

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

Incident ID	NAB1901038306
District RP	2RP-5169
Facility ID	fAB1901038066
Application ID	pAB1901037748

Release Notification

Responsible Party

Responsible Party XTO Energy, Inc.	OGRID 5380
Contact Name Kyle Littrell	Contact Telephone 432-221-7331
Contact email kyle_littrell@xtoenergy.com	Incident # (assigned by OCD) NAB1901038306
Contact mailing address 522 W. Mermod, Suite 704, Carlsbad, NM	

Location of Release Source

Latitude 32.287 Longitude -103.959
(NAD 83 in decimal degrees to 5 decimal places)

Site Name PCA 53	Site Type
Date Release Discovered 11/27/18	API# (if applicable)

Unit Letter	Section	Township	Range	County
K	23	23S	29E	Eddy

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

Nature and Volume of Release

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

☒ Crude Oil	Volume Released (bbls) 2,022	Volume Recovered (bbls) 0
☒ Produced Water	Volume Released (bbls) 6,066	Volume Recovered (bbls) 0
	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

On November 27th, the BLM notified XTO that fluids had been discovered on surface through an existing corehole associated with a nearby potash mine. In October, XTO experienced a pressure loss while drilling the Remuda South 25 State 101H and an unknown volume of flowback fluids were released into the subsurface. BLM has associated the loss of flowback fluids into the subsurface to the November 27th event. Inspection of the site was performed by an environmental contractor and review of the data is in progress.

Incident ID	NAB19010383
District RP	2RP-5169
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Was this a major release as defined by 19.15.29.7(A) NMAC?

☒ Yes ☐ No

If YES, for what reason(s) does the responsible party consider this a major release?
The release exceeded 25 bbls of produced water and oil.

If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?
Release was reported by a member of the public to the BLM on 11/27/18. BLM notified XTO and XTO provided notice to Mike Bratcher, Maria Pruett, Jim Griswold at NMOCD and Jim Amos and Shelly Tucker at BLM on 11/29/18. Notification was provided by email by Bryan Foust.

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: Kyle Littrell

Title: SH&E Coordinator

Signature:

Date: 12/11/18

email: kyle_littrell@xtoenergy.com

Telephone: 432-221-7331

OCD Only

Received by:

Date: 1/10/2019

Incident ID	NAB1901038066
District RP	2RP-5169
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Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>50-100</u> (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas not on an exploration, development, production, or storage site?	☒ Yes ☐ No

Attach a comprehensive report (electronic submittals in .pdf format are preferred) demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined. Refer to 19.15.29.11 NMAC for specifics.

Characterization Report Checklist: *Each of the following items must be included in the report.*

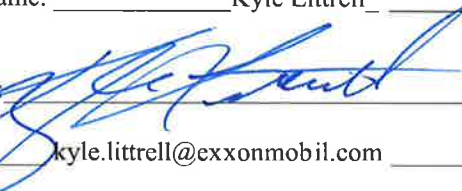
- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within 1/2-mile of the lateral extents of the release
- ☒ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

If the site characterization report does not include completed efforts at remediation of the release, the report must include a proposed remediation plan. That plan must include the estimated volume of material to be remediated, the proposed remediation technique, proposed sampling plan and methods, anticipated timelines for beginning and completing the remediation. The closure criteria for a release are contained in Table 1 of 19.15.29.12 NMAC, however, use of the table is modified by site- and release-specific parameters.

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Facility ID	fAB1901038066
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Printed Name: Kyle Littrell Title: Environmental Manager

Signature: 

Date: 4/15/21

email: kyle.littrell@exxonmobil.com

Telephone: (432)-221-7331

OCD Only

Received by: _____

Date: _____

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Remediation Plan

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

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

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

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

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

Printed Name: Kyle Littrell Title: SH&E Manager Supervisor
Signature:  Date: 8/30/19
email: kyle_littrell@xtoenergy.com Telephone: 432-221-7331

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

Incident ID	NAB1901037748
District RP	2RP- 5169
Facility ID	fAB1901038066
Application ID	pAB1901037748

Closure

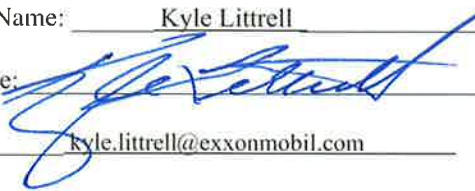
The responsible party must attach information demonstrating they have complied with all applicable closure requirements and any conditions or directives of the OCD. This demonstration should be in the form of a comprehensive report (electronic submittals in .pdf format are preferred) including a scaled 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: Kyle Littrell Title: Environmental Manager

Signature:  Date: 4/15/21

email: kyle.littrell@exxonmobil.com Telephone: 432-221-7331

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.

