	
Sampler Name:	JEFF BROWN	Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	CL	BTEX	EXT. TPH
H502503-																	
01	SPS @ SURFACE		1			✓							7-17-19	1612	✓	✓	✓
02	SPS @ 2'													1525			
03	SPS @ 4'													1527			
04	SPS @ 6'													1531			
05	SPS @ 8'													1533			
06	SPS @ 10'													1579			
07	SPS @ 12													1523			
08	BG1 @ 1'												7-19-19	1453			
09																	

Relinquished By: Jeff Brown	Date: 7-19-19 Time: 1914	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #: REMARKS:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 4.8°C / Corrected 5.2°C	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) Cash #497	

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

July 31, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 07/25/19 14:51.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 8 @ 5' (H902565-01)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4240**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *95.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *107 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 8 @ 10' (H902565-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2240**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *97.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *109 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/24/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 8 @ 15' (H902565-03)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1090**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *98.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *110 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 9 @ 5' (H902565-04)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**6160**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *86.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *97.0 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 9 @ 10' (H902565-05)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5520**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *93.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *105 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 9 @ 15' (H902565-06)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2800**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *95.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *108 %* *37.6-147*

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Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 1 @ 5' (H902565-07)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**400**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *85.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *95.4 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 1 @ 10' (H902565-08)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**96.0**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	195	97.7	200	3.98	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	218	109	200	16.0	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *92.4 %* *41-142*

Surrogate: 1-Chlorooctadecane *103 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 2 @ SURFACE (H902565-09)

BTEX 8021B mg/kg Analyzed By: ms S-04

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	**0.175**	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	**0.618**	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	**1.92**	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	**2.71**	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *133 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**28800**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS S-04

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	**104**	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	**1380**	10.0	07/26/2019	ND	197	98.5	200	12.1	QM-07
EXT DRO >C28-C36	**349**	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *111 %* *41-142*

Surrogate: 1-Chlorooctadecane *171 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 2 @ 5' (H902565-10)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1150**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *93.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *101 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 2 @ 10' (H902565-11)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**272**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *80.0 %* *41-142*

Surrogate: 1-Chlorooctadecane *84.6 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 3 @ 5' (H902565-12)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2720**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *98.3 %* *41-142*

Surrogate: 1-Chlorooctadecane *110 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 3 @ 10' (H902565-13)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**192**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *99.1 %* *41-142*

Surrogate: 1-Chlorooctadecane *109 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	07/25/2019	Sampling Date:	07/25/2019
Reported:	07/31/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: SP 3 @ 15' (H902565-14)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/29/2019	ND	1.98	99.2	2.00	1.56	
Toluene*	<0.050	0.050	07/29/2019	ND	2.07	104	2.00	0.363	
Ethylbenzene*	<0.050	0.050	07/29/2019	ND	1.98	98.9	2.00	0.632	
Total Xylenes*	<0.150	0.150	07/29/2019	ND	6.18	103	6.00	0.412	
Total BTEX	<0.300	0.300	07/29/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**80.0**	16.0	07/26/2019	ND	416	104	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/26/2019	ND	193	96.7	200	9.45	
DRO >C10-C28*	<10.0	10.0	07/26/2019	ND	197	98.5	200	12.1	
EXT DRO >C28-C36	<10.0	10.0	07/26/2019	ND					

Surrogate: 1-Chlorooctane *93.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *107 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	APACHE CORPORATION
Project Manager:	BRUCE BAKER
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	EBOU 37 WIW
Project Location:	EBOU 37 WIW
Sampler Name:	Brown

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	CL (RUSH)	BTEX	EXT. TPH
H902565																	
1	SP8 @ 5'					X					X		7-25-15	11:33	X	X	X
2	SP8 @ 10'					X					X			11:37			
3	SP8 @ 15					X					X			11:35			
4	SP9 @ 5'					X					X			12:04			
5	SP9 @ 10'					X					X			12:05			
6	SP9 @ 15					X					X		7-25-15	12:26			

Relinquished By: Jeff Brown	Date: 7-27-15 Time: 1451	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) corrected +.4 Sampler - UPS - Bus - Other: 5.2° 5.6° / #97	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials)	REMARKS: Rush CL only. EMAIL TO JEFF AS WELL.

CARDINAL Laboratories

2

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: APACHE CORPORATION	**BILL TO**
Project Manager: BRUCE BAKER	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: EBDU 37 WIW	State: Zip:
Project Location: EBDU 37 WIW	Phone #:
Sampler Name: Brum	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	CL	BTEX	EXT. TPH
H902565																	
7	SP1 @ 5'												7-25-19	0823			
8	SP1 @ 10'													0824			
9	SP2 @ SURFACE													1345			
10	SP2 @ ~~10'~~ 5' TD.													1350			
11	SP2 @ ~~15'~~ 10'													1347			
12	SP3 @ 5'													1018			
13	SP3 @ 10'													1017			
14	SP3 @ 15'												7-25-19	1025			

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Jeff Brum	Date: 7-25-19	Received By: Jodi Henson	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 1456		Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:
	Time:		

Delivered By: (Circle One) corrected +.4
Sampler - UPS - Bus - Other: 5.2°c 5.6°c/#97

Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No

CHECKED BY: (Initials) JH

EMAIL TO JEFF AS WELL.

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 05, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 08/01/19 12:08.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Total Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

Method SM 9223-B	Total Coliform and E. coli (Colilert MMO-MUG)
Method EPA 524.2	Regulated VOCs and Total Trihalomethanes (TTHM)
Method EPA 552.2	Total Haloacetic Acids (HAA-5)

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS 2350 W. MARLAND BLVD. HOBBS NM, 88240	Project: EBDU 37 WIW Project Number: NONE GIVEN Project Manager: BRUCE BAKER Fax To: (575) 393-2432	Reported: 05-Aug-19 15:00

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
WINDMILL	H902630-01	Water	01-Aug-19 11:45	01-Aug-19 12:08

Cardinal Laboratories

*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS 2350 W. MARLAND BLVD. HOBBS NM, 88240	Project: EBDU 37 WIW Project Number: NONE GIVEN Project Manager: BRUCE BAKER Fax To: (575) 393-2432	Reported: 05-Aug-19 15:00

WINDMILL

H902630-01 (Water)

Analyte	Result	MDL	Reporting Limit	Units	Dilution	Batch	Analyst	Analyzed	Method	Notes
Cardinal Laboratories										
Inorganic Compounds										
Chloride*	**232**		4.00	mg/L	1	9080104	AC	01-Aug-19	4500-Cl-B	
TDS*	**732**		5.00	mg/L	1	9072906	AC	02-Aug-19	160.1	
Volatile Organic Compounds by EPA Method 8021										
Benzene*	<0.001		0.001	mg/L	1	9080118	ms	01-Aug-19	8021B	
Toluene*	<0.001		0.001	mg/L	1	9080118	ms	01-Aug-19	8021B	
Ethylbenzene*	<0.001		0.001	mg/L	1	9080118	ms	01-Aug-19	8021B	
Total Xylenes*	<0.003		0.003	mg/L	1	9080118	ms	01-Aug-19	8021B	
Total BTEX	<0.006		0.006	mg/L	1	9080118	ms	01-Aug-19	8021B	
Surrogate: 4-Bromofluorobenzene (PID)			*105 %*	*81.3-128*		*9080118*	ms	*01-Aug-19*	*8021B*	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS 2350 W. MARLAND BLVD. HOBBS NM, 88240	Project: EBDU 37 WIW Project Number: NONE GIVEN Project Manager: BRUCE BAKER Fax To: (575) 393-2432	Reported: 05-Aug-19 15:00

Inorganic Compounds - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9072906 - Filtration										
Blank (9072906-BLK1)				Prepared: 29-Jul-19 Analyzed: 30-Jul-19						
TDS	ND	5.00	mg/L							
LCS (9072906-BS1)				Prepared: 29-Jul-19 Analyzed: 30-Jul-19						
TDS	533		mg/L	527		101	80-120			
Duplicate (9072906-DUP1)	**Source: H902540-01**			Prepared: 29-Jul-19 Analyzed: 30-Jul-19						
TDS	1470	5.00	mg/L		1510			2.69	20	
Batch 9080104 - General Prep - Wet Chem										
Blank (9080104-BLK1)				Prepared & Analyzed: 01-Aug-19						
Chloride	ND	4.00	mg/L							
LCS (9080104-BS1)				Prepared & Analyzed: 01-Aug-19						
Chloride	100	4.00	mg/L	100		100	80-120			
LCS Dup (9080104-BSD1)				Prepared & Analyzed: 01-Aug-19						
Chloride	104	4.00	mg/L	100		104	80-120	3.92	20	

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*=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS 2350 W. MARLAND BLVD. HOBBS NM, 88240	Project: EBDU 37 WIW Project Number: NONE GIVEN Project Manager: BRUCE BAKER Fax To: (575) 393-2432	Reported: 05-Aug-19 15:00

Volatile Organic Compounds by EPA Method 8021 - Quality Control

Cardinal Laboratories

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 9080118 - Volatiles										
Blank (9080118-BLK1)				Prepared & Analyzed: 01-Aug-19						
Benzene	ND	0.001	mg/L							
Toluene	ND	0.001	mg/L							
Ethylbenzene	ND	0.001	mg/L							
Total Xylenes	ND	0.003	mg/L							
Total BTEX	ND	0.006	mg/L							
Surrogate: 4-Bromofluorobenzene (PID)	*0.104*		mg/L	*0.100*		*104*	*81.3-128*			
LCS (9080118-BS1)				Prepared & Analyzed: 01-Aug-19						
Benzene	0.021	0.001	mg/L	0.0200		106	86.6-118			
Toluene	0.022	0.001	mg/L	0.0200		110	84.5-122			
Ethylbenzene	0.020	0.001	mg/L	0.0200		102	83.9-122			
Total Xylenes	0.062	0.003	mg/L	0.0600		103	81.8-124			
Surrogate: 4-Bromofluorobenzene (PID)	*0.103*		mg/L	*0.100*		*103*	*81.3-128*			
LCS Dup (9080118-BSD1)				Prepared & Analyzed: 01-Aug-19						
Benzene	0.021	0.001	mg/L	0.0200		105	86.6-118	0.152	7.71	
Toluene	0.021	0.001	mg/L	0.0200		107	84.5-122	2.56	8.86	
Ethylbenzene	0.020	0.001	mg/L	0.0200		101	83.9-122	0.952	11.8	
Total Xylenes	0.061	0.003	mg/L	0.0600		102	81.8-124	0.228	11.9	
Surrogate: 4-Bromofluorobenzene (PID)	*0.103*		mg/L	*0.100*		*103*	*81.3-128*			

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Apache Corporation	**BILL TO**	
Project Manager:	Bruce Baker	P.O. #:	
Address:		Company:	Apache
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	EBDU 37 WIW	State: Zip:	
Project Location:	Lea Co.	Phone #:	
Sampler Name:	Ben D. Argujo	Fax #:	

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST										
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	BTEX	Chloride	TPS								
H902630																									
1	Windmill	G	4	X							X		8/1/19	1145	X	X	X								

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By:	Date: 8/1/19	Received By:	Phone Result: ☐ Yes ☐ No Add'l Phone #:
	Time: 1208	Tamara Oldaker	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS: Email - Bruce, Jeff & Ben Argujo
	Time:		Rush!!

Delivered By: (Circle One)	22.3° #97	Sample Condition Cool Intact	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other:	Corrected 22.7°	☐ Yes ☑ Yes / ☑ No ☐ No	TO

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 08, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 08/07/19 16:52.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/07/2019	Sampling Date:	08/07/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: B 0 (H902718-01)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.09	105	2.00	6.89	
Toluene*	<0.050	0.050	08/08/2019	ND	2.13	107	2.00	6.44	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	4.82	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.07	101	6.00	4.98	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	08/08/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	206	103	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *99.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *107 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/07/2019	Sampling Date:	08/07/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: B 1 (H902718-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.09	105	2.00	6.89	
Toluene*	<0.050	0.050	08/08/2019	ND	2.13	107	2.00	6.44	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	4.82	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.07	101	6.00	4.98	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**32.0**	16.0	08/08/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	206	103	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *101 %* *41-142*

Surrogate: 1-Chlorooctadecane *111 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/07/2019	Sampling Date:	08/07/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: B 2 (H902718-03)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.09	105	2.00	6.89	
Toluene*	<0.050	0.050	08/08/2019	ND	2.13	107	2.00	6.44	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	4.82	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.07	101	6.00	4.98	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *101 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**48.0**	16.0	08/08/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	206	103	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *101 %* *41-142*

Surrogate: 1-Chlorooctadecane *109 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/07/2019	Sampling Date:	08/07/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: B 10 (H902718-04)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.09	105	2.00	6.89	
Toluene*	<0.050	0.050	08/08/2019	ND	2.13	107	2.00	6.44	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	4.82	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.07	101	6.00	4.98	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**16.0**	16.0	08/08/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	206	103	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *102 %* *41-142*

Surrogate: 1-Chlorooctadecane *110 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/07/2019	Sampling Date:	08/07/2019
Reported:	08/08/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: B 11 (H902718-05)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/08/2019	ND	2.09	105	2.00	6.89	
Toluene*	<0.050	0.050	08/08/2019	ND	2.13	107	2.00	6.44	
Ethylbenzene*	<0.050	0.050	08/08/2019	ND	2.01	101	2.00	4.82	
Total Xylenes*	<0.150	0.150	08/08/2019	ND	6.07	101	6.00	4.98	
Total BTEX	<0.300	0.300	08/08/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *102 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	<16.0	16.0	08/08/2019	ND	400	100	400	3.92	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	208	104	200	4.84	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	206	103	200	10.2	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *109 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name: APACHE CORPORATION	**BILL TO**
Project Manager: BRUCE BAKER	P.O. #:
Address:	Company:
City: State: Zip:	Attn:
Phone #: Fax #:	Address:
Project #: Project Owner:	City:
Project Name: EBDU 37 WIW	State: Zip:
Project Location: EBDU 37WIW	Phone #:
Sampler Name: JEFF BROWN	Fax #:

FOR LAB USE ONLY				MATRIX						PRESERV.			SAMPLING		ANALYSIS REQUEST		
Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	ACID/BASE:	ICE / COOL	OTHER :	DATE	TIME	CL	BTEX	EXT. TPH
H962718																	
1	B0	G	1			✓							8-7-19	1609	✓	✓	✓
2	B1	↓	↓			↓							↓	1616	↓	↓	↓
3	B2													1617			
4	B10												↓	1620			
5	B11	↓	↓			↓							8-7-19	1615	↓	↓	↓

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Jeff Brown	Date: 8-7-19 Time: 1652	Received By: Tamara Oldaker	Phone Result: ☐ Yes ☐ No Add'l Phone #:
Relinquished By:	Date: Time:	Received By:	Fax Result: ☐ Yes ☐ No Add'l Fax #:
Delivered By: (Circle One) 2.3° #97	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) T.O.	REMARKS: Rush Please. Thanks, Jeff
Sampler - UPS - Bus - Other: Corrected 2.7°			

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 09, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 08/08/19 16:18.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 13' (H902734-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**720**	16.0	08/09/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *107 %* *41-142*

Surrogate: 1-Chlorooctadecane *110 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 15' (H902734-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1840**	16.0	08/09/2019	ND	448	112	400	3.64	QM-07

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *107 %* *41-142*

Surrogate: 1-Chlorooctadecane *107 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 17' (H902734-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1950**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *103 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 19' (H902734-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3800**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *104 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 21' (H902734-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *100 %* *41-142*

Surrogate: 1-Chlorooctadecane *101 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 22' (H902734-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3440**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *104 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Apache Corporation
Project Manager:	Bruce Baker
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	EBDU #37 WIW
Project Location:	EBDU #37 WIW
Sampler Name:	Jeff Brown

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	CL	BTEX	EXT. TPH
H902734																	
1	B15 @ 13'												8-8-15	3:16			
2	B15 @ 15'													3:18			
3	B15 @ 17'													3:19			
4	B15 @ 19'													3:21			
5	B15 @ 21'													3:23			
6	B15 @ 22'												8-8-15	3:24			

Relinquished By: Jeff Brown	Date: 8-8-15	Received By: Jodi Henson	
	Time: 1618		
Relinquished By:	Date:	Received By:	
	Time:		
Delivered By: (Circle One)	+.4 corrected		
Sampler - UPS - Bus - Other:	4.1°C / 4.5°C #97	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:

REMARKS: Rush Please.

Thanks, Jeff

4.1

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 09, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 08/08/19 16:18.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 13' (H902734-01)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *106 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**720**	16.0	08/09/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *107 %* *41-142*

Surrogate: 1-Chlorooctadecane *110 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 15' (H902734-02)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1840**	16.0	08/09/2019	ND	448	112	400	3.64	QM-07

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *107 %* *41-142*

Surrogate: 1-Chlorooctadecane *107 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 17' (H902734-03)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *103 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**1950**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *103 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 19' (H902734-04)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *105 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3800**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *104 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 21' (H902734-05)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *110 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**544**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *100 %* *41-142*

Surrogate: 1-Chlorooctadecane *101 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/08/2019	Sampling Date:	08/08/2019
Reported:	08/09/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NOT GIVEN		

Sample ID: B 15 @ 22' (H902734-06)

BTEX 8021B mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/09/2019	ND	1.91	95.5	2.00	3.81	
Toluene*	<0.050	0.050	08/09/2019	ND	1.92	96.2	2.00	1.60	
Ethylbenzene*	<0.050	0.050	08/09/2019	ND	1.92	95.8	2.00	2.17	
Total Xylenes*	<0.150	0.150	08/09/2019	ND	5.82	97.0	6.00	1.74	
Total BTEX	<0.300	0.300	08/09/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *104 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3440**	16.0	08/09/2019	ND	448	112	400	3.64	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/08/2019	ND	203	102	200	2.11	
DRO >C10-C28*	<10.0	10.0	08/08/2019	ND	195	97.5	200	1.28	
EXT DRO >C28-C36	<10.0	10.0	08/08/2019	ND					

Surrogate: 1-Chlorooctane *103 %* *41-142*

Surrogate: 1-Chlorooctadecane *104 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Mike Snyder For Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	Apache Corporation
Project Manager:	Bruce Baker
Address:	
City:	State: Zip:
Phone #:	Fax #:
Project #:	Project Owner:
Project Name:	EBOU #37 WIW
Project Location:	EBOU #37 WIW
Sampler Name:	Jeff Brown

BILL TO

P.O. #:	
Company:	
Attn:	
Address:	
City:	
State: Zip:	
Phone #:	
Fax #:	

ANALYSIS REQUEST

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	PRESERV.: ACID/BASE:	ICE / COOL	OTHER:	SAMPLING: DATE	TIME	CL	BTEX	EXT. TPH
H902734																	
1	B15 @ 13'												8-8-15	3:16			
2	B15 @ 15'													3:18			
3	B15 @ 17'													3:19			
4	B15 @ 19'													3:21			
5	B15 @ 21'													3:23			
6	B15 @ 22'												8-8-15	3:24			

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Jeff Brown	Date: 8-8-15	Received By: Jodi Henson	
	Time: 1618		
Relinquished By:	Date:	Received By:	
	Time:		
Delivered By: (Circle One)	+.4 corrected		
Sampler - UPS - Bus - Other:	4.1°C / 4.5°C #97	Sample Condition: Cool ☑ Yes ☐ No; Intact ☑ Yes ☐ No	CHECKED BY: (Initials)

Phone Result:	☐ Yes	☐ No	Add'l Phone #:
Fax Result:	☐ Yes	☐ No	Add'l Fax #:

REMARKS: Rush Please.

Thanks, Jeff

4.1

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

August 19, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 08/16/19 8:01.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/16/2019	Sampling Date:	08/15/2019
Reported:	08/19/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 13 @ 15' (H902814-01)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/16/2019	ND	1.72	86.0	2.00	8.65	
Toluene*	<0.050	0.050	08/16/2019	ND	1.84	92.0	2.00	10.8	
Ethylbenzene*	<0.050	0.050	08/16/2019	ND	1.91	95.3	2.00	12.3	
Total Xylenes*	<0.150	0.150	08/16/2019	ND	5.92	98.7	6.00	10.8	
Total BTEX	<0.300	0.300	08/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *98.3 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**2880**	16.0	08/16/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/16/2019	ND	203	101	200	0.527	
DRO >C10-C28*	<10.0	10.0	08/16/2019	ND	225	113	200	1.48	
EXT DRO >C28-C36	<10.0	10.0	08/16/2019	ND					

Surrogate: 1-Chlorooctane *83.2 %* *41-142*

Surrogate: 1-Chlorooctadecane *85.7 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/16/2019	Sampling Date:	08/15/2019
Reported:	08/19/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 13 @ 20' (H902814-02)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/16/2019	ND	1.72	86.0	2.00	8.65	
Toluene*	<0.050	0.050	08/16/2019	ND	1.84	92.0	2.00	10.8	
Ethylbenzene*	<0.050	0.050	08/16/2019	ND	1.91	95.3	2.00	12.3	
Total Xylenes*	<0.150	0.150	08/16/2019	ND	5.92	98.7	6.00	10.8	
Total BTEX	<0.300	0.300	08/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4600**	16.0	08/16/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/16/2019	ND	203	101	200	0.527	
DRO >C10-C28*	<10.0	10.0	08/16/2019	ND	225	113	200	1.48	
EXT DRO >C28-C36	<10.0	10.0	08/16/2019	ND					

Surrogate: 1-Chlorooctane *80.8 %* *41-142*

Surrogate: 1-Chlorooctadecane *80.5 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/16/2019	Sampling Date:	08/15/2019
Reported:	08/19/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 13 @ 25' (H902814-03)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/16/2019	ND	1.72	86.0	2.00	8.65	
Toluene*	<0.050	0.050	08/16/2019	ND	1.84	92.0	2.00	10.8	
Ethylbenzene*	<0.050	0.050	08/16/2019	ND	1.91	95.3	2.00	12.3	
Total Xylenes*	<0.150	0.150	08/16/2019	ND	5.92	98.7	6.00	10.8	
Total BTEX	<0.300	0.300	08/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.1 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3120**	16.0	08/16/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/16/2019	ND	203	101	200	0.527	
DRO >C10-C28*	<10.0	10.0	08/16/2019	ND	225	113	200	1.48	
EXT DRO >C28-C36	<10.0	10.0	08/16/2019	ND					

Surrogate: 1-Chlorooctane *85.5 %* *41-142*

Surrogate: 1-Chlorooctadecane *87.9 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/16/2019	Sampling Date:	08/15/2019
Reported:	08/19/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 13 @ 30' (H902814-04)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/16/2019	ND	1.72	86.0	2.00	8.65	
Toluene*	<0.050	0.050	08/16/2019	ND	1.84	92.0	2.00	10.8	
Ethylbenzene*	<0.050	0.050	08/16/2019	ND	1.91	95.3	2.00	12.3	
Total Xylenes*	<0.150	0.150	08/16/2019	ND	5.92	98.7	6.00	10.8	
Total BTEX	<0.300	0.300	08/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *100 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**4360**	16.0	08/16/2019	ND	432	108	400	0.00	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/16/2019	ND	203	101	200	0.527	
DRO >C10-C28*	<10.0	10.0	08/16/2019	ND	225	113	200	1.48	
EXT DRO >C28-C36	<10.0	10.0	08/16/2019	ND					

Surrogate: 1-Chlorooctane *82.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *86.2 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/16/2019	Sampling Date:	08/15/2019
Reported:	08/19/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 13 @ 35' (H902814-05)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/16/2019	ND	1.72	86.0	2.00	8.65	
Toluene*	<0.050	0.050	08/16/2019	ND	1.84	92.0	2.00	10.8	
Ethylbenzene*	<0.050	0.050	08/16/2019	ND	1.91	95.3	2.00	12.3	
Total Xylenes*	<0.150	0.150	08/16/2019	ND	5.92	98.7	6.00	10.8	
Total BTEX	<0.300	0.300	08/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.4 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**5280**	16.0	08/16/2019	ND	416	104	400	3.77	QM-07

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/16/2019	ND	203	101	200	0.527	
DRO >C10-C28*	<10.0	10.0	08/16/2019	ND	225	113	200	1.48	
EXT DRO >C28-C36	<10.0	10.0	08/16/2019	ND					

Surrogate: 1-Chlorooctane *83.7 %* *41-142*

Surrogate: 1-Chlorooctadecane *87.8 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	08/16/2019	Sampling Date:	08/15/2019
Reported:	08/19/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: SP 13 @ 40' (H902814-06)

BTEX 8021B mg/kg Analyzed By: ms

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/16/2019	ND	1.72	86.0	2.00	8.65	
Toluene*	<0.050	0.050	08/16/2019	ND	1.84	92.0	2.00	10.8	
Ethylbenzene*	<0.050	0.050	08/16/2019	ND	1.91	95.3	2.00	12.3	
Total Xylenes*	<0.150	0.150	08/16/2019	ND	5.92	98.7	6.00	10.8	
Total BTEX	<0.300	0.300	08/16/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID *99.0 %* *73.3-129*

Chloride, SM4500Cl-B mg/kg Analyzed By: AC

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**3040**	16.0	08/16/2019	ND	416	104	400	3.77	

TPH 8015M mg/kg Analyzed By: MS

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/16/2019	ND	203	101	200	0.527	
DRO >C10-C28*	<10.0	10.0	08/16/2019	ND	225	113	200	1.48	
EXT DRO >C28-C36	<10.0	10.0	08/16/2019	ND					

Surrogate: 1-Chlorooctane *83.9 %* *41-142*

Surrogate: 1-Chlorooctadecane *84.3 %* *37.6-147*

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

S-04	The surrogate recovery for this sample is outside of established control limits due to a sample matrix effect.
QR-02	The RPD result exceeded the QC control limits; however, both percent recoveries were acceptable. Sample results for the QC batch were accepted based on percent recoveries and completeness of QC data.
QM-07	The spike recovery was outside acceptance limits for the MS and/or MSD. The batch was accepted based on acceptable LCS recovery.
ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

Company Name:	APACHE CORPORATION	**BILL TO**	
Project Manager:	BRUCE BAKER	P.O. #:	
Address:		Company:	
City:	State: Zip:	Attn:	
Phone #:	Fax #:	Address:	
Project #:	Project Owner:	City:	
Project Name:	EBDU 37 WIW	State: Zip:	
Project Location:	EBDU 37 WIW	Phone #:	
Sampler Name:	JEFF BROWN	Fax #:	

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	CL	BTEX	EXT. TPH
H902814																	
1	SP13@15'												8/15/19	1430	✓	✓	✓
2	SP13@20'													1425			
3	SP13@25'													1438			
4	SP13@30'													1547			
5	SP13@35'													1638			
6	SP13@40'												8/15/19	1817			

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: JEFF BROWN	Date: 8/16/19 Time: 8:01	Received By: Tamara Oldaker	
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One) Sampler - UPS - Bus - Other:	2.3° #97 Corrected 2.7°	Sample Condition Cool: Yes / No Intact: Yes / No	CHECKED BY: (Initials) TO

Phone Result: ☐ Yes ☐ No Add'l Phone #:
Fax Result: ☐ Yes ☐ No Add'l Fax #:
REMARKS: Rush CL only. Thanks, JA

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

September 20, 2019

BRUCE BAKER

APACHE CORP - HOBBS

2350 W. MARLAND BLVD.

HOBBS, NM 88240

RE: EBDU 37 WIW

Enclosed are the results of analyses for samples received by the laboratory on 09/19/19 15:48.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-18-11. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

Cardinal Laboratories is accreditated through the State of Colorado Department of Public Health and Environment for:

Method EPA 552.2	Haloacetic Acids (HAA-5)
Method EPA 524.2	Total Trihalomethanes (TTHM)
Method EPA 524.4	Regulated VOCs (V1, V2, V3)

Accreditation applies to public drinking water matrices.

This report meets NELAP requirements and is made up of a cover page, analytical results, and a copy of the original chain-of-custody. If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Celey D. Keene

Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Analytical Results For:

APACHE CORP - HOBBS
BRUCE BAKER
2350 W. MARLAND BLVD.
HOBBS NM, 88240
Fax To: (575) 393-2432

Received:	09/19/2019	Sampling Date:	09/19/2019
Reported:	09/20/2019	Sampling Type:	Soil
Project Name:	EBDU 37 WIW	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

Sample ID: NB @ 45' (H903246-01)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**160**	16.0	09/20/2019	ND	432	108	400	3.64	

Sample ID: NB @ 48' (H903246-02)

Chloride, SM4500Cl-B **mg/kg** **Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	**128**	16.0	09/20/2019	ND	432	108	400	3.64	

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

PHONE (575) 393-2326 ° 101 E. MARLAND ° HOBBS, NM 88240

Notes and Definitions

ND	Analyte NOT DETECTED at or above the reporting limit
RPD	Relative Percent Difference
**	Samples not received at proper temperature of 6°C or below.
***	Insufficient time to reach temperature.
-	Chloride by SM4500Cl-B does not require samples be received at or below 6°C
	Samples reported on an as received basis (wet) unless otherwise noted on report

Cardinal Laboratories *=Accredited Analyte

Celey D. Keene, Lab Director/Quality Manager

CARDINAL Laboratories

101 East Marland, Hobbs, NM 88240
(575) 393-2326 FAX (575) 393-2476

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

		BILL TO	
Company Name:	Apache Corporation	P.O. #:	
Project Manager:	Bruce Baker	Company:	
Address:		Attn:	
City:	State: Zip:	Address:	
Phone #:	Fax #:	City:	
Project #:	Project Owner:	State: Zip:	
Project Name:	EBDU 37 WIW	Phone #:	
Project Location:	EBDU 37 WIW	Fax #:	
Sampler Name:	Josh Brown		

ANALYSIS REQUEST: CL (Rush Please)

FOR LAB USE ONLY Lab I.D.	Sample I.D.	(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX: GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER :	PRESERV.: ACID/BASE:	ICE / COOL	OTHER :	SAMPLING: DATE	TIME	CL (Rush Please)											
H903246																										
1	NB @ 45'												9/15/15	3:05	✓											
2	NB @ 48'												9/15/15	3:10	✓											

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequental damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: Josh Brown	Date: 9/15/15 Time: 3:48	Received By: Tamara Oldaker	Verbal Result: ☐ Yes ☐ No Add'l Phone #: All Results are emailed. Please provide Email address:
Relinquished By:	Date: Time:	Received By:	REMARKS:

Delivered By: (Circle One) Sampler - UPS - Bus - Other:	Observed Temp. °C 3.8 Corrected Temp. °C 4.2	Sample Condition Cool: ☑ Yes ☐ No Intact: ☑ Yes ☐ No	CHECKED BY: (Initials) TO	Turnaround Time: Standard / Rush ☑ Thermometer ID #97 Correction Factor +0.4 °C
				☐ Bacteria (only) ☑ Cool ☐ Yes ☐ No Intact ☐ Yes ☐ No Observed Temp. °C Corrected Temp. °C

FORM-006 R 3.0

† Cardinal cannot accept verbal changes. Please email changes to celey.keene@cardinallabsnm.com

Appendix C

PBEL Laboratory Report

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

PBELAB

Analytical Report

Prepared for:

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

Project: EBDU #37
Project Number: 19-0112-49
Location:

Lab Order Number: 9H28005

NELAP/TCEQ # T104704516-18-9

Report Date: 09/11/19

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
S-2 (0')	9H28005-01	Soil	08/27/19 12:20	08-28-2019 08:47
S-2 (5')	9H28005-02	Soil	08/27/19 12:23	08-28-2019 08:47
S-2 (10')	9H28005-03	Soil	08/27/19 12:30	08-28-2019 08:47
S-2 (15')	9H28005-04	Soil	08/27/19 12:38	08-28-2019 08:47
S-2 (20')	9H28005-05	Soil	08/27/19 12:40	08-28-2019 08:47
S-2 (25')	9H28005-06	Soil	08/27/19 12:43	08-28-2019 08:47
S-2 (30')	9H28005-07	Soil	08/27/19 12:46	08-28-2019 08:47
S-2 (35')	9H28005-08	Soil	08/27/19 12:50	08-28-2019 08:47
S-2 (40')	9H28005-09	Soil	08/27/19 13:00	08-28-2019 08:47
S-1 (0')	9H28005-10	Soil	08/27/19 13:12	08-28-2019 08:47
S-1 (5')	9H28005-11	Soil	08/27/19 13:13	08-28-2019 08:47
S-1 (10')	9H28005-12	Soil	08/27/19 13:17	08-28-2019 08:47
S-1 (15')	9H28005-13	Soil	08/27/19 13:18	08-28-2019 08:47
S-1 (20')	9H28005-14	Soil	08/27/19 13:20	08-28-2019 08:47
S-1 (25')	9H28005-15	Soil	08/27/19 13:32	08-28-2019 08:47
S-1 (30')	9H28005-16	Soil	08/27/19 13:53	08-28-2019 08:47
S-1 (35')	9H28005-17	Soil	08/27/19 13:59	08-28-2019 08:47
S-1 (40')	9H28005-18	Soil	08/27/19 14:00	08-28-2019 08:47
S-1 (45')	9H28005-19	Soil	08/27/19 14:06	08-28-2019 08:47
S-1 (50')	9H28005-20	Soil	08/27/19 14:16	08-28-2019 08:47
S-3 (0')	9H28005-21	Soil	08/27/19 14:36	08-28-2019 08:47
S-3 (5')	9H28005-22	Soil	08/27/19 14:42	08-28-2019 08:47
S-3 (10')	9H28005-23	Soil	08/27/19 14:43	08-28-2019 08:47
S-3 (15')	9H28005-24	Soil	08/27/19 14:45	08-28-2019 08:47
S-3 (20')	9H28005-25	Soil	08/27/19 14:50	08-28-2019 08:47
S-3 (25')	9H28005-26	Soil	08/27/19 14:52	08-28-2019 08:47
S-3 (30')	9H28005-27	Soil	08/27/19 14:54	08-28-2019 08:47
S-3 (35')	9H28005-28	Soil	08/27/19 14:57	08-28-2019 08:47
S-3 (40')	9H28005-29	Soil	08/27/19 15:00	08-28-2019 08:47

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-2 (0')

9H28005-01 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**10.1**	1.06	mg/kg dry	1	P9I0701	09/07/19	09/07/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 (5')

9H28005-02 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**22.3**	1.09	mg/kg dry	1	P9I0701	09/07/19	09/07/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 (10')

9H28005-03 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**9.43**	1.04	mg/kg dry	1	P9I0701	09/07/19	09/07/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.
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Midland TX, 79710

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-2 (15')

9H28005-04 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.28**	1.06	mg/kg dry	1	P9I0701	09/07/19	09/07/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-2 (20')

9H28005-05 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**2.46**	1.09	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-2 (25')

9H28005-06 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.06	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-2 (30')

9H28005-07 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.67**	1.09	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-2 (35')

9H28005-08 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**5.10**	1.06	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-2 (40')

9H28005-09 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.89**	1.08	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.
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Midland TX, 79710

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-1 (0')

9H28005-10 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**67.6**	1.08	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (5')

9H28005-11 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**58.3**	1.10	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-1 (10')

9H28005-12 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**16.1**	1.02	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (15')

9H28005-13 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**9.81**	1.02	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-1 (20')

9H28005-14 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**14.0**	1.06	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (25')

9H28005-15 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**11.0**	1.04	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**4.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (30')

9H28005-16 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**12.9**	1.06	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (35')

9H28005-17 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**5.65**	1.09	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-1 (40')

9H28005-18 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**8.16**	1.06	mg/kg dry	1	P9I0701	09/07/19	09/08/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-1 (45')

9H28005-19 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**21.0**	1.10	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**9.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.
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Midland TX, 79710

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-1 (50')

9H28005-20 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**3.90**	1.09	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (0')

9H28005-21 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**2.62**	1.03	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**3.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (5')

9H28005-22 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.68**	1.02	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**2.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (10')

9H28005-23 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.31**	1.05	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (15')

9H28005-24 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.01	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**1.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (20')

9H28005-25 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	**1.24**	1.05	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (25')

9H28005-26 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.05	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**5.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (30')

9H28005-27 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.08	mg/kg dry	1	P9I0702	09/07/19	09/08/19	EPA 300.0	
% Moisture	**7.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.	Project: EBDU #37	Fax: (432) 687-0456
P.O. Box 50685	Project Number: 19-0112-49	
Midland TX, 79710	Project Manager: Mark Larson	

S-3 (35')

9H28005-28 (Soil)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Permian Basin Environmental Lab, L.P.									
General Chemistry Parameters by EPA / Standard Methods									
Chloride	ND	1.09	mg/kg dry	1	P9I0702	09/07/19	09/09/19	EPA 300.0	
% Moisture	**8.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

Larson & Associates, Inc.
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Midland TX, 79710

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

S-3 (40')

9H28005-29 (Soil)

Permian Basin Environmental Lab, L.P.

General Chemistry Parameters by EPA / Standard Methods

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
Chloride	**1.23**	1.06	mg/kg dry	1	P9I0702	09/07/19	09/09/19	EPA 300.0	
% Moisture	**6.0**	0.1	%	1	P9H2904	08/29/19	08/29/19	ASTM D2216	

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

Project: EBDU #37
Project Number: 19-0112-49
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 P9H2904 - * DEFAULT PREP *** **										
Blank (P9H2904-BLK1)				Prepared & Analyzed: 08/29/19						
% Moisture	ND	0.1	%							
Duplicate (P9H2904-DUP1)		**Source: 9H28005-16**		Prepared & Analyzed: 08/29/19						
% Moisture	6.0	0.1	%		6.0			0.00	20	
Duplicate (P9H2904-DUP2)		**Source: 9H28005-29**		Prepared & Analyzed: 08/29/19						
% Moisture	6.0	0.1	%		6.0			0.00	20	
Duplicate (P9H2904-DUP3)		**Source: 9H28012-04**		Prepared & Analyzed: 08/29/19						
% Moisture	5.0	0.1	%		5.0			0.00	20	
Duplicate (P9H2904-DUP4)		**Source: 9H28011-20**		Prepared & Analyzed: 08/29/19						
% Moisture	10.0	0.1	%		10.0			0.00	20	
Batch P9I0701 - * DEFAULT PREP *** **										
Blank (P9I0701-BLK1)				Prepared & Analyzed: 09/07/19						
Chloride	ND	1.00	mg/kg wet							
LCS (P9I0701-BS1)				Prepared & Analyzed: 09/07/19						
Chloride	404	1.00	mg/kg wet	400		101	80-120			
LCS Dup (P9I0701-BSD1)				Prepared & Analyzed: 09/07/19						
Chloride	409	1.00	mg/kg wet	400		102	80-120	1.27	20	
Calibration Blank (P9I0701-CCB1)				Prepared & Analyzed: 09/07/19						
Chloride	-0.0460		mg/kg wet							

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

Project: EBDU #37
Project Number: 19-0112-49
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 P9I0701 - * DEFAULT PREP *** **										
Calibration Blank (P9I0701-CCB2)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	0.00		mg/kg wet							
Calibration Check (P9I0701-CCV1)				Prepared & Analyzed: 09/07/19						
Chloride	19.8		mg/kg	20.0		99.0	0-200			
Calibration Check (P9I0701-CCV2)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	20.2		mg/kg	20.0		101	0-200			
Calibration Check (P9I0701-CCV3)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	20.7		mg/kg	20.0		103	0-200			
Matrix Spike (P9I0701-MS1)		**Source: 9H28010-01**		Prepared & Analyzed: 09/07/19						
Chloride	3260	27.5	mg/kg dry	2750	475	101	80-120			
Matrix Spike (P9I0701-MS2)		**Source: 9H28010-02**		Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	3050	26.6	mg/kg dry	2660	198	107	80-120			
Matrix Spike Dup (P9I0701-MSD1)		**Source: 9H28010-01**		Prepared & Analyzed: 09/07/19						
Chloride	3710	27.5	mg/kg dry	2750	475	118	80-120	13.0	20	
Matrix Spike Dup (P9I0701-MSD2)		**Source: 9H28010-02**		Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	3130	26.6	mg/kg dry	2660	198	110	80-120	2.51	20	
Batch P9I0702 - * DEFAULT PREP *** **										
Blank (P9I0702-BLK1)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	ND	1.00	mg/kg wet							

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

Project: EBDU #37
Project Number: 19-0112-49
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 P9I0702 - * DEFAULT PREP *** **										
LCS (P9I0702-BS1)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	425	1.00	mg/kg wet	400		106	80-120			
LCS Dup (P9I0702-BSD1)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	417	1.00	mg/kg wet	400		104	80-120	1.89	20	
Calibration Blank (P9I0702-CCB1)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	0.00		mg/kg wet							
Calibration Blank (P9I0702-CCB2)				Prepared: 09/07/19 Analyzed: 09/09/19						
Chloride	0.0590		mg/kg wet							
Calibration Check (P9I0702-CCV1)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	20.7		mg/kg	20.0		103	0-200			
Calibration Check (P9I0702-CCV2)				Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	20.6		mg/kg	20.0		103	0-200			
Calibration Check (P9I0702-CCV3)				Prepared: 09/07/19 Analyzed: 09/09/19						
Chloride	19.8		mg/kg	20.0		99.0	0-200			
Matrix Spike (P9I0702-MS1)		**Source: 9H28010-03**		Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	3420	28.1	mg/kg dry	2810	394	108	80-120			
Matrix Spike (P9I0702-MS2)		**Source: 9H28010-04**		Prepared: 09/07/19 Analyzed: 09/09/19						
Chloride	3230	27.8	mg/kg dry	2780	200	109	80-120			
Matrix Spike Dup (P9I0702-MSD1)		**Source: 9H28010-03**		Prepared: 09/07/19 Analyzed: 09/08/19						
Chloride	3080	28.1	mg/kg dry	2810	394	95.6	80-120	10.5	20	

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

Project: EBDU #37
Project Number: 19-0112-49
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 P9I0702 - * DEFAULT PREP *** **										
Matrix Spike Dup (P9I0702-MSD2)	**Source: 9H28010-04**			Prepared: 09/07/19 Analyzed: 09/09/19						
Chloride	3140	27.8	mg/kg dry	2780	200	106	80-120	2.58	20	

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

Project: EBDU #37
Project Number: 19-0112-49
Project Manager: Mark Larson

Fax: (432) 687-0456

Notes and Definitions

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

Report Approved By: Brent Barron Date: 9/11/2019

Brent Barron, Laboratory Director/Technical Director

№ 0724

CHAIN-OF-CUSTODY

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

DATE: 8/28/2019 PAGE 1 OF 2

PO#:

LAB WORK ORDER#: 9H28005

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 190112-49 COLLECTOR: RO

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: 8021 BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐	8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐ 300.0	FIELD NOTES
S-2 (0')	1	8-27-19	12:20	S	1				X																					X		
S-2 (5')	2		12:23																													
S-2 (10')	3		12:30																													
S-2 (15')	4		12:38																													
S-2 (20')	5		12:40																													
S-2 (25')	6		12:43																													
S-2 (30')	7		12:46																													
S-2 (35')	8		12:50																													
S-2 (40')	9		13:00																													
S-1 (0')	10		13:12																													
S-1 (5')	11		13:13																													
S-1 (10')	12		13:17																													
S-1 (15')	13		13:18																													
S-1 (20')	14		13:20																													
S-1 (25')	15		13:32																													
TOTAL	15																															

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY:(Signature)
	8/28 9:47	
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY: PBEL

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.3 3.3 CF+1
THERM#: L2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

№ 0725

CHAIN-OF-CUSTODY

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

DATE: 8/28/2019 PAGE 2 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: RO

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
S-1 (30')	16	8.27.19	13:53	S	1				X			
S-1 (35')	17		13:59									
S-1 (40')	18		14:00									
S-1 (45')	19		14:06									
S-1 (50')	20		14:16									
S-3 (0')	21		14:36									
S-3 (5')	22		14:42									
S-3 (10')	23		14:43									
S-3 (15')	24		14:45									
S-3 (20')	25		14:50									
S-3 (25')	26		14:52									
S-3 (30')	27		14:54									
S-3 (35')	28		14:57									
S-3 (40')	29	↓	15:00	↓	↓				↓		X	

ANALYSES: BTEX ☐ MTBE ☐ | TRPH 418.1 ☐ | TPH 1005 ☐ TPH 1006 ☐ | GASOLINE MOD 8015 ☐ | DIESEL - MOD 8015 ☐ | OIL - MOD 8015 ☐ | VOC 8260 ☐ | SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐ | 8081 PESTICIDES ☐ 8151 HERBICIDES ☐ | 8082 PCBS ☐ | TCLP - METALS (RCRA) ☐ TCLP VOC ☐ | TCLP - PEST ☐ HERB ☐ Semi-VOC ☐ | TOTAL METALS (RCRA) ☐ OTHER LIST ☐ | LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐ | RCI ☐ TOX ☐ FLASHPOINT ☐ | TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐ | pH ☐ HEXAVALENT CHROMIUM ☐ | EXPLOSIVES ☐ PECHLORATE ☐ | CHLORIDES ☒ ANIONS ☐ ALKALINITY ☐ | M8260

TOTAL 14

RELINQUISHED BY:(Signature) DATE/TIME 8/28 9:17 RECEIVED BY: (Signature)

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

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

LABORATORY: PBEL

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

LABORATORY USE ONLY:
RECEIVING TEMP: 2.3 3.3 THERM#: CF+1 L2
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Appendix D

Boring Logs and Monitoring Well Records

BORING RECORD

Start: 9:28
Finish: 11:30 - Tech Issues

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Silty Sand, 5YR, 4/2, Dark Reddish Grey, Well Sorted	SM	
	5	2.5YR, 7/2, Light Grey, 1-10mm Subangular Clasts		
	10	10YR, 7/3, Well Sorted, Very Pale Brown		
	15	7.5YR, 7/3, Pink		
	20	5YR, 5/6, Yellowish Red		
	25	Clayey Silt, 5YR, 5/6, Yellowish Red	CL	
	30			
	35			
	40			
	45			
	50	Sand, Medium to Coarse Sand with Subrounded Clast Inclusions, Very Moist, 1-3mm in Diameter	SW	
		TD: 50'		

PID READING — PPM X 1 — 2 4 6 8 10 12 14 16 18

SAMPLE NUMBER	PID READING	RECOVERY	DEPTH	REMARKS
			1	BACKGROUND PID READING SOIL : PPM SOIL : PPM
			5	
			5	
			5	
			5	
			5	
			5	
			5	
			5	

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 8-27-2019
BORING NUMBER : S-1

JOB NUMBER : Apache Corp. /19-0112-49
HOLE DIAMETER : 2"
LOCATION : EBDU #37 - Eunice, NM
LAI GEOLOGIST : R. Owen
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

BORING RECORD

GEOLOGIC UNIT	DEPTH	Start: 12:20 Finish: 13:00 DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Silty Sand, 10YR, 5/1, 1-6mm Subangular Clast Inclusions		
	5	2.5YR, 4/2, Dark Greyish Brown		
	10	2.5YR, 7/3, Pale Brown	SM	
	15	Subangular inclusions, 1-2mm Diameter 5YR, 5/6, Yellowish Red, Well Sorted		
	20	Silty Clay, 5YR, 5/6, Well Sorted, Yellowish Red		
	25		SM	
	30	Subangular Clast Inclusions 0.5-2mm Diameter		
	35			
	40	TD: 40'		

PID READING: PPM X 1 (2 4 6 8 10 12 14 16 18)

SAMPLE: NUMBER | PID READING | RECOVERY | DEPTH (1, 5, 10, 15, 20, 25, 30, 35, 40)

REMARKS: BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 8-27-19

BORING NUMBER : S-2

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 2"
LOCATION : EBDU #37 - Eunice, NM
LAI GEOLOGIST : R. Owen
DRILLING CONTRACTOR : SDI
DRILLING METHOD : Air Rotary

BORING RECORD

GEOLOGIC UNIT	DEPTH	Start: 14:36 / Finish: 15:00 — DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	PID READING (PPM X 1; 2 4 6 8 10 12 14 16 18)	SAMPLE NUMBER	SAMPLE PID READING	SAMPLE RECOVERY	SAMPLE DEPTH	REMARKS BACKGROUND PID READING (SOIL : PPM / SOIL : PPM)
	0	Silty Sand, 5YR, 4/2, Dark Reddish Grey	SM						1	
	5	Subrounded, Clast Inclusions, 0.5-1mm in Diameter, 2.5YR, 6/3, Light Yellowish Brown							5	
	10								10	
	15	Well Sorted							15	
	20	Yellowish Red, 5YR, 5/6	SM						20	
	25								25	
	30								30	
	35	Silty Clay, 5YR, 4/6, Yellowish Red	CL						35	
	40	TD: 40'							40	

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 2"
LOCATION : EBDU #37 - Eunice, NM
LAI GEOLOGIST : R. Owen
DRILLING CONTRACTOR : SDI
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 8-27-19

BORING NUMBER : S-3

BORING RECORD

Start: 13:41
Finish: 14:28

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Silty Clay, 7.5YR, 5/2, Brown, Very Moist, High Placity, Very Fine Grained Quartz Sand	CL	
	5	Caliche, 7.5YR, 8/2, Pinkish White, Moderate Hard, Very Fine Grained Quartz Sand	Caliche	
	10			
	15	Silty Sand, 10YR, 7/4, Very Pale Brown, Very Fine Grained Quartz Sand, Poorly Sorted, Round, Moist	SM	
	20	Sand, 5YR, 6/6, Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Round, Moist	SW	
	25			
	30			
	35			
	40			
	45	TD: 48'		

PID READING

PPM X 1

2 4 6 8 10 12 14 16 18

SAMPLE

NUMBER	PID READING	RECOVERY	DEPTH
			1
			5
			10
			15
			20
			25
			30
			35
			40

REMARKS

BACKGROUND PID READING

SOIL : _____ PPM

SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU # 37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-19-2019

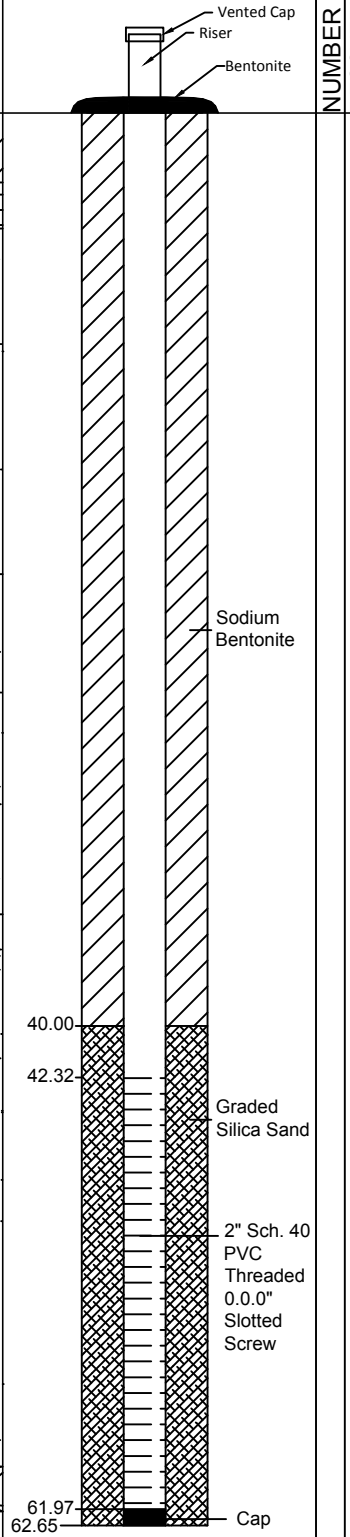
BORING NUMBER : N. Boring

BORING RECORD

Start: 11:40
Finish: 12:58

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Silty Clay, 7.5YR, 5/1, Gray, Very Fine Grained Quartz Sand, Dry	CL	
		Caliche, 7.5YR, 7/1 to 7/2, Pinkish Gray, Sandy, Fine to Very Fine Grained Quartz Sand, Dry	Caliche	
	5	Silty Sand, 10YR, 6/4, Light Yellowish ..., Very Fine to Fine Grained Quartz Sand, Poorly Sorted, Subrounded, Loose	SM	
	10	7.5YR, 6/6, Reddish Yellow Below 10', Poorly Sorted, ... Round		
	15	10YR, 7/4, Very Pale Brown Below 15'		
	20	Sand, 5YR, 5/6 to 6/6, Yellowish Red to Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Round, Moist, Very Moist Below 35'	SW	
	25			
	30			
	35	Sandstone, 5YR, 6/6, Reddish Yellow, Very Fine Grained Quartz Sand,Poorly Sorted, Moderately Well Cemented to Well Cemented	Sand Stone	
46.72	40			
	45			
	50			
	55	Gravelly Sand, 7.5YR, 6/6, Reddish Yellow, Fine to Medium Grained Quartz Sand, Round, Cobbles to 40mm		
	60		SP	
		TD: 62'		

Surface Elevation:
TOC Elecation:



NUMBER	RECOVERY	DEPTH
		1
		5
		10
		15
		20
		25
		30
		35
		40
		45
		60

REMARKS

BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp./ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : _____
DRILLING METHOD : SR/WR

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-19-2019

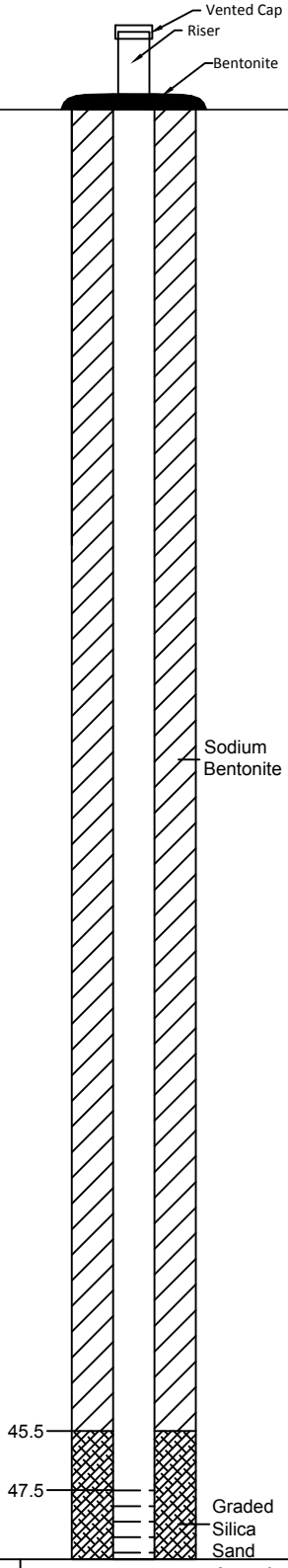
BORING NUMBER : TMW-1

BORING RECORD

Start: 15:02
Finish: 15:55

Surface Elevation: 3,563.50'
TOC Elecation: 3,566.23'

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	NUMBER	RECOVERY	DEPTH	REMARKS BACKGROUND PID READING
	0	Silty Clay, 10YR, 5/6, Ash Brown, Dry	CL					15:02
	5	Caliche, 7.5YR, 8/2, Pinkish White, Sandy to Moderate Very Fine Grained Quartz Sand	Caliche					15:03
	10							15:05
	15	Silty Sand, 7.5YR, 7/2, Pinkish Gray, Very Fine Grained Quartz Sand, Poorly Sorted, Dry	SM					15:10
	20							15:15
	25	Sand, 5YR, 6/0, Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Dry	SW					15:17
	30							15:22
	35							15:23
	40							15:28
	45	Sand, 5YR, 6/6, Reddish Yellow, Moderate Well Cemented, Poorly Sorted, Dry	SW					15:30
		Continue						



REMARKS: BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

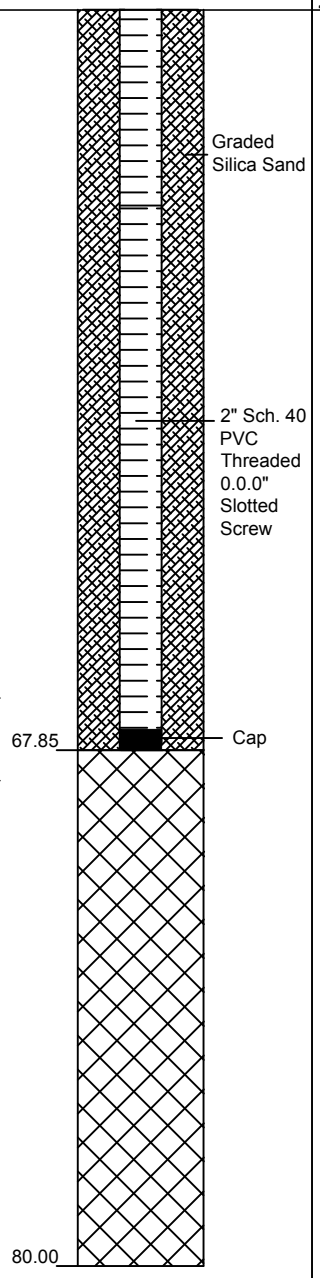
DRILL DATE : 9-20-2019
BORING NUMBER : TMW-2

BORING RECORD

Start: 15:02
Finish: 15:55

Surface Elevation: 3,563.50'
TOC Elecation: 3,566.23'

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	*Continue*	NUMBER	RECOVERY	DEPTH	REMARKS BACKGROUND PID READING SOIL : PPM SOIL : PPM
	50	*Continue*							
	55	Silty and Clayey Below 50', Moist at 55'	SM-SC						
	60								
	65								
	70								
	75	Gravel, 7.5YR, 4/3, Light Brown, Poorly Sorted, Round, Red Bed	GW						
	80	TD: 79'							



ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-20-2019
BORING NUMBER : TMW-2

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Appendix E

DHL Laboratory Report

October 04, 2019

Mark Larson
Larson & Associates
507 N. Marienfeld #205
Midland, TX 79701
TEL: (432) 687-0901
FAX (432) 687-0456

Order No.: 1909235

RE: EBDU #37

Dear Mark Larson:

DHL Analytical, Inc. received 2 sample(s) on 9/26/2019 for the analyses presented in the following report.

There were no problems with the analyses and all data for associated QC met EPA or laboratory specifications except where noted in the Case Narrative and all estimated uncertainties of results are within method specifications.

If you have any questions regarding these tests results, please feel free to call.

Sincerely,

John DuPont
General Manager

This report was performed under the accreditation of the State of Texas Laboratory Certification Number: T104704211-19-24

Table of Contents

№ 0770

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 9-25-2019 PAGE 1 OF 1
PO#:
LAB WORK ORDER#: 1909235
PROJECT LOCATION OR NAME: EBDU #37
LAI PROJECT #: 19-0112-49 COLLECTOR: EC

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐ TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☒ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	m300		FIELD NOTES
TMW 1	01	9-23-19	15:00	W	4	3			4		X														X			X			
TMW 2	02	9-23-19	17:10	W	4	3			4		X														X			X			
TOTAL																															

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
Rachel Owen	9-25-19 / 9:00	LSO
LSO	9/26/19 0800	[signature]

LABORATORY: DHL

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

LABORATORY USE ONLY:
RECEIVING TEMP: 3.7 °C THERM#: 78
CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED
☒ CARRIER BILL # LSO
☐ HAND DELIVERED

LSO

WWW.LSO.COM
Questions? Call 800-800-8984

Airbill No. LSO0BYG9

LSO0BYG9

1. To: Print Name (Person) / Phone (Important)

Company Name

Street Address (No P.O. Box or P.O. Box Zip Code Deliveries)

Suite / Floor

City / State / Zip

2. From: Print Name (Person) / Phone (Important)

Company Name

Street Address

Suite / Floor

205

City / State / Zip

3. Service: Visit www.lso.com for availability of services to your destination and enjoy added features by creating your shipping label online.

LSO Priority Overnight* 10:30 a.m. to most cities

O Early Overnight* :30 a.m. select cities

Economy Next Day* a.m. to most cities

d Day*

☐ LSO Ground

☐ LSO Saturday*

☐ Other

*Check commitment times and availability at www.lso.com

Assumed LSO Priority Overnight service unless otherwise noted.

Without Delivery Signature (See Limits of Liability below)

Release Signature

x W x H

4. Package: Weight:

Your Company's Billing Reference Information

Ship Date: (mm/dd/yy)

5. Payment:

FOR DRIVER USE ONLY

Driver Number

☐ Check here if LSO Supplies are used with LSO Ground Service.

Pick-up Location

Date:

Time:

City Code:

WRITING ON AIRBILL MAY DELAY TRANSIT TIMES OR RESULT IN NON-DELIVERY. LIMIT OF LIABILITY: We are not responsible for claims in excess of $100 for any reason unless you: 1) declare a greater ceed $25,000); 2) pay an additional fee; 3) and document your actual loss in a timely manner. We will not pay any claim in excess of the actual loss. We are not liable for any special or consequential damages. If deliver a package without obtaining a delivery signature, you release us of all liability for claims resulting from such service. "Signature Required" service is only available when printing a label online at LSO.com. ERY SIGNATURE WILL BE OBTAINED FOR LSO EARLY OVERNIGHT SERVICE. Packaging provided by LSO is for EXPRESS USE ONLY – NEVER TO BE USED FOR LSO GROUND Service. OVERSIZE RATES MAY Y. DELIVERY COMMITMENTS MAY VARY. ADDITIONAL FEES MAY APPLY. See LSO Service Guide for further details.

CUSTODY SEAL

DATE 9/25/19

SIGNATURE Rachel Owen

QEC
Quality Environmental Containers
800-255-3950 • www.qecusa.com

DHL Analytical, Inc.

Sample Receipt Checklist

Client Name Larson & Associates Date Received: 9/26/2019

Work Order Number 1909235 Received by EL

Checklist completed by: _____ 9/26/2019 Reviewed by DL 9/26/2019
Signature Date Initials Date

Carrier name LoneStar

Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on shippping container/cooler?	Yes ☑	No ☐	Not Present ☐
Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
Chain of custody present?	Yes ☑	No ☐	
Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
Chain of custody agrees with sample labels?	Yes ☑	No ☐	
Samples in proper container/bottle?	Yes ☑	No ☐	
Sample containers intact?	Yes ☑	No ☐	
Sufficient sample volume for indicated test?	Yes ☑	No ☐	
All samples received within holding time?	Yes ☑	No ☐	
Container/Temp Blank temperature in compliance?	Yes ☑	No ☐	3.7 °C
Water - VOA vials have zero headspace?	Yes ☑	No ☐	No VOA vials submitted ☐
Water - pH<2 acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____
Water - ph>9 (S) or ph>10 (CN) acceptable upon receipt?	Yes ☐	No ☐	NA ☑ LOT #
	Adjusted? _____		Checked by _____

Any No response must be detailed in the comments section below.

Client contacted _____ Date contacted: _____ Person contacted _____

Contacted by: _____ Regarding: _____

Comments: _____

Corrective Action _____

Page 1 of 1

DHL Analytical, Inc. **Date:** *04-Oct-19*

CLIENT: Larson & Associates
Project: EBDU #37
Lab Order: 1909235

CASE NARRATIVE

Samples were analyzed using the methods outlined in the following references:

Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW846, 3rd Edition, EPA and Standard Methods.

All method blanks, laboratory spikes, and/or matrix spikes met quality assurance objectives except where noted in the following. For Anions Analysis, for Batches 92959 and 92978, the recovery of Chloride for the Matrix Spike and Matrix Spike Duplicate(s) (various) was below the method control limits. These are flagged accordingly in the QC Summary Report. This anion was within method control limits in the associated LCS(s). No further corrective action was taken.

For Volatile Organics Analysis, the recovery of Benzene for the Matrix Spike Duplicate (1909277-07 MSD) was below the method control limits. This is flagged accordingly in the QC Summary Report. This compound was within method control limits in the associated LCS. No further corrective action was taken.

DHL Analytical, Inc.

Date: *04-Oct-19*

CLIENT:	Larson & Associates	**Client Sample ID:**	TMW1
Project:	EBDU #37	**Lab ID:**	1909235-01
Project No:	19-0112-49	**Collection Date:**	09/23/19 03:00 PM
Lab Order:	1909235	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE AROMATICS BY GC/MS		**SW8260C**					Analyst: **BTJ**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	10/03/19 04:27 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	10/03/19 04:27 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	10/03/19 04:27 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	10/03/19 04:27 PM
Surr: 1,2-Dichloroethane-d4	93.6	0	72-119		%REC	1	10/03/19 04:27 PM
Surr: 4-Bromofluorobenzene	101	0	76-119		%REC	1	10/03/19 04:27 PM
Surr: Dibromofluoromethane	102	0	85-115		%REC	1	10/03/19 04:27 PM
Surr: Toluene-d8	97.6	0	81-120		%REC	1	10/03/19 04:27 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **SNM**
Chloride	37.4	3.00	10.0		mg/L	10	09/27/19 11:38 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	400	10.0	10.0		mg/L	1	09/26/19 05:30 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc.

Date: *04-Oct-19*

CLIENT:	Larson & Associates	**Client Sample ID:**	TMW2
Project:	EBDU #37	**Lab ID:**	1909235-02
Project No:	19-0112-49	**Collection Date:**	09/23/19 05:10 PM
Lab Order:	1909235	**Matrix:**	AQUEOUS

Analyses	Result	MDL	RL	Qual	Units	DF	Date Analyzed
VOLATILE AROMATICS BY GC/MS		**SW8260C**					Analyst: **BTJ**
Benzene	<0.000800	0.000800	0.00200		mg/L	1	10/03/19 04:53 PM
Ethylbenzene	<0.00200	0.00200	0.00600		mg/L	1	10/03/19 04:53 PM
Toluene	<0.00200	0.00200	0.00600		mg/L	1	10/03/19 04:53 PM
Total Xylenes	<0.00200	0.00200	0.00600		mg/L	1	10/03/19 04:53 PM
Surr: 1,2-Dichloroethane-d4	91.7	0	72-119		%REC	1	10/03/19 04:53 PM
Surr: 4-Bromofluorobenzene	97.7	0	76-119		%REC	1	10/03/19 04:53 PM
Surr: Dibromofluoromethane	99.8	0	85-115		%REC	1	10/03/19 04:53 PM
Surr: Toluene-d8	96.3	0	81-120		%REC	1	10/03/19 04:53 PM
ANIONS BY IC METHOD - WATER		**E300**					Analyst: **SNM**
Chloride	338	30.0	100		mg/L	100	09/26/19 07:18 PM
TOTAL DISSOLVED SOLIDS		**M2540C**					Analyst: **JS**
Total Dissolved Solids (Residue, Filterable)	1220	50.0	50.0		mg/L	1	09/26/19 05:30 PM

Qualifiers:	*	Value exceeds TCLP Maximum Concentration Level	C	Sample Result or QC discussed in the Case Narrative
	DF	Dilution Factor	E	TPH pattern not Gas or Diesel Range Pattern
	J	Analyte detected between MDL and RL	MDL	Method Detection Limit
	ND	Not Detected at the Method Detection Limit	RL	Reporting Limit
	S	Spike Recovery outside control limits	N	Parameter not NELAP certified

DHL Analytical, Inc. **Date:** *04-Oct-19*

CLIENT: Larson & Associates
Work Order: 1909235
Project: EBDU #37

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_191003A

The QC data in batch 93066 applies to the following samples: 1909235-01A, 1909235-02A

Sample ID **LCS-93066** Batch ID: **93066** TestNo: **SW8260C** Units: **mg/L**
SampType: **LCS** Run ID: **GCMS3_191003A** Analysis Date: **10/3/2019 9:03:00 AM** Prep Date: **10/3/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.0467	0.00200	0.0464	0	101	81	122			
Ethylbenzene	0.0486	0.00600	0.0464	0	105	73	127			
Toluene	0.0466	0.00600	0.0464	0	100	77	122			
Total Xylenes	0.151	0.00600	0.139	0	109	80	121			
Surr: 1,2-Dichloroethane-d4	47.8		50.00		95.7	72	119			
Surr: 4-Bromofluorobenzene	50.8		50.00		102	76	119			
Surr: Dibromofluoromethane	51.1		50.00		102	85	115			
Surr: Toluene-d8	49.0		50.00		98.0	81	120			

Sample ID **MB-93066** Batch ID: **93066** TestNo: **SW8260C** Units: **mg/L**
SampType: **MBLK** Run ID: **GCMS3_191003A** Analysis Date: **10/3/2019 9:30:00 AM** Prep Date: **10/3/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	<0.000800	0.00200								
Ethylbenzene	<0.00200	0.00600								
Toluene	<0.00200	0.00600								
Total Xylenes	<0.00200	0.00600								
Surr: 1,2-Dichloroethane-d4	47.4		50.00		94.9	72	119			
Surr: 4-Bromofluorobenzene	50.4		50.00		101	76	119			
Surr: Dibromofluoromethane	50.5		50.00		101	85	115			
Surr: Toluene-d8	48.6		50.00		97.2	81	120			

Sample ID **1909277-07AMS** Batch ID: **93066** TestNo: **SW8260C** Units: **mg/L**
SampType: **MS** Run ID: **GCMS3_191003A** Analysis Date: **10/3/2019 2:44:00 PM** Prep Date: **10/3/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.52	0.0400	0.928	1.74	84.5	81	122			
Ethylbenzene	0.957	0.120	0.928	0	103	73	127			
Toluene	1.00	0.120	0.928	0.104	96.6	77	122			
Total Xylenes	2.97	0.120	2.78	0	107	80	121			
Surr: 1,2-Dichloroethane-d4	929		1000		92.9	72	119			
Surr: 4-Bromofluorobenzene	1010		1000		101	76	119			
Surr: Dibromofluoromethane	1000		1000		100	85	115			
Surr: Toluene-d8	968		1000		96.8	81	120			

Sample ID **1909277-07AMSD** Batch ID: **93066** TestNo: **SW8260C** Units: **mg/L**
SampType: **MSD** Run ID: **GCMS3_191003A** Analysis Date: **10/3/2019 3:11:00 PM** Prep Date: **10/3/2019**

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 1909235
Project: EBDU #37

ANALYTICAL QC SUMMARY REPORT

RunID: GCMS3_191003A

Sample ID **1909277-07AMSD**	Batch ID: **93066**	TestNo: **SW8260C**	Units: **mg/L**		
SampType: **MSD**	Run ID: **GCMS3_191003A**	Analysis Date: **10/3/2019 3:11:00 PM**	Prep Date: **10/3/2019**		

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	2.46	0.0400	0.928	1.74	78.4	81	122	2.25	20	S
Ethylbenzene	0.908	0.120	0.928	0	97.9	73	127	5.19	20	
Toluene	0.972	0.120	0.928	0.104	93.6	77	122	2.81	20	
Total Xylenes	2.80	0.120	2.78	0	101	80	121	5.89	20	
Surr: 1,2-Dichloroethane-d4	932		1000		93.2	72	119	0	0	
Surr: 4-Bromofluorobenzene	1000		1000		100	76	119	0	0	
Surr: Dibromofluoromethane	1000		1000		100	85	115	0	0	
Surr: Toluene-d8	975		1000		97.5	81	120	0	0	

Qualifiers:				
B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 1909235
Project: EBDU #37

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_190926A

The QC data in batch 92959 applies to the following samples: 1909235-01B, 1909235-02B

Sample ID	MB-92959	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 1:16:18 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								

Sample ID	LCS-92959	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 1:32:18 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.45	1.00	10.00	0	94.5	90	110			

Sample ID	LCSD-92959	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 1:48:18 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.46	1.00	10.00	0	94.6	90	110	0.153	20	

Sample ID	1909208-09CMS	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 9:10:17 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	295	10.0	200.0	116.7	88.9	90	110			S

Sample ID	1909208-09CMSD	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 9:26:17 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	308	10.0	200.0	116.7	95.5	90	110	4.38	20	

Sample ID	1909208-12CMS	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 9:58:17 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	238	10.0	200.0	68.71	84.6	90	110			S

Sample ID	1909208-12CMSD	Batch ID:	92959	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC4_190926A	Analysis Date:	9/26/2019 10:14:17 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	241	10.0	200.0	68.71	86.3	90	110	1.36	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 1909235
Project: EBDU #37

ANALYTICAL QC SUMMARY REPORT

RunID: IC4_190927A

The QC data in batch 92978 applies to the following samples: 1909235-01B

Sample ID	MB-92978	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	MBLK	Run ID:	IC4_190927A	Analysis Date:	9/27/2019 11:52:41 AM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	<0.300	1.00								

Sample ID	LCS-92978	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	LCS	Run ID:	IC4_190927A	Analysis Date:	9/27/2019 12:08:41 PM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.68	1.00	10.00	0	96.8	90	110			

Sample ID	LCSD-92978	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	LCSD	Run ID:	IC4_190927A	Analysis Date:	9/27/2019 12:24:41 PM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	9.62	1.00	10.00	0	96.2	90	110	0.580	20	

Sample ID	1909253-01BMS	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC4_190927A	Analysis Date:	9/27/2019 6:50:07 PM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	6080	100	2000	4383	84.6	90	110			S

Sample ID	1909253-01BMSD	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC4_190927A	Analysis Date:	9/27/2019 7:06:07 PM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	6100	100	2000	4383	86.0	90	110	0.462	20	S

Sample ID	1909255-01EMS	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	MS	Run ID:	IC4_190927A	Analysis Date:	9/27/2019 11:54:07 PM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	598	10.0	200.0	431.8	82.9	90	110			S

Sample ID	1909255-01EMSD	Batch ID:	92978	TestNo:	E300	Units:	mg/L
SampType:	MSD	Run ID:	IC4_190927A	Analysis Date:	9/28/2019 12:10:07 AM	Prep Date:	9/27/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	626	10.0	200.0	431.8	97.1	90	110	4.65	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

CLIENT: Larson & Associates
Work Order: 1909235
Project: EBDU #37

ANALYTICAL QC SUMMARY REPORT

RunID: WC_190926A

The QC data in batch 92957 applies to the following samples: 1909235-01B, 1909235-02B

Sample ID	MB-92957	Batch ID:	92957	TestNo:	M2540C	Units:	mg/L
SampType:	MBLK	Run ID:	WC_190926A	Analysis Date:	9/26/2019 5:30:00 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	<10.0	10.0								

Sample ID	LCS-92957	Batch ID:	92957	TestNo:	M2540C	Units:	mg/L
SampType:	LCS	Run ID:	WC_190926A	Analysis Date:	9/26/2019 5:30:00 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	742	10.0	745.6	0	99.5	90	113			

Sample ID	1909204-01E-DUP	Batch ID:	92957	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_190926A	Analysis Date:	9/26/2019 5:30:00 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	2670	50.0	0	2680				0.374	5	

Sample ID	1909204-02E-DUP	Batch ID:	92957	TestNo:	M2540C	Units:	mg/L
SampType:	DUP	Run ID:	WC_190926A	Analysis Date:	9/26/2019 5:30:00 PM	Prep Date:	9/26/2019

Analyte	Result	RL	SPK value	Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	3680	50.0	0	3735				1.48	5	

Qualifiers:				
B	Analyte detected in the associated Method Blank	DF	Dilution Factor
J	Analyte detected between MDL and RL	MDL	Method Detection Limit
ND	Not Detected at the Method Detection Limit	R	RPD outside accepted control limits
RL	Reporting Limit	S	Spike Recovery outside control limits
J	Analyte detected between SDL and RL	N	Parameter not NELAP certified

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, December 23, 2019 12:58 PM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: [EXT] Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Dear Bradford,
This email will confirm our phone conversation on December 20, 2019 for the EBDU #37 produced water release:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered;
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs;
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient;
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019;
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20 mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil;
- Seed Area 1 and Area 2 following remediation according to landowner requirements;
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

APACHE EXHIBIT A-3

From: Mark Larson
Sent: Thursday, August 13, 2020 8:26 AM
To: 'Bradford.Billings@state.nm.us' <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Soil sampling at EBDU #37 was completed on August 11, 202. The laboratory reported chloride above the OCD closure criteria of 600 milligrams per kilogram (mg/Kg) in two (2) samples: BH-3, 10 feet (774 mg/Kg) and 12 feet (666 mg/Kg). Chloride was 419 mg/Kg in the sample from 14 feet. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation and fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the boring locations. Table 4 presents the confirmation composite sample locations. Drilling and installation for two (2) monitoring wells is scheduled for Monday, August 18th.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Sent: Monday, August 10, 2020 10:51 AM
To: Mark Larson <Mark@laenvironmental.com>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

APACHE EXHIBIT A-4

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, August 10, 2020 8:49 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
I am following up on the email below to see if you have had a moment to review.
Thank you,
Mark

From: Mark Larson
Sent: Friday, August 7, 2020 11:45 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Apache Corporation has completed backfilling the deep excavation (Area 2) at EBUD #37 (1RP-5636) with clean caliche to approximately five (5) feet below ground surface (bgs) to allow access for a Geoprobe Model 7822DT to delineate the vertical extent of chloride in soil below the excavation at approximately 12 feet bgs. Personnel from Larson & Associates, Inc. (LAI) collected soil samples at the proposed boring location (BH-1) near the center of the excavation at 10, 12, 14, 16, 18 and 20 feet bgs, on August 3, 2020. The laboratory reported chloride at 11.6 mg/Kg (10 feet), 13.3 mg/Kg (12 feet), 13.4 mg/Kg (14 feet), 22.9 mg/Kg (16 feet), 34.4 mg/Kg (18 feet) and 24.7 mg/Kg at 20 feet bgs. Previous bottom samples from B15 collected on August 8, 2019, from 13, 15, 17, 19, 21 and 22 feet bgs, reported chloride at 720 mg/Kg, 1,840 mg/Kg, 1,950 mg/Kg, 3,800 mg/Kg, 544 mg/Kg, and 3,440 mg/Kg, respectively, and suggested possible sample cross contamination. Benzene, BTEX and TPH were the analytical method reporting limits. LAI personnel collected composite sidewall samples from the excavation to approximately 5 feet that were analyzed for benzene, BTEX and TPH. The final concentrations are below the OCD cleanup levels in Table 1 (19.15.29 NMAC).

Apache requests approval from OCD to collect additional delineation soil samples with the Geoprobe from four (4) locations (north, south, east and west) from location BH-1 at the same depths (10, 12,14,16,18 and 20 feet) and analyze the samples for chloride. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation If chloride concentrations are below the OCD remediation limit (600 mg/Kg). Apache will fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground

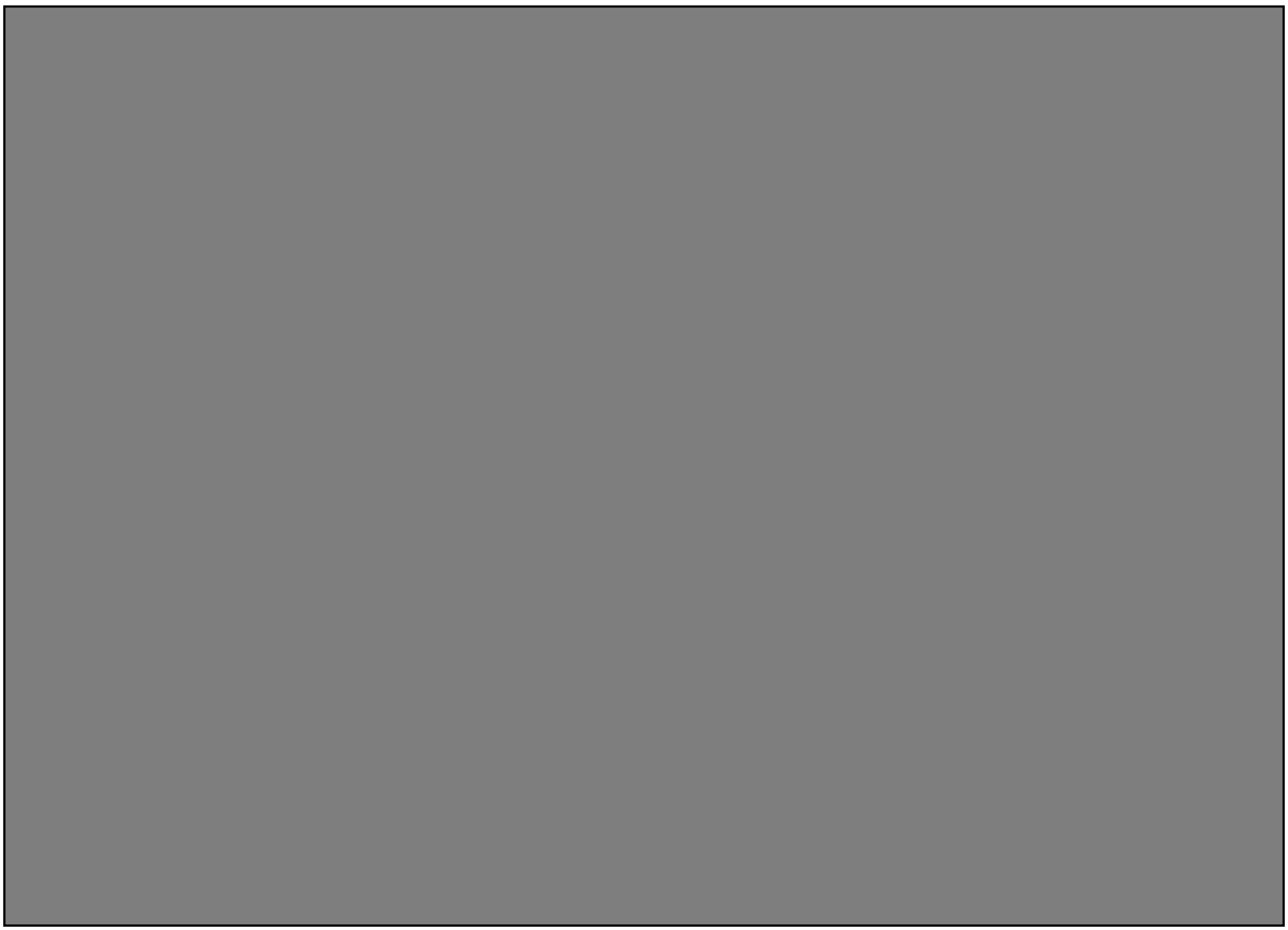
surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the proposed borings BH-2 through BH-5. Figure 2a presents the composite soil sample locations. Table 4 presents the confirmation composite sample locations.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"



APACHE CORPORATION

PRE-HEARING EXHIBITS

PART 2

EXHIBITS:

A-5

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

Closure

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

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

☒ 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: Larry Baker Title: Environmental Tech Sr.