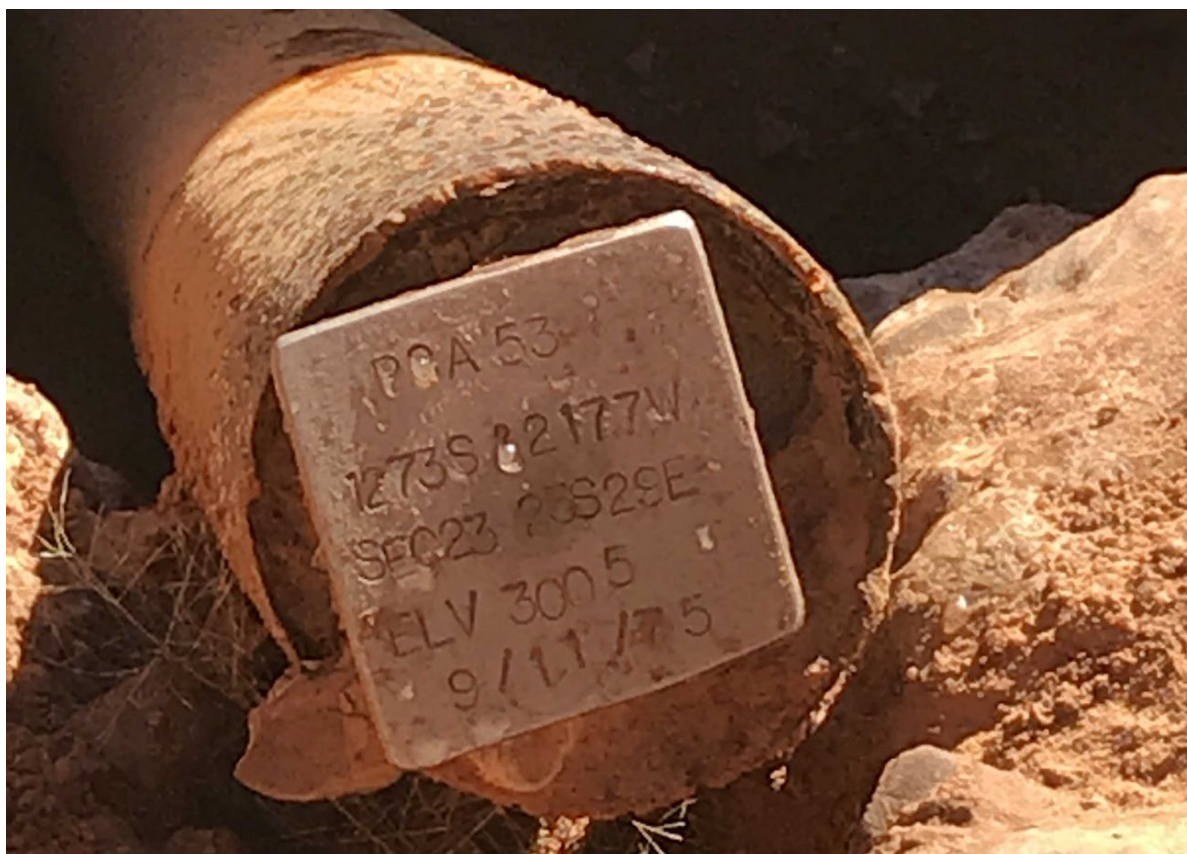
Closure Approved by: _____ Date: _____

Printed Name: _____ Title: _____

ADDITIONAL GROUNDWATER ASSESSMENT REPORT & CLOSURE REQUEST

PCA 53
REMEDIATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO

APRIL 15, 2021





ADDITIONAL GROUNDWATER ASSESSMENT REPORT AND CLOSURE REQUEST

PCA 53
REMEDATION PERMIT NUMBER
2RP-5169
EDDY COUNTY, NEW MEXICO

XTO ENERGY INC.
6401 NORTH HOLIDAY HILL DRIVE
MIDLAND, TEXAS 79707

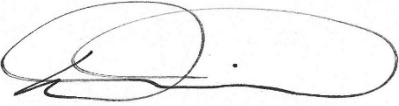
PROJECT NO.: TE012918187
DATE: APRIL 2021

WSP
508 WEST STEVENS STREET
CARLSBAD, NEW MEXICO 88220

WSP.COM

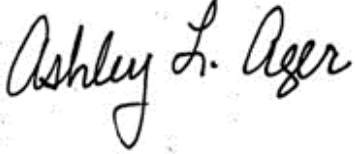
SIGNATURES

PREPARED BY



Daniel R. Moir, P.G.
Lead Consultant, Geology

APPROVED BY



Ashley Ager, P.G.
Managing Director, Geologist



TABLE OF CONTENTS

1	EXECUTIVE SUMMARY	1
2	INTRODUCTION	3
2.1	RELEASE BACKGROUND	3
2.2	PROJECT CHRONOLOGY	3
2.3	PROTECTABLE GROUNDWATER DESIGNATION	4
3	CONCEPTUAL SITE MODEL	6
3.1.1	SETTING	6
3.1.2	GEOLOGY	6
3.1.3	HYDROGEOLOGY	8
3.1.4	RELEASE CHARACTERISTICS AND BEHAVIOR	9
3.2	NMOCD RESPONSE TO RI REPORT	11
4	2021 GROUNDWATER ASSESSMENT	14
4.1	DRILLING PROGRAM