Signature: Larry Baker Date: 2/9/2021

email: larry.baker@apachecorp.com Telephone: 432-631-6982

Note: This is for the soil remediation only still conducting groundwater monitoring.

OCD Only

Received by: Date:

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

Closure Approved by: Date:

Printed Name: Title:

APACHE EXHIBIT A-5

1RP-5636
Closure Report
East Blinebry Drinkard Unit #37
Produced Water Spill
Lea County, New Mexico

Latitude: N 32.47956°
Longitude: W -103.12206°

LAI Project No. 19-0112-49

December 31, 2020

Prepared for:

Apache Corporation
303 Veterans Airpark Lane
Midland, Texas 79705

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

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

Daniel St. Germain
Staff Geologist

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1.0 INTRODUCTION

Larson & Associates, Inc. (LAI) has prepared this report on behalf of Apache Corporation (Apache) for closure of the excavation associated with a produced water spill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Unit E (SW/4, SW/4), Section 13, Township 21 South and Range 37 East, in Lea County, New Mexico. The geodetic position is North 32.479569° and West -103.122061°. The surface ownership is private. Figure 1 presents a topographic map.

1.1 Background

The spill occurred at a pipeline junction and flowed west about 675 feet. Approximately 350 feet west of the origin the release flowed south about 450 feet before terminating in a low-lying area. The volume of the release and volume of fluid recovered is unknown. The release is considered major due to the unknown volume of the release. The release covered an area measuring approximately 31,320 square feet or approximately 0.72 acres. Apache submitted form C-141 to OCD on July 26, 2019. Appendix A presents the initial C-141.

1.2 Physical Setting

The physical setting is as follows:

- The surface elevation is approximately 3,420 feet above mean sea level (msl).
- The topography slopes gently towards the southwest.
- The nearest surface water feature is a low-lying area about 500 feet southwest of the release origin.
- The soils are designated as “Kimbrough gravelly loam, dry, 0 to 3 percent slopes”, consisting of about 3 inches of gravelly loam, underlain by about 7 inches of loam and cemented material (caliche) to about 80 inches below ground surface (bgs), in descending order.
- The soil is not considered prime farmland.
- According to the Texas Bureau of Economic Geology Geologic Atlas of Texas Hobbs Sheet, the surface geology is windblown sand (Holocene to middle Pleistocene) consisting of dark brown to grayish brown sand derived from the underlying Blackwater Draw formation.
- The Ogallala Formation (Tertiary) underlies the Blackwater Draw Formation and is comprised of fluvial sand, silt, clay and localized gravel, with indistinct to massive crossbeds.
- Groundwater occurs in the Ogallala formation between about 55 feet bgs near the point of release to about 47 feet bgs near the point of termination.
- A fresh water well (windmill) is located about 300 feet south of the point of termination for the release and is not shown on the New Mexico Office of the State Engineer (OSE) website.

1.3 Remediation Levels

The following remediation standards are based on closure criteria for soils impacted by a release of unknown volume 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 REMEDIATION

Beginning around June 9, 2020, DRG Oilfield Services, Inc. (DRG), Odessa, Texas, under the supervision from Apache, began excavating contaminated soil to 4.1 feet bgs from Spill Area 1 (26,886 square feet) and to 12 feet bgs from Spill Area 2 (4,431 square feet).

On July 13, 2020, LAI personnel collected thirty-eight (38) five-point composite confirmation soil samples for every 200 square feet of excavation sidewalls in Area 1 and Area 2. The samples were delivered under chain of custody and preservation to Xenco in Midland, Texas, which analyzed the samples for benzene, toluene, ethylbenzene and xylenes (BTEX), total petroleum hydrocarbons (TPH) including gasoline range (C6 to C-12) organics, diesel range (>C12 to C28) organics and oil range (>C28 to C35) organics, and chloride by EPA SW-846 Methods 8021B, 8015M, and Method 300, respectfully. Table 1 presents the confirmation soil sample analytical data summary. Figure 2 presents an aerial map showing the confirmation soil sample locations. Appendix B presents the laboratory reports.

The laboratory reported benzene, BTEX and TPH concentrations below the OCD remediation limits of 10 milligrams per kilogram (mg/Kg), 50 mg/Kg and 100 mg/Kg, respectfully. Chloride was reported above the OCD remediation limit of 600 mg/Kg in the following samples:

C-1	1,150 mg/Kg	C-12	626 mg/Kg
C-2	3,570 mg/Kg	C-17	927 mg/Kg
C-3	1,990 mg/Kg	C-21	1,290 mg/Kg
C-4	3,060 mg/Kg	C-22	704 mg/Kg
C-5	650 mg/Kg	C-23	6,200 mg/Kg
C-6	1,060 mg/Kg	C-24	1,110 mg/Kg
C-7	12,100 mg/Kg	C-26	5,280 mg/Kg
C-8	24,800 mg/Kg	C-27	1,210 mg/Kg
C-9	4,160 mg/Kg	C-28	8,280 mg/Kg
C-10	2,190 mg/Kg	C-32	867 mg/Kg

On July 27 and 29, 2020, DRG excavated additional soil to reduce the chloride concentrations at the above-referenced locations. On August 4, 2020, LAI personnel collected nineteen (19) composite confirmation samples. Soil was not excavated at sample C-1 due to its proximity to a gas pipeline owned by Targa Resources, Inc. Xenco analyzed the samples for chloride by EPA Method 300. Chloride exceeded the OCD remediation limit of 600 mg/Kg in samples C-22 (608 mg/Kg), C-23 (13,900 mg/kg), and C-28 (630 mg/kg). GRD excavated additional soil from C-22, C-23, and C-28.

On August 4, 2020, LAI personnel resampled location C-1, and collected samples from C-22, C-23, and C-28, following additional soil removal. Xenco analyzed all samples for chloride by EPA Method 300 and sample C-1 for TPH by EPA 846 Method SW8015M. The TPH concentration in sample C-1 was below the analytical method reporting limit (<50.3 mg/Kg). Chloride concentrations were below the OCD remediation limit of 600 mg/Kg.

On August 3, 10, and 11, 2020, LAI personnel collected soil samples from five (5) borings (BH-1 through BH-5) installed in the bottom of the excavation at Area 2 after backfilling with caliche to approximately five (5) feet bgs. Soil samples were collected with a Geoprobe Model 7822DT direct push rig at 10, 12, 14, 16, 18, 20, and 25 feet bgs to confirm the vertical extent of chloride. A soil samples was also collected from 30 feet bgs at BH-1 in Area 2. Xenco analyzed the samples for chloride by EPA Method 300. Xenco reported chloride concentrations below the remediation limit of 600 mg/Kg in all samples. Appendix C presents photographs.

3.0 VARIANCE

On October 29, 2019, Apache submitted a remediation plan that proposed installing a 20-mil thickness polyethylene liner in the bottom of the excavation (12 feet bgs) at Area 2. On August 10 and 11, 2020, LAI personnel collected soil samples from five (5) borings (BH-1 through BH-5) installed in bottom of the excavation at Area 2 after backfilling the excavation to approximately 5 feet bgs with clean caliche. The laboratory reported chloride concentrations above 600 mg/Kg in two (2) samples: BH-3, 10 feet (774 mg/Kg) and BH-3, 12 feet (666 mg/Kg). During g a telephone call on September 11, 2020, OCD approved forgoing the 20-mil thickness liner and backfilling the excavation with clean caliche to three (3) feet bgs and to ground surface with topsoil, however, Apache completed backfilling the excavation with topsoil from five (5) feet to ground surface. Appendix D presents OCD communications.

4.0 MONITORING WELLS

On September 29, 2020, Scarborough Drilling, Inc. (SDI), under LAI supervision, drilled two (2) additional borings (TMW-3 and TWM-4). Monitoring well TMW-3 was installed west of the Area 2 excavation to approximately 68 feet bgs. Monitoring well TMW-4 was drilled east of the Area 2 excavation to approximately 70 feet bgs. Both monitoring well locations were moved with OCD notification due to a buried natural gas pipeline (TMW-3) and thick brush (TMW-4). Monitoring well TMW-3 was moved approximately 125 feet west and south from its proposed location. Monitoring well TMW-4 was moved approximately 25 feet south from its proposed location. Figure 3 presents an aerial drawing showing the monitoring well locations.

The monitoring wells were completed with two (2) inch threaded schedule 40 PVC casing and approximately twenty (20) feet 0.01-inch factory slotted screen. The screens were positioned above and below the groundwater level observed during drilling. On September 30, 2020 groundwater was recorded at 57.62 feet bgs in TMW-3 and 57.39 feet bgs in well TMW-4. The wells were developed using an electric submersible pump to remove to sediment disturbed and fresh water introduced during drilling. All monitor wells were surveyed for geodetic position and elevation, including surface elevation and top of casing (TOC) elevation, West Company, a New Mexico licensed professional surveyor (license number 23263). Figure 4 presents a Site drawing showing the monitoring well locations.

Apache will continue quarterly monitoring of groundwater in wells TMW-1 through TWM-4 and the windmill during 2021 with laboratory analysis of groundwater samples for BTEX, chloride and TDS. Notice will be provided to OCD in Hobbs and Santa Fe, New Mexico at least 7 working days prior to each groundwater monitoring event. The OCD will be notified immediately upon receipt laboratory analysis with significant increase of analyte concentrations.
Apache

5.0 CLOSURE REQUEST

Apache requests no further action for this release.

Tables

Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corp., EBDU #37
Lea County, New Mexico

Area	Sample ID	Location	Depth (feet)	Collection Date	Status	Benzene (mg/Kg)	BTEX (mg/Kg)	C6 - C12 (mg/Kg)	C12 - C28 (mg/Kg)	C28 - C35 (mg/Kg)	TPH (mg/Kg)	Chloride (mg/Kg)
Remediation Standard:						**10**	**50**				**100/2,500**	**600/10,000**
Confirmation Composite Samples												
1	C-1	Sidewall	0 - 4	07/13/2020	Excavated	<0.00201	<0.00201	<49.8	83.3	<49.8	83.3	**1,150**
				08/04/2020	In-Situ	--	--	<50.3	<50.3	<50.3	<50.3	338
1	C-2	Sidewall	0 - 4	07/13/2020	Excavated	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	**3,570**
			0 - 4	07/27/2020	In-Situ	--	--	--	--	--	--	87
1	C-3	Sidewall	0 - 4	07/13/2020	Excavated	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	**1,990**
				07/29/2020	In-Situ	--	--	--	--	--	--	39
1	C-4	Sidewall	0 - 4	07/13/2020	Excavated	<0.00199	0.00262	<49.8	<49.8	<49.8	<49.8	**3,060**
				07/29/2020	In-Situ	--	--	--	--	--	--	21.8
1	C-5	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00205	<50.0	<50.0	<50.0	<50.0	**650**
				07/29/2020	In-Situ	--	--	--	--	--	--	5.75
1	C-6	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00262	<50.0	<50.0	<50.0	<50.0	**1,060**
				07/29/2020	In-Situ	--	--	--	--	--	--	162
1	C-7	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00378	<49.8	<49.8	<49.8	<49.8	**12,100**
				07/29/2020	In-Situ	--	--	--	--	--	--	11.5
1	C-8	Sidewall	0 - 4	07/13/2020	Excavated	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	**24,800**
				07/29/2020	In-Situ	--	--	--	--	--	--	19
1	C-9	Sidewall	0 - 4	07/13/2020	Excavated	<0.00199	0.00438	<49.9	<49.9	<49.9	<49.9	**4,160**
				07/29/2020	In-Situ	--	--	--	--	--	--	200
1	C-10	Sidewall	0 - 4	07/13/2020	Excavated	<0.00201	0.00336	<49.8	<49.8	<49.8	<49.8	**2,190**
				07/29/2020	In-Situ	--	--	--	--	--	--	126
1	C-11	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00539	<50.0	<50.0	<50.0	<50.0	44.8
1	C-12	Sidewall	0 - 4	07/13/2020	Excavated	<0.00198	0.00415	<50.0	<50.0	<50.0	<50.0	**626**
				07/29/2020	In-Situ	--	--	--	--	--	--	17.6
2	C-13	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00198	0.00252	<50.0	<50.0	<50.0	<50.0	44.1
2	C-14	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00570	<49.9	<49.9	<49.9	<49.9	14.1
2	C-15	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00254	<49.9	<49.9	<49.9	<49.9	24.3
2	C-16	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00552	<50.0	<50.0	<50.0	<50.0	229
2	C-17	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00275	<49.9	<49.9	<49.9	<49.9	**927**
				07/29/2020	In-Situ	--	--	--	--	--	--	9.8
2	C-18	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00722	<50.0	<50.0	<50.0	<50.0	227
1	C-19	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00557	<50.0	<50.0	<50.0	<50.0	60.6

Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corp., EBDU #37
Lea County, New Mexico

1	C-20	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00968	<49.9	<49.9	<49.9	<49.9	44.3
1	C-21	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00705	<50.0	<50.0	<50.0	<50.0	**1,290**
				07/29/2020	In-Situ	--	--	--	--	--	--	237
1	C-22	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00493	<50.0	<50.0	<50.0	<50.0	**704**
				07/29/2020	Excavated	--	--	--	--	--	--	**608**
				8/04/2020	In-Situ	--	--	--	--	--	--	10.7
1	C-23	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00339	<49.9	<49.9	<49.9	<49.9	**6,200**
				07/29/2020	Excavated	--	--	--	--	--	--	**13,900**
				8/04/2020	In-Situ	--	--	--	--	--	--	15.8
1	C-24	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00732	<50.0	<50.0	<50.0	<50.0	**1,110**
				07/29/2020	In-Situ	--	--	--	--	--	--	37.4
1	C-25	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00201	0.00464	<49.9	<49.9	<49.9	<49.9	254
1	C-26	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	**5,280**
				07/29/2020	In-Situ	--	--	--	--	--	--	307
1	C-27	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	0.00482	<49.9	<49.9	<49.9	<49.9	**1,210**
				07/29/2020	In-Situ	--	--	--	--	--	--	71.6
1	C-28	Sidewall	0 - 4	07/13/2020	Excavated	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	**8,280**
				07/29/2020	Excavated	--	--	--	--	--	--	**630**
				8/04/2020	In-Situ	--	--	--	--	--	--	415
1	C-29	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00906	<50.0	<50.0	<50.0	<50.0	197
1	C-30	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00198	0.00556	<50.0	<50.0	<50.0	<50.0	264
1	C-31	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	42.1
1	C-32	Sidewall	0 - 4	07/13/2020	Excavated	<0.00199	0.00325	<50.0	<50.0	<50.0	<50.0	**867**
				07/29/2020	In-Situ	--	--	--	--	--	--	30.8
1	C-33	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00712	<49.8	<49.8	<49.8	<49.8	553
1	C-34	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00781	<50.0	<50.0	<50.0	<50.0	242
1	C-35	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00198	0.00876	<50.0	<50.0	<50.0	<50.0	9.23
1	C-36	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00478	<50.0	<50.0	<50.0	<50.0	64.4
1	C-37	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00200	0.00502	<49.9	<49.9	<49.9	<49.9	14.6
1	C-38	Sidewall	0 - 4	07/13/2020	In-Situ	<0.00199	0.00857	<49.9	<49.9	<49.9	<49.9	28.7
Soil Boring Samples												
2	BH-1	Bottom	10	8/03/2020	In-Situ	--	--	--	--	--	--	11.6
			12	8/03/2020	In-Situ	--	--	--	--	--	--	13.3
			14	8/03/2020	In-Situ	--	--	--	--	--	--	13.4
			16	8/03/2020	In-Situ	--	--	--	--	--	--	22.9
			18	8/03/2020	In-Situ	--	--	--	--	--	--	34.4
			20	8/03/2020	In-Situ	--	--	--	--	--	--	24.7

Table 1
Confirmation Soil Sample Analytical Data Summary
Apache Corp., EBDU #37
Lea County, New Mexico

2	**BH-2**	**Bottom**	10	8/10/2020	In-Situ	--	--	--	--	--	--	79.7
			12	8/10/2020	In-Situ	--	--	--	--	--	--	18.4
			14	8/10/2020	In-Situ	--	--	--	--	--	--	10.1
			16	8/10/2020	In-Situ	--	--	--	--	--	--	10.3
			18	8/10/2020	In-Situ	--	--	--	--	--	--	9.67
			20	8/10/2020	In-Situ	--	--	--	--	--	--	9.64
			25	8/10/2020	In-Situ	--	--	--	--	--	--	11.6
2	**BH-3**	**Bottom**	10	8/10/2020	In-Situ	--	--	--	--	--	--	774
			12	8/10/2020	In-Situ	--	--	--	--	--	--	666
			14	8/10/2020	In-Situ	--	--	--	--	--	--	419
			16	8/10/2020	In-Situ	--	--	--	--	--	--	60.2
			18	8/10/2020	In-Situ	--	--	--	--	--	--	89.3
			20	8/10/2020	In-Situ	--	--	--	--	--	--	227
			25	8/10/2020	In-Situ	--	--	--	--	--	--	32.7
2	**BH-4**	**Bottom**	10	8/10/2020	In-Situ	--	--	--	--	--	--	24
			12	8/10/2020	In-Situ	--	--	--	--	--	--	12
			14	8/10/2020	In-Situ	--	--	--	--	--	--	10.3
			16	8/10/2020	In-Situ	--	--	--	--	--	--	15
			18	8/10/2020	In-Situ	--	--	--	--	--	--	12.7
			20	8/10/2020	In-Situ	--	--	--	--	--	--	11.8
			25	8/10/2020	In-Situ	--	--	--	--	--	--	13.4
2	**BH-5**	**Bottom**	10	8/11/2020	In-Situ	--	--	--	--	--	--	10.2
			12	8/11/2020	In-Situ	--	--	--	--	--	--	9.94
			14	8/11/2020	In-Situ	--	--	--	--	--	--	9.78
			16	8/11/2020	In-Situ	--	--	--	--	--	--	12.2
			18	8/11/2020	In-Situ	--	--	--	--	--	--	9.3
			20	8/11/2020	In-Situ	--	--	--	--	--	--	9.77
												10.5

Notes: analysis performed by Xenco Laboratories, Midland, Texas, by SW-846 Method 8021B (BETX), Method 8015 (TPH) and Method 300 (chloride)
Depth in feet below ground surface (bgs)
mg/Kg: milligrams per kilogram equivalent to parts per million (ppm)
<: denotes concentration less than analytical method reporting limit
Bold and Highlighted exceeds OCD remediation action limits and excavated

Figures

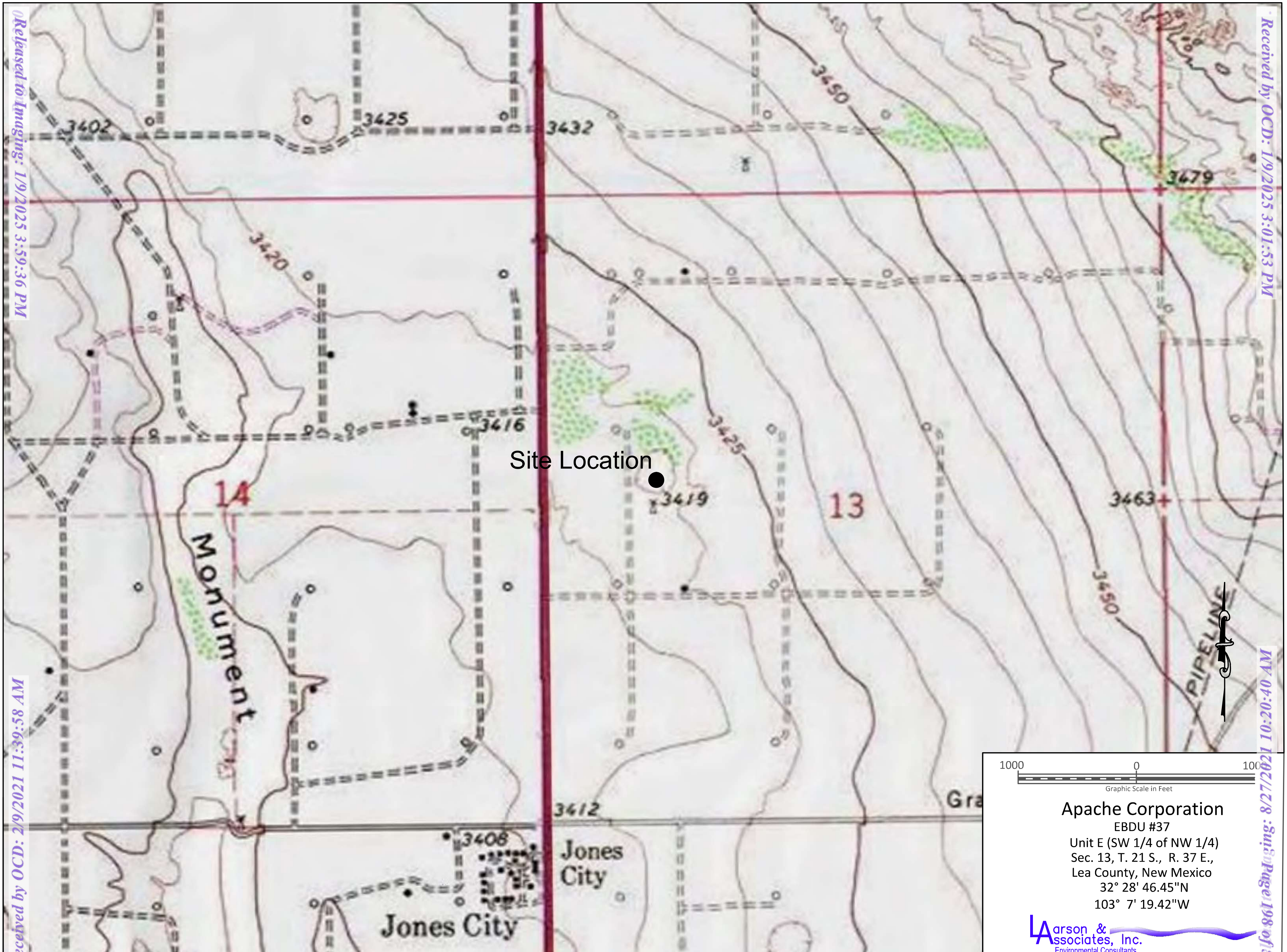

Figure 1 - Topographic Map

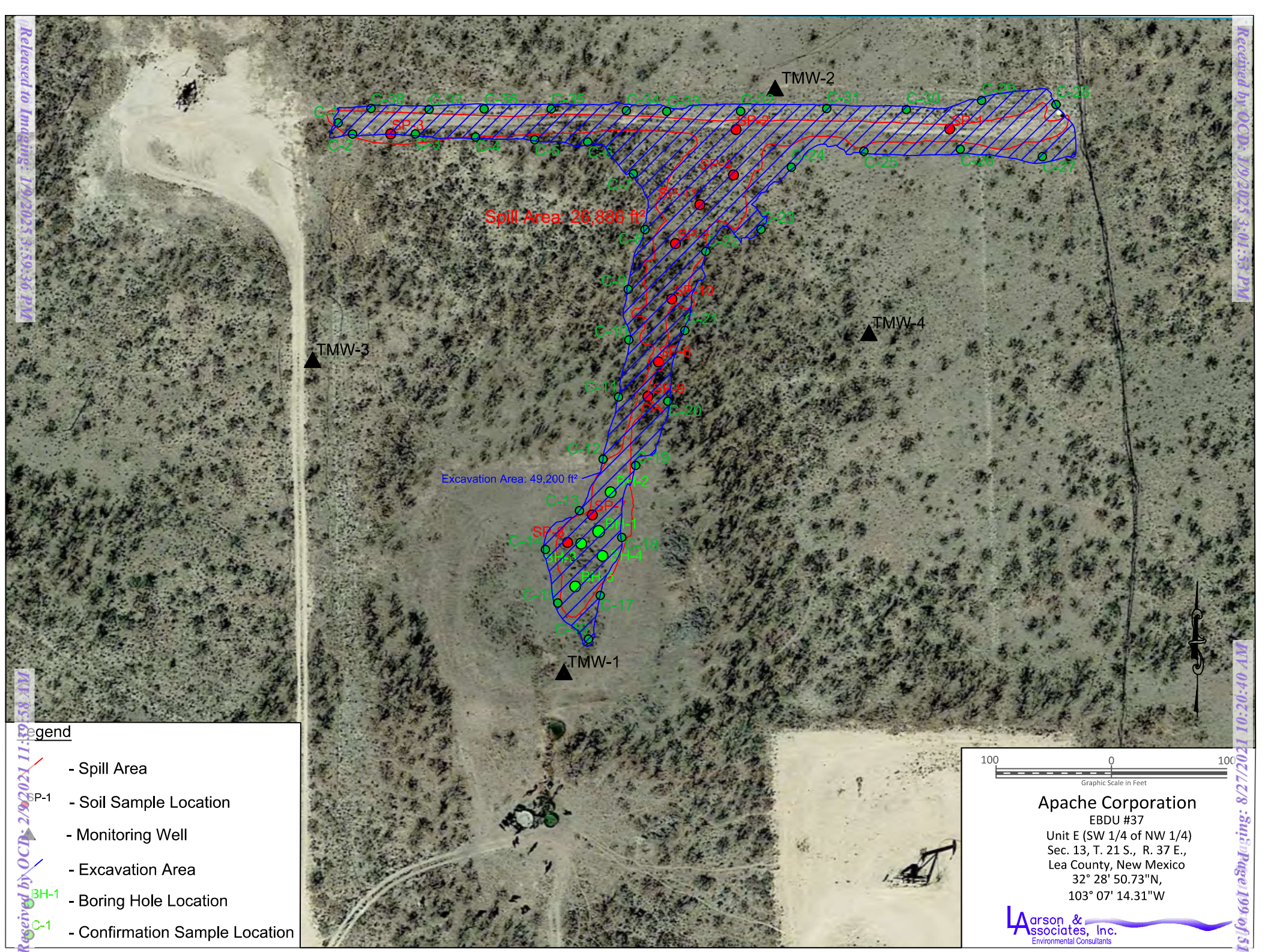

Figure 2 - Aerial Map Showing Excavation Area

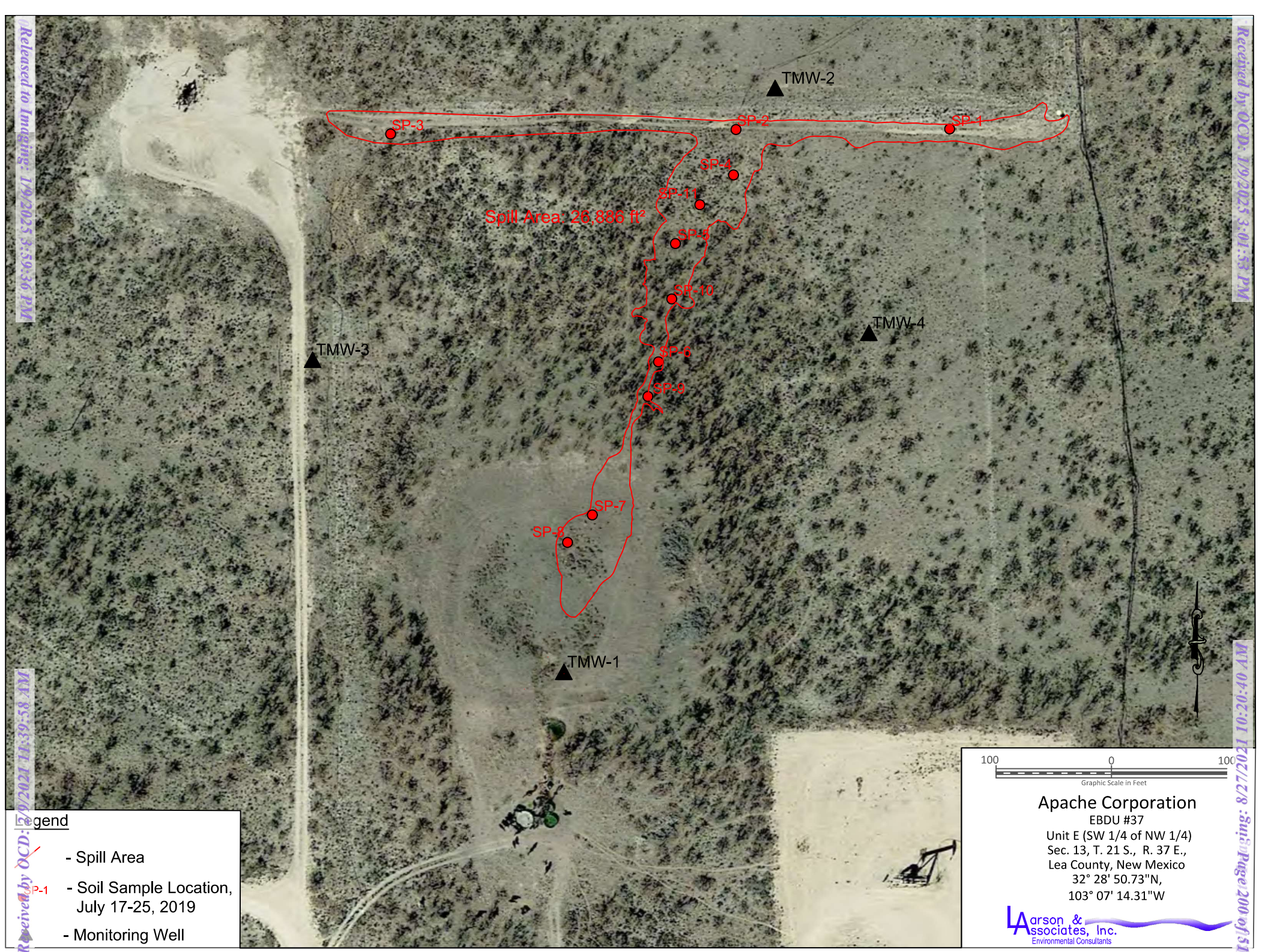

Figure 3 - Site Map Showing Monitoring Well Locations

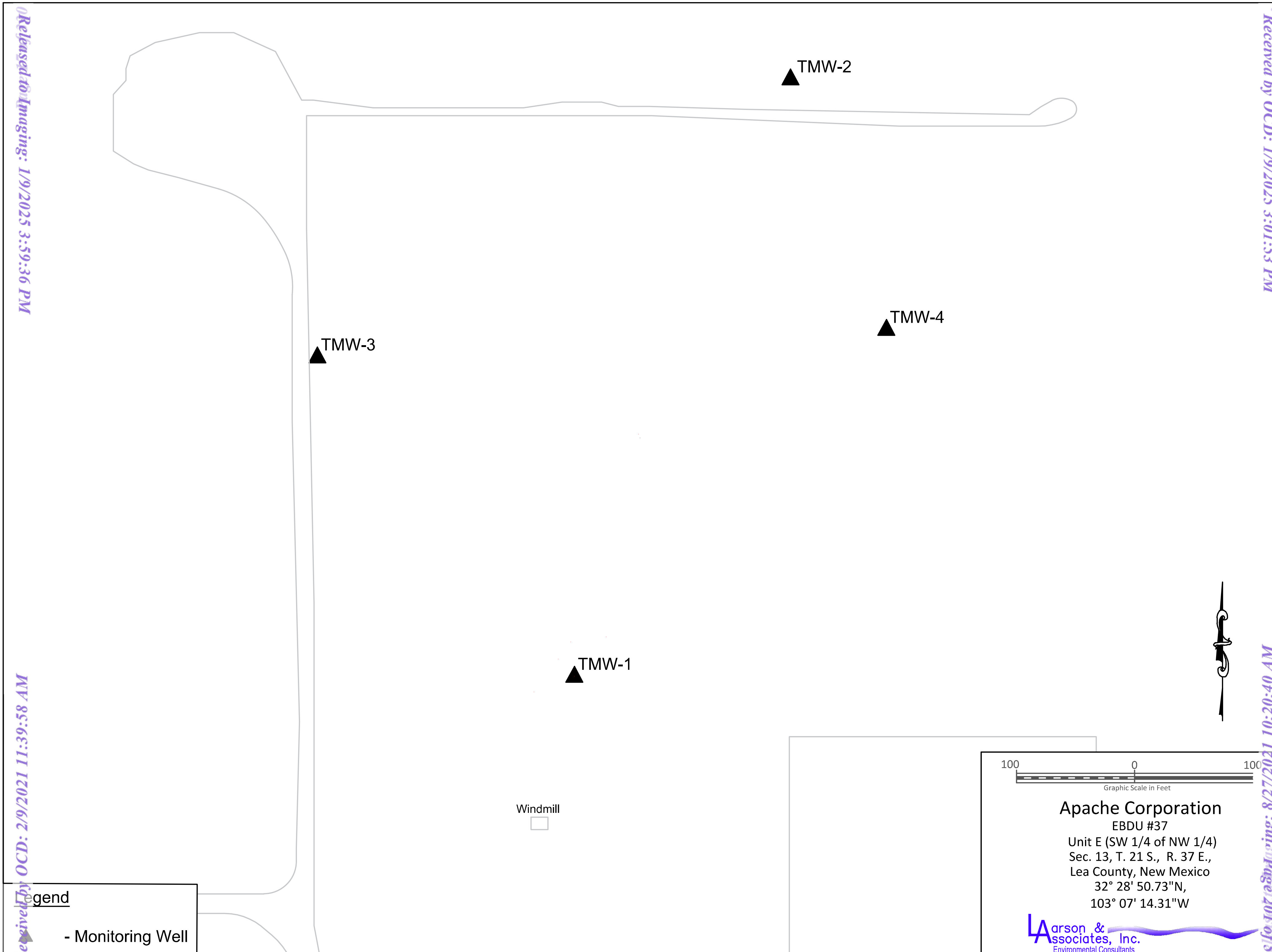

Figure 4 - Site Map Showing Monitoring Well Locations

Appendix A

Initial C-141

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Release Notification

Responsible Party

Responsible Party: Apache Corporation	OGRID 873
Contact Name: Bruce Baker	Contact Telephone: (432) 631-6982
Contact email: Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)*
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.4807053 Longitude: N -103.123085

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: EBDU #37 WIW	Site Type: Water Injection Well
Date Release Discovered: July 14, 2019	API # *3002506556*

Unit Letter	Section	Township	Range	County
E	12	21S	37E	LEA

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

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

Cause of Release

Isolation valve failure due to internal corrosion.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Was this a major release as defined by 19.15.29.7(A) NMAC? ☐ Yes ☒ No	If YES, for what reason(s) does the responsible party consider this a major release?

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Via email given to NM OCD by Bruce Baker, Senior Environmental Technician, Apache Corporation

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: Jeff Broom Title: Environmental Technician

Signature: _____ Date: 07/24/2019

Email: Jeffrey.Broom@apachecorp.com Telephone: (432) 664-4677

OCD Only

Received by: Dylan Rose-Coss Date: 08/09/2019

Appendix B

Laboratory Reports

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-001		667044-002		667044-003		667044-004		667044-005		667044-006	
	Field Id:	C-1		C-2		C-3		C-4		C-5		C-6	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:45		07.13.2020 10:35		07.13.2020 10:30		07.13.2020 10:27		07.13.2020 10:23		07.13.2020 10:20	
BTEX by EPA 8021B	***Extracted:***	07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30	
	Analyzed:	07.18.2020 02:55		07.18.2020 03:15		07.18.2020 03:36		07.18.2020 03:56		07.18.2020 04:17		07.18.2020 04:37	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Toluene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	0.00262	0.00199	0.00205	0.00200	0.00262	0.00200
Ethylbenzene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00402	0.00402	<0.00403	0.00403	<0.00403	0.00403	<0.00398	0.00398	<0.00399	0.00399	<0.00399	0.00399
o-Xylene		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		<0.00201	0.00201	<0.00202	0.00202	<0.00202	0.00202	0.00262	0.00199	0.00205	0.00200	0.00262	0.00200
Chloride by EPA 300	***Extracted:***	07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30	
	Analyzed:	07.16.2020 16:26		07.16.2020 16:32		07.16.2020 16:50		07.16.2020 16:57		07.16.2020 17:03		07.16.2020 17:09	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		1150	4.96	3570	24.9	1990	25.0	3060	25.2	650	4.96	1060	4.99
TPH by SW8015 Mod	***Extracted:***	07.16.2020 12:00		07.16.2020 12:00		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.16.2020 14:05		07.16.2020 14:26		07.15.2020 12:50		07.15.2020 13:55		07.15.2020 14:17		07.15.2020 14:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		83.3	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		83.3	49.8	<49.8	49.8	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0

BRL - Below Reporting Limit

Holly Taylor

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

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-007		667044-008		667044-009		667044-010		667044-011		667044-012	
	Field Id:	C-7		C-8		C-9		C-10		C-11		C-12	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:15		07.13.2020 10:10		07.13.2020 10:05		07.13.2020 10:00		07.13.2020 09:58		07.13.2020 09:55	
BTEX by EPA 8021B	***Extracted:***	07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30		07.17.2020 14:30	
	Analyzed:	07.18.2020 04:57		07.18.2020 05:18		07.18.2020 05:38		07.18.2020 05:59		07.18.2020 11:01		07.18.2020 11:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
Toluene		0.00378	0.00200	<0.00198	0.00198	0.00438	0.00199	0.00336	0.00201	0.00539	0.00200	0.00415	0.00198
Ethylbenzene		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
m,p-Xylenes		<0.00400	0.00400	<0.00397	0.00397	<0.00398	0.00398	<0.00402	0.00402	<0.00399	0.00399	<0.00396	0.00396
o-Xylene		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
Total Xylenes		<0.00200	0.00200	<0.00198	0.00198	<0.00199	0.00199	<0.00201	0.00201	<0.00200	0.00200	<0.00198	0.00198
Total BTEX		0.00378	0.00200	<0.00198	0.00198	0.00438	0.00199	0.00336	0.00201	0.00539	0.00200	0.00415	0.00198
Chloride by EPA 300	***Extracted:***	07.16.2020 11:30		07.16.2020 11:30		07.16.2020 11:30		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45	
	Analyzed:	07.16.2020 17:15		07.16.2020 17:21		07.16.2020 17:27		07.21.2020 01:05		07.21.2020 01:26		07.21.2020 01:32	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		12100	101	24800	250	4160	25.0	2190	24.9	44.8	5.01	626	5.03
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 15:00		07.15.2020 15:22		07.15.2020 15:44		07.15.2020 16:06		07.15.2020 16:27		07.15.2020 16:49	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		<49.8	49.8	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0

BRL - Below Reporting Limit

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-013		667044-014		667044-015		667044-016		667044-017		667044-018	
	Field Id:	C-13		C-14		C-15		C-16		C-17		C-18	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 09:51		07.13.2020 09:48		07.13.2020 09:45		07.13.2020 09:48		07.13.2020 09:52		07.13.2020 09:56	
BTEX by EPA 8021B	***Extracted:***	07.17.2020 14:30		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00	
	Analyzed:	07.18.2020 11:42		07.22.2020 03:09		07.22.2020 03:29		07.22.2020 03:50		07.22.2020 04:10		07.22.2020 04:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Toluene		0.00252	0.00198	0.00570	0.00200	0.00254	0.00200	0.00552	0.00200	0.00275	0.00200	0.00722	0.00200
Ethylbenzene		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00397	0.00397	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400
o-Xylene		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00198	0.00198	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		0.00252	0.00198	0.00570	0.00200	0.00254	0.00200	0.00552	0.00200	0.00275	0.00200	0.00722	0.00200
Chloride by EPA 300	***Extracted:***	07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45	
	Analyzed:	07.21.2020 01:37		07.21.2020 01:53		07.21.2020 01:58		07.21.2020 02:03		07.21.2020 02:08		07.21.2020 02:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		44.1	4.99	14.1	4.97	24.3	4.96	229	5.04	927	5.03	227	5.00
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 17:33		07.15.2020 17:55		07.15.2020 18:17		07.15.2020 18:38		07.15.2020 19:00		07.15.2020 19:22	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0
Diesel Range Organics (DRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0
Total TPH		<50.0	50.0	<49.9	49.9	<49.9	49.9	<50.0	50.0	<49.9	49.9	<50.0	50.0

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-019		667044-020		667044-021		667044-022		667044-023		667044-024	
	Field Id:	C-19		C-20		C-21		C-22		C-23		C-24	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:10		07.13.2020 10:04		07.13.2020 10:08		07.13.2020 10:12		07.13.2020 10:18		07.13.2020 10:22	
BTEX by EPA 8021B	***Extracted:***	07.22.2020 08:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00		07.21.2020 16:00	
	Analyzed:	07.22.2020 09:17		07.22.2020 04:51		07.22.2020 05:11		07.22.2020 05:32		07.22.2020 05:52		07.22.2020 06:13	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Toluene		0.00557	0.00199	0.00968	0.00200	0.00705	0.00200	0.00493	0.00200	0.00339	0.00200	0.00732	0.00200
Ethylbenzene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
m,p-Xylenes		<0.00398	0.00398	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400	<0.00400	0.00400
o-Xylene		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total Xylenes		<0.00199	0.00199	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200
Total BTEX		0.00557	0.00199	0.00968	0.00200	0.00705	0.00200	0.00493	0.00200	0.00339	0.00200	0.00732	0.00200
Chloride by EPA 300	***Extracted:***	07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45	
	Analyzed:	07.21.2020 02:19		07.21.2020 02:34		07.21.2020 02:40		07.21.2020 02:55		07.21.2020 03:00		07.21.2020 03:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		60.6	4.98	44.3	5.03	1290	4.96	704	4.99	6200	49.5	1110	4.97
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 19:43		07.15.2020 20:04		07.15.2020 20:26		07.15.2020 20:47		07.15.2020 12:50		07.15.2020 13:55	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0
Diesel Range Organics (DRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0
Total TPH		<50.0	50.0	<49.9	49.9	<50.0	50.0	<50.0	50.0	<49.9	49.9	<50.0	50.0

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-025		667044-026		667044-027		667044-028		667044-029		667044-030	
	Field Id:	C-25		C-26		C-27		C-28		C-29		C-30	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:26		07.13.2020 10:32		07.13.2020 10:36		07.13.2020 10:40		07.13.2020 10:44		07.13.2020 10:48	
BTEX by EPA 8021B	***Extracted:***	07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30	
	Analyzed:	07.22.2020 21:47		07.22.2020 22:08		07.22.2020 22:28		07.22.2020 22:49		07.22.2020 23:09		07.22.2020 23:30	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
Toluene		0.00464	0.00201	<0.00200	0.00200	0.00482	0.00200	<0.00200	0.00200	0.00906	0.00199	0.00556	0.00198
Ethylbenzene		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
m,p-Xylenes		<0.00402	0.00402	<0.00401	0.00401	<0.00401	0.00401	<0.00401	0.00401	<0.00398	0.00398	<0.00396	0.00396
o-Xylene		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
Total Xylenes		<0.00201	0.00201	<0.00200	0.00200	<0.00200	0.00200	<0.00200	0.00200	<0.00199	0.00199	<0.00198	0.00198
Total BTEX		0.00464	0.00201	<0.00200	0.00200	0.00482	0.00200	<0.00200	0.00200	0.00906	0.00199	0.00556	0.00198
Chloride by EPA 300	***Extracted:***	07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.20.2020 12:45		07.16.2020 15:20		07.16.2020 15:20	
	Analyzed:	07.21.2020 03:11		07.21.2020 03:16		07.21.2020 03:21		07.21.2020 03:27		07.16.2020 18:23		07.16.2020 18:04	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		254	5.02	5280	25.0	1210	4.99	8280	49.7	197	5.03	264 X	4.96
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 14:17		07.15.2020 14:38		07.15.2020 15:00		07.15.2020 15:22		07.15.2020 15:44		07.15.2020 16:06	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0
Total TPH		<49.9	49.9	<50.0	50.0	<49.9	49.9	<49.8	49.8	<50.0	50.0	<50.0	50.0

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Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	667044-031		667044-032		667044-033		667044-034		667044-035		667044-036	
	Field Id:	C-31		C-32		C-33		C-34		C-35		C-36	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.13.2020 10:52		07.13.2020 10:56		07.13.2020 11:00		07.13.2020 11:05		07.13.2020 11:01		07.13.2020 10:52	
BTEX by EPA 8021B	***Extracted:***	07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30		07.22.2020 16:30	
	Analyzed:	07.22.2020 23:50		07.23.2020 00:11		07.23.2020 00:31		07.23.2020 00:52		07.23.2020 02:14		07.23.2020 02:34	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Benzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Toluene		<0.00200	0.00200	0.00325	0.00199	0.00712	0.00199	0.00781	0.00199	0.00876	0.00198	0.00478	0.00200
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
m,p-Xylenes		<0.00400	0.00400	<0.00398	0.00398	<0.00398	0.00398	<0.00398	0.00398	<0.00397	0.00397	<0.00400	0.00400
o-Xylene		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199	<0.00199	0.00199	<0.00199	0.00199	<0.00198	0.00198	<0.00200	0.00200
Total BTEX		<0.00200	0.00200	0.00325	0.00199	0.00712	0.00199	0.00781	0.00199	0.00876	0.00198	0.00478	0.00200
Chloride by EPA 300	***Extracted:***	07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20		07.16.2020 15:20	
	Analyzed:	07.16.2020 18:29		07.16.2020 18:35		07.16.2020 18:41		07.16.2020 18:59		07.16.2020 19:06		07.16.2020 19:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		42.1	4.99	867	4.97	553	4.99	242	5.00	9.23	5.03	64.4	5.05
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30		07.15.2020 08:30	
	Analyzed:	07.15.2020 16:27		07.15.2020 16:49		07.15.2020 17:33		07.15.2020 17:55		07.15.2020 18:17		07.15.2020 18:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0
Diesel Range Organics (DRO)		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0
Total TPH		<49.9	49.9	<50.0	50.0	<49.8	49.8	<50.0	50.0	<50.0	50.0	<50.0	50.0

BRL - Below Reporting Limit

Holly Taylor

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

Certificate of Analysis Summary 667044

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

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Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Mon 07.13.2020 16:43
Report Date: 07.24.2020 13:02
Project Manager: Holly Taylor

Analysis Requested									
	Lab Id:	667044-037		667044-038					
	Field Id:	C-37		C-38					
	Depth:								
	Matrix:	SOIL		SOIL					
	Sampled:	07.13.2020 10:52		07.13.2020 10:48					
BTEX by EPA 8021B	***Extracted:***	07.22.2020 16:30		07.22.2020 16:30					
	Analyzed:	07.23.2020 02:55		07.23.2020 03:15					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Benzene		<0.00200	0.00200	<0.00199	0.00199				
Toluene		0.00502	0.00200	0.00857	0.00199				
Ethylbenzene		<0.00200	0.00200	<0.00199	0.00199				
m,p-Xylenes		<0.00401	0.00401	<0.00398	0.00398				
o-Xylene		<0.00200	0.00200	<0.00199	0.00199				
Total Xylenes		<0.00200	0.00200	<0.00199	0.00199				
Total BTEX		0.00502	0.00200	0.00857	0.00199				
Chloride by EPA 300	***Extracted:***	07.16.2020 15:20		07.16.2020 15:20					
	Analyzed:	07.16.2020 19:30		07.16.2020 19:49					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		14.6 X	4.99	28.7	5.04				
TPH by SW8015 Mod	***Extracted:***	07.15.2020 08:30		07.15.2020 08:30					
	Analyzed:	07.15.2020 19:00		07.15.2020 19:22					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)		<49.9	49.9	<49.9	49.9				
Diesel Range Organics (DRO)		<49.9	49.9	<49.9	49.9				
Motor Oil Range Hydrocarbons (MRO)		<49.9	49.9	<49.9	49.9				
Total TPH		<49.9	49.9	<49.9	49.9				

BRL - Below Reporting Limit

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

Holly Taylor

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Analytical Report 667044

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU #37

19-0112-49

07.24.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

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

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07.24.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **667044**
EBDU #37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 667044. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 667044 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

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Sample Cross Reference 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-1	S	07.13.2020 10:45		667044-001
C-2	S	07.13.2020 10:35		667044-002
C-3	S	07.13.2020 10:30		667044-003
C-4	S	07.13.2020 10:27		667044-004
C-5	S	07.13.2020 10:23		667044-005
C-6	S	07.13.2020 10:20		667044-006
C-7	S	07.13.2020 10:15		667044-007
C-8	S	07.13.2020 10:10		667044-008
C-9	S	07.13.2020 10:05		667044-009
C-10	S	07.13.2020 10:00		667044-010
C-11	S	07.13.2020 09:58		667044-011
C-12	S	07.13.2020 09:55		667044-012
C-13	S	07.13.2020 09:51		667044-013
C-14	S	07.13.2020 09:48		667044-014
C-15	S	07.13.2020 09:45		667044-015
C-16	S	07.13.2020 09:48		667044-016
C-17	S	07.13.2020 09:52		667044-017
C-18	S	07.13.2020 09:56		667044-018
C-19	S	07.13.2020 10:10		667044-019
C-20	S	07.13.2020 10:04		667044-020
C-21	S	07.13.2020 10:08		667044-021
C-22	S	07.13.2020 10:12		667044-022
C-23	S	07.13.2020 10:18		667044-023
C-24	S	07.13.2020 10:22		667044-024
C-25	S	07.13.2020 10:26		667044-025
C-26	S	07.13.2020 10:32		667044-026
C-27	S	07.13.2020 10:36		667044-027
C-28	S	07.13.2020 10:40		667044-028
C-29	S	07.13.2020 10:44		667044-029
C-30	S	07.13.2020 10:48		667044-030
C-31	S	07.13.2020 10:52		667044-031
C-32	S	07.13.2020 10:56		667044-032
C-33	S	07.13.2020 11:00		667044-033
C-34	S	07.13.2020 11:05		667044-034
C-35	S	07.13.2020 11:01		667044-035
C-36	S	07.13.2020 10:52		667044-036
C-37	S	07.13.2020 10:52		667044-037
C-38	S	07.13.2020 10:48		667044-038

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU #37

Project ID: *19-0112-49*
Work Order Number(s): *667044*

Report Date: *07.24.2020*
Date Received: *07.13.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3131896 Chloride by EPA 300
Lab Sample ID 667044-037 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Chloride recovered above QC limits Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 667044-029, -030, -031, -032, -033, -034, -035, -036, -037, -038.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3132080 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 667044-013.

Lab Sample ID 667044-001 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Benzene, Ethylbenzene, Toluene, m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 667044-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013.
The Laboratory Control Sample for Toluene, Benzene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Batch: LBA-3132276 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 667044-017,667044-018,667044-024,667044-022,667044-023,667044-020.

Batch: LBA-3132394 BTEX by EPA 8021B
Surrogate 4-Bromofluorobenzene recovered above QC limits. Matrix interferences is suspected. Samples affected are: 667044-019.

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU #37

Project ID: *19-0112-49*
Work Order Number(s): *667044*

Report Date: *07.24.2020*
Date Received: *07.13.2020*

Batch: LBA-3132400 BTEX by EPA 8021B
Lab Sample ID 667044-031 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). m,p-Xylenes, o-Xylene recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate. Ethylbenzene, Toluene recovered below QC limits in the Matrix Spike Duplicate. Outlier/s are due to possible matrix interference. Samples in the analytical batch are: 667044-025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038.
The Laboratory Control Sample for Toluene, m,p-Xylenes, Ethylbenzene, o-Xylene is within laboratory Control Limits, therefore the data was accepted.

Ethylbenzene Relative Percent Difference (RPD) between matrix spike and duplicate was above quality control limits.
Samples in the analytical batch are: 667044-025, -026, -027, -028, -029, -030, -031, -032, -033, -034, -035, -036, -037, -038

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-1**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-001	Date Collected:	07.13.2020 10:45		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1150**	4.96	mg/kg	07.16.2020 16:26		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.16.2020 12:00	Basis:	Wet Weight
Seq Number:	3131955				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.16.2020 14:05	U	1
Diesel Range Organics (DRO)	C10C28DRO	**83.3**	49.8	mg/kg	07.16.2020 14:05		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.16.2020 14:05	U	1
Total TPH	PHC635	**83.3**	49.8	mg/kg	07.16.2020 14:05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-130	07.16.2020 14:05	
o-Terphenyl	84-15-1	106	%	70-130	07.16.2020 14:05	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-1**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-001	Date Collected:	07.13.2020 10:45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.18.2020 02:55	UX	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.18.2020 02:55	UX	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.18.2020 02:55	U	1
Total BTEX		<0.00201	0.00201	mg/kg	07.18.2020 02:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.18.2020 02:55	
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.18.2020 02:55	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-2**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-002	Date Collected:	07.13.2020 10:35		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3570**	24.9	mg/kg	07.16.2020 16:32		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.16.2020 12:00	Basis:	Wet Weight
Seq Number:	3131955				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.16.2020 14:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	97	%	70-130	07.16.2020 14:26	
o-Terphenyl	84-15-1	102	%	70-130	07.16.2020 14:26	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-2**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-002	Date Collected:	07.13.2020 10:35		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.18.2020 03:15	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.18.2020 03:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.18.2020 03:15	
4-Bromofluorobenzene	460-00-4	120	%	70-130	07.18.2020 03:15	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-3**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-003	Date Collected:	07.13.2020 10:30		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1990**	25.0	mg/kg	07.16.2020 16:50		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 12:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.15.2020 12:50	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 12:50	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-3**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-003	Date Collected:	07.13.2020 10:30		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	07.18.2020 03:36	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1
Total BTEX		<0.00202	0.00202	mg/kg	07.18.2020 03:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.18.2020 03:36	
4-Bromofluorobenzene	460-00-4	116	%	70-130	07.18.2020 03:36	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id: **C-4** Matrix: Soil Date Received:07.13.2020 16:43
Lab Sample Id: 667044-004 Date Collected: 07.13.2020 10:27

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 07.16.2020 11:30 Basis: Wet Weight
Seq Number: 3131895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**3060**	25.2	mg/kg	07.16.2020 16:57		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DVM % Moisture:
Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight
Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 13:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-130	07.15.2020 13:55	
o-Terphenyl	84-15-1	99	%	70-130	07.15.2020 13:55	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-4**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-004	Date Collected:	07.13.2020 10:27		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
Toluene	108-88-3	**0.00262**	0.00199	mg/kg	07.18.2020 03:56		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.18.2020 03:56	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.18.2020 03:56	U	1
Total BTEX		**0.00262**	0.00199	mg/kg	07.18.2020 03:56		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	119	%	70-130	07.18.2020 03:56	
1,4-Difluorobenzene	540-36-3	114	%	70-130	07.18.2020 03:56	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-5**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-005	Date Collected:	07.13.2020 10:23		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**650**	4.96	mg/kg	07.16.2020 17:03		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 14:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-130	07.15.2020 14:17	
o-Terphenyl	84-15-1	98	%	70-130	07.15.2020 14:17	

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EBDU #37

Sample Id:	**C-5**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-005	Date Collected:	07.13.2020 10:23		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
Toluene	108-88-3	**0.00205**	0.00200	mg/kg	07.18.2020 04:17		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.18.2020 04:17	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 04:17	U	1
Total BTEX		**0.00205**	0.00200	mg/kg	07.18.2020 04:17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	113	%	70-130	07.18.2020 04:17	
4-Bromofluorobenzene	460-00-4	120	%	70-130	07.18.2020 04:17	

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EBDU #37

Sample Id:	**C-6**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-006	Date Collected:	07.13.2020 10:20		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1060**	4.99	mg/kg	07.16.2020 17:09		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 14:38	
o-Terphenyl	84-15-1	94	%	70-130	07.15.2020 14:38	

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EBDU #37

Sample Id:	**C-6**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-006	Date Collected:	07.13.2020 10:20		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
Toluene	108-88-3	**0.00262**	0.00200	mg/kg	07.18.2020 04:37		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.18.2020 04:37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 04:37	U	1
Total BTEX		**0.00262**	0.00200	mg/kg	07.18.2020 04:37		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	07.18.2020 04:37	
1,4-Difluorobenzene	540-36-3	114	%	70-130	07.18.2020 04:37	

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EBDU #37

Sample Id:	**C-7**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-007	Date Collected:	07.13.2020 10:15		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12100**	101	mg/kg	07.16.2020 17:15		20

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 15:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-130	07.15.2020 15:00	
o-Terphenyl	84-15-1	101	%	70-130	07.15.2020 15:00	

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EBDU #37

Sample Id:	**C-7**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-007	Date Collected:	07.13.2020 10:15		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
Toluene	108-88-3	**0.00378**	0.00200	mg/kg	07.18.2020 04:57		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.18.2020 04:57	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 04:57	U	1
Total BTEX		**0.00378**	0.00200	mg/kg	07.18.2020 04:57		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	126	%	70-130	07.18.2020 04:57	
1,4-Difluorobenzene	540-36-3	118	%	70-130	07.18.2020 04:57	

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EBDU #37

Sample Id:	**C-8**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-008	Date Collected:	07.13.2020 10:10		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 11:30	Basis:	Wet Weight
Seq Number:	3131895				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24800**	250	mg/kg	07.16.2020 17:21		50

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 15:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-130	07.15.2020 15:22	
o-Terphenyl	84-15-1	106	%	70-130	07.15.2020 15:22	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-8**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-008	Date Collected:	07.13.2020 10:10		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.18.2020 05:18	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1
Total BTEX		<0.00198	0.00198	mg/kg	07.18.2020 05:18	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.18.2020 05:18	
4-Bromofluorobenzene	460-00-4	127	%	70-130	07.18.2020 05:18	

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EBDU #37

Sample Id: **C-9** Matrix: Soil Date Received:07.13.2020 16:43
Lab Sample Id: 667044-009 Date Collected: 07.13.2020 10:05

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 07.16.2020 11:30 Basis: Wet Weight
Seq Number: 3131895

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**4160**	25.0	mg/kg	07.16.2020 17:27		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DVM % Moisture:
Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight
Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 15:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.15.2020 15:44	
o-Terphenyl	84-15-1	96	%	70-130	07.15.2020 15:44	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-9**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-009	Date Collected:	07.13.2020 10:05		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
Toluene	108-88-3	**0.00438**	0.00199	mg/kg	07.18.2020 05:38		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.18.2020 05:38	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.18.2020 05:38	U	1
Total BTEX		**0.00438**	0.00199	mg/kg	07.18.2020 05:38		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	07.18.2020 05:38	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.18.2020 05:38	

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EBDU #37

Sample Id:	**C-10**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-010	Date Collected:	07.13.2020 10:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**2190**	24.9	mg/kg	07.21.2020 01:05		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 16:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-130	07.15.2020 16:06	
o-Terphenyl	84-15-1	98	%	70-130	07.15.2020 16:06	

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EBDU #37

Sample Id:	**C-10**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-010	Date Collected:	07.13.2020 10:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
Toluene	108-88-3	**0.00336**	0.00201	mg/kg	07.18.2020 05:59		1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.18.2020 05:59	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.18.2020 05:59	U	1
Total BTEX		**0.00336**	0.00201	mg/kg	07.18.2020 05:59		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	128	%	70-130	07.18.2020 05:59	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.18.2020 05:59	

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EBDU #37

Sample Id:	**C-11**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-011	Date Collected:	07.13.2020 09:58		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.8**	5.01	mg/kg	07.21.2020 01:26		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 16:27	
o-Terphenyl	84-15-1	92	%	70-130	07.15.2020 16:27	

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EBDU #37

Sample Id:	**C-11**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-011	Date Collected:	07.13.2020 09:58		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
Toluene	108-88-3	**0.00539**	0.00200	mg/kg	07.18.2020 11:01		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	07.18.2020 11:01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.18.2020 11:01	U	1
Total BTEX		**0.00539**	0.00200	mg/kg	07.18.2020 11:01		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	70-130	07.18.2020 11:01	
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.18.2020 11:01	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id: **C-12** Matrix: Soil Date Received:07.13.2020 16:43
Lab Sample Id: 667044-012 Date Collected: 07.13.2020 09:55

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 07.20.2020 12:45 Basis: Wet Weight
Seq Number: 3132156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**626**	5.03	mg/kg	07.21.2020 01:32		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DVM % Moisture:
Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight
Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	92	%	70-130	07.15.2020 16:49	
o-Terphenyl	84-15-1	97	%	70-130	07.15.2020 16:49	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-12**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-012	Date Collected:	07.13.2020 09:55		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
Toluene	108-88-3	**0.00415**	0.00198	mg/kg	07.18.2020 11:22		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	07.18.2020 11:22	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.18.2020 11:22	U	1
Total BTEX		**0.00415**	0.00198	mg/kg	07.18.2020 11:22		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	127	%	70-130	07.18.2020 11:22	
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.18.2020 11:22	

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EBDU #37

Sample Id:	**C-13**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-013	Date Collected:	07.13.2020 09:51		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.1**	4.99	mg/kg	07.21.2020 01:37		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 17:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-130	07.15.2020 17:33	
o-Terphenyl	84-15-1	106	%	70-130	07.15.2020 17:33	

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EBDU #37

Sample Id:	**C-13**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-013	Date Collected:	07.13.2020 09:51		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.17.2020 14:30	Basis:	Wet Weight
Seq Number:	3132080				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
Toluene	108-88-3	**0.00252**	0.00198	mg/kg	07.18.2020 11:42		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.18.2020 11:42	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.18.2020 11:42	U	1
Total BTEX		**0.00252**	0.00198	mg/kg	07.18.2020 11:42		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	117	%	70-130	07.18.2020 11:42	
4-Bromofluorobenzene	460-00-4	137	%	70-130	07.18.2020 11:42	**

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EBDU #37

Sample Id:	**C-14**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-014	Date Collected:	07.13.2020 09:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**14.1**	4.97	mg/kg	07.21.2020 01:53		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 17:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-130	07.15.2020 17:55	
o-Terphenyl	84-15-1	101	%	70-130	07.15.2020 17:55	

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EBDU #37

Sample Id:	**C-14**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-014	Date Collected:	07.13.2020 09:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
Toluene	108-88-3	**0.00570**	0.00200	mg/kg	07.22.2020 03:09		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 03:09	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 03:09	U	1
Total BTEX		**0.00570**	0.00200	mg/kg	07.22.2020 03:09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	100	%	70-130	07.22.2020 03:09	
4-Bromofluorobenzene	460-00-4	117	%	70-130	07.22.2020 03:09	

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EBDU #37

Sample Id:	**C-15**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-015	Date Collected:	07.13.2020 09:45		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.3**	4.96	mg/kg	07.21.2020 01:58		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 18:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-130	07.15.2020 18:17	
o-Terphenyl	84-15-1	99	%	70-130	07.15.2020 18:17	

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EBDU #37

Sample Id:	**C-15**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-015	Date Collected:	07.13.2020 09:45		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
Toluene	108-88-3	**0.00254**	0.00200	mg/kg	07.22.2020 03:29		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 03:29	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 03:29	U	1
Total BTEX		**0.00254**	0.00200	mg/kg	07.22.2020 03:29		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	101	%	70-130	07.22.2020 03:29	
4-Bromofluorobenzene	460-00-4	121	%	70-130	07.22.2020 03:29	

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EBDU #37

Sample Id:	**C-16**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-016	Date Collected:	07.13.2020 09:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**229**	5.04	mg/kg	07.21.2020 02:03		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	98	%	70-130	07.15.2020 18:38	
o-Terphenyl	84-15-1	104	%	70-130	07.15.2020 18:38	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-16**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-016	Date Collected:	07.13.2020 09:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
Toluene	108-88-3	**0.00552**	0.00200	mg/kg	07.22.2020 03:50		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 03:50	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 03:50	U	1
Total BTEX		**0.00552**	0.00200	mg/kg	07.22.2020 03:50		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	130	%	70-130	07.22.2020 03:50	
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 03:50	

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EBDU #37

Sample Id:	**C-17**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-017	Date Collected:	07.13.2020 09:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**927**	5.03	mg/kg	07.21.2020 02:08		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	94	%	70-130	07.15.2020 19:00	
o-Terphenyl	84-15-1	100	%	70-130	07.15.2020 19:00	

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EBDU #37

Sample Id:	**C-17**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-017	Date Collected:	07.13.2020 09:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
Toluene	108-88-3	**0.00275**	0.00200	mg/kg	07.22.2020 04:10		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 04:10	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 04:10	U	1
Total BTEX		**0.00275**	0.00200	mg/kg	07.22.2020 04:10		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	07.22.2020 04:10	
4-Bromofluorobenzene	460-00-4	136	%	70-130	07.22.2020 04:10	**

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EBDU #37

Sample Id:	**C-18**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-018	Date Collected:	07.13.2020 09:56		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**227**	5.00	mg/kg	07.21.2020 02:13		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 19:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	90	%	70-130	07.15.2020 19:22	
o-Terphenyl	84-15-1	93	%	70-130	07.15.2020 19:22	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-18**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-018	Date Collected:	07.13.2020 09:56		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
Toluene	108-88-3	**0.00722**	0.00200	mg/kg	07.22.2020 04:30		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 04:30	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 04:30	U	1
Total BTEX		**0.00722**	0.00200	mg/kg	07.22.2020 04:30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 04:30	
4-Bromofluorobenzene	460-00-4	132	%	70-130	07.22.2020 04:30	**

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-19**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-019	Date Collected:	07.13.2020 10:10		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**60.6**	4.98	mg/kg	07.21.2020 02:19		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 19:43	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 19:43	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 19:43	

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EBDU #37

Sample Id:	**C-19**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-019	Date Collected:	07.13.2020 10:10		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 08:00	Basis:	Wet Weight
Seq Number:	3132394				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
Toluene	108-88-3	**0.00557**	0.00199	mg/kg	07.22.2020 09:17		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.2020 09:17	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.2020 09:17	U	1
Total BTEX		**0.00557**	0.00199	mg/kg	07.22.2020 09:17		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	131	%	70-130	07.22.2020 09:17	**
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 09:17	

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EBDU #37

Sample Id: **C-20** Matrix: Soil Date Received:07.13.2020 16:43
Lab Sample Id: 667044-020 Date Collected: 07.13.2020 10:04

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 07.20.2020 12:45 Basis: Wet Weight
Seq Number: 3132156

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**44.3**	5.03	mg/kg	07.21.2020 02:34		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DVM % Moisture:
Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight
Seq Number: 3131823

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 20:04	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 20:04	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 20:04	

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EBDU #37

Sample Id:	**C-20**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-020	Date Collected:	07.13.2020 10:04		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
Toluene	108-88-3	**0.00968**	0.00200	mg/kg	07.22.2020 04:51		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 04:51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 04:51	U	1
Total BTEX		**0.00968**	0.00200	mg/kg	07.22.2020 04:51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	07.22.2020 04:51	
4-Bromofluorobenzene	460-00-4	136	%	70-130	07.22.2020 04:51	**

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EBDU #37

Sample Id:	**C-21**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-021	Date Collected:	07.13.2020 10:08		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1290**	4.96	mg/kg	07.21.2020 02:40		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 20:26	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	93	%	70-130	07.15.2020 20:26	
o-Terphenyl	84-15-1	97	%	70-130	07.15.2020 20:26	

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EBDU #37

Sample Id:	**C-21**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-021	Date Collected:	07.13.2020 10:08		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
Toluene	108-88-3	**0.00705**	0.00200	mg/kg	07.22.2020 05:11		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 05:11	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 05:11	U	1
Total BTEX		**0.00705**	0.00200	mg/kg	07.22.2020 05:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	129	%	70-130	07.22.2020 05:11	
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 05:11	

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EBDU #37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-022	Date Collected:	07.13.2020 10:12		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**704**	4.99	mg/kg	07.21.2020 02:55		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131823				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 20:47	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 20:47	
o-Terphenyl	84-15-1	95	%	70-130	07.15.2020 20:47	

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EBDU #37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-022	Date Collected:	07.13.2020 10:12		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
Toluene	108-88-3	**0.00493**	0.00200	mg/kg	07.22.2020 05:32		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 05:32	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 05:32	U	1
Total BTEX		**0.00493**	0.00200	mg/kg	07.22.2020 05:32		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	137	%	70-130	07.22.2020 05:32	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 05:32	

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EBDU #37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-023	Date Collected:	07.13.2020 10:18		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**6200**	49.5	mg/kg	07.21.2020 03:00		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 12:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 12:50	
o-Terphenyl	84-15-1	85	%	70-130	07.15.2020 12:50	

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EBDU #37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-023	Date Collected:	07.13.2020 10:18		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
Toluene	108-88-3	**0.00339**	0.00200	mg/kg	07.22.2020 05:52		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 05:52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 05:52	U	1
Total BTEX		**0.00339**	0.00200	mg/kg	07.22.2020 05:52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	134	%	70-130	07.22.2020 05:52	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 05:52	

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EBDU #37

Sample Id:	**C-24**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-024	Date Collected:	07.13.2020 10:22		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1110**	4.97	mg/kg	07.21.2020 03:06		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 13:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	81	%	70-130	07.15.2020 13:55	
o-Terphenyl	84-15-1	85	%	70-130	07.15.2020 13:55	

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EBDU #37

Sample Id:	**C-24**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-024	Date Collected:	07.13.2020 10:22		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	AMF			% Moisture:	
Analyst:	AMF	Date Prep:	07.21.2020 16:00	Basis:	Wet Weight
Seq Number:	3132276				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
Toluene	108-88-3	**0.00732**	0.00200	mg/kg	07.22.2020 06:13		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 06:13	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 06:13	U	1
Total BTEX		**0.00732**	0.00200	mg/kg	07.22.2020 06:13		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	133	%	70-130	07.22.2020 06:13	**
1,4-Difluorobenzene	540-36-3	103	%	70-130	07.22.2020 06:13	

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EBDU #37

Sample Id:	**C-25**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-025	Date Collected:	07.13.2020 10:26		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**254**	5.02	mg/kg	07.21.2020 03:11		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 14:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	77	%	70-130	07.15.2020 14:17	
o-Terphenyl	84-15-1	80	%	70-130	07.15.2020 14:17	

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EBDU #37

Sample Id:	**C-25**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-025	Date Collected:	07.13.2020 10:26		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
Toluene	108-88-3	**0.00464**	0.00201	mg/kg	07.22.2020 21:47		1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	07.22.2020 21:47	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	07.22.2020 21:47	U	1
Total BTEX		**0.00464**	0.00201	mg/kg	07.22.2020 21:47		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	115	%	70-130	07.22.2020 21:47	
4-Bromofluorobenzene	460-00-4	98	%	70-130	07.22.2020 21:47	

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EBDU #37

Sample Id:	**C-26**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-026	Date Collected:	07.13.2020 10:32		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5280**	25.0	mg/kg	07.21.2020 03:16		5

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 14:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 14:38	
o-Terphenyl	84-15-1	91	%	70-130	07.15.2020 14:38	

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EBDU #37

Sample Id:	**C-26**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-026	Date Collected:	07.13.2020 10:32		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.2020 22:08	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 22:08	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	116	%	70-130	07.22.2020 22:08	
4-Bromofluorobenzene	460-00-4	101	%	70-130	07.22.2020 22:08	

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EBDU #37

Sample Id:	**C-27**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-027	Date Collected:	07.13.2020 10:36		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**1210**	4.99	mg/kg	07.21.2020 03:21		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 15:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	87	%	70-130	07.15.2020 15:00	
o-Terphenyl	84-15-1	90	%	70-130	07.15.2020 15:00	

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EBDU #37

Sample Id:	**C-27**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-027	Date Collected:	07.13.2020 10:36		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
Toluene	108-88-3	**0.00482**	0.00200	mg/kg	07.22.2020 22:28		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.2020 22:28	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 22:28	U	1
Total BTEX		**0.00482**	0.00200	mg/kg	07.22.2020 22:28		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	107	%	70-130	07.22.2020 22:28	
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.22.2020 22:28	

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EBDU #37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-028	Date Collected:	07.13.2020 10:40		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.20.2020 12:45	Basis:	Wet Weight
Seq Number:	3132156				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**8280**	49.7	mg/kg	07.21.2020 03:27		10

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 15:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	91	%	70-130	07.15.2020 15:22	
o-Terphenyl	84-15-1	94	%	70-130	07.15.2020 15:22	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-028	Date Collected:	07.13.2020 10:40		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.22.2020 22:49	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 22:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	110	%	70-130	07.22.2020 22:49	
4-Bromofluorobenzene	460-00-4	108	%	70-130	07.22.2020 22:49	

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EBDU #37

Sample Id:	**C-29**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-029	Date Collected:	07.13.2020 10:44		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**197**	5.03	mg/kg	07.16.2020 18:23		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 15:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 15:44	
o-Terphenyl	84-15-1	85	%	70-130	07.15.2020 15:44	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-29**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-029	Date Collected:	07.13.2020 10:44		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
Toluene	108-88-3	**0.00906**	0.00199	mg/kg	07.22.2020 23:09		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.22.2020 23:09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.22.2020 23:09	U	1
Total BTEX		**0.00906**	0.00199	mg/kg	07.22.2020 23:09		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	113	%	70-130	07.22.2020 23:09	
1,4-Difluorobenzene	540-36-3	110	%	70-130	07.22.2020 23:09	

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EBDU #37

Sample Id:	**C-30**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-030	Date Collected:	07.13.2020 10:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**264**	4.96	mg/kg	07.16.2020 18:04	X	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	82	%	70-130	07.15.2020 16:06	
o-Terphenyl	84-15-1	84	%	70-130	07.15.2020 16:06	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-30**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-030	Date Collected:	07.13.2020 10:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
Toluene	108-88-3	**0.00556**	0.00198	mg/kg	07.22.2020 23:30		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
m,p-Xylenes	179601-23-1	<0.00396	0.00396	mg/kg	07.22.2020 23:30	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.22.2020 23:30	U	1
Total BTEX		**0.00556**	0.00198	mg/kg	07.22.2020 23:30		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.22.2020 23:30	
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.22.2020 23:30	

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EBDU #37

Sample Id:	**C-31**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-031	Date Collected:	07.13.2020 10:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**42.1**	4.99	mg/kg	07.16.2020 18:29		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 16:27	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	07.15.2020 16:27	
o-Terphenyl	84-15-1	84	%	70-130	07.15.2020 16:27	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-31**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-031	Date Collected:	07.13.2020 10:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.22.2020 23:50	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	07.22.2020 23:50	UX	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.22.2020 23:50	UXF	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.22.2020 23:50	UX	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.22.2020 23:50	UX	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.22.2020 23:50	U	1
Total BTEX		<0.00200	0.00200	mg/kg	07.22.2020 23:50	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.22.2020 23:50	
1,4-Difluorobenzene	540-36-3	106	%	70-130	07.22.2020 23:50	

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EBDU #37

Sample Id:	**C-32**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-032	Date Collected:	07.13.2020 10:56		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**867**	4.97	mg/kg	07.16.2020 18:35		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 16:49	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 16:49	
o-Terphenyl	84-15-1	86	%	70-130	07.15.2020 16:49	

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EBDU #37

Sample Id:	**C-32**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-032	Date Collected:	07.13.2020 10:56		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
Toluene	108-88-3	**0.00325**	0.00199	mg/kg	07.23.2020 00:11		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 00:11	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 00:11	U	1
Total BTEX		**0.00325**	0.00199	mg/kg	07.23.2020 00:11		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	07.23.2020 00:11	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.23.2020 00:11	

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EBDU #37

Sample Id:	**C-33**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-033	Date Collected:	07.13.2020 11:00		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**553**	4.99	mg/kg	07.16.2020 18:41		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	07.15.2020 17:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	85	%	70-130	07.15.2020 17:33	
o-Terphenyl	84-15-1	88	%	70-130	07.15.2020 17:33	

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Certificate of Analytical Results 667044

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-33**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-033	Date Collected:	07.13.2020 11:00		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
Toluene	108-88-3	**0.00712**	0.00199	mg/kg	07.23.2020 00:31		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 00:31	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 00:31	U	1
Total BTEX		**0.00712**	0.00199	mg/kg	07.23.2020 00:31		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	07.23.2020 00:31	
1,4-Difluorobenzene	540-36-3	107	%	70-130	07.23.2020 00:31	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-34**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-034	Date Collected:	07.13.2020 11:05		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**242**	5.00	mg/kg	07.16.2020 18:59		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 17:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	88	%	70-130	07.15.2020 17:55	
o-Terphenyl	84-15-1	88	%	70-130	07.15.2020 17:55	

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EBDU #37

Sample Id:	**C-34**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-034	Date Collected:	07.13.2020 11:05		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
Toluene	108-88-3	**0.00781**	0.00199	mg/kg	07.23.2020 00:52		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 00:52	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 00:52	U	1
Total BTEX		**0.00781**	0.00199	mg/kg	07.23.2020 00:52		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	07.23.2020 00:52	
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.23.2020 00:52	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-35**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-035	Date Collected:	07.13.2020 11:01		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.23**	5.03	mg/kg	07.16.2020 19:06		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 18:17	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	95	%	70-130	07.15.2020 18:17	
o-Terphenyl	84-15-1	93	%	70-130	07.15.2020 18:17	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-35**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-035	Date Collected:	07.13.2020 11:01		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
Toluene	108-88-3	**0.00876**	0.00198	mg/kg	07.23.2020 02:14		1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	07.23.2020 02:14	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	07.23.2020 02:14	U	1
Total BTEX		**0.00876**	0.00198	mg/kg	07.23.2020 02:14		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	111	%	70-130	07.23.2020 02:14	
4-Bromofluorobenzene	460-00-4	96	%	70-130	07.23.2020 02:14	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id: **C-36** Matrix: Soil Date Received:07.13.2020 16:43
Lab Sample Id: 667044-036 Date Collected: 07.13.2020 10:52

Analytical Method: Chloride by EPA 300 Prep Method: E300P
Tech: CHE % Moisture:
Analyst: CHE Date Prep: 07.16.2020 15:20 Basis: Wet Weight
Seq Number: 3131896

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**64.4**	5.05	mg/kg	07.16.2020 19:12		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
Tech: DVM % Moisture:
Analyst: ARM Date Prep: 07.15.2020 08:30 Basis: Wet Weight
Seq Number: 3131827

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	07.15.2020 18:38	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	07.15.2020 18:38	
o-Terphenyl	84-15-1	89	%	70-130	07.15.2020 18:38	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-36**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-036	Date Collected:	07.13.2020 10:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
Toluene	108-88-3	**0.00478**	0.00200	mg/kg	07.23.2020 02:34		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
m,p-Xylenes	179601-23-1	<0.00400	0.00400	mg/kg	07.23.2020 02:34	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.23.2020 02:34	U	1
Total BTEX		**0.00478**	0.00200	mg/kg	07.23.2020 02:34		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	118	%	70-130	07.23.2020 02:34	
1,4-Difluorobenzene	540-36-3	107	%	70-130	07.23.2020 02:34	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-37**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-037	Date Collected:	07.13.2020 10:52		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**14.6**	4.99	mg/kg	07.16.2020 19:30	X	1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 19:00	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	84	%	70-130	07.15.2020 19:00	
o-Terphenyl	84-15-1	86	%	70-130	07.15.2020 19:00	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-37**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-037	Date Collected:	07.13.2020 10:52		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
Toluene	108-88-3	**0.00502**	0.00200	mg/kg	07.23.2020 02:55		1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	07.23.2020 02:55	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	07.23.2020 02:55	U	1
Total BTEX		**0.00502**	0.00200	mg/kg	07.23.2020 02:55		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	119	%	70-130	07.23.2020 02:55	
1,4-Difluorobenzene	540-36-3	106	%	70-130	07.23.2020 02:55	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-38**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-038	Date Collected:	07.13.2020 10:48		

Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.16.2020 15:20	Basis:	Wet Weight
Seq Number:	3131896				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**28.7**	5.04	mg/kg	07.16.2020 19:49		1

Analytical Method:	TPH by SW8015 Mod			Prep Method:	SW8015P
Tech:	DVM			% Moisture:	
Analyst:	ARM	Date Prep:	07.15.2020 08:30	Basis:	Wet Weight
Seq Number:	3131827				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	07.15.2020 19:22	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	89	%	70-130	07.15.2020 19:22	
o-Terphenyl	84-15-1	93	%	70-130	07.15.2020 19:22	

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Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-38**	Matrix:	Soil	Date Received:	07.13.2020 16:43
Lab Sample Id:	667044-038	Date Collected:	07.13.2020 10:48		
Analytical Method:	BTEX by EPA 8021B			Prep Method:	SW5035A
Tech:	KTL			% Moisture:	
Analyst:	KTL	Date Prep:	07.22.2020 16:30	Basis:	Wet Weight
Seq Number:	3132400				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
Toluene	108-88-3	**0.00857**	0.00199	mg/kg	07.23.2020 03:15		1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	07.23.2020 03:15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	07.23.2020 03:15	U	1
Total BTEX		**0.00857**	0.00199	mg/kg	07.23.2020 03:15		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	108	%	70-130	07.23.2020 03:15	
4-Bromofluorobenzene	460-00-4	115	%	70-130	07.23.2020 03:15	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131895 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707476-1-BLK — LCS Sample Id: 7707476-1-BKS — LCSD Sample Id: 7707476-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	260	104	261	104	90-110	0	20	mg/kg	07.16.2020 14:29	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131896 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707518-1-BLK — LCS Sample Id: 7707518-1-BKS — LCSD Sample Id: 7707518-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	263	105	263	105	90-110	0	20	mg/kg	07.16.2020 17:52	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3132156 — Matrix: Solid — Date Prep: 07.20.2020
MB Sample Id: 7707611-1-BLK — LCS Sample Id: 7707611-1-BKS — LCSD Sample Id: 7707611-1-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	232	93	238	95	90-110	3	20	mg/kg	07.21.2020 00:55	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131895 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667048-075 — MS Sample Id: 667048-075 S — MSD Sample Id: 667048-075 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	73.9	249	364	117	345	109	90-110	5	20	mg/kg	07.16.2020 14:47	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131895 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667048-085 — MS Sample Id: 667048-085 S — MSD Sample Id: 667048-085 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	424	250	703	112	702	111	90-110	0	20	mg/kg	07.16.2020 16:14	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131896 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667044-030 — MS Sample Id: 667044-030 S — MSD Sample Id: 667044-030 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	264	248	544	113	524	105	90-110	4	20	mg/kg	07.16.2020 18:10	X

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

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QC Summary 667044

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EBDU #37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3131896 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667044-037 — MS Sample Id: 667044-037 S — MSD Sample Id: 667044-037 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	14.6	250	292	111	281	107	90-110	4	20	mg/kg	07.16.2020 19:36	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3132156 — Matrix: Soil — Date Prep: 07.20.2020
Parent Sample Id: 667044-010 — MS Sample Id: 667044-010 S — MSD Sample Id: 667044-010 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	2190	1240	3340	93	3510	106	90-110	5	20	mg/kg	07.21.2020 01:11	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3132156 — Matrix: Soil — Date Prep: 07.20.2020
Parent Sample Id: 667044-019 — MS Sample Id: 667044-019 S — MSD Sample Id: 667044-019 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	60.6	249	295	94	315	102	90-110	7	20	mg/kg	07.21.2020 02:24	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131823 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707429-1-BLK — LCS Sample Id: 7707429-1-BKS — LCSD Sample Id: 7707429-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1100	110	1100	110	70-130	0	20	mg/kg	07.15.2020 12:07	
Diesel Range Organics (DRO)	<50.0	1000	1090	109	1110	111	70-130	2	20	mg/kg	07.15.2020 12:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	101		106		109		70-130	%	07.15.2020 12:07
o-Terphenyl	113		111		113		70-130	%	07.15.2020 12:07

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131827 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707430-1-BLK — LCS Sample Id: 7707430-1-BKS — LCSD Sample Id: 7707430-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	958	96	888	89	70-130	8	20	mg/kg	07.15.2020 12:07	
Diesel Range Organics (DRO)	<50.0	1000	1010	101	904	90	70-130	11	20	mg/kg	07.15.2020 12:07	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	87		97		89		70-130	%	07.15.2020 12:07
o-Terphenyl	96		105		95		70-130	%	07.15.2020 12:07

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

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

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

QC Summary 667044

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EBDU #37

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131955 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707520-1-BLK — LCS Sample Id: 7707520-1-BKS — LCSD Sample Id: 7707520-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	885	89	939	94	70-130	6	20	mg/kg	07.16.2020 11:54	
Diesel Range Organics (DRO)	<50.0	1000	981	98	1000	100	70-130	2	20	mg/kg	07.16.2020 11:54	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	102		99		102		70-130	%	07.16.2020 11:54
o-Terphenyl	111		100		105		70-130	%	07.16.2020 11:54

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131823 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707429-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.15.2020 11:46	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131827 — Matrix: Solid — Date Prep: 07.15.2020
MB Sample Id: 7707430-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.15.2020 11:46	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131955 — Matrix: Solid — Date Prep: 07.16.2020
MB Sample Id: 7707520-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	07.16.2020 11:33	

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131823 — Matrix: Soil — Date Prep: 07.15.2020
Parent Sample Id: 667044-003 — MS Sample Id: 667044-003 S — MSD Sample Id: 667044-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	959	96	862	86	70-130	11	20	mg/kg	07.15.2020 13:12	
Diesel Range Organics (DRO)	<49.9	997	926	93	856	86	70-130	8	20	mg/kg	07.15.2020 13:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		85		70-130	%	07.15.2020 13:12
o-Terphenyl	92		85		70-130	%	07.15.2020 13:12

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

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EBDU #37

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131827 — Matrix: Soil — Date Prep: 07.15.2020
Parent Sample Id: 667044-023 — MS Sample Id: 667044-023 S — MSD Sample Id: 667044-023 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	911	91	884	89	70-130	3	20	mg/kg	07.15.2020 13:12	
Diesel Range Organics (DRO)	<49.9	997	948	95	943	95	70-130	1	20	mg/kg	07.15.2020 13:12	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	92		91		70-130	%	07.15.2020 13:12
o-Terphenyl	95		91		70-130	%	07.15.2020 13:12

Analytical Method: TPH by SW8015 Mod — Prep Method: SW8015P
Seq Number: 3131955 — Matrix: Soil — Date Prep: 07.16.2020
Parent Sample Id: 667184-001 — MS Sample Id: 667184-001 S — MSD Sample Id: 667184-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	959	96	949	95	70-130	1	20	mg/kg	07.16.2020 13:00	
Diesel Range Organics (DRO)	<49.9	997	1050	105	1040	104	70-130	1	20	mg/kg	07.16.2020 13:00	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	106		104		70-130	%	07.16.2020 13:00
o-Terphenyl	103		101		70-130	%	07.16.2020 13:00

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132080 — Matrix: Solid — Date Prep: 07.17.2020
MB Sample Id: 7707661-1-BLK — LCS Sample Id: 7707661-1-BKS — LCSD Sample Id: 7707661-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0911	91	0.0799	80	70-130	13	35	mg/kg	07.18.2020 10:00	
Toluene	<0.00200	0.100	0.0962	96	0.0848	85	70-130	13	35	mg/kg	07.18.2020 10:00	
Ethylbenzene	<0.00200	0.100	0.0998	100	0.0861	86	70-130	15	35	mg/kg	07.18.2020 10:00	
m,p-Xylenes	<0.00400	0.200	0.194	97	0.167	84	70-130	15	35	mg/kg	07.18.2020 10:00	
o-Xylene	<0.00200	0.100	0.0984	98	0.0852	85	70-130	14	35	mg/kg	07.18.2020 10:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	115		95		94		70-130	%	07.18.2020 10:00
4-Bromofluorobenzene	108		103		98		70-130	%	07.18.2020 10:00

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

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

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

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QC Summary 667044

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EBDU #37

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132276 — Matrix: Solid — Date Prep: 07.21.2020
MB Sample Id: 7707803-1-BLK — LCS Sample Id: 7707803-1-BKS — LCSD Sample Id: 7707803-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.107	107	0.106	106	70-130	1	35	mg/kg	07.21.2020 20:39	
Toluene	<0.00200	0.100	0.102	102	0.106	106	70-130	4	35	mg/kg	07.21.2020 20:39	
Ethylbenzene	<0.00200	0.100	0.0995	100	0.104	104	70-130	4	35	mg/kg	07.21.2020 20:39	
m,p-Xylenes	<0.00400	0.200	0.193	97	0.205	103	70-130	6	35	mg/kg	07.21.2020 20:39	
o-Xylene	<0.00200	0.100	0.0934	93	0.0998	100	70-130	7	35	mg/kg	07.21.2020 20:39	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		97		95		70-130	%	07.21.2020 20:39
4-Bromofluorobenzene	109		95		102		70-130	%	07.21.2020 20:39

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132394 — Matrix: Solid — Date Prep: 07.22.2020
MB Sample Id: 7707874-1-BLK — LCS Sample Id: 7707874-1-BKS — LCSD Sample Id: 7707874-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0974	97	0.0961	96	70-130	1	35	mg/kg	07.22.2020 07:14	
Toluene	<0.00200	0.100	0.108	108	0.106	106	70-130	2	35	mg/kg	07.22.2020 07:14	
Ethylbenzene	<0.00200	0.100	0.110	110	0.107	107	70-130	3	35	mg/kg	07.22.2020 07:14	
m,p-Xylenes	<0.00400	0.200	0.222	111	0.216	108	70-130	3	35	mg/kg	07.22.2020 07:14	
o-Xylene	<0.00200	0.100	0.109	109	0.107	107	70-130	2	35	mg/kg	07.22.2020 07:14	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		92		93		70-130	%	07.22.2020 07:14
4-Bromofluorobenzene	115		115		114		70-130	%	07.22.2020 07:14

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132400 — Matrix: Solid — Date Prep: 07.22.2020
MB Sample Id: 7707878-1-BLK — LCS Sample Id: 7707878-1-BKS — LCSD Sample Id: 7707878-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.119	119	0.109	109	70-130	9	35	mg/kg	07.22.2020 19:44	
Toluene	<0.00200	0.100	0.0981	98	0.0973	97	70-130	1	35	mg/kg	07.22.2020 19:44	
Ethylbenzene	<0.00200	0.100	0.0922	92	0.0927	93	70-130	1	35	mg/kg	07.22.2020 19:44	
m,p-Xylenes	<0.00400	0.200	0.174	87	0.178	89	70-130	2	35	mg/kg	07.22.2020 19:44	
o-Xylene	<0.00200	0.100	0.0859	86	0.0877	88	70-130	2	35	mg/kg	07.22.2020 19:44	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	112		108		102		70-130	%	07.22.2020 19:44
4-Bromofluorobenzene	89		93		96		70-130	%	07.22.2020 19:44

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

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

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

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132080 — Matrix: Soil — Date Prep: 07.17.2020
Parent Sample Id: 667044-001 — MS Sample Id: 667044-001 S — MSD Sample Id: 667044-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.100	0.0480	48	0.0513	52	70-130	7	35	mg/kg	07.18.2020 01:32	X
Toluene	<0.00200	0.100	0.0475	48	0.0550	55	70-130	15	35	mg/kg	07.18.2020 01:32	X
Ethylbenzene	<0.00200	0.100	0.0392	39	0.0515	52	70-130	27	35	mg/kg	07.18.2020 01:32	X
m,p-Xylenes	<0.00400	0.200	0.0735	37	0.0983	49	70-130	29	35	mg/kg	07.18.2020 01:32	X
o-Xylene	<0.00200	0.100	0.0385	39	0.0509	51	70-130	28	35	mg/kg	07.18.2020 01:32	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	116		110		70-130	%	07.18.2020 01:32
4-Bromofluorobenzene	101		101		70-130	%	07.18.2020 01:32

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132276 — Matrix: Soil — Date Prep: 07.21.2020
Parent Sample Id: 667748-001 — MS Sample Id: 667748-001 S — MSD Sample Id: 667748-001 S

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	0.0779	78	0.0737	74	70-130	6	35	mg/kg	07.21.2020 21:20	
Toluene	<0.00200	0.100	0.0837	84	0.0843	84	70-130	1	35	mg/kg	07.21.2020 21:20	
Ethylbenzene	<0.00200	0.100	0.0828	83	0.0848	85	70-130	2	35	mg/kg	07.21.2020 21:20	
m,p-Xylenes	<0.00400	0.200	0.165	83	0.171	86	70-130	4	35	mg/kg	07.21.2020 21:20	
o-Xylene	<0.00200	0.100	0.0812	81	0.0832	83	70-130	2	35	mg/kg	07.21.2020 21:20	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	94		90		70-130	%	07.21.2020 21:20
4-Bromofluorobenzene	104		105		70-130	%	07.21.2020 21:20

Analytical Method: BTEX by EPA 8021B — Prep Method: SW5035A
Seq Number: 3132394 — Matrix: Soil — Date Prep: 07.22.2020
Parent Sample Id: 667044-019 — MS Sample Id: 667044-019 S — MSD Sample Id: 667044-019 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	0.0750	75	0.0767	77	70-130	2	35	mg/kg	07.22.2020 07:55	
Toluene	0.00557	0.100	0.0878	82	0.0875	82	70-130	0	35	mg/kg	07.22.2020 07:55	
Ethylbenzene	<0.00200	0.100	0.0829	83	0.0827	83	70-130	0	35	mg/kg	07.22.2020 07:55	
m,p-Xylenes	<0.00400	0.200	0.163	82	0.162	81	70-130	1	35	mg/kg	07.22.2020 07:55	
o-Xylene	<0.00200	0.100	0.0781	78	0.0782	78	70-130	0	35	mg/kg	07.22.2020 07:55	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	96		96		70-130	%	07.22.2020 07:55
4-Bromofluorobenzene	119		117		70-130	%	07.22.2020 07:55

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

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QC Summary 667044

Larson and Associates, Inc.

EBDU #37

Analytical Method: **BTEX by EPA 8021B** Prep Method: SW5035A

Seq Number: 3132400 Matrix: Soil Date Prep: 07.22.2020

Parent Sample Id: 667044-031 MS Sample Id: 667044-031 S MSD Sample Id: 667044-031 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00199	0.0996	0.0959	96	0.0764	77	70-130	23	35	mg/kg	07.22.2020 20:25	
Toluene	<0.00199	0.0996	0.0793	80	0.0584	59	70-130	30	35	mg/kg	07.22.2020 20:25	X
Ethylbenzene	<0.00199	0.0996	0.0693	70	0.0484	49	70-130	36	35	mg/kg	07.22.2020 20:25	XF
m,p-Xylenes	<0.00398	0.199	0.132	66	0.0944	48	70-130	33	35	mg/kg	07.22.2020 20:25	X
o-Xylene	<0.00199	0.0996	0.0653	66	0.0475	48	70-130	32	35	mg/kg	07.22.2020 20:25	X

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	106		106		70-130	%	07.22.2020 20:25
4-Bromofluorobenzene	93		100		70-130	%	07.22.2020 20:25

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

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

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

№ 1196

LAO7044

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 7/13/20 PAGE 1 OF 3

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ+DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

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

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
C-1		7/13/20	1045	S	1				X		X X X X X X	Bill Direct to Apache
C-2			1035									
C-3			1030									
C-4			1027									
C-5			1023									
C-6			1020									
C-7			1015									
C-8			1010									
C-9			1005									
C-10			1000									
C-11			958									
C-12			955									
C-13			151									
C-14			948									
C-15			945								X	

TOTAL 15

RELINQUISHED BY:(Signature) @Trent Jones — DATE/TIME 7/13/20 — RECEIVED BY: (Signature) — 1043

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 5.3 | 4.9 THERM#: ID-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☑ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

№ 1197

660744

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants

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

Data Reported to:

DATE: 7/13/20 PAGE 2 OF 3

PO#:

LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

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

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4/NaOH	ICE	UNPRESSERVED	BTEX	TPH 1005	GASOLINE MOD 8015	DIESEL - MOD 8015	OIL - MOD 8015	CHLORIDE	FIELD NOTES
C-16		7/13/20	948	S	1				X		X	X	X	X	X	X	
C-17			952														Bill Direct
C-18			956														to Apache
C-19			1010														
C-20			1004														
C-21			1008														
C-22			1012														
C-23			1018														
C-24			1022														
C-25			1026														
C-26			1032														
C-27			1036														
C-28			1040														
C-29			1044														
C-30			1048														

TOTAL 15

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
[signature]	7/13/20	[signature] 1243

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 5.3/4.9 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☒ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

№ 1198

LD7044

CHAIN-OF-CUSTODY

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

DATE: 7/13/20 PAGE 3 OF 3

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: FBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☒ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐	TPH 1006 ☐	GASOLINE MOD 8015 ☒	DIESEL - MOD 8015 ☒	OIL - MOD 8015 ☒	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐	HOLDPAH ☐	8081 PESTICIDES ☐	8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐	TCLP VOC ☐	TCLP - PEST ☐	HERB ☐	Semi-VOC ☐	TOTAL METALS (RCRA) ☐	OTHER LIST ☐	LEAD - TOTAL ☐	D.W. 200.8 ☐	TCLP ☐	RCI ☐	TOX ☐	FLASHPOINT ☐	TDS ☐	TSS ☐	% MOISTURE ☐	pH ☐	CYANIDE ☐	HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐	PECHLORATE ☐	CHLORIDES ☒	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
C-31		7/13/20	1052	S	1				X		X	X			X	X	X																									X			
C-32			1056																																									Bill Direct
C-33			1100																																									To Apache
C-34			1105																																									
C-35			1101																																									
C-36			1052																																									
C-37			1052																																									
C-38			1048																																									
TOTAL	8																																										

RELINQUISHED BY:(Signature) Jason DATE/TIME 7/13/20 RECEIVED BY: (Signature) Bill 1643

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 5.3/4.9 THERM#: DR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.13.2020 04.43.00 PM

Work Order #: 667044

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

Temperature Measuring device used : IR-8

Sample Receipt Checklist		Comments
#1 *Temperature of cooler(s)?	4.9	
#2 *Shipping container in good condition?	**Yes**	
#3 *Samples received on ice?	**Yes**	
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**	
#5 Custody Seals intact on sample bottles?	**N/A**	
#6*Custody Seals Signed and dated?	**N/A**	
#7 *Chain of Custody present?	**Yes**	
#8 Any missing/extra samples?	**No**	
#9 Chain of Custody signed when relinquished/ received?	**Yes**	
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**	
#11 Container label(s) legible and intact?	**Yes**	
#12 Samples in proper container/ bottle?	**Yes**	BTEX was in bulk container
#13 Samples properly preserved?	**Yes**	
#14 Sample container(s) intact?	**Yes**	
#15 Sufficient sample amount for indicated test(s)?	**Yes**	
#16 All samples received within hold time?	**Yes**	
#17 Subcontract of sample(s)?	**N/A**	
#18 Water VOC samples have zero headspace?	**N/A**	

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 07.14.2020
Brianna Teel

Checklist reviewed by: Holly Taylor Date: 07.16.2020
Holly Taylor

Certificate of Analysis Summary 668318

Larson and Associates, Inc., Midland, TX

Project Name: EBDU #37

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Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 07.28.2020 08:45
Report Date: 07.29.2020 15:48
Project Manager: Holly Taylor

Analysis Requested							
	Lab Id:	668318-001					
	Field Id:	C-2					
	Depth:						
	Matrix:	SOIL					
	Sampled:	07.27.2020 14:15					
Chloride by EPA 300	***Extracted:***	07.29.2020 08:40					
	Analyzed:	07.29.2020 09:58					
	Units/RL:	mg/kg	RL				
Chloride		86.5	5.04				

BRL - Below Reporting Limit

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

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Analytical Report 668318

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU #37

19-0112-49

07.29.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

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

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07.29.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **668318**
EBDU #37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668318. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668318 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

John Builes
Project Manager

A Small Business and Minority Company

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

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Sample Cross Reference 668318

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-2	S	07.27.2020 14:15		668318-001

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: EBDU #37

Project ID: *19-0112-49*
Work Order Number(s): *668318*

Report Date: *07.29.2020*
Date Received: *07.28.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 668318

Larson and Associates, Inc., Midland, TX

EBDU #37

Sample Id:	**C-2**	Matrix:	Soil	Date Received:	07.28.2020 08:45
Lab Sample Id:	668318-001	Date Collected:	07.27.2020 14:15		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.29.2020 08:40	Basis:	Wet Weight
Seq Number:	3132893				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**86.5**	5.04	mg/kg	07.29.2020 09:58		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

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QC Summary 668318

Larson and Associates, Inc.

EBDU #37

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3132893 Matrix: Solid Date Prep: 07.29.2020
MB Sample Id: 7708262-1-BLK LCS Sample Id: 7708262-1-BKS LCSD Sample Id: 7708262-1-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	236	94	236	94	90-110	0	20	mg/kg	07.29.2020 09:45	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3132893 Matrix: Soil Date Prep: 07.29.2020
Parent Sample Id: 668222-009 MS Sample Id: 668222-009 S MSD Sample Id: 668222-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	1000	253	1210	83	1210	83	90-110	0	20	mg/kg	07.29.2020 11:30	X

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3132893 Matrix: Soil Date Prep: 07.29.2020
Parent Sample Id: 668318-001 MS Sample Id: 668318-001 S MSD Sample Id: 668318-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	86.5	252	334	98	330	97	90-110	1	20	mg/kg	07.29.2020 10:04	

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

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

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

№ 1257

1608318

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 7/28/2020 PAGE 1 OF 1

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
C-2		7/27/20	14:15	S	1				X	X		

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

TOTAL

RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
	7/28/20 8:45	
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)
RELINQUISHED BY:(Signature)	DATE/TIME	RECEIVED BY: (Signature)

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 7.5/17.1 THERM#: IR 8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.28.2020 08.45.00 AM

Work Order #: 668318

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

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	27.1
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**No**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 07.28.2020

Brianna Teel

Checklist reviewed by: Holly Taylor Date: 07.28.2020

Holly Taylor

eurofins | Environment Testing Xenco

Certificate of Analysis Summary 668607

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location: NM

Date Received in Lab: Thu 07.30.2020 09:20
Report Date: 07.31.2020 13:12
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668607-001		668607-002		668607-003		668607-004		668607-005		668607-006	
	Field Id:	C-3		C-4		C-5		C-6		C-7		C-8	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.29.2020 09:34		07.29.2020 09:42		07.29.2020 09:47		07.29.2020 09:51		07.29.2020 09:56		07.29.2020 16:35	
Chloride by EPA 300	***Extracted:***	07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10	
	Analyzed:	07.30.2020 12:39		07.30.2020 12:57		07.30.2020 13:03		07.30.2020 13:10		07.30.2020 13:16		07.30.2020 13:34	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		39.0 X	5.02	21.8	4.99	5.75	4.97	162	5.04	11.5	4.95	19.0	4.95

BRL - Below Reporting Limit

Holly Taylor

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

Certificate of Analysis Summary 668607

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

eurofins | Environment Testing Xenco

Project Id: 19-0112-49
Contact: Mark Larson
Project Location: NM

Date Received in Lab: Thu 07.30.2020 09:20
Report Date: 07.31.2020 13:12
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668607-007		668607-008		668607-009		668607-010		668607-011		668607-012	
	Field Id:	C-9		C-10		C-26		C-27		C-28		C-12	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.29.2020 16:32		07.29.2020 16:30		07.29.2020 13:10		07.29.2020 12:28		07.29.2020 13:05		07.29.2020 13:23	
Chloride by EPA 300	***Extracted:***	07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10	
	Analyzed:	07.30.2020 13:40		07.30.2020 13:46		07.30.2020 13:53		07.30.2020 13:59		07.30.2020 14:05		07.30.2020 14:23	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		200	5.04	126	5.01	307	4.96	71.6	4.99	630	5.00	17.6	5.03

BRL - Below Reporting Limit

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

Holly Taylor

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Certificate of Analysis Summary 668607

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location: NM

Date Received in Lab: Thu 07.30.2020 09:20
Report Date: 07.31.2020 13:12
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668607-013		668607-014		668607-015		668607-016		668607-017		668607-018	
	Field Id:	C-17		C-32		C-21		C-22		C-23		C-24	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	07.29.2020 14:15		07.29.2020 14:00		07.29.2020 15:23		07.29.2020 16:45		07.29.2020 16:05		07.29.2020 16:00	
Chloride by EPA 300	***Extracted:***	07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10		07.30.2020 12:10	
	Analyzed:	07.30.2020 14:29		07.30.2020 14:48		07.30.2020 14:54		07.30.2020 15:00		07.30.2020 15:06		07.30.2020 15:12	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		9.78	4.96	30.8	4.98	237	5.00	608	5.04	13900	99.2	37.4	4.98

BRL - Below Reporting Limit

Holly Taylor

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

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Analytical Report 668607

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU 37

19-0112-49

07.31.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

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

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07.31.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **668607**
EBDU 37
Project Address: NM

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668607. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668607 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

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

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Sample Cross Reference 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-3	S	07.29.2020 09:34		668607-001
C-4	S	07.29.2020 09:42		668607-002
C-5	S	07.29.2020 09:47		668607-003
C-6	S	07.29.2020 09:51		668607-004
C-7	S	07.29.2020 09:56		668607-005
C-8	S	07.29.2020 16:35		668607-006
C-9	S	07.29.2020 16:32		668607-007
C-10	S	07.29.2020 16:30		668607-008
C-26	S	07.29.2020 13:10		668607-009
C-27	S	07.29.2020 12:28		668607-010
C-28	S	07.29.2020 13:05		668607-011
C-12	S	07.29.2020 13:23		668607-012
C-17	S	07.29.2020 14:15		668607-013
C-32	S	07.29.2020 14:00		668607-014
C-21	S	07.29.2020 15:23		668607-015
C-22	S	07.29.2020 16:45		668607-016
C-23	S	07.29.2020 16:05		668607-017
C-24	S	07.29.2020 16:00		668607-018

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU 37

Project ID: *19-0112-49*
Work Order Number(s): *668607*

Report Date: *07.31.2020*
Date Received: *07.30.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-3133114 Chloride by EPA 300
Lab Sample ID 668607-011 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: 668607-001, -002, -003, -004, -005, -006, -007, -008, -009, -010, -011, -012, -013, -014, -015, -016, -017, -018.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-3**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-001	Date Collected:	07.29.2020 09:34		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**39.0**	5.02	mg/kg	07.30.2020 12:39	X	1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-4**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-002	Date Collected:	07.29.2020 09:42		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**21.8**	4.99	mg/kg	07.30.2020 12:57		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-5**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-003	Date Collected:	07.29.2020 09:47		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**5.75**	4.97	mg/kg	07.30.2020 13:03		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-6**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-004	Date Collected:	07.29.2020 09:51		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**162**	5.04	mg/kg	07.30.2020 13:10		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-7**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-005	Date Collected:	07.29.2020 09:56		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.5**	4.95	mg/kg	07.30.2020 13:16		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-8**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-006	Date Collected:	07.29.2020 16:35		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**19.0**	4.95	mg/kg	07.30.2020 13:34		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-9**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-007	Date Collected:	07.29.2020 16:32		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**200**	5.04	mg/kg	07.30.2020 13:40		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-10**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-008	Date Collected:	07.29.2020 16:30		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**126**	5.01	mg/kg	07.30.2020 13:46		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-26**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-009	Date Collected:	07.29.2020 13:10		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**307**	4.96	mg/kg	07.30.2020 13:53		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-27**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-010	Date Collected:	07.29.2020 12:28		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**71.6**	4.99	mg/kg	07.30.2020 13:59		1

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Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-011	Date Collected:	07.29.2020 13:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**630**	5.00	mg/kg	07.30.2020 14:05		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-12**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-012	Date Collected:	07.29.2020 13:23		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**17.6**	5.03	mg/kg	07.30.2020 14:23		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-17**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-013	Date Collected:	07.29.2020 14:15		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.78**	4.96	mg/kg	07.30.2020 14:29		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-32**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-014	Date Collected:	07.29.2020 14:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**30.8**	4.98	mg/kg	07.30.2020 14:48		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-21**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-015	Date Collected:	07.29.2020 15:23		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**237**	5.00	mg/kg	07.30.2020 14:54		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-016	Date Collected:	07.29.2020 16:45		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**608**	5.04	mg/kg	07.30.2020 15:00		1

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-017	Date Collected:	07.29.2020 16:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13900**	99.2	mg/kg	07.30.2020 15:06		20

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Certificate of Analytical Results 668607

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**C-24**	Matrix:	Soil	Date Received:	07.30.2020 09:20
Lab Sample Id:	668607-018	Date Collected:	07.29.2020 16:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	07.30.2020 12:10	Basis:	Wet Weight
Seq Number:	3133114				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**37.4**	4.98	mg/kg	07.30.2020 15:12		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

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QC Summary 668607

Larson and Associates, Inc.

EBDU 37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133114 — Matrix: Solid — Date Prep: 07.30.2020
MB Sample Id: 7708388-1-BLK — LCS Sample Id: 7708388-1-BKS — LCSD Sample Id: 7708388-1-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	246	98	247	99	90-110	0	20	mg/kg	07.30.2020 12:27	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133114 — Matrix: Soil — Date Prep: 07.30.2020
Parent Sample Id: 668607-001 — MS Sample Id: 668607-001 S — MSD Sample Id: 668607-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	39.0	251	319	112	315	110	90-110	1	20	mg/kg	07.30.2020 12:45	X

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133114 — Matrix: Soil — Date Prep: 07.30.2020
Parent Sample Id: 668607-011 — MS Sample Id: 668607-011 S — MSD Sample Id: 668607-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	630	250	879	100	876	98	90-110	0	20	mg/kg	07.30.2020 14:11	

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

6698607 №1216

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 7/29/20 PAGE 1 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐ TPH 1006 ☐	GASOLINE MOD 8015 ☐	DIESEL - MOD 8015 ☐	OIL - MOD 8015 ☐	VOC 8260 ☐	SVOC 8270 ☐ PAH 8270 ☐ HOLDPAH ☐	8081 PESTICIDES ☐ 8151 HERBICIDES ☐	8082 PCBS ☐	TBLP - METALS (RCRA) ☐ TCLP VOC ☐	TCLP - PEST ☐ HERB ☐ Semi-VOC ☐	TOTAL METALS (RCRA) ☐ OTHER LIST ☐	LEAD - TOTAL ☐ D.W. 200.8 ☐ TCLP ☐	RCI ☐ TOX ☐ FLASHPOINT ☐	TDS ☐ TSS ☐ % MOISTURE ☐ CYANIDE ☐	pH ☐ HEXAVALENT CHROMIUM ☐	EXPLOSIVES ☐ PECHLORATE ☐	CHLORIDE ☒ ANIONS ☐ ALKALINITY ☐	FIELD NOTES
C-3		7/29/20	0934	S	1					X																			X		
C-4			0942																												
C-5			0947																												
C-6			0951																												
C-7			0956																												
C-8			1635																												
C-9			1632																												
C-10			1630																												
C-26			1310																												
C-27			1228																												
C-28			1305																												
C-12			1323																												
C-17			1415																												
C-32			1400																												
C-21			1523																												

TOTAL 15

RELINQUISHED BY:(Signature) DATE/TIME 7/30/20 9:20 RECEIVED BY: (Signature)

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

160860607 №1217

CHAIN-OF-CUSTODY

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

DATE: 7/29/20 PAGE 2 OF 2

PO#: _____ LAB WORK ORDER#: _____

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ+DS

Data Reported to:

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
C-22		7/29/20	1645	S	1					X	Chlorides X	
C-23		"	1605	"	"					"	Chlorides X	
C-24		"	1600	"	"					"	Chlorides X	

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

TOTAL 3

RELINQUISHED BY:(Signature) DATE/TIME 7/30/20 9:20 RECEIVED BY: (Signature)

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL # _____
☐ HAND DELIVERED

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 07.30.2020 09.20.00 AM

Work Order #: 668607

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

Temperature Measuring device used : ir8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	25.3
#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: Jessica Kramer — Date: 07.30.2020

Jessica Kramer

Checklist reviewed by: Holly Taylor — Date: 07.30.2020

Holly Taylor

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Certificate of Analysis Summary 668986

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.04.2020 08:30
Report Date: 08.04.2020 15:48
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	668986-001		668986-002		668986-003		668986-004		668986-005		668986-006	
	Field Id:	BH-1 10'		BH-1 12'		BH-1 14'		BH-1 16'		BH-1 18'		BH-1 20'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.03.2020 11:40		08.03.2020 11:42		08.03.2020 11:53		08.03.2020 11:55		08.03.2020 11:57		08.03.2020 12:24	
Chloride by EPA 300	***Extracted:***	08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45		08.04.2020 10:45	
	Analyzed:	08.04.2020 11:53		08.04.2020 11:58		08.04.2020 12:03		08.04.2020 12:08		08.04.2020 12:14		08.04.2020 12:19	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11.6	5.00	13.3	5.00	13.4	5.03	22.9	4.95	34.4	4.99	24.7 X	5.05

BRL - Below Reporting Limit

Jessica Kramer

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

Certificate of Analysis Summary 668986

Larson and Associates, Inc., Midland, TX

Project Name: EBDU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.04.2020 08:30
Report Date: 08.04.2020 15:48
Project Manager: Holly Taylor

Analysis Requested									
	Lab Id:	668986-007		668986-008					
	Field Id:	BH-1 25'		BH-1 30'					
	Depth:								
	Matrix:	SOIL		SOIL					
	Sampled:	08.03.2020 13:30		08.03.2020 13:33					
Chloride by EPA 300	***Extracted:***	08.04.2020 10:45		08.04.2020 10:45					
	Analyzed:	08.04.2020 12:35		08.04.2020 12:40					
	Units/RL:	mg/kg	RL	mg/kg	RL				
Chloride		31.0	5.00	31.5	5.04				

BRL - Below Reporting Limit

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

Jessica Kramer

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Analytical Report 668986

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBDU 37

19-0112-49

08.04.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

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

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08.04.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **668986**
EBDU 37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 668986. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 668986 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Jessica Kramer

Jessica Kramer
Project Manager

A Small Business and Minority Company

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

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Sample Cross Reference 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-1 10'	S	08.03.2020 11:40		668986-001
BH-1 12'	S	08.03.2020 11:42		668986-002
BH-1 14'	S	08.03.2020 11:53		668986-003
BH-1 16'	S	08.03.2020 11:55		668986-004
BH-1 18'	S	08.03.2020 11:57		668986-005
BH-1 20'	S	08.03.2020 12:24		668986-006
BH-1 25'	S	08.03.2020 13:30		668986-007
BH-1 30'	S	08.03.2020 13:33		668986-008

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.
Project Name: EBDU 37

Project ID: *19-0112-49*
Work Order Number(s): *668986*

Report Date: *08.04.2020*
Date Received: *08.04.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:
Batch: LBA-3133486 Chloride by EPA 300
Lab Sample ID 668986-006 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: 668986-001, -002, -003, -004, -005, -006, -007, -008.
The Laboratory Control Sample for Chloride is within laboratory Control Limits, therefore the data was accepted.

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 10'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-001	Date Collected:	08.03.2020 11:40		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.6**	5.00	mg/kg	08.04.2020 11:53		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 12'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-002	Date Collected:	08.03.2020 11:42		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.3**	5.00	mg/kg	08.04.2020 11:58		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 14'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-003	Date Collected:	08.03.2020 11:53		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.4**	5.03	mg/kg	08.04.2020 12:03		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 16'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-004	Date Collected:	08.03.2020 11:55		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**22.9**	4.95	mg/kg	08.04.2020 12:08		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 18'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-005	Date Collected:	08.03.2020 11:57		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**34.4**	4.99	mg/kg	08.04.2020 12:14		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 20'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-006	Date Collected:	08.03.2020 12:24		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.7**	5.05	mg/kg	08.04.2020 12:19	X	1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 25'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-007	Date Collected:	08.03.2020 13:30		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**31.0**	5.00	mg/kg	08.04.2020 12:35		1

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Certificate of Analytical Results 668986

Larson and Associates, Inc., Midland, TX

EBDU 37

Sample Id:	**BH-1 30'**	Matrix:	Soil	Date Received:	08.04.2020 08:30
Lab Sample Id:	668986-008	Date Collected:	08.03.2020 13:33		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.04.2020 10:45	Basis:	Wet Weight
Seq Number:	3133486				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**31.5**	5.04	mg/kg	08.04.2020 12:40		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

eurofins | Environment Testing Xenco

QC Summary 668986

Larson and Associates, Inc.

EBDU 37

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133486 Matrix: Solid Date Prep: 08.04.2020
MB Sample Id: 7708666-1-BLK LCS Sample Id: 7708666-1-BKS LCSD Sample Id: 7708666-1-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	267	107	268	107	90-110	0	20	mg/kg	08.04.2020 10:55	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133486 Matrix: Soil Date Prep: 08.04.2020
Parent Sample Id: 668967-001 MS Sample Id: 668967-001 S MSD Sample Id: 668967-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	297	2510	3050	110	3040	109	90-110	0	20	mg/kg	08.04.2020 11:10	

Analytical Method: **Chloride by EPA 300** Prep Method: E300P
Seq Number: 3133486 Matrix: Soil Date Prep: 08.04.2020
Parent Sample Id: 668986-006 MS Sample Id: 668986-006 S MSD Sample Id: 668986-006 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	24.7	253	312	114	312	114	90-110	0	20	mg/kg	08.04.2020 12:24	X

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

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

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

Nº 1322

Lab 689964

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 8/3/20 PAGE 1 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TS + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

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

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	FIELD NOTES
BH-1 10'		8-3-20	1140	S	1				X		
BH-1 12'			1142								
BH-1 14'			1153								
BH-1 16'			1155								
BH-1 18'			1157								
BH-1 20'			1224								
BH-1 25'			1330								
BH-1 30'			1333							X	

TOTAL 8

RELINQUISHED BY:(Signature) Trent Gunn DATE/TIME 8/4/20 830 RECEIVED BY: (Signature) BM 8/4/20

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY
RECEIVING TEMP: 26/2.2 THERM#: IR8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.04.2020 08.30.00 AM

Work Order #: 668986

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

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	2.2
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 08.04.2020
Brianna Teel

Checklist reviewed by: Jessica Kramer Date: 08.04.2020
Jessica Kramer

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Certificate of Analysis Summary 669190

Larson and Associates, Inc., Midland, TX

Project Name: Apache -EBDu #37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Wed 08.05.2020 10:28
Report Date: 08.06.2020 16:24
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669190-001		669190-002		669190-003		669190-004					
	Field Id:	C-28		C-22		C-23		C-1					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	08.04.2020 12:54		08.04.2020 14:04		08.04.2020 14:12		08.04.2020 17:28					
Chloride by EPA 300	***Extracted:***	08.05.2020 11:26		08.05.2020 11:26		08.05.2020 11:26		08.05.2020 11:26					
	Analyzed:	08.05.2020 12:29		08.05.2020 12:45		08.05.2020 12:51		08.05.2020 12:57					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		415	9.98	10.7	10.0	15.8	10.1	338	10.1				
TPH By SW8015 Mod	***Extracted:***							08.06.2020 10:30					
	Analyzed:							08.06.2020 10:45					
	Units/RL:							mg/kg	RL				
Gasoline Range Hydrocarbons (GRO)								<50.3	50.3				
Diesel Range Organics (DRO)								<50.3	50.3				
Motor Oil Range Hydrocarbons (MRO)								<50.3	50.3				
Total TPH								<50.3	50.3				

BRL - Below Reporting Limit

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

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Analytical Report 669190

for

Larson and Associates, Inc.

Project Manager: Mark Larson

Apache -EBDu #37

19-0112-49

08.06.2020

Collected By: Client

1089 N Canal Street
Carlsbad, NM 88220

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

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

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

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08.06.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **669190**
Apache -EBDu #37
Project Address:

Mark Larson :

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 669190. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 669190 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

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

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Sample Cross Reference 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
C-28	S	08.04.2020 12:54		669190-001
C-22	S	08.04.2020 14:04		669190-002
C-23	S	08.04.2020 14:12		669190-003
C-1	S	08.04.2020 17:28		669190-004

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: Apache -EBDu #37

Project ID: *19-0112-49*
Work Order Number(s): *669190*

Report Date: *08.06.2020*
Date Received: *08.05.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-28**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-001	Date Collected:	08.04.2020 12:54		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**415**	9.98	mg/kg	08.05.2020 12:29		1

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-22**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-002	Date Collected:	08.04.2020 14:04		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.7**	10.0	mg/kg	08.05.2020 12:45		1

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id:	**C-23**	Matrix:	Soil	Date Received:	08.05.2020 10:28
Lab Sample Id:	669190-003	Date Collected:	08.04.2020 14:12		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	MAB			% Moisture:	
Analyst:	MAB	Date Prep:	08.05.2020 11:26	Basis:	Wet Weight
Seq Number:	3133628				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.8**	10.1	mg/kg	08.05.2020 12:51		1

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Certificate of Analytical Results 669190

Larson and Associates, Inc., Midland, TX

Apache -EBDu #37

Sample Id: **C-1** Matrix: Soil Date Received:08.05.2020 10:28

Lab Sample Id: 669190-004 Date Collected: 08.04.2020 17:28

Analytical Method: Chloride by EPA 300 Prep Method: E300P

Tech: MAB % Moisture:

Analyst: MAB Date Prep: 08.05.2020 11:26 Basis: Wet Weight

Seq Number: 3133628

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**338**	10.1	mg/kg	08.05.2020 12:57		1

Analytical Method: TPH By SW8015 Mod Prep Method: SW8015P

Tech: DTH % Moisture:

Analyst: DTH Date Prep: 08.06.2020 10:30 Basis: Wet Weight

Seq Number: 3133751

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	08.06.2020 10:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	08.06.2020 10:45	
o-Terphenyl	84-15-1	112	%	70-135	08.06.2020 10:45	

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

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QC Summary 669190

Larson and Associates, Inc.

Apache -EBDu #37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133628 — Matrix: Solid — Date Prep: 08.05.2020
MB Sample Id: 7708772-1-BLK — LCS Sample Id: 7708772-1-BKS — LCSD Sample Id: 7708772-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<10.0	250	270	108	269	108	90-110	0	20	mg/kg	08.05.2020 12:17	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3133628 — Matrix: Soil — Date Prep: 08.05.2020
Parent Sample Id: 669190-001 — MS Sample Id: 669190-001 S — MSD Sample Id: 669190-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	415	200	629	107	629	107	90-110	0	20	mg/kg	08.05.2020 12:34	

Analytical Method: TPH By SW8015 Mod — Prep Method: SW8015P
Seq Number: 3133666 — Matrix: Solid — Date Prep: 08.05.2020
MB Sample Id: 7708781-1-BLK — LCS Sample Id: 7708781-1-BKS — LCSD Sample Id: 7708781-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	993	99	1000	100	70-135	1	35	mg/kg	08.05.2020 15:25	
Diesel Range Organics (DRO)	<50.0	1000	1040	104	1040	104	70-135	0	35	mg/kg	08.05.2020 15:25	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	104		120		120		70-135	%	08.05.2020 15:25
o-Terphenyl	104		112		110		70-135	%	08.05.2020 15:25

Analytical Method: TPH By SW8015 Mod — Prep Method: SW8015P
Seq Number: 3133751 — Matrix: Solid — Date Prep: 08.06.2020
MB Sample Id: 7708853-1-BLK — LCS Sample Id: 7708853-1-BKS — LCSD Sample Id: 7708853-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	1020	102	1030	103	70-135	1	35	mg/kg	08.06.2020 10:04	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1090	109	70-135	3	35	mg/kg	08.06.2020 10:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	107		124		124		70-135	%	08.06.2020 10:04
o-Terphenyl	109		113		116		70-135	%	08.06.2020 10:04

Analytical Method: TPH By SW8015 Mod — Prep Method: SW8015P
Seq Number: 3133666 — Matrix: Solid — Date Prep: 08.05.2020
MB Sample Id: 7708781-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.05.2020 15:05	

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

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QC Summary 669190

Larson and Associates, Inc.

Apache -EBDu #37

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3133751 Matrix: Solid Date Prep: 08.06.2020
MB Sample Id: 7708853-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	08.06.2020 09:44	

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3133666 Matrix: Soil Date Prep: 08.05.2020
Parent Sample Id: 669190-001 MS Sample Id: 669190-001 S MSD Sample Id: 669190-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.0	1000	939	94	915	92	70-135	3	35	mg/kg	08.05.2020 16:26	
Diesel Range Organics (DRO)	<50.0	1000	967	97	962	96	70-135	1	35	mg/kg	08.05.2020 16:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	118		116		70-135	%	08.05.2020 16:26
o-Terphenyl	106		107		70-135	%	08.05.2020 16:26

Analytical Method: **TPH By SW8015 Mod** Prep Method: SW8015P
Seq Number: 3133751 Matrix: Soil Date Prep: 08.06.2020
Parent Sample Id: 669190-004 MS Sample Id: 669190-004 S MSD Sample Id: 669190-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<50.1	1000	981	98	946	95	70-135	4	35	mg/kg	08.06.2020 11:05	
Diesel Range Organics (DRO)	<50.1	1000	1020	102	985	99	70-135	3	35	mg/kg	08.06.2020 11:05	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	122		119		70-135	%	08.06.2020 11:05
o-Terphenyl	112		109		70-135	%	08.06.2020 11:05

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

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

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

№ 1258

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 8/5/2020 PAGE 1 OF 1

PO#: LAB WORK ORDER#: 20E9190

PROJECT LOCATION OR NAME: Apache - EBDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: RN

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES: BTEX ☐ MTBE ☐	TRPH 418.1 ☐	TPH 1005 ☐	TPH 1006 ☐	GASOLINE MOD 8015 #	DIESEL - MOD 8015 #	OIL - MOD 8015 #	VOC 8260 ☐	SVOC 8270 ☐	PAH 8270 ☐	HOLDPAH ☐	8081 PESTICIDES ☐	8082 PCBS ☐	8151 HERBICIDES ☐	TBLP - METALS (RCRA) ☐	TCLP - PEST ☐	TCLP VOC ☐	HERB ☐	TOTAL METALS (RCRA) ☐	Semi-VOC ☐	LEAD - TOTAL ☐	OTHER LIST ☐	RCI ☐	TOX ☐	D.W. 200.8 ☐	TCLP ☐	TDS ☐	TSS ☐	FLASHPOINT ☐	pH ☐	% MOISTURE ☐	HEXAVALENT CHROMIUM ☐	CYANIDE ☐	EXPLOSIVES ☐	PECHLORATE ☐	CHLORIDE ☐	ANIONS ☐	ALKALINITY ☐	FIELD NOTES
C-28		8/4/20	12:54	S	1				X			X	X	X																																	
C-22		"	14:04	"	"				"																																						
C-23		"	14:12	"	"				"																																						
C-1		"	17:28	"	"				"																																						
TOTAL																																														

RELINQUISHED BY:(Signature) DATE/TIME 8/5/20 10:28 RECEIVED BY: (Signature)

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

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

LABORATORY: Xenco

TURN AROUND TIME

NORMAL ☐
1 DAY ☒ Rush!
2 DAY ☐
OTHER ☐

LABORATORY USE ONLY:

RECEIVING TEMP: 3.2/3.0 THERM#: IR-NM-007

CUSTODY SEALS - ☐ BROKEN ☒ INTACT ☐ NOT USED

☐ CARRIER BILL #

☒ HAND DELIVERED

Inter-Office Shipment

IOS Number : 68404

Date/Time:	08.06.2020	Created by:	Martha Castro	Please send report to:	Holly Taylor
Lab# From:	**Carlsbad**	Delivery Priority:		Address:	1089 N Canal Street
Lab# To:	**Midland**	Air Bill No.:		E-Mail:	holly.taylor@xenco.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
669190-004	S	C-1	08.04.2020 17:28	TX1005	TPH by Texas1005	08.06.2020	08.18.2020	HTA	PHCC12C28 PHCC28C35	

Inter Office Shipment or Sample Comments:

Relinquished By: Martha Castro

Date Relinquished: 08.06.2020

Received By:

Date Received:

Cooler Temperature:

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.05.2020 10.28.00 AM

Work Order #: 669190

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

Temperature Measuring device used : T-NM-007

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	3
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**Yes**
#4 *Custody Seals intact on shipping container/ cooler?	**Yes**
#5 Custody Seals intact on sample bottles?	**Yes**
#6*Custody Seals Signed and dated?	**Yes**
#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**

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

Analyst: PH Device/Lot#:

Checklist completed by: Elizabeth McClellan Date: 08.05.2020

Checklist reviewed by: Martha Castro Date: 08.06.2020

Certificate of Analysis Summary 669750

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Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-001		669750-002		669750-003		669750-004		669750-005		669750-006	
	Field Id:	BH-2 10'		BH-2 12'		BH-2 14'		BH-2 16'		BH-2 18'		BH-2 20'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.10.2020 11:01		08.10.2020 11:03		08.10.2020 11:05		08.10.2020 11:09		08.10.2020 11:10		08.10.2020 11:11	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39	
	Analyzed:	08.11.2020 18:27		08.11.2020 18:42		08.11.2020 18:48		08.11.2020 18:53		08.11.2020 18:58		08.11.2020 19:14	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		79.7	4.97	18.4	5.02	10.1	4.98	10.3	4.99	9.67	4.96	9.64	4.95

BRL - Below Reporting Limit

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

Holly Taylor

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-007		669750-008		669750-009		669750-010		669750-011		669750-012	
	Field Id:	BH-2 25'		BH-4 10'		BH-4 12'		BH-4 14'		BH-4 16'		BH-4 18'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.10.2020 11:20		08.10.2020 13:05		08.10.2020 13:50		08.10.2020 13:55		08.10.2020 14:05		08.10.2020 14:10	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39	
	Analyzed:	08.11.2020 19:19		08.11.2020 19:25		08.11.2020 19:30		08.11.2020 19:35		08.11.2020 19:40		08.11.2020 19:56	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11.6	4.98	24.0	5.04	12.0	5.01	10.3	4.97	15.0	5.00	12.7	5.03

BRL - Below Reporting Limit

Holly Taylor

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

Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-013		669750-014		669750-015		669750-016		669750-017		669750-018	
	Field Id:	BH-4 20'		BH-4 25'		BH-3 10'		BH-3 12'		BH-3 14'		BH-3 16'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.10.2020 14:40		08.10.2020 14:45		08.11.2020 09:50		08.11.2020 09:55		08.11.2020 09:59		08.11.2020 10:00	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:39	
	Analyzed:	08.11.2020 20:01		08.11.2020 20:17		08.11.2020 20:23		08.11.2020 20:28		08.11.2020 20:33		08.11.2020 20:38	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		11.8	5.05	13.4	4.99	774	4.96	666	4.97	419	4.97	60.2	4.97

BRL - Below Reporting Limit

Holly Taylor

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

Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-019		669750-020		669750-021		669750-022		669750-023		669750-024	
	Field Id:	BH-3 18'		BH-3 20'		BH-3 25'		BH-5 10'		BH-5 12'		BH-5 14'	
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL		SOIL		SOIL	
	Sampled:	08.11.2020 10:15		08.11.2020 10:20		08.11.2020 10:25		08.11.2020 10:56		08.11.2020 10:58		08.11.2020 11:00	
Chloride by EPA 300	***Extracted:***	08.11.2020 16:39		08.11.2020 16:39		08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43	
	Analyzed:	08.11.2020 20:44		08.11.2020 20:49		08.11.2020 21:21		08.11.2020 21:36		08.11.2020 21:42		08.11.2020 21:47	
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL
Chloride		89.3	5.02	227	5.05	32.7	5.01	10.2	4.99	9.94	5.00	9.78	5.04

BRL - Below Reporting Limit

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Holly Taylor

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Certificate of Analysis Summary 669750

Larson and Associates, Inc., Midland, TX

Project Name: EBOU 37

Project Id: 19-0112-49
Contact: Mark Larson
Project Location:

Date Received in Lab: Tue 08.11.2020 15:56
Report Date: 08.12.2020 17:13
Project Manager: Holly Taylor

Analysis Requested													
	Lab Id:	669750-025		669750-026		669750-027		669750-028					
	Field Id:	BH-5 16'		BH-5 18'		BH-5 20'		BH-5 25'					
	Depth:												
	Matrix:	SOIL		SOIL		SOIL		SOIL					
	Sampled:	08.11.2020 11:16		08.11.2020 11:18		08.11.2020 11:20		08.11.2020 11:30					
Chloride by EPA 300	***Extracted:***	08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43		08.11.2020 16:43					
	Analyzed:	08.11.2020 21:52		08.11.2020 22:08		08.11.2020 22:13		08.11.2020 22:19					
	Units/RL:	mg/kg	RL	mg/kg	RL	mg/kg	RL	mg/kg	RL				
Chloride		12.2	5.02	9.30	4.97	9.77	4.96	10.5	4.98				

BRL - Below Reporting Limit

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Holly Taylor

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Analytical Report 669750

for

Larson and Associates, Inc.

Project Manager: Mark Larson

EBOU 37

19-0112-49

08.12.2020

Collected By: Client

1211 W. Florida Ave
Midland TX 79701

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

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

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

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08.12.2020

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

Reference: Eurofins Xenco, LLC Report No(s): **669750**
EBOU 37
Project Address:

Mark Larson:

We are reporting to you the results of the analyses performed on the samples received under the project name referenced above and identified with the Eurofins Xenco, LLC Report Number(s) 669750. All results being reported under this Report Number apply to the samples analyzed and properly identified with a Laboratory ID number. Subcontracted analyses are identified in this report with either the NELAC certification number of the subcontract lab in the analyst ID field, or the complete subcontracted report attached to this report.

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

The validity and integrity of this report will remain intact as long as it is accompanied by this letter and reproduced in full, unless written approval is granted by Eurofins Xenco, LLC. This report will be filed for at least 5 years in our archives after which time it will be destroyed without further notice, unless otherwise arranged with you. The samples received, and described as recorded in Report No. 669750 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

Holly Taylor

Holly Taylor
Project Manager

A Small Business and Minority Company

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Sample Cross Reference 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH-2 10'	S	08.10.2020 11:01		669750-001
BH-2 12'	S	08.10.2020 11:03		669750-002
BH-2 14'	S	08.10.2020 11:05		669750-003
BH-2 16'	S	08.10.2020 11:09		669750-004
BH-2 18'	S	08.10.2020 11:10		669750-005
BH-2 20'	S	08.10.2020 11:11		669750-006
BH-2 25'	S	08.10.2020 11:20		669750-007
BH-4 10'	S	08.10.2020 13:05		669750-008
BH-4 12'	S	08.10.2020 13:50		669750-009
BH-4 14'	S	08.10.2020 13:55		669750-010
BH-4 16'	S	08.10.2020 14:05		669750-011
BH-4 18'	S	08.10.2020 14:10		669750-012
BH-4 20'	S	08.10.2020 14:40		669750-013
BH-4 25'	S	08.10.2020 14:45		669750-014
BH-3 10'	S	08.11.2020 09:50		669750-015
BH-3 12'	S	08.11.2020 09:55		669750-016
BH-3 14'	S	08.11.2020 09:59		669750-017
BH-3 16'	S	08.11.2020 10:00		669750-018
BH-3 18'	S	08.11.2020 10:15		669750-019
BH-3 20'	S	08.11.2020 10:20		669750-020
BH-3 25'	S	08.11.2020 10:25		669750-021
BH-5 10'	S	08.11.2020 10:56		669750-022
BH-5 12'	S	08.11.2020 10:58		669750-023
BH-5 14'	S	08.11.2020 11:00		669750-024
BH-5 16'	S	08.11.2020 11:16		669750-025
BH-5 18'	S	08.11.2020 11:18		669750-026
BH-5 20'	S	08.11.2020 11:20		669750-027
BH-5 25'	S	08.11.2020 11:30		669750-028

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CASE NARRATIVE

Client Name: Larson and Associates, Inc.

Project Name: EBOU 37

Project ID: *19-0112-49*
Work Order Number(s): *669750*

Report Date: *08.12.2020*
Date Received: *08.11.2020*

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-001	Date Collected:	08.10.2020 11:01		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**79.7**	4.97	mg/kg	08.11.2020 18:27		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-002	Date Collected:	08.10.2020 11:03		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**18.4**	5.02	mg/kg	08.11.2020 18:42		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-003	Date Collected:	08.10.2020 11:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.1**	4.98	mg/kg	08.11.2020 18:48		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-004	Date Collected:	08.10.2020 11:09		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	4.99	mg/kg	08.11.2020 18:53		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-005	Date Collected:	08.10.2020 11:10		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.67**	4.96	mg/kg	08.11.2020 18:58		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-006	Date Collected:	08.10.2020 11:11		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.64**	4.95	mg/kg	08.11.2020 19:14		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-2 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-007	Date Collected:	08.10.2020 11:20		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.6**	4.98	mg/kg	08.11.2020 19:19		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-008	Date Collected:	08.10.2020 13:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**24.0**	5.04	mg/kg	08.11.2020 19:25		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-009	Date Collected:	08.10.2020 13:50		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.0**	5.01	mg/kg	08.11.2020 19:30		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-010	Date Collected:	08.10.2020 13:55		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.3**	4.97	mg/kg	08.11.2020 19:35		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-011	Date Collected:	08.10.2020 14:05		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**15.0**	5.00	mg/kg	08.11.2020 19:40		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-012	Date Collected:	08.10.2020 14:10		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.7**	5.03	mg/kg	08.11.2020 19:56		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-013	Date Collected:	08.10.2020 14:40		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**11.8**	5.05	mg/kg	08.11.2020 20:01		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-4 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-014	Date Collected:	08.10.2020 14:45		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**13.4**	4.99	mg/kg	08.11.2020 20:17		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-015	Date Collected:	08.11.2020 09:50		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**774**	4.96	mg/kg	08.11.2020 20:23		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-016	Date Collected:	08.11.2020 09:55		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**666**	4.97	mg/kg	08.11.2020 20:28		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-017	Date Collected:	08.11.2020 09:59		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**419**	4.97	mg/kg	08.11.2020 20:33		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-018	Date Collected:	08.11.2020 10:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**60.2**	4.97	mg/kg	08.11.2020 20:38		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-019	Date Collected:	08.11.2020 10:15		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**89.3**	5.02	mg/kg	08.11.2020 20:44		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-020	Date Collected:	08.11.2020 10:20		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:39	Basis:	Wet Weight
Seq Number:	3134219				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**227**	5.05	mg/kg	08.11.2020 20:49		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-3 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-021	Date Collected:	08.11.2020 10:25		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**32.7**	5.01	mg/kg	08.11.2020 21:21		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 10'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-022	Date Collected:	08.11.2020 10:56		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.2**	4.99	mg/kg	08.11.2020 21:36		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 12'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-023	Date Collected:	08.11.2020 10:58		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.94**	5.00	mg/kg	08.11.2020 21:42		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 14'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-024	Date Collected:	08.11.2020 11:00		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.78**	5.04	mg/kg	08.11.2020 21:47		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 16'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-025	Date Collected:	08.11.2020 11:16		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**12.2**	5.02	mg/kg	08.11.2020 21:52		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 18'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-026	Date Collected:	08.11.2020 11:18		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.30**	4.97	mg/kg	08.11.2020 22:08		1

eurofins | Environment Testing Xenco

Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 20'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-027	Date Collected:	08.11.2020 11:20		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**9.77**	4.96	mg/kg	08.11.2020 22:13		1

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Certificate of Analytical Results 669750

Larson and Associates, Inc., Midland, TX

EBOU 37

Sample Id:	**BH-5 25'**	Matrix:	Soil	Date Received:	08.11.2020 15:56
Lab Sample Id:	669750-028	Date Collected:	08.11.2020 11:30		
Analytical Method:	Chloride by EPA 300			Prep Method:	E300P
Tech:	CHE			% Moisture:	
Analyst:	CHE	Date Prep:	08.11.2020 16:43	Basis:	Wet Weight
Seq Number:	3134222				

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	**10.5**	4.98	mg/kg	08.11.2020 22:19		1

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Flagging Criteria

X In our quality control review of the data a QC deficiency was observed and flagged as noted. MS/MSD recoveries were found to be outside of the laboratory control limits due to possible matrix /chemical interference, or a concentration of target analyte high enough to affect the recovery of the spike concentration. This condition could also affect the relative percent difference in the MS/MSD.

B A target analyte or common laboratory contaminant was identified in the method blank. Its presence indicates possible field or laboratory contamination.

D The sample(s) were diluted due to targets detected over the highest point of the calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.

E The data exceeds the upper calibration limit; therefore, the concentration is reported as estimated.

F RPD exceeded lab control limits.

J The target analyte was positively identified below the quantitation limit and above the detection limit.

U Analyte was not detected.

L The LCS data for this analytical batch was reported below the laboratory control limits for this analyte. The department supervisor and QA Director reviewed data. The samples were either reanalyzed or flagged as estimated concentrations.

H The LCS data for this analytical batch was reported above the laboratory control limits. Supporting QC Data were reviewed by the Department Supervisor and QA Director. Data were determined to be valid for reporting.

K Sample analyzed outside of recommended hold time.

JN A combination of the "N" and the "J" qualifier. The analysis indicates that the analyte is "tentatively identified" and the associated numerical value may not be consistent with the amount actually present in the environmental sample.

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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

eurofins | Environment Testing Xenco

QC Summary 669750

Larson and Associates, Inc.

EBOU 37

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134219 — Matrix: Solid — Date Prep: 08.11.2020
MB Sample Id: 7709203-1-BLK — LCS Sample Id: 7709203-1-BKS — LCSD Sample Id: 7709203-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	266	106	267	107	90-110	0	20	mg/kg	08.11.2020 18:16	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134222 — Matrix: Solid — Date Prep: 08.11.2020
MB Sample Id: 7709204-1-BLK — LCS Sample Id: 7709204-1-BKS — LCSD Sample Id: 7709204-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	266	106	265	106	90-110	0	20	mg/kg	08.11.2020 21:10	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134219 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669750-001 — MS Sample Id: 669750-001 S — MSD Sample Id: 669750-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	79.7	249	347	107	347	107	90-110	0	20	mg/kg	08.11.2020 18:32	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134219 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669750-011 — MS Sample Id: 669750-011 S — MSD Sample Id: 669750-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	15.0	250	288	109	289	110	90-110	0	20	mg/kg	08.11.2020 19:46	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134222 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669700-003 — MS Sample Id: 669700-003 S — MSD Sample Id: 669700-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	7940	2510	10400	98	10500	102	90-110	1	20	mg/kg	08.12.2020 09:52	

Analytical Method: Chloride by EPA 300 — Prep Method: E300P
Seq Number: 3134222 — Matrix: Soil — Date Prep: 08.11.2020
Parent Sample Id: 669750-021 — MS Sample Id: 669750-021 S — MSD Sample Id: 669750-021 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	32.7	251	307	109	305	108	90-110	1	20	mg/kg	08.11.2020 21:26	

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

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

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

№1219

Lab 9750

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 8/11/20 PAGE 1 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ + DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
BH-2 10'		8/10/20	1101	S	1							X
BH-2 12'			1103									
BH-2 14'			1105									
BH-2 16'			1109									
BH-2 18'			1110									
BH-2 20'			1111									
BH-2 25'			1120									
BH-4 10'			1305									
BH-4 12'			1350									
BH-4 14'			1355									
BH-4 16'			1405									
BH-4 18'			1410									
BH-4 20'			1440									
BH-4 25'			1445									
BH-3 10'		8/11/20	0950									
TOTAL 15												

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

RELINQUISHED BY:(Signature) — DATE/TIME 8/11/20 1554 — RECEIVED BY: (Signature) 8/11/20

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3/24.9 THERM#: IR8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

№ 1220

Vdec1750

CHAIN-OF-CUSTODY

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

Data Reported to:

DATE: 8/11/20 PAGE 2 OF 2

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: EBDU 37

LAI PROJECT #: 19-0112-49 COLLECTOR: TJ & DS

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State: MST

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

Field Sample I.D.	Lab #	Date	Time	Matrix	# of Containers	PRESERVATION: HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESSERVED	ANALYSES	FIELD NOTES
BH-3 12'		8/11/20	0955	S	1							
BH-3 14'			0959									
BH-3 16'			1000									
BH-3 18'			1015									
BH-3 20'			1020									
BH-3 25'			1025									
BH-5 10'			1056									
BH-5 12'			1058									
BH-5 14'			1100									
BH-5 16'			1116									
BH-5 18'			1118									
BH-5 20'			1120									
BH-5 25'			1130								X	

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

TOTAL 13

RELINQUISHED BY:(Signature) Trent Jacobs DATE/TIME 8/11/20 RECEIVED BY: (Signature) Perez 1554

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

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

LABORATORY: Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP: 25.3/24.9 THERM#: IR-8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Larson and Associates, Inc.

Date/ Time Received: 08.11.2020 03.56.00 PM

Work Order #: 669750

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

Temperature Measuring device used : IR-8

Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	24.9
#2 *Shipping container in good condition?	**Yes**
#3 *Samples received on ice?	**No**
#4 *Custody Seals intact on shipping container/ cooler?	**N/A**
#5 Custody Seals intact on sample bottles?	**N/A**
#6*Custody Seals Signed and dated?	**N/A**
#7 *Chain of Custody present?	**Yes**
#8 Any missing/extra samples?	**No**
#9 Chain of Custody signed when relinquished/ received?	**Yes**
#10 Chain of Custody agrees with sample labels/matrix?	**Yes**
#11 Container label(s) legible and intact?	**Yes**
#12 Samples in proper container/ bottle?	**Yes**
#13 Samples properly preserved?	**Yes**
#14 Sample container(s) intact?	**Yes**
#15 Sufficient sample amount for indicated test(s)?	**Yes**
#16 All samples received within hold time?	**Yes**
#17 Subcontract of sample(s)?	**N/A**
#18 Water VOC samples have zero headspace?	**N/A**

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

Analyst: PH Device/Lot#:

Checklist completed by: Brianna Teel Date: 08.11.2020

Brianna Teel

Checklist reviewed by: Holly Taylor Date: 08.12.2020

Holly Taylor

Appendix C

Photographs

Liner in Spill Area 2, facing south.

Seeding backfilled excavation, facing south.

Backfilled excavation, facing west.

Backfilled excavation, facing northeast.

Backfilled excavation, facing east.

Backfilled excavation, facing west.

Appendix D

OCD Communications

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Robert Nelson
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Tuesday, September 1, 2020 4:10:21 PM

09/01/2020

Mark,

As stated below was agreed in our phone conversation.

Bradford Billings

EMNRD/OCD

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

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From: Mark Larson <Mark@laenvironmental.com>
Sent: Tuesday, September 1, 2020 10:48 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
This email confirms our call today, September 1, 2020, for approval to complete backfilling the excavation in the swale at EBDU #37. As discussed the excavation is currently backfilled with caliche to approximately 5 feet below ground surface (bgs). NMOCD approved filling the remainder of the excavation to three (3) feet with clean caliche and to ground surface with topsoil. Since Apache is finishing backfilling the north excavation with topsoil it will fill the excavation in the swale with topsoil from 5 feet to ground surface. Notification will be submitted o NMOCD at least 7 days excluding weekends prior to installing monitoring wells. Please let me know if this is not consistent with our discussion. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.
Thank you,
Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656

Fax – 432-687-0456
mark@laenvironmental.com

From: Mark Larson
Sent: Thursday, August 13, 2020 8:26 AM
To: 'Bradford.Billings@state.nm.us' <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Soil sampling at EBDU #37 was completed on August 11, 202. The laboratory reported chloride above the OCD closure criteria of 600 milligrams per kilogram (mg/Kg) in two (2) samples: BH-3, 10 feet (774 mg/Kg) and 12 feet (666 mg/Kg). Chloride was 419 mg/Kg in the sample from 14 feet. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation and fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the boring locations. Table 4 presents the confirmation composite sample locations. Drilling and installation for two (2) monitoring wells is scheduled for Monday, August 18th.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Sent: Monday, August 10, 2020 10:51 AM
To: Mark Larson <Mark@laenvironmental.com>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, August 10, 2020 8:49 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
I am following up on the email below to see if you have had a moment to review.
Thank you,
Mark

From: Mark Larson
Sent: Friday, August 7, 2020 11:45 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Apache Corporation has completed backfilling the deep excavation (Area 2) at EBUD #37 (1RP-5636) with clean caliche to approximately five (5) feet below ground surface (bgs) to allow access for a Geoprobe Model 7822DT to delineate the vertical extent of chloride in soil below the excavation at approximately 12 feet bgs. Personnel from Larson & Associates, Inc. (LAI) collected soil samples at the proposed boring location (BH-1) near the center of the excavation at 10, 12, 14, 16, 18 and 20 feet bgs, on August 3, 2020. The laboratory reported chloride at 11.6 mg/Kg (10 feet), 13.3 mg/Kg (12 feet), 13.4 mg/Kg (14 feet), 22.9 mg/Kg (16 feet), 34.4 mg/Kg (18 feet) and 24.7 mg/Kg at 20 feet bgs. Previous bottom samples from B15 collected on August 8, 2019, from 13, 15, 17, 19, 21 and 22 feet bgs, reported chloride at 720 mg/Kg, 1,840 mg/Kg, 1,950 mg/Kg, 3,800 mg/Kg, 544 mg/Kg, and 3,440 mg/Kg, respectively, and suggested possible sample cross contamination. Benzene, BTEX and TPH were the analytical method reporting limits. LAI personnel collected composite sidewall samples from the excavation to approximately 5 feet that were analyzed for benzene, BTEX and TPH. The final concentrations are below the OCD cleanup levels in Table 1 (19.15.29 NMAC).

Apache requests approval from OCD to collect additional delineation soil samples with the Geoprobe from four (4) locations (north, south, east and west) from location BH-1 at the same depths (10, 12,14,16,18 and 20 feet) and analyze the samples for chloride. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation If chloride concentrations are below the OCD remediation limit (600 mg/Kg). Apache will fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the proposed borings BH-2 through BH-5. Figure 2a presents the composite soil sample locations. Table 4 presents the confirmation composite sample locations.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Mark Larson <Mark@laenvironmental.com>

Sent: Monday, December 23, 2019 1:58 PM
To: Bradford.Billings@state.nm.us
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Dear Bradford,
This email will confirm our phone conversation on December 20, 2019 for the EBDU #37 produced water release:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered;
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs;
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient;
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019;
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20 mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil;
- Seed Area 1 and Area 2 following remediation according to landowner requirements;
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
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"Serving the Permian Basin Since 2000"

1RP-5636
2021
First (1st) Quarter
GROUNDWATER MONITORING REPORT
(January – March)

East Blinebry Drinkard Unit #37
Lea County, New Mexico

Latitude: N 32.47956°
Longitude: W -103.12206°

LAI Project No. 19-0112-49

April 20, 2021

Prepared for:
Apache Corporation
303 Veterans Airpark Lane
Midland, Texas 79705

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

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

Daniel A. St. Germain
Staff Geologist

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Table of Contents

1.0 EXECUTIVE SUMMARY

Larson & Associates, Inc. (LAI) has prepared this first quarter groundwater monitoring report on behalf of Apache Corporation (Apache) for submittal to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs and Santa Fe, New Mexico. This report presents the 2021 first quarter (January – March) groundwater gauging summary and laboratory analysis of groundwater samples collected from four (4) monitor wells (TMW-1, TMW-2, TMW-3, and TMW-4) and a windmill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Lea County, New Mexico. The geodetic position is North 32.479569° and West -103.122061°.

The following groundwater monitoring activities occurred on March 11, 2021:

- Gauged depth to ground water in four (4) monitor wells (TMW-1 through TMW-4).
- Purged and collected groundwater samples from four (4) monitor wells (TMW-1 through TMW-4).
- Collect groundwater samples from a windmill located south from the Site.
- Analyzed groundwater samples for benzene, toluene, ethylbenzene, and xylenes (BTEX), total dissolved solids (TDS), and chloride.

The following observations are documented in this report:

- No significant changes were observed in potentiometric surface elevation, flow direction, or gradient during the monitoring period.
- Groundwater flow was from north to south at gradients between 0.0012 feet per foot (ft/ft) and 0.0019 ft/ft.
- BTEX was not reported above the analytical method reporting limits (RL) or New Mexico Water Quality Control Commission (WQCC) human health standards in groundwater samples collected on March 11, 2021.
- Chloride was reported above the WQCC domestic water quality standard of 250 milligrams per liter (mg/L) in groundwater samples collected from wells TMW-2 (293 mg/L), TMW-4 (834 mg/L), and the windmill (252 mg/L).
- TDS was reported above the WQCC domestic water quality standard of 1,000 mg/L in the groundwater sample collected from well TMW-4 (1960 mg/L).

Apache will continue quarterly monitoring of groundwater in wells TMW-1 through TMW-4 and the windmill during 2021 with laboratory analysis of groundwater samples for BTEX, TDS, and chloride. Notice will be provided to OCD in Hobbs and Santa Fe, New Mexico at least 5 working days prior to each groundwater monitoring event. OCD will be notified immediately upon receipt laboratory analysis with significant increase of analyte concentrations.

2.0 INTRODUCTION

Larson & Associates, Inc. (LAI), on behalf of Apache Corporation (Apache), has prepared this first quarter groundwater monitoring report for submittal to the New Mexico Oil Conservation Division (OCD) District 1 in Hobbs and Santa Fe, New Mexico. This report presents the first quarter laboratory analysis of groundwater samples collected from monitor wells (TMW-1, TMW-2, TMW-3, TMW-4) and a windmill at the East Blinebry Drinkard Unit (EBDU) #37 (Site) located in Lea County, New Mexico. The geodetic

position is North 32.479569° and West -103.122061°. Figure 1 presents a topographic map. Figure 2 presents an aerial map.

2.1 Background

The spill originated from a flowline at a pipeline junction located about 720 feet east from Well #37. Produced fluids (oil and water) flowed west about 350 feet west from the release origin, and south about 450 feet before terminating in low-lying area. The volume of the release and recovered fluid are unknown. The spill is designated as a major release due to the unknown volume of the release. The spill covered an area measuring about 31,320 square feet or about 0.72 acres. The initial C-141 was submitted on July 26, 2019 and was assigned remediation permit number 1RP-5636. Appendix A presents the initial C-141.

On October 29, 2019, Apache submitted to the OCD a remediation plan titled, "1RP-5636 REMEDIATION PLAN, East Blinebry Drinkard Unit #37 Produced water Spill, Lea County, New Mexico, October 29, 2019". On December 23, 2019, OCD approved an addendum to the remediation plan based on a telephone call on December 20, 2019, with the following conditions:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered.
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs.
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient.
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019.
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20-mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil.
- Seed Area 1 and Area 2 following remediation according to landowner requirement.
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Appendix B presents the OCD communications.

2.2 Monitoring Well Installations

On September 29, 2019, Scarborough Drilling Inc. (SDI), under LAI supervision, installed two (2) monitoring wells (TMW-1 and TMW-2) under permits issued by the State of New Mexico Office of the State Engineer. Monitoring wells TMW-3 and TMW-4 were repositioned to avoid removing thick vegetation and/or crossing underground pipelines. Monitoring well TMW-3 was repositioned about 100 feet west from its original location. Monitoring well TMW-4 was repositioned about 30 feet east from its original location. OCD approved the relocation of the monitoring wells September 22, 2020. Appendix B presents OCD communications.

Monitoring wells TMW-3 and TMW-4 were drilled to approximately 68.41 feet bgs and 70.09 feet bgs, respectively. Both wells were completed with two (2) inch threaded schedule 40 PVC casing and approximately twenty (20) feet of 0.01-inch factory slotted screen. The screens were positioned above and below the groundwater level observed during drilling. Graded silica sand was placed around the well screens to about two (2) feet above the screens. The remaining annulus above the screens was filled to about 1-foot bgs with bentonite chips and hydrated with potable water. The wells are secured with locking steel covers.

The monitor wells (TMW-1 through TMW-4) were surveyed by West Company, a State of New Mexico Licensed Professional Land Surveyor (LPS Number 23263) for geodetic position and elevation, including surface elevation and top of casing (TOC) elevation. Figure 2 presents the monitoring well locations. Appendix C presents the boring logs and monitoring well completion records.

3.0 DEPTH TO GROUNDWATER AND GROUNDWATER POTENTIOMETRIC SURFACE ELEVATION

On March 11, 2021, depth to groundwater was gauged in wells TMW-1 through TMW-4. Groundwater was measured at 49.41 (TMW-1), 58.0 (TMW-2), 57.59 (TMW-3), and 57.4 (TMW-4) feet below top of casing (TOC). The groundwater potentiometric surface elevation ranged from 3,366.16 feet above mean sea level (MSL) at TMW-2 (up gradient) to 3,365.16 above MSL at TMW-1 (down gradient). Groundwater flow from north to south at gradients between 0.0012 feet per foot (ft/ft) and 0.0019 ft/ft.

No significant changes in potentiometric surface elevation, flow direction, or gradient were observed on March 11, 2021. Figure 3 presents the groundwater potentiometric surface map on March 11, 2021. Table 1 presents monitor well construction and gauging summary.

4.0 GROUNDWATER SAMPLES AND ANALYSIS

On March 10, 2021 LAI personnel collected groundwater samples from monitoring wells TMW-1 through TMW-4, using the low stress or low flow method following EPA protocol (EQASOP-GW4, Revision 4, September 19, 2017) where an environmental pump is submerged near the middle of the water column and the well is pumped at a low flow rate until environmental parameters stabilize.

Groundwater samples were collected from discharge through dedicated disposable Tygon tubing. The tubing was discarded after each use and the pump was thoroughly cleaned with a solution of potable water and laboratory grade detergent (alconox) and rinsed with distilled water. The samples were transferred to labeled laboratory containers, packed in an ice chest filled with ice, and delivered under chain of custody control to Xenco Laboratories (Xenco), a National Environmental Laboratory Accreditation Conference (NELAC) accredited laboratory, located in Midland, Texas. A duplicate sample was collected from the windmill for laboratory quality assurance and quality control (QA/QC).

Xenco analyzed the samples for benzene, toluene, ethylbenzene, xylene (BTEX) according to EPA SW-846 Method SW-8260D, total dissolved solids (TDS) by Method SM 2540C, and chloride by EPA Method 300. Table 2 presents the laboratory analytical summary. Appendix B presents the laboratory report.

4.1 Organic Analysis

Xenco reported BTEX concentrations below the laboratory analytical reporting limit (RL) and New Mexico Water Quality Control Commission (WQCC) human health standards in groundwater samples from TMW-1 through TMW-4 and windmill March 11, 2021. The results are consistent with the results from previous groundwater monitoring events.

4.2 Inorganic Analysis

Chloride concentrations remain above the WQCC domestic water quality standard (250 mg/L) in samples collected from monitoring wells TMW-2 (293 mg/L), TMW-4 (834 mg/L), and the windmill (252 mg/L). Chloride concentrations were below WQCC domestic water quality standards in monitoring wells TMW-1 (10.9 mg/L) and TMW-2 (213 mg/L), and consistent with previous monitoring events. The duplicate (QA/QC) sample (Dup-1) collected from the windmill is within 2.8 percent (259 mg/L) of the original chloride value (252 mg/L) for the windmill. No data quality exceptions were noted in Xenco case narratives. Figure 4 presents the chloride isopleth map for March 11, 2021.

TDS concentrations remain above the WQCC domestic water quality standard (1,000 mg/L) in samples collected from TMW-2 (1,000 mg/L) and TMW-4 (1,960 mg/L). TDS concentrations remain below the WQCC domestic water quality standards in monitoring wells TMW-1 (360 mg/L), TMW-3, (900 mg/L), and the windmill (745 mg/L). Figure 5 presents the TDS isopleth map for March 11, 2021.

5.0 CONCLUSIONS

The following observations are made in this report:

- The groundwater flow direction was from north to south at gradients between approximately 0.0012 and 0.0019 ft/ft.
- No significant changes were observed in potentiometric surface elevation, flow direction, or gradient during the monitoring period.
- BTEX was reported below the analytical reporting limit and WQCC human health standards in groundwater samples collected from TMW-1 through TMW-4.
- Chloride concentrations were reported above WQCC domestic water quality standard (250 mg/L) in groundwater samples collected from TMW-2 (293 mg/L), TMW-4 (834 mg/L), and the windmill (252 mg/L).
- TDS concentrations were reported above the WQCC domestic water quality standard (1,000 mg/L) in groundwater samples collected from TMW-2 (1,000 mg/L) and TMW-4 (1,960 mg/L).

- Apache will continue quarterly monitoring of groundwater in wells TMW-1 through TMW-4 and the windmill during 2021 with laboratory analysis of groundwater samples for BTEX, chloride and TDS.

Notice will be provided to OCD in Hobbs and Santa Fe, New Mexico at least 7 working days prior to each groundwater monitoring event. The OCD will be notified immediately upon receipt of laboratory analysis with significant increase of analyte concentrations.

Tables

Table 1
1RP-5636
Monitoring Well Completion and Gauging Summary
Apache Corportaion, EBDU #37
Lea County, New Mexico

Well Information									Groundwater Data				
Well No.	Date Drilled	Well Depth (Feet TOC)	Drilled Depth (Feet BGS)	Well Diameter (inches)	Surface Elevation (Feet AMSL)	Screen Interval (Feet BGS)	Casing Stickup (Feet)	TOC Elevation (Feet AMSL)	Date Gauged	Depth to Water (feet TOC)	Depth to Water (feet BGS)	Water Column Height (feet)	Groundwater Elevation (feet AMSL)
TMW-1	09/19/2019	74.36	71.00	2	3411.21	42.32 - 61.97	3.36	3,414.57	09/23/2019	46.18	42.82	28.18	3,368.39
									12/26/2019	48.90	45.54	26.27	3,365.67
									09/30/2020	49.31	45.95	25.05	3,365.26
									12/07/2020	49.42	46.06	24.94	3,365.15
									03/11/2021	49.41	46.05	24.95	3,365.16
TMW-2	09/19/2019	82.86	80.00	2	3421.30	47.50 - 67.50	2.86	3,424.16	09/23/2019	55.80	52.94	27.06	3,368.36
									12/26/2019	57.50	54.64	25.36	3,366.66
									09/30/2020	58.01	55.15	24.85	3,366.15
									12/07/2020	58.08	55.22	24.78	3,366.08
									03/11/2021	58.00	55.14	24.86	3,366.16
TWM-3	09/29/2020	71.29	68.41	2	3420.33	49.96 - 68.41	2.88	3,423.21	09/23/2019	--	--	--	--
									12/26/2020	--	--	--	--
									09/30/2020	57.62	54.74	13.67	3,365.59
									12/07/2020	57.68	54.80	13.61	3,365.53
									03/11/2021	57.59	54.71	13.70	3,365.62
TMW-4	09/29/2020	73.25	70.09	2	3420.03	49.96 - 69.76	3.16	3,423.19	09/23/2019	--	--	--	--
									12/26/2019	--	--	--	--
									09/30/2020	57.39	54.23	15.86	3,365.80
									12/07/2020	57.45	54.29	15.80	3,365.74
									03/11/2021	57.40	54.24	15.85	3,365.79

Notes: monitoring wells installed by Environ-Drill, Albuquerque, New Mexico with 2 inch schedule 40 PVC casing and screen
bgs: below ground surface
TOC: top of casing
AMSL: denotes elevation in feet above mean sea level

Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)	Depth To Water (Feet TOC)
NMWQCC Standard:		*0.005	*1	*0.7	*0.62	**250	**1,000	
Windmill	(1) 08/01/2019	<0.001	<0.001	<0.001	<0.003	232	732	--
	(2) 09/23/2019	--	--	--	--	--	--	--
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**259**	688	--
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**274**	730	--
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**287**	930	--
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**252**	745	--
TMW-1	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	37.4	400	46.18
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	21.1	390	48.9
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	22.6	390	49.31
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	13.1	383	49.42
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	10.9	360	
TMW-2	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	**338**	**1,220**	55.8
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**307**	**1,170**	57.5
	(3) 09/30/2020	<0.00200	0.00227	<0.00200	<0.00200	**314**	**1,040**	58.01
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**298**	**1,050**	58.06
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**293**	**1,000**	
TMW-3	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00322	<0.00200	0.00448	212	891	57.62
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	214	948	57.68
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	213	900	
TMW-4	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00314	<0.00200	<0.00200	**1,020**	**2,040**	57.39
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**987**	**2,300**	57.45
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**834**	**1,960**	
DUP-1 (Windmill)	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**276**	794	--
DUP-1 (Windmill)	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**278**	908	--
DUP-1 (Windmill)	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**259**	798	--

Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

Notes:
('): analysis performed by Cardinal Laboratories, Hobbs, New Mexico, by EPA SW-846 Method 8021B (BTEX) and titration methods (chloride and TDS).
([2]): analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([3]): analysis performed by Xenco Laboratories, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([4]): anaylis performed by Eurofins-Xenco, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride). Units reported as ug/L in report, converted to mg/L.
< values: concentration is less than method reporting limit (RL).
*: NMWQCC Human Health Standard
**: NMWQCC Domestic Water Quality Standard
--: no data available
TOC: top of casing
All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)
Bold and highlighted denotes analyte concentration exceeds NMWQCC domestic water quality standard

Figures

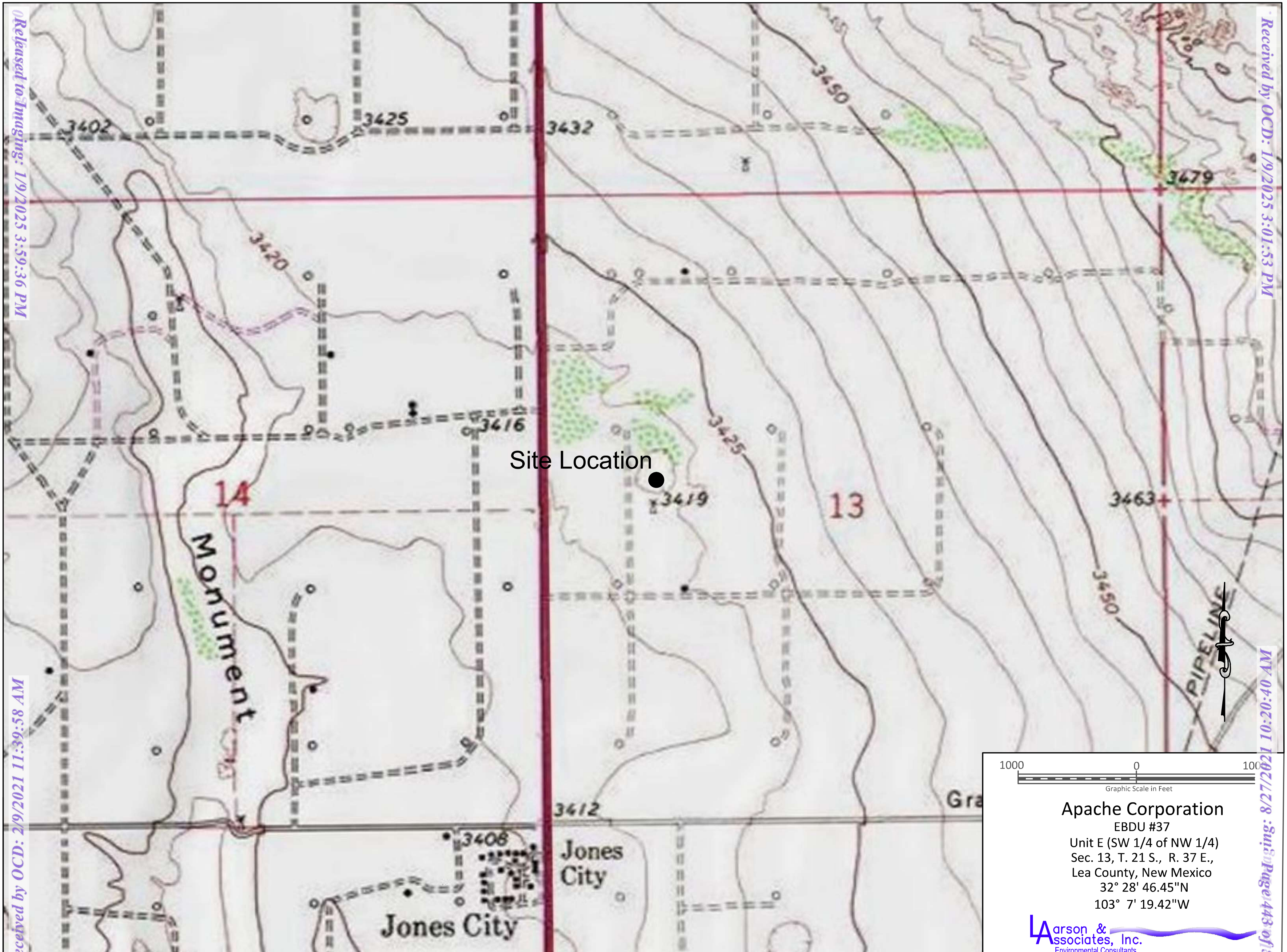

Figure 1 - Topographic Map

Figure 2 - Aerial Map

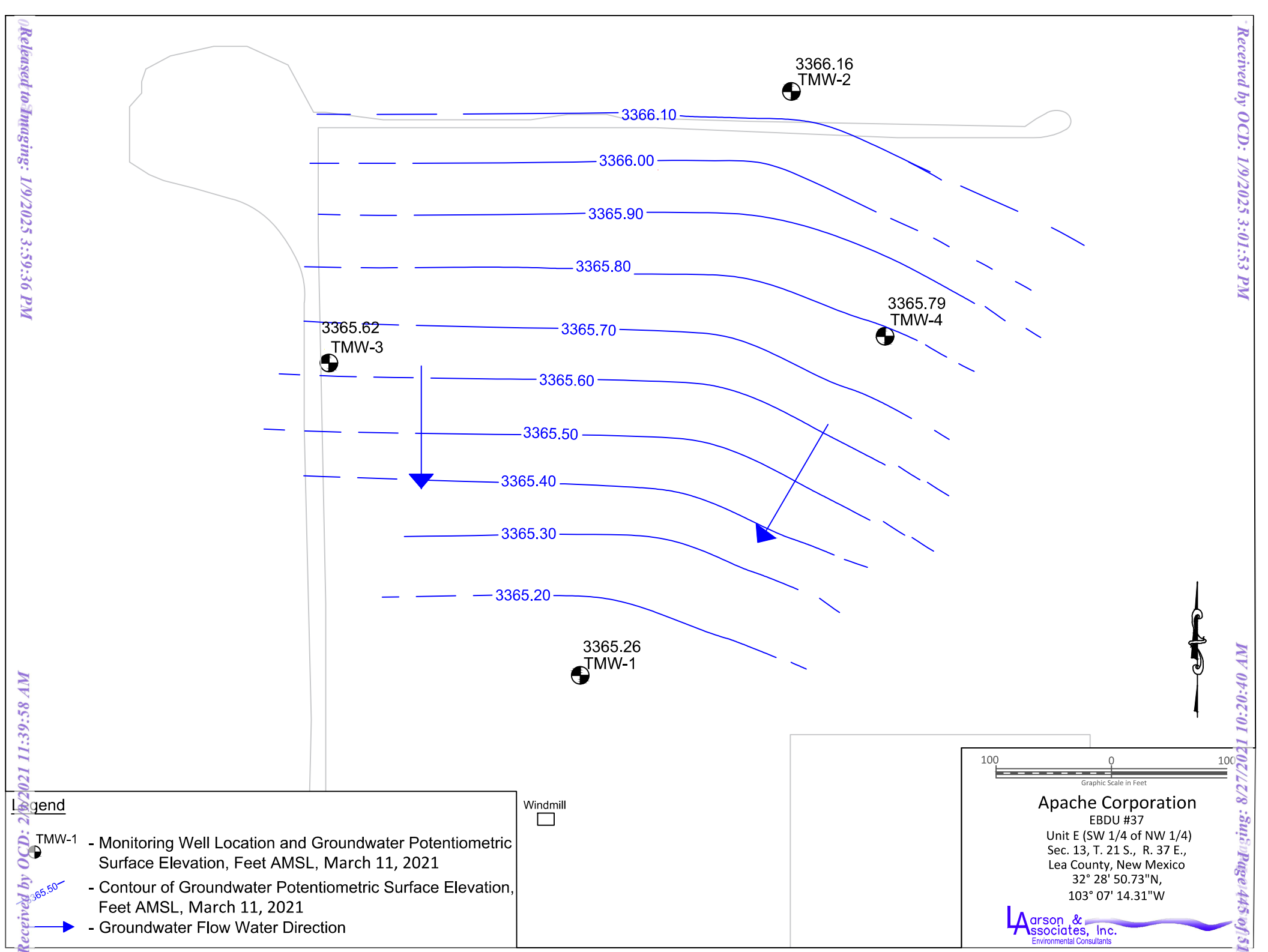

Figure 3a - Groundwater Potentiometric Map, March 11, 2021

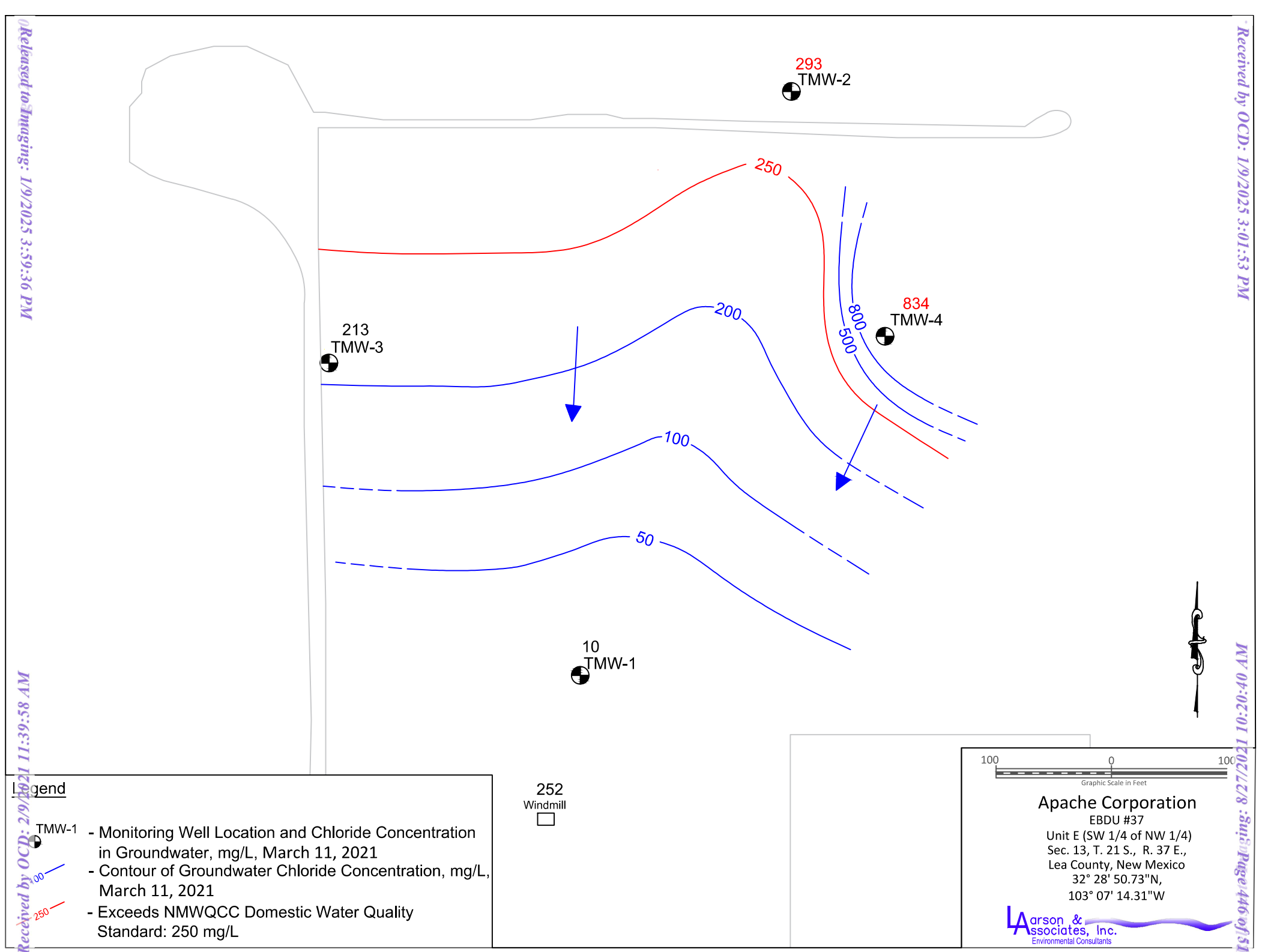

Figure 4a - Chloride Concentration in Groundwater, March 11, 2021

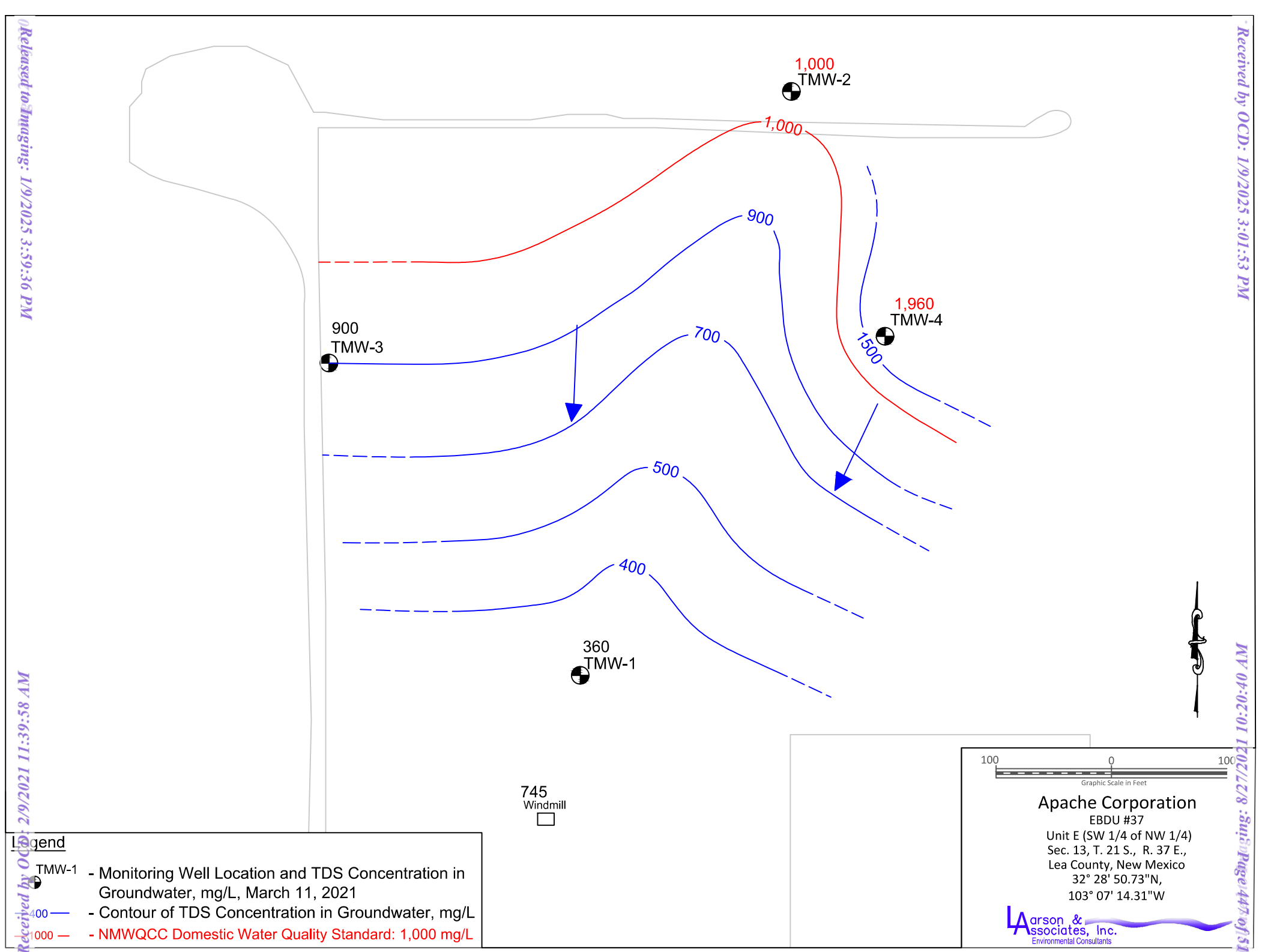

Figure 5a - TDS Concentration in Groundwater, March 11, 2021

Appendix A

Initial C-141

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

State of New Mexico
Energy Minerals and Natural Resources Department

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

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

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

Release Notification

Responsible Party

Responsible Party: Apache Corporation	OGRID 873
Contact Name: Bruce Baker	Contact Telephone: (432) 631-6982
Contact email: Larry.Baker@apachecorp.com	Incident # *(assigned by OCD)*
Contact Mailing Address: 2350 W. Marland Blvd, Hobbs, NM 88240	

Location of Release Source

Latitude: W 32.4807053 Longitude: N -103.123085

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: EBDU #37 WIW	Site Type: Water Injection Well
Date Release Discovered: July 14, 2019	API # *3002506556*

Unit Letter	Section	Township	Range	County
E	12	21S	37E	LEA

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

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

Cause of Release

Isolation valve failure due to internal corrosion.

Form C-141
Page 2

State of New Mexico
Oil Conservation Division

Incident ID	NDHR1922141227
District RP	1RP-5636
Facility ID	
Application ID	pDHR1922140928

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

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: Jeff Broom Title: Environmental Technician

Signature: _____ Date: 07/24/2019

Email: Jeffrey.Broom@apachecorp.com Telephone: (432) 664-4677

OCD Only

Received by: Dylan Rose-Coss Date: 08/09/2019

Appendix B

OCD Communications

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Rachel Owen
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Monday, December 23, 2019 3:21:06 PM

12/23/2019

Apache Corp. – Larry Baker
Larson Environmental

RE: 1RP-5636/EBDU #37, the following:

The attached/stringed email as an addendum to offered Work Plan is approved, including the location of proposed monitor wells, as was discussed recently on the telephone.

Please keep a copy of this communication for your records, as NO paper copy will follow. It may take some days for this to be uploaded to The Oil Conservation Division (OCD) data base,

ODE appreciates your efforts.

Sincerely,

Bradford Billings
EMNRD/OCD
Santa Fe, NM

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

---

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, December 23, 2019 12:58 PM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: [EXT] Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Dear Bradford,
This email will confirm our phone conversation on December 20, 2019 for the EBDU #37 produced water release:

- Apache will install a boring in the bottom of the excavation to delineate the vertical extent of chloride in soil. Soil samples will be collected beginning at the bottom of the excavation and every five (5) feet thereafter until chloride decreases below 600 mg/Kg or groundwater is encountered;
- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs;
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient;
- Apache will close the excavation at Area 1 according to the remediation plan dated October 29, 2019;
- Apache will close the excavation at Area 2, based on the laboratory results of samples from the boring to be placed in the bottom of the excavation, by filling the excavation to approximately 5 feet bgs with clean caliche, installing a 20 mill thickness polyethylene liner at approximately 5 feet bgs and backfilling to surface with clean topsoil;
- Seed Area 1 and Area 2 following remediation according to landowner requirements;
- Perform quarterly groundwater monitoring (5 wells) and reporting.

Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

LA arson & ssociates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Robert Nelson
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Tuesday, September 1, 2020 4:10:21 PM

09/01/2020

Mark,

As stated below was agreed in our phone conversation.

Bradford Billings

EMNRD/OCD

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

From: Mark Larson <Mark@laenvironmental.com>
Sent: Tuesday, September 1, 2020 10:48 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
This email confirms our call today, September 1, 2020, for approval to complete backfilling the excavation in the swale at EBDU #37. As discussed the excavation is currently backfilled with caliche to approximately 5 feet below ground surface (bgs). NMOCD approved filling the remainder of the excavation to three (3) feet with clean caliche and to ground surface with topsoil. Since Apache is finishing backfilling the north excavation with topsoil it will fill the excavation in the swale with topsoil from 5 feet to ground surface. Notification will be submitted o NMOCD at least 7 days excluding weekends prior to installing monitoring wells. Please let me know if this is not consistent with our discussion. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.
Thank you,
Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656

Fax – 432-687-0456
mark@laenvironmental.com

From: Mark Larson
Sent: Thursday, August 13, 2020 8:26 AM
To: 'Bradford.Billings@state.nm.us' <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Soil sampling at EBDU #37 was completed on August 11, 202. The laboratory reported chloride above the OCD closure criteria of 600 milligrams per kilogram (mg/Kg) in two (2) samples: BH-3, 10 feet (774 mg/Kg) and 12 feet (666 mg/Kg). Chloride was 419 mg/Kg in the sample from 14 feet. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation and fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the boring locations. Table 4 presents the confirmation composite sample locations. Drilling and installation for two (2) monitoring wells is scheduled for Monday, August 18th.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
Midland, Texas 79701
Office – 432-687-0901
Cell – 432- 556-8656
Fax – 432-687-0456
mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Sent: Monday, August 10, 2020 10:51 AM
To: Mark Larson <Mark@laenvironmental.com>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

From: Mark Larson <Mark@laenvironmental.com>
Sent: Monday, August 10, 2020 8:49 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: [EXT] FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
I am following up on the email below to see if you have had a moment to review.
Thank you,
Mark

From: Mark Larson
Sent: Friday, August 7, 2020 11:45 AM
To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
Subject: FW: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

Hello Bradford,
Apache Corporation has completed backfilling the deep excavation (Area 2) at EBUD #37 (1RP-5636) with clean caliche to approximately five (5) feet below ground surface (bgs) to allow access for a Geoprobe Model 7822DT to delineate the vertical extent of chloride in soil below the excavation at approximately 12 feet bgs. Personnel from Larson & Associates, Inc. (LAI) collected soil samples at the proposed boring location (BH-1) near the center of the excavation at 10, 12, 14, 16, 18 and 20 feet bgs, on August 3, 2020. The laboratory reported chloride at 11.6 mg/Kg (10 feet), 13.3 mg/Kg (12 feet), 13.4 mg/Kg (14 feet), 22.9 mg/Kg (16 feet), 34.4 mg/Kg (18 feet) and 24.7 mg/Kg at 20 feet bgs. Previous bottom samples from B15 collected on August 8, 2019, from 13, 15, 17, 19, 21 and 22 feet bgs, reported chloride at 720 mg/Kg, 1,840 mg/Kg, 1,950 mg/Kg, 3,800 mg/Kg, 544 mg/Kg, and 3,440 mg/Kg, respectively, and suggested possible sample cross contamination. Benzene, BTEX and TPH were the analytical method reporting limits. LAI personnel collected composite sidewall samples from the excavation to approximately 5 feet that were analyzed for benzene, BTEX and TPH. The final concentrations are below the OCD cleanup levels in Table 1 (19.15.29 NMAC).

Apache requests approval from OCD to collect additional delineation soil samples with the Geoprobe from four (4) locations (north, south, east and west) from location BH-1 at the same depths (10, 12,14,16,18 and 20 feet) and analyze the samples for chloride. Apache would like to forgo installing the 20 mil thickness polyethylene liner in the bottom of the large excavation If chloride concentrations are below the OCD remediation limit (600 mg/Kg). Apache will fill the remainder of the Area 2 excavation with caliche to approximately 3 feet bgs and with top soil from 3 feet to ground surface. The excavation north of the large excavation will be completed per the approved remediation plan. Please see the attached drawing (Figure 2) for the proposed borings BH-2 through BH-5. Figure 2a presents the composite soil sample locations. Table 4 presents the confirmation composite sample locations.

Your approval is this remediation plan modification is requested. Please contact Bruce Baker with Apache at (432) 631-6982 or email Larry.Baker@apachecorp.com or me if you have questions.

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mark@laenvironmental.com

Larson & Associates, Inc.
Environmental Consultants

"Serving the Permian Basin Since 2000"

From: Mark Larson <Mark@laenvironmental.com>

Sent: Monday, December 23, 2019 1:58 PM
To: Bradford.Billings@state.nm.us
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
Subject: Re: 1RP-5636 - EBDU #37 Addendum to Remediation Plan

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- Apache will install two (2) additional monitoring wells at locations shown on the attached drawing. The monitoring wells will be constructed similar to monitoring well TMW-1 and TMW-2 with about 20 feet of screen placed above and below the groundwater level observed during drilling. Groundwater is expected to occur around 50 feet bgs therefore the borings will be advanced to around 70 feet bgs;
- Survey wells for top of elevation (top of casing and ground) for groundwater potentiometric surface elevation, flow direction and gradient;
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mark@laenvironmental.com

"Serving the Permian Basin Since 2000"

From: Billings, Bradford, EMNRD
To: Mark Larson
Cc: Baker, Larry; Robert Nelson
Subject: RE: 1RP-5636 - EBDU #37 Addendum to Remediation Plan
Date: Monday, August 10, 2020 11:03:12 AM

08/10/2020

Hello M. Baker (Apache) and Mr. Larson (LAI),

As OCD has been informed you are looking to proceed on the site tomorrow, the following:

OCD approves the modifications as indicated in attached email form LAI. If the circumstances occur as is possible, there would be no need for the liner, and OCD agrees. OCD appreciates the desire to generate accurate data and is please for your efforts along those lines. If field data indicates a modification please attempt to contact me on phone or email.

Thank you and please be safe and careful.

Sincerely,

Bradford Billings
EMNRD/OCD

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To: Billings, Bradford, EMNRD <Bradford.Billings@state.nm.us>
Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Robert Nelson <rnelson@laenvironmental.com>
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Sent: Monday, December 23, 2019 1:58 PM

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Cc: Baker, Larry <Larry.Baker@apachecorp.com>; Rachel Owen <rowen@laenvironmental.com>; Mark Larson <Mark@laenvironmental.com>
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Your approval is this addendum remediation plan is requested. Please contact Bruce Baker with Apache or me if you have questions.

Mark J. Larson, P.G.
President/Sr. Hydrogeologist
507 N. Marienfeld St., Suite 202
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Environmental Consultants

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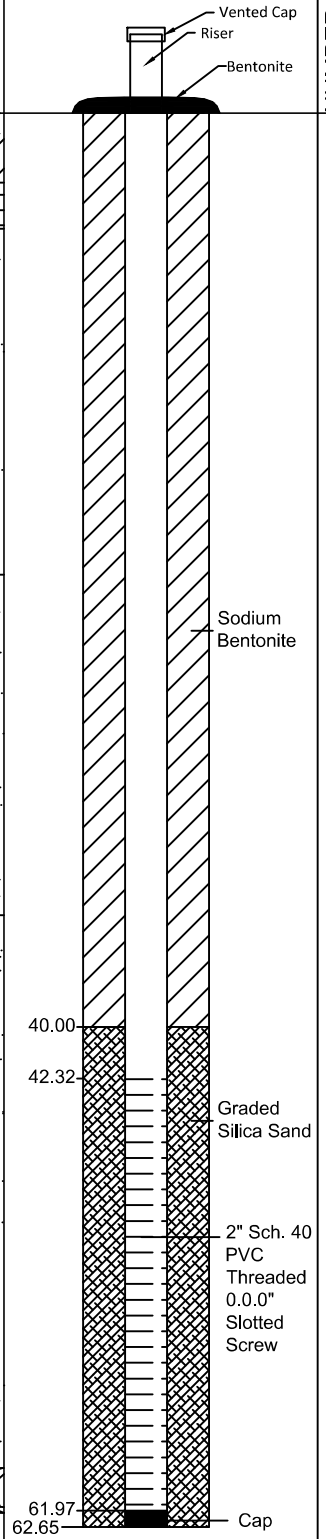
Appendix C

Boring Logs

BORING RECORD

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	Start: 11:40 Finish: 12:58			
	0	Silty Clay, 7.5YR, 5/1, Gray, Very Fine Grained Quartz Sand, Dry	CL	
			Caliche	
	5	Caliche, 7.5YR, 7/1 to 7/2, Pinkish Gray, Sandy, Fine to Very Fine Grained Quartz Sand, Dry		
	10	Silty Sand, 10YR, 6/4, Light Yellowish ..., Very Fine to Fine Grained Quartz Sand, Poorly Sorted, Subrounded, Loose	SM	
	15			
	20	7.5YR, 6/6, Reddish Yellow Below 10', Poorly Sorted, ... Round		
	25	10YR, 7/4, Very Pale Brown Below 15'		
		Sand, 5YR, 5/6 to 6/6, Yellowish Red to Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Round, Moist, Very Moist	SW	
	30			
	35	Below 35'		
		Sandstone, 5YR, 6/6, Reddish Yellow, Very Fine Grained Quartz Sand,Poorly Sorted, Moderately Well Cemented to Well Cemented	Sand Stone	
	40			
46.72	45			
	50			
	55			
		Gravelly Sand, 7.5YR, 6/6, Reddish Yellow, Fine to Medium Grained Quartz Sand, Round, Cobbles to 40mm	SP	
	60	TD: 62'		

Surface Elevation:
TOC Elecation:



NUMBER	RECOVERY	DEPTH
		1
		5
		10
		15
		20
		25
		30
		35
		40
		45
		60

REMARKS

BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp./ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : _____
DRILLING METHOD : SR/WR

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-19-2019

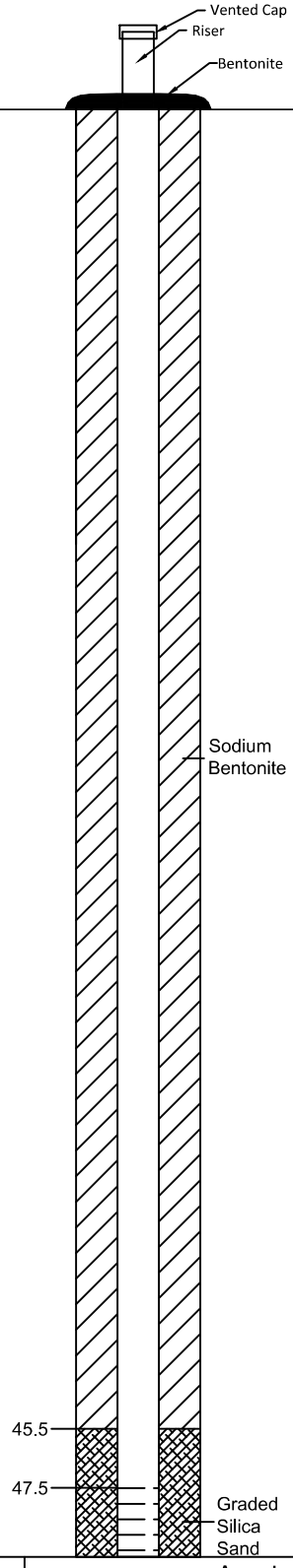
BORING NUMBER : TMW-1

BORING RECORD

Start: 15:02
Finish: 15:55

Surface Elevation: 3,563.50'
TOC Elecation: 3,566.23'

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	NUMBER	RECOVERY	DEPTH	REMARKS BACKGROUND PID READING
	0	Silty Clay, 10YR, 5/6, Ash Brown, Dry	CL					15:02
	5	Caliche, 7.5YR, 8/2, Pinkish White, Sandy to Moderate Very Fine Grained Quartz Sand	Caliche					15:03
	10							15:05
	15	Silty Sand, 7.5YR, 7/2, Pinkish Gray, Very Fine Grained Quartz Sand, Poorly Sorted, Dry	SM					15:10
	20							15:15
	25	Sand, 5YR, 6/0, Reddish Yellow, Very Fine Grained Quartz Sand, Poorly Sorted, Dry	SW					15:17
	30							15:22
	35							15:23
	40	Sand, 5YR, 6/6, Reddish Yellow, Moderate Well Cemented, Poorly Sorted, Dry	SW					15:28
	45							15:30
		Continue						



REMARKS: BACKGROUND PID READING
SOIL : _____ PPM
SOIL : _____ PPM

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-20-2019

BORING NUMBER : TMW-2

BORING RECORD

GEOLOGIC UNIT	DEPTH	Start: 15:02 Finish: 15:55 DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG	Surface Elevation: 3,563.50' TOC Elecation: 3,566.23'	NUMBER	RECOVERY	DEPTH	REMARKS BACKGROUND PID READING SOIL : PPM SOIL : PPM
	50	*Continue*			*Continue*				
	55	Silty and Clayey Below 50', Moist at 55'	SM-SC		Graded Silica Sand				
	60				2" Sch. 40 PVC Threaded 0.0.0" Slotted Screw				
	65								
	70				67.85 Cap				
	75	Gravel, 7.5YR, 4/3, Light Brown, Poorly Sorted, Round, Red Bed	GW						
	80	TD: 79'			80.00				

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache Corp. / 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : M. Larson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 9-20-2019

BORING NUMBER : TMW-2

BORING RECORD

Start: 09:35 MST
Finish: 10:30 MST

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Sand, 7.5YR 4/4, Brown, Fine to Very Fine Quartz Sand,Quartz and Feldspar Moderate to Well Sorted, Sub Rounded to Well Rounded	SM	
	5			
	10	Caliche, 7.5YR 8/2, Pinkish White, Sandy, Fine to Very Fine Grains, Well Sorted, Well Rounded	Caliche	
	15			
	20	Sand, 10YR 8/2, Very Pale Brown, Quartz Rich Sand, Well Rounded to Very Well Rounded, Very Well Sorted, Fine to Very Fine Grained Quartz Sand	SM	
	25			
	30	7.5YR 5/6, Strong Brown, Oxidized, Quartz Rich, Well Rounded to Very Well Rounded, Very Well Sorted, Fine to Very Fine Grained Quartz Sand with Increase in Depth Lithology Remains the Same		
	35			
	40	@37' becomes Silty to Very Fine Grained Quartz Sand to 65'		
	45			
	50			
	55		SM	
	60			
	65			
	70	Gravelly Sand, 7.5YR, Strong Brown, Fine to Very Fine Coarse Sand, Quartz and Feldspar, Oxidized, Sub Angular to Sub Rounded, Gravel(5-15mm), Poorly Sorted	SP	
	75			
		TD: 68.41'		

PID READING — PPM X _____ (2 4 6 8 10 12 14 16 18)

SAMPLE NUMBER	PID READING	RECOVERY	DEPTH	REMARKS: BACKGROUND PID READING
1			1	SOIL : _____ PPM
2			5	SOIL : _____ PPM
3			10	
4			15	
5			20	
6			25	
7			30	
8			35	
9			40	
10			45	
11			50	
12			55	
13			60	
14			65	
15			68	

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
\+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache/ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : T. Jackson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

DRILL DATE : 09-29-2020

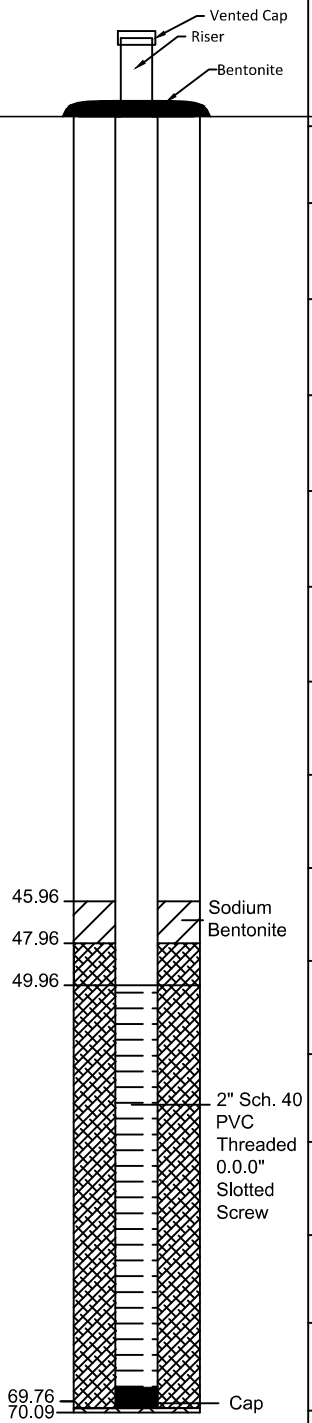
BORING NUMBER : TMW-3

BORING RECORD

Start: 12:45
Finish: 13:40

GEOLOGIC UNIT	DEPTH	DESCRIPTION LITHOLOGIC	DESCRIPTION USCS	GRAPHIC LOG
	0	Caliche, 7.5YR 8/2, Pinkish White, Medium to Very Fine, Poorly Sorted, Sub Angular to Sub Rounded	Caliche	
	5			
	10			
	15	Sand, 10YR 8/2, Very Pale Brown, Quartz Rich Sand, Well Rounded to Very Well Rounded, Very Well Sorted, Fine to Very Fine Quartz Sand	SM	
	20			
	25	7.5YR 5/6, Strong Brown, Oxidized, Quartz Rich Sand, Sub Angular to Sub Rounded, Poorly Sorted, Coarse to Fine Grained Quartz Sand with Increase in Depth @34' Lithology Remained Constant and Grain Size Decreased to Fine to Very Fine Quartz Sand, Well Sorted, Rounded to Well Rounded		
	30			
	35			
	40			
	45			
	50			
	55	Sand, 7.5YR, Strong Brown, With Gravel, Fine to Very Coarse Quartz Sand, Quartz and Feldspar, Oxidized, Sub Angular to Sub Rounded, Gravel (5-15mm), Poorly Sorted	SM	
	60			
	65			
	70	TD: 70.09'		
	75			

PID READING / SAMPLE / REMARKS



NUMBER	RECOVERY	DEPTH	BACKGROUND PID READING
1		1	SOIL : PPM
2		5	SOIL : PPM
3		10	
4		15	
5		20	
6		25	
7		30	
8		35	
9		40	
10		45	
11		50	
12		55	
13		60	
14		65	
15		70	

ONE CONTINUOUS AUGER SAMPLER
STANDARD PENETRATION TEST
UNDISTURBED SAMPLE
WATER TABLE (24 HRS)
WATER TABLE (TIME OF BORING)
L LABORATORY TEST LOCATION
+ PENETROMETER (TONS/ SQ. FT)
NR NO RECOVERY

JOB NUMBER : Apache/ 19-0112-49
HOLE DIAMETER : 5"
LOCATION : EBDU #37
LAI GEOLOGIST : T. Jackson
DRILLING CONTRACTOR : SDC
DRILLING METHOD : Air Rotary

Larson & Associates, Inc. Environmental Consultants

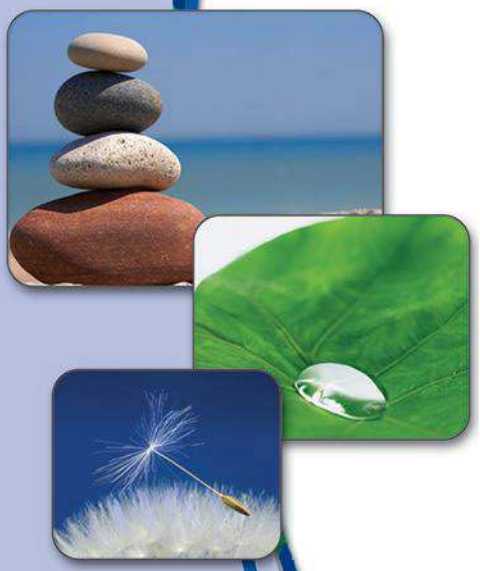
DRILL DATE : 09-29-2020

BORING NUMBER : TMW-4

Appendix D

Laboratory Report

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 880-387-1
Client Project/Site: Apache-EBDU #37

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

Attn: Mr. Mark J Larson

Holly Taylor

Authorized for release by:
3/26/2021 9:50:23 AM

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

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

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

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Laboratory Job ID: 880-387-1

Table of Contents

Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

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

Subcontract

Qualifier	Qualifier Description
K	Sample analyzed outside of recommended hold time.
U	Analyte was not detected.

Glossary

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

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Job ID: 880-387-1

Laboratory: Eurofins Xenco, Midland

Narrative

Job Narrative
880-387-1

Comments
No additional comments.

Receipt
The samples were received on 3/15/2021 9:18 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 3.5º C.

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

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

Subcontract non-Sister
See attached subcontract report.

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

Subcontract Work
Method TDS: This method was subcontracted to Eurofins Stafford. The subcontract laboratory certification is different from that of the facility issuing the final report.

Detection Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-1 — Lab Sample ID: 880-387-1

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	10.9		0.500		mg/L	1		300.0	Total/NA
Total Dissolved Solids	360	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: TWM-3 — Lab Sample ID: 880-387-2

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	213		5.00		mg/L	10		300.0	Total/NA
Total Dissolved Solids	900	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: TWM-2 — Lab Sample ID: 880-387-3

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	293		5.00		mg/L	10		300.0	Total/NA
Total Dissolved Solids	1000	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: TWM-4 — Lab Sample ID: 880-387-4

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	834		10.0		mg/L	20		300.0	Total/NA
Total Dissolved Solids	1960	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: Windmill — Lab Sample ID: 880-387-5

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	252		2.50		mg/L	5		300.0	Total/NA
Total Dissolved Solids	745	K	5.00		mg/L	1		TDS	Total/NA

Client Sample ID: Dup-1 — Lab Sample ID: 880-387-6

Analyte	Result	Qualifier	RL		Unit	Dil Fac	D	Method	Prep Type
Chloride	259		2.50		mg/L	5		300.0	Total/NA
Total Dissolved Solids	798	K	5.00		mg/L	1		TDS	Total/NA

This Detection Summary does not include radiochemical test results.

Eurofins Xenco, Midland

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-1

Date Collected: 03/11/21 08:53
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-1

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Toluene	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Total BTEX	<2.00	U	2.00		ug/L			03/24/21 02:09	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/24/21 02:09	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/24/21 02:09	1
o-Xylene	<2.00	U	2.00		ug/L			03/24/21 02:09	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*91*		*70 - 130*		*03/24/21 02:09*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*		*03/24/21 02:09*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**10.9**		0.500		mg/L			03/17/21 23:08	1

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**360**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample ID: TWM-3

Date Collected: 03/11/21 09:12
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-2

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 10:50	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 10:50	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 10:50	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 10:50	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*03/20/21 10:50*	*1*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*		*03/20/21 10:50*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**213**		5.00		mg/L			03/17/21 23:17	10

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**900**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-2

Date Collected: 03/11/21 09:36
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-3

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 11:11	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 11:11	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 11:11	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 11:11	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*03/20/21 11:11*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/20/21 11:11*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**293**		5.00		mg/L			03/17/21 23:26	10

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1000**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample ID: TWM-4

Date Collected: 03/11/21 10:05
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-4

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 11:31	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 11:31	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 11:31	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 11:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*03/20/21 11:31*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/20/21 11:31*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**834**		10.0		mg/L			03/17/21 23:35	20

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1960**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: Windmill

Lab Sample ID: 880-387-5
Matrix: Water
Date Collected: 03/12/21 13:26
Date Received: 03/15/21 09:18

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Toluene	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Total BTEX	<2.00	U	2.00		ug/L			03/20/21 11:52	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/20/21 11:52	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/20/21 11:52	1
o-Xylene	<2.00	U	2.00		ug/L			03/20/21 11:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*03/20/21 11:52*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/20/21 11:52*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**252**		2.50		mg/L			03/18/21 00:02	5

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**745**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Client Sample ID: Dup-1

Lab Sample ID: 880-387-6
Matrix: Water
Date Collected: 03/12/21 00:00
Date Received: 03/15/21 09:18

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Toluene	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Total BTEX	<2.00	U	2.00		ug/L			03/24/21 02:30	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/24/21 02:30	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/24/21 02:30	1
o-Xylene	<2.00	U	2.00		ug/L			03/24/21 02:30	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*95*		*70 - 130*		*03/24/21 02:30*	*1*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*		*03/24/21 02:30*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**259**		2.50		mg/L			03/18/21 00:11	5

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**798**	**K**	5.00		mg/L		03/21/21 12:30	03/21/21 12:30	1

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
820-139-B-4 MS	Matrix Spike	93	99
820-139-B-4 MSD	Matrix Spike Duplicate	97	101
880-387-1	TWM-1	91	102
880-387-2	TWM-3	102	99
880-387-3	TWM-2	108	101
880-387-4	TWM-4	107	101
880-387-5	Windmill	108	101
880-387-6	Dup-1	95	101
890-344-A-1 MS	Matrix Spike	100	98
890-344-A-1 MSD	Matrix Spike Duplicate	103	95
LCS 880-592/3	Lab Control Sample	100	100
LCS 880-750/33	Lab Control Sample	94	94
LCSD 880-592/4	Lab Control Sample Dup	100	100
LCSD 880-750/34	Lab Control Sample Dup	97	100
MB 880-592/8	Method Blank	102	97
MB 880-598/5-A	Method Blank	111	95
MB 880-750/39	Method Blank	115	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DFBZ = 1,4-Difluorobenzene (Surr)

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-592/8
Matrix: Water
Analysis Batch: 592

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Toluene	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Total BTEX	<2.00	U	2.00		ug/L			03/19/21 10:29	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/19/21 10:29	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/19/21 10:29	1
o-Xylene	<2.00	U	2.00		ug/L			03/19/21 10:29	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*70 - 130*		*03/19/21 10:29*	*1*
1,4-Difluorobenzene (Surr)	*97*		*70 - 130*		*03/19/21 10:29*	*1*

Lab Sample ID: LCS 880-592/3
Matrix: Water
Analysis Batch: 592

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			100	104.1		ug/L		104	70 - 130		
Ethylbenzene			100	114.1		ug/L		114	70 - 130		
Toluene			100	110.0		ug/L		110	70 - 130		
m-Xylene & p-Xylene			200	233.0		ug/L		117	70 - 130		
o-Xylene			100	112.0		ug/L		112	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: LCSD 880-592/4
Matrix: Water
Analysis Batch: 592

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			100	110.6		ug/L		111	70 - 130	6	20
Ethylbenzene			100	119.9		ug/L		120	70 - 130	5	20
Toluene			100	115.8		ug/L		116	70 - 130	5	20
m-Xylene & p-Xylene			200	244.2		ug/L		122	70 - 130	5	20
o-Xylene			100	117.1		ug/L		117	70 - 130	4	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 890-344-A-1 MS
Matrix: Water
Analysis Batch: 592

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<2.00	U F1	100	114.4		ug/L		114	70 - 130		

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

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

Lab Sample ID: 890-344-A-1 MS
Matrix: Water
Analysis Batch: 592

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Ethylbenzene	<2.00	U F1	100	121.0		ug/L		121	70 - 130
Toluene	<2.00	U F1	100	118.2		ug/L		118	70 - 130
m-Xylene & p-Xylene	<4.00	U F1	200	247.1		ug/L		124	70 - 130
o-Xylene	<2.00	U F1	100	119.3		ug/L		119	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*98*		*70 - 130*

Lab Sample ID: 890-344-A-1 MSD
Matrix: Water
Analysis Batch: 592

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25
Ethylbenzene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25
Toluene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25
m-Xylene & p-Xylene	<4.00	U F1	200	<4.00	U F1	ug/L		0	70 - 130	NC	25
o-Xylene	<2.00	U F1	100	<2.00	U F1	ug/L		0	70 - 130	NC	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*103*		*70 - 130*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*

Lab Sample ID: MB 880-598/5-A
Matrix: Water
Analysis Batch: 750

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 598

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L		03/23/21 10:55	03/23/21 14:21	1
Ethylbenzene	<2.00	U	2.00		ug/L		03/23/21 10:55	03/23/21 14:21	1
Toluene	<2.00	U	2.00		ug/L		03/23/21 10:55	03/23/21 14:21	1
Total BTEX	<2.00	U	2.00		ug/L		03/23/21 10:55	03/23/21 14:21	1
Xylenes, Total	<4.00	U	4.00		ug/L		03/23/21 10:55	03/23/21 14:21	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L		03/23/21 10:55	03/23/21 14:21	1
o-Xylene	<2.00	U	2.00		ug/L		03/23/21 10:55	03/23/21 14:21	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*111*		*70 - 130*	*03/23/21 10:55*	*03/23/21 14:21*	*1*
1,4-Difluorobenzene (Surr)	*95*		*70 - 130*	*03/23/21 10:55*	*03/23/21 14:21*	*1*

Lab Sample ID: MB 880-750/39
Matrix: Water
Analysis Batch: 750

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	U	2.00		ug/L			03/24/21 01:27	1
Ethylbenzene	<2.00	U	2.00		ug/L			03/24/21 01:27	1

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

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

Lab Sample ID: MB 880-750/39
Matrix: Water
Analysis Batch: 750

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Toluene	<2.00	U	2.00		ug/L			03/24/21 01:27	1
Total BTEX	<2.00	U	2.00		ug/L			03/24/21 01:27	1
Xylenes, Total	<4.00	U	4.00		ug/L			03/24/21 01:27	1
m-Xylene & p-Xylene	<4.00	U	4.00		ug/L			03/24/21 01:27	1
o-Xylene	<2.00	U	2.00		ug/L			03/24/21 01:27	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*115*		*70 - 130*		*03/24/21 01:27*	*1*
1,4-Difluorobenzene (Surr)	*96*		*70 - 130*		*03/24/21 01:27*	*1*

Lab Sample ID: LCS 880-750/33
Matrix: Water
Analysis Batch: 750

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			100	96.25		ug/L		96	70 - 130		
Ethylbenzene			100	93.87		ug/L		94	70 - 130		
Toluene			100	99.05		ug/L		99	70 - 130		
m-Xylene & p-Xylene			200	191.1		ug/L		96	70 - 130		
o-Xylene			100	93.23		ug/L		93	70 - 130		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*94*		*70 - 130*
1,4-Difluorobenzene (Surr)	*94*		*70 - 130*

Lab Sample ID: LCSD 880-750/34
Matrix: Water
Analysis Batch: 750

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			100	93.34		ug/L		93	70 - 130	3	20
Ethylbenzene			100	93.86		ug/L		94	70 - 130	0	20
Toluene			100	98.22		ug/L		98	70 - 130	1	20
m-Xylene & p-Xylene			200	183.2		ug/L		92	70 - 130	4	20
o-Xylene			100	92.33		ug/L		92	70 - 130	1	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*100*		*70 - 130*

Lab Sample ID: 820-139-B-4 MS
Matrix: Water
Analysis Batch: 750

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	<2.00	U	100	96.80		ug/L		97	70 - 130		
Ethylbenzene	<2.00	U	100	95.39		ug/L		95	70 - 130		
Toluene	<2.00	U	100	101.2		ug/L		101	70 - 130		

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

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

Lab Sample ID: 820-139-B-4 MS
Matrix: Water
Analysis Batch: 750

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
m-Xylene & p-Xylene	<4.00	U	200	190.3		ug/L		95	70 - 130
o-Xylene	<2.00	U	100	91.70		ug/L		92	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*70 - 130*
1,4-Difluorobenzene (Surr)	*99*		*70 - 130*

Lab Sample ID: 820-139-B-4 MSD
Matrix: Water
Analysis Batch: 750

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<2.00	U	100	99.07		ug/L		99	70 - 130	2	25
Ethylbenzene	<2.00	U	100	101.1		ug/L		101	70 - 130	6	25
Toluene	<2.00	U	100	104.3		ug/L		104	70 - 130	3	25
m-Xylene & p-Xylene	<4.00	U	200	201.7		ug/L		101	70 - 130	6	25
o-Xylene	<2.00	U	100	98.08		ug/L		98	70 - 130	7	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-549/3
Matrix: Water
Analysis Batch: 549

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500		mg/L			03/17/21 22:13	1

Lab Sample ID: LCS 880-549/4
Matrix: Water
Analysis Batch: 549

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride			25.0	23.89		mg/L		96	90 - 110

Lab Sample ID: LCSD 880-549/5
Matrix: Water
Analysis Batch: 549

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			25.0	23.77		mg/L		95	90 - 110	1	20

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-415-A-1 MS
Matrix: Water
Analysis Batch: 549

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	51.0		25.0	75.29		mg/L		97	90 - 110

Lab Sample ID: 880-415-A-1 MSD
Matrix: Water
Analysis Batch: 549

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	51.0		25.0	75.26		mg/L		97	90 - 110	0	20

Method: TDS - SM 2540C Total Dissolved Solids (TDS)

Lab Sample ID: 3154281-1-BLK
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	BLANK Result	BLANK Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<5	U	5		mg/L		03/21/21 12:30	03/21/21 12:30	1

Lab Sample ID: 3154281-1-BKS
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids	1000	987		mg/L		99	80 - 120

Lab Sample ID: 3154281-1-BSD
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids	1000	955		mg/L		96	80 - 120	3	10

Lab Sample ID: 692017-006 D
Matrix: WATER
Analysis Batch: 3154281

Client Sample ID: Duplicate
Prep Type: Total/NA
Prep Batch: 3154281_P

Analyte	Sample Result	Sample Qualifier	DUP Result	DUP Qualifier	Unit	D	RPD	RPD Limit
Total Dissolved Solids	798		742		mg/L		7	10

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

GC VOA

Analysis Batch: 592

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-2	TWM-3	Total/NA	Water	8021B	
880-387-3	TWM-2	Total/NA	Water	8021B	
880-387-4	TWM-4	Total/NA	Water	8021B	
880-387-5	Windmill	Total/NA	Water	8021B	
MB 880-592/8	Method Blank	Total/NA	Water	8021B	
LCS 880-592/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-592/4	Lab Control Sample Dup	Total/NA	Water	8021B	
890-344-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
890-344-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

Prep Batch: 598

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 880-598/5-A	Method Blank	Total/NA	Water	5035	

Analysis Batch: 750

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	8021B	
880-387-6	Dup-1	Total/NA	Water	8021B	
MB 880-598/5-A	Method Blank	Total/NA	Water	8021B	598
MB 880-750/39	Method Blank	Total/NA	Water	8021B	
LCS 880-750/33	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-750/34	Lab Control Sample Dup	Total/NA	Water	8021B	
820-139-B-4 MS	Matrix Spike	Total/NA	Water	8021B	
820-139-B-4 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

HPLC/IC

Analysis Batch: 549

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	300.0	
880-387-2	TWM-3	Total/NA	Water	300.0	
880-387-3	TWM-2	Total/NA	Water	300.0	
880-387-4	TWM-4	Total/NA	Water	300.0	
880-387-5	Windmill	Total/NA	Water	300.0	
880-387-6	Dup-1	Total/NA	Water	300.0	
MB 880-549/3	Method Blank	Total/NA	Water	300.0	
LCS 880-549/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-549/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-415-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-415-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

Subcontract

Analysis Batch: 3154281

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	TDS	3154281_P
880-387-2	TWM-3	Total/NA	Water	TDS	3154281_P
880-387-3	TWM-2	Total/NA	Water	TDS	3154281_P
880-387-4	TWM-4	Total/NA	Water	TDS	3154281_P
880-387-5	Windmill	Total/NA	Water	TDS	3154281_P
880-387-6	Dup-1	Total/NA	Water	TDS	3154281_P
3154281-1-BLK	Method Blank	Total/NA	WATER	TDS	3154281_P

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Subcontract (Continued)

Analysis Batch: 3154281 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
3154281-1-BKS	Lab Control Sample	Total/NA	WATER	TDS	3154281_P
3154281-1-BSD	Lab Control Sample Dup	Total/NA	WATER	TDS	3154281_P
692017-006 D	Duplicate	Total/NA	WATER	TDS	3154281_P

Prep Batch: 3154281_P

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-387-1	TWM-1	Total/NA	Water	NONE	
880-387-2	TWM-3	Total/NA	Water	NONE	
880-387-3	TWM-2	Total/NA	Water	NONE	
880-387-4	TWM-4	Total/NA	Water	NONE	
880-387-5	Windmill	Total/NA	Water	NONE	
880-387-6	Dup-1	Total/NA	Water	NONE	
3154281-1-BLK	Method Blank	Total/NA	WATER	***DEFAULT PREP***	
3154281-1-BKS	Lab Control Sample	Total/NA	WATER	***DEFAULT PREP***	
3154281-1-BSD	Lab Control Sample Dup	Total/NA	WATER	***DEFAULT PREP***	
692017-006 D	Duplicate	Total/NA	WATER	***DEFAULT PREP***	

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: TWM-1
Date Collected: 03/11/21 08:53
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	750	03/24/21 02:09	PXS	XM
Total/NA	Analysis	300.0		1	549	03/17/21 23:08	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: TWM-3
Date Collected: 03/11/21 09:12
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 10:50	MR	XM
Total/NA	Analysis	300.0		10	549	03/17/21 23:17	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: TWM-2
Date Collected: 03/11/21 09:36
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 11:11	MR	XM
Total/NA	Analysis	300.0		10	549	03/17/21 23:26	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: TWM-4
Date Collected: 03/11/21 10:05
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 11:31	MR	XM
Total/NA	Analysis	300.0		20	549	03/17/21 23:35	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Client Sample ID: Windmill
Date Collected: 03/12/21 13:26
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	592	03/20/21 11:52	MR	XM
Total/NA	Analysis	300.0		5	549	03/18/21 00:02	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Client Sample ID: Dup-1
Date Collected: 03/12/21 00:00
Date Received: 03/15/21 09:18

Lab Sample ID: 880-387-6
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	750	03/24/21 02:30	PXS	XM
Total/NA	Analysis	300.0		5	549	03/18/21 00:11	CH	XM
Total/NA	Prep	NONE		1	3154281_P	03/21/21 12:30		XS
Total/NA	Analysis	TDS		1	3154281	03/21/21 12:30	DTN	XS

Laboratory References:

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

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Job ID: 880-387-1
Project/Site: Apache-EBDU #37

Laboratory: Eurofins Xenco, Midland

All accreditations/certifications held by this laboratory are listed. Not all accreditations/certifications are applicable to this report.

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

Laboratory: Eurofins Stafford

The accreditations/certifications listed below are applicable to this report.

Authority	Program	Identification Number	Expiration Date
Texas	NELAP	T104704215-21-39	06-30-21

Method Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XM
300.0	Anions, Ion Chromatography	MCAWW	XM
2540C	SM 2540C Total Dissolved Solids (TDS)	SM	XS
5030B	Purge and Trap	SW846	XM

Protocol References:

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

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

Laboratory References:

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

XS = Eurofins Stafford, 4147 Greenbriar Dr, Stafford, TX 77477, TEL (281)240-4200

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: Apache-EBDU #37

Job ID: 880-387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
880-387-1	TWM-1	Water	03/11/21 08:53	03/15/21 09:18	
880-387-2	TWM-3	Water	03/11/21 09:12	03/15/21 09:18	
880-387-3	TWM-2	Water	03/11/21 09:36	03/15/21 09:18	
880-387-4	TWM-4	Water	03/11/21 10:05	03/15/21 09:18	
880-387-5	Windmill	Water	03/12/21 13:26	03/15/21 09:18	
880-387-6	Dup-1	Water	03/12/21 00:00	03/15/21 09:18	

880-387 Chain of Custody

№ 1539

CHAIN-OF-CUSTODY

Larson & Associates, Inc.
Environmental Consultants
Data Reported to

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

DATE: 3/15/2021 PAGE 1 OF 1

PO#: LAB WORK ORDER#:

PROJECT LOCATION OR NAME: Apache - EBDU #32

LAI PROJECT #: 19-0112-49 COLLECTOR: RN, TJ MS

TRRP report? ☐ Yes ☒ No

TIME ZONE
Time zone/State: MST

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

PRESERVATION: HCl x3 | HNO_3 | H_2SO_4 ☐ NaOH ☐ | ICE x2 | UNPRESSERVED

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

Field Sample I D	Lab #	Date	Time	Matrix	# of Containers	HCl x3	HNO_3	H_2SO_4 NaOH	ICE x2	UNPRESSERVED	ANALYSES	FIELD NOTES
TMW-1		3/11/21	0853	W	5						X	Direct Bill to Apache
TMW-3		"	0912	"	"						"	
TMW-2		"	0936	"	"						"	
TMW-4		"	1005	"	"						"	Liter, 250, 3 VOA + HCl
Windmill		3/12/21	1326	"	"						"	
Dup-1				W	"						"	
TOTAL												

RELINQUISHED BY (Signature) DATE/TIME 3/15/21 918 RECEIVED BY (Signature)

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

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

LABORATORY Xenco

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

LABORATORY USE ONLY:
RECEIVING TEMP 3.0/3.5 THERM# IR9
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☐ NOT USED
☐ CARRIER BILL #
☐ HAND DELIVERED

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-387-1

Login Number: 387
List Number: 1
Creator: Teel, Brianna

List Source: Eurofins Midland

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

Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

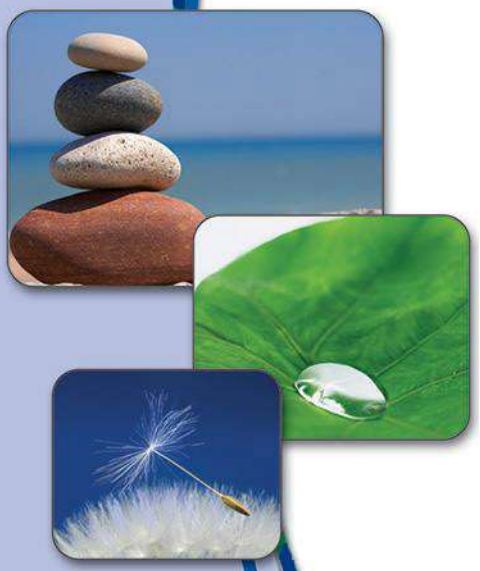
Sample	Collection Date	Benzene (mg/L)	Toluene (mg/L)	Ethylbenzene (mg/L)	Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)	Depth To Water (Feet TOC)
NMWQCC Standard:		*0.005	*1	*0.7	*0.62	**250	**1,000	
Windmill	(1) 08/01/2019	<0.001	<0.001	<0.001	<0.003	232	732	--
	(2) 09/23/2019	--	--	--	--	--	--	--
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**259**	688	--
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**274**	730	--
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**287**	930	--
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**252**	745	--
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	**255**	781	--
TMW-1	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	37.4	400	46.18
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	21.1	390	48.90
	(3) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	22.6	390	49.31
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	13.1	383	49.42
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	10.9	360	49.41
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	14.5	360	49.67
TMW-2	(2) 09/23/2019	<0.00800	<0.00200	<0.00200	<0.00200	**338**	**1,220**	55.80
	(2) 12/26/2019	<0.000800	<0.00200	<0.00200	<0.00200	**307**	**1,170**	57.50
	(3) 09/30/2020	<0.00200	0.00227	<0.00200	<0.00200	**314**	**1,040**	58.01
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**298**	**1,050**	58.06
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**293**	**1,000**	58.00
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	**267**	**1,050**	58.12
TMW-3	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00322	<0.00200	0.00448	212	891	57.62
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	214	948	57.68
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	213	900	57.59
	(3) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	180	934	57.90
TMW-4	09/23/2019	--	--	--	--	--	--	--
	12/26/2019	--	--	--	--	--	--	--
	(3) 09/30/2020	<0.00200	0.00314	<0.00200	<0.00200	**1,020**	**2,040**	57.39
	(3) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**987**	**2,300**	57.45
	(3) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**834**	**1,960**	57.40
	(3) 06/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**745**	**1,190**	57.60

Table 2
1RP-5636
Groundwater Sample Analytical Data Summary
Apache Corporation, EBDU 37, Lea County, New Mexico

DUP-1 (Windmill)	([3]) 09/30/2020	<0.00200	<0.00200	<0.00200	<0.00200	**276**	794	--
DUP-1 (Windmill)	([3]) 12/07/2020	<0.00200	<0.00200	<0.00200	<0.00200	**278**	908	--
DUP-1 (Windmill)	([3]) 03/11/2021	<0.00200	<0.00200	<0.00200	<0.00400	**259**	798	--
DUP-1 (Windmill)	([3]) 06/10/2021	<0.00200	<0.00200	<0.00200	<0.00400	**256**	781	--

Notes:
('): analysis performed by Cardinal Laboratories, Hobbs, New Mexico, by EPA SW-846 Method 8021B (BTEX) and titration methods (chloride and TDS).
([2]): analysis performed by DHL Analytical, Round Rock, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([3]): analysis performed by Xenco Laboratories, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride).
([4]): anaylis performed by Eurofins-Xenco, Midland, Texas, by EPA SW-846 Method 8021B (BTEX) and Method 300 (chloride). Units reported as ug/L in report, converted to mg/L.
< values: concentration is less than method reporting limit (RL).
*: NMWQCC Human Health Standard
**: NMWQCC Domestic Water Quality Standard
--: no data available
TOC: top of casing
All values reported in milligrams per liter (mg/L) equivalent to parts per million (ppm)
Bold and highlighted denotes analyte concentration exceeds NMWQCC domestic water quality standard

eurofins | Environment Testing America



ANALYTICAL REPORT

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

Laboratory Job ID: 880-3001-1
Laboratory Sample Delivery Group: 19-0112-49
Client Project/Site: Apache - EBDU #37

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

Attn: Mr. Mark J Larson

Holly Taylor

Authorized for release by:
6/21/2021 7:31:18 AM

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

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Laboratory Job ID: 880-3001-1
SDG: 19-0112-49

Table of Contents

Definitions/Glossary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Qualifiers

GC VOA

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

HPLC/IC

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

General Chemistry

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

Glossary

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

Case Narrative

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Job ID: 880-3001-1

Laboratory: Eurofins Xenco, Midland

Narrative

Job Narrative
880-3001-1

Receipt
The samples were received on 6/14/2021 8:37 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 6.0°C

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

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

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

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: TMW-1

Date Collected: 06/10/21 10:23
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-1

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 15:31	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 15:31	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 15:31	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 15:31	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*108*		*70 - 130*		*06/14/21 15:31*	*1*
1,4-Difluorobenzene (Surr)	*103*		*70 - 130*		*06/14/21 15:31*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**14.5**		0.500		mg/L			06/15/21 15:43	1

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**360**		50.0		mg/L			06/16/21 18:56	1

Client Sample ID: TMW-2

Date Collected: 06/10/21 12:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-2

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 15:57	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 15:57	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 15:57	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 15:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*70 - 130*		*06/14/21 15:57*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*		*06/14/21 15:57*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**267**		2.50		mg/L			06/15/21 15:49	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1050**		50.0		mg/L			06/16/21 18:56	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: TMW-3

Date Collected: 06/10/21 11:05
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-3

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 16:22	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 16:22	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 16:22	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 16:22	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*112*		*70 - 130*		*06/14/21 16:22*	*1*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*		*06/14/21 16:22*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**180**		2.50		mg/L			06/15/21 15:56	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**934**		50.0		mg/L			06/16/21 18:56	1

Client Sample ID: TMW-4

Date Collected: 06/11/21 10:50
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-4

Matrix: Water

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 16:48	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 16:48	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 16:48	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 16:48	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*110*		*70 - 130*		*06/14/21 16:48*	*1*
1,4-Difluorobenzene (Surr)	*105*		*70 - 130*		*06/14/21 16:48*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**745**		10.0		mg/L			06/15/21 16:18	20

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**1990**		100		mg/L			06/16/21 18:56	1

Client Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: Windmill

Lab Sample ID: 880-3001-5
Matrix: Water
Date Collected: 06/10/21 12:26
Date Received: 06/14/21 08:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 17:13	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 17:13	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 17:13	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 17:13	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*107*		*70 - 130*		*06/14/21 17:13*	*1*
1,4-Difluorobenzene (Surr)	*102*		*70 - 130*		*06/14/21 17:13*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**255**		2.50		mg/L			06/15/21 16:25	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**794**		50.0		mg/L			06/16/21 18:56	1

Client Sample ID: Dup-1

Lab Sample ID: 880-3001-6
Matrix: Water
Date Collected: 06/10/21 00:00
Date Received: 06/14/21 08:37

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 18:57	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 18:57	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 18:57	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 18:57	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*116*		*70 - 130*		*06/14/21 18:57*	*1*
1,4-Difluorobenzene (Surr)	*88*		*70 - 130*		*06/14/21 18:57*	*1*

Method: 300.0 - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	**256**		2.50		mg/L			06/15/21 16:32	5

General Chemistry

Analyte	Result	Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	**781**		50.0		mg/L			06/16/21 18:56	1

Surrogate Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)											
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)										
880-2930-A-1 MS	Matrix Spike	99	104										
880-2930-A-1 MSD	Matrix Spike Duplicate	100	101										
880-3001-1	TMW-1	108	103										
880-3001-2	TMW-2	105	102										
880-3001-3	TMW-3	112	107										
880-3001-4	TMW-4	110	105										
880-3001-5	Windmill	107	102										
880-3001-6	Dup-1	116	88										
LCS 880-4074/3	Lab Control Sample	104	104										
LCSD 880-4074/4	Lab Control Sample Dup	99	107										
MB 880-4074/8	Method Blank	71	84										

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

DFBZ = 1,4-Difluorobenzene (Surr)

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-4074/8
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
Toluene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
Ethylbenzene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/L			06/14/21 12:59	1
o-Xylene	<0.00200	U	0.00200		mg/L			06/14/21 12:59	1
Xylenes, Total	<0.00400	U	0.00400		mg/L			06/14/21 12:59	1
Total BTEX	<0.00400	U	0.00400		mg/L			06/14/21 12:59	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*71*		*70 - 130*		*06/14/21 12:59*	*1*
1,4-Difluorobenzene (Surr)	*84*		*70 - 130*		*06/14/21 12:59*	*1*

Lab Sample ID: LCS 880-4074/3
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene			0.100	0.09419		mg/L		94	70 - 130		
Toluene			0.100	0.1038		mg/L		104	70 - 130		
Ethylbenzene			0.100	0.1078		mg/L		108	70 - 130		
m-Xylene & p-Xylene			0.200	0.1914		mg/L		96	70 - 130		
o-Xylene			0.100	0.09672		mg/L		97	70 - 130		

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

Lab Sample ID: LCSD 880-4074/4
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene			0.100	0.09313		mg/L		93	70 - 130	1	20
Toluene			0.100	0.1006		mg/L		101	70 - 130	3	20
Ethylbenzene			0.100	0.1055		mg/L		106	70 - 130	2	20
m-Xylene & p-Xylene			0.200	0.1875		mg/L		94	70 - 130	2	20
o-Xylene			0.100	0.09438		mg/L		94	70 - 130	2	20

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*107*		*70 - 130*

Lab Sample ID: 880-2930-A-1 MS
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits		
Benzene	0.00880		0.100	0.1055		mg/L		97	70 - 130		

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

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

Lab Sample ID: 880-2930-A-1 MS
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Toluene	0.0123		0.100	0.1165		mg/L		104	70 - 130
Ethylbenzene	<0.00200	U	0.100	0.1064		mg/L		106	70 - 130
m-Xylene & p-Xylene	0.00594		0.200	0.1952		mg/L		95	70 - 130
o-Xylene	<0.00200	U	0.100	0.09681		mg/L		96	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*99*		*70 - 130*
1,4-Difluorobenzene (Surr)	*104*		*70 - 130*

Lab Sample ID: 880-2930-A-1 MSD
Matrix: Water
Analysis Batch: 4074

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.00880		0.100	0.09846		mg/L		90	70 - 130	7	25
Toluene	0.0123		0.100	0.1114		mg/L		99	70 - 130	4	25
Ethylbenzene	<0.00200	U	0.100	0.1028		mg/L		103	70 - 130	3	25
m-Xylene & p-Xylene	0.00594		0.200	0.1878		mg/L		91	70 - 130	4	25
o-Xylene	<0.00200	U	0.100	0.09330		mg/L		92	70 - 130	4	25

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*100*		*70 - 130*
1,4-Difluorobenzene (Surr)	*101*		*70 - 130*

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-4120/3
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<0.500	U	0.500		mg/L			06/15/21 14:49	1

Lab Sample ID: LCS 880-4120/4
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride			25.0	23.77		mg/L		95	90 - 110

Lab Sample ID: LCSD 880-4120/5
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride			25.0	23.31		mg/L		93	90 - 110	2	20

QC Sample Results

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: 880-3041-A-1 MS
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	16.4		25.0	40.52		mg/L		96	90 - 110

Lab Sample ID: 880-3041-A-1 MSD
Matrix: Water
Analysis Batch: 4120

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	16.4		25.0	41.69		mg/L		101	90 - 110	3	20

Method: SM 2540C - Solids, Total Dissolved (TDS)

Lab Sample ID: MB 880-4150/1
Matrix: Water
Analysis Batch: 4150

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Total Dissolved Solids	<25.0	U	25.0		mg/L			06/16/21 18:56	1

Lab Sample ID: LCS 880-4150/2
Matrix: Water
Analysis Batch: 4150

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Total Dissolved Solids			1000	989.0		mg/L		99	80 - 120

Lab Sample ID: LCSD 880-4150/3
Matrix: Water
Analysis Batch: 4150

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Total Dissolved Solids			1000	997.0		mg/L		100	80 - 120	1	10

Lab Sample ID: 880-3001-1 DU
Matrix: Water
Analysis Batch: 4150

Client Sample ID: TMW-1
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier		DU Result	DU Qualifier	Unit	D			RPD	RPD Limit
Total Dissolved Solids	360			363.0		mg/L				0.8	10

QC Association Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

GC VOA

Analysis Batch: 4074

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-3001-1	TMW-1	Total/NA	Water	8021B	
880-3001-2	TMW-2	Total/NA	Water	8021B	
880-3001-3	TMW-3	Total/NA	Water	8021B	
880-3001-4	TMW-4	Total/NA	Water	8021B	
880-3001-5	Windmill	Total/NA	Water	8021B	
880-3001-6	Dup-1	Total/NA	Water	8021B	
MB 880-4074/8	Method Blank	Total/NA	Water	8021B	
LCS 880-4074/3	Lab Control Sample	Total/NA	Water	8021B	
LCSD 880-4074/4	Lab Control Sample Dup	Total/NA	Water	8021B	
880-2930-A-1 MS	Matrix Spike	Total/NA	Water	8021B	
880-2930-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	8021B	

HPLC/IC

Analysis Batch: 4120

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-3001-1	TMW-1	Total/NA	Water	300.0	
880-3001-2	TMW-2	Total/NA	Water	300.0	
880-3001-3	TMW-3	Total/NA	Water	300.0	
880-3001-4	TMW-4	Total/NA	Water	300.0	
880-3001-5	Windmill	Total/NA	Water	300.0	
880-3001-6	Dup-1	Total/NA	Water	300.0	
MB 880-4120/3	Method Blank	Total/NA	Water	300.0	
LCS 880-4120/4	Lab Control Sample	Total/NA	Water	300.0	
LCSD 880-4120/5	Lab Control Sample Dup	Total/NA	Water	300.0	
880-3041-A-1 MS	Matrix Spike	Total/NA	Water	300.0	
880-3041-A-1 MSD	Matrix Spike Duplicate	Total/NA	Water	300.0	

General Chemistry

Analysis Batch: 4150

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
880-3001-1	TMW-1	Total/NA	Water	SM 2540C	
880-3001-2	TMW-2	Total/NA	Water	SM 2540C	
880-3001-3	TMW-3	Total/NA	Water	SM 2540C	
880-3001-4	TMW-4	Total/NA	Water	SM 2540C	
880-3001-5	Windmill	Total/NA	Water	SM 2540C	
880-3001-6	Dup-1	Total/NA	Water	SM 2540C	
MB 880-4150/1	Method Blank	Total/NA	Water	SM 2540C	
LCS 880-4150/2	Lab Control Sample	Total/NA	Water	SM 2540C	
LCSD 880-4150/3	Lab Control Sample Dup	Total/NA	Water	SM 2540C	
880-3001-1 DU	TMW-1	Total/NA	Water	SM 2540C	

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: TMW-1
Date Collected: 06/10/21 10:23
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 15:31	MR	XEN MID
Total/NA	Analysis	300.0		1			4120	06/15/21 15:43	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: TMW-2
Date Collected: 06/10/21 12:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 15:57	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 15:49	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: TMW-3
Date Collected: 06/10/21 11:05
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 16:22	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 15:56	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: TMW-4
Date Collected: 06/11/21 10:50
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 16:48	MR	XEN MID
Total/NA	Analysis	300.0		20			4120	06/15/21 16:18	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	50 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Client Sample ID: Windmill
Date Collected: 06/10/21 12:26
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 17:13	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 16:25	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Lab Chronicle

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Client Sample ID: Dup-1

Date Collected: 06/10/21 00:00
Date Received: 06/14/21 08:37

Lab Sample ID: 880-3001-6

Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8021B		1	5 mL	5 mL	4074	06/14/21 18:57	MR	XEN MID
Total/NA	Analysis	300.0		5			4120	06/15/21 16:32	CH	XEN MID
Total/NA	Analysis	SM 2540C		1	100 mL	200 mL	4150	06/16/21 18:56	SC	XEN MID

Laboratory References:

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

Accreditation/Certification Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Laboratory: Eurofins Xenco, Midland

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

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

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

Analysis Method	Prep Method	Matrix	Analyte
8021B		Water	Total BTEX

Method Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Method	Method Description	Protocol	Laboratory
8021B	Volatile Organic Compounds (GC)	SW846	XEN MID
300.0	Anions, Ion Chromatography	MCAWW	XEN MID
SM 2540C	Solids, Total Dissolved (TDS)	SM	XEN MID
5030B	Purge and Trap	SW846	XEN MID

Protocol References:

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

SM = "Standard Methods For The Examination Of Water And Wastewater"

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

Laboratory References:

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

Sample Summary

Client: Larson & Associates, Inc.
Project/Site: Apache - EBDU #37

Job ID: 880-3001-1
SDG: 19-0112-49

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Asset ID
880-3001-1	TMW-1	Water	06/10/21 10:23	06/14/21 08:37	
880-3001-2	TMW-2	Water	06/10/21 12:00	06/14/21 08:37	
880-3001-3	TMW-3	Water	06/10/21 11:05	06/14/21 08:37	
880-3001-4	TMW-4	Water	06/11/21 10:50	06/14/21 08:37	
880-3001-5	Windmill	Water	06/10/21 12:26	06/14/21 08:37	
880-3001-6	Dup-1	Water	06/10/21 00:00	06/14/21 08:37	

980-3001 Nº 1578

CHAIN-OF-CUSTODY

880-3001 Chain of Custody

Larson & Associates, Inc.
Environmental Consultants
Midland, TX 79701
432-687-0901

DATE: 6-11-2021 PAGE 1 OF 1

PO#: _____ LAB WORK ORDER#: _____

PROJECT LOCATION OR NAME: EDDU #37

LAI PROJECT #: 19-0112-49 COLLECTOR: MB, TJ, TP

Data Reported to.

TRRP report? ☐ Yes ☒ No

TIME ZONE: Time zone/State MST

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

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

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

Field Sample I D	Lab #	Date	Time	Matrix	# of Containers	HCl	HNO_3	H_2SO_4 ☐ NaOH ☐	ICE	UNPRESERVED	ANALYSES	FIELD NOTES
TMW-1		6/10/21	1023	W	5				X		X	Direct Bill to Ahrye
TMW-2		6/10/21	1200									
TMW-3		6/10/21	1105									
TMW-4		6/11/21	1050									
Windmill		6/10/21	1220									
Dup-1		6/10/21										

TOTAL 6

RELINQUISHED BY (Signature)	DATE/TIME 6/14	RECEIVED BY (Signature) 0837
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)
RELINQUISHED BY (Signature)	DATE/TIME	RECEIVED BY (Signature)

LABORATORY XENCO

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

LABORATORY USE ONLY:
RECEIVING TEMP 5.5/6.0 THERM# IR8
CUSTODY SEALS - ☐ BROKEN ☐ INTACT ☑ NOT USED
☐ CARRIER BILL # _____
☑ HAND DELIVERED

Login Sample Receipt Checklist

Client: Larson & Associates, Inc.

Job Number: 880-3001-1
SDG Number: 19-0112-49

Login Number: 3001
List Number: 1
Creator: Phillips, Kerianna

List Source: Eurofins Xenco, Midland

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

District I
1625 N. French Dr., Hobbs, NM 88240
Phone:(575) 393-6161 Fax:(575) 393-0720
District II
811 S. First St., Artesia, NM 88210
Phone:(575) 748-1283 Fax:(575) 748-9720
District III
1000 Rio Brazos Rd., Aztec, NM 87410
Phone:(505) 334-6178 Fax:(505) 334-6170
District IV
1220 S. St Francis Dr., Santa Fe, NM 87505
Phone:(505) 476-3470 Fax:(505) 476-3462

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

COMMENTS

Action 17562

COMMENTS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 17562
	Action Type: [C-141] Release Corrective Action (C-141)

COMMENTS

Created By	Comment	Comment Date
chensley	Waiting on 1&2 quarter reports	8/5/2021

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Phone:(575) 393-6161 Fax:(575) 393-0720
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CONDITIONS

Action 17562

CONDITIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 17562
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	8/27/2021

Sante Fe Main Office
Phone: (505) 476-3441

General Information
Phone: (505) 629-6116

Online Phone Directory
https://www.emnrd.nm.gov/ocd/contact-us

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

QUESTIONS

Operator: APACHE CORPORATION 303 Veterans Airpark Ln Midland, TX 79705	OGRID: 873
	Action Number: 419159
	Action Type: [HEAR] Prehearing Statement (PREHEARING)

QUESTIONS

Testimony

Please assist us by provide the following information about your testimony.

Number of witnesses	3
Testimony time (in minutes)	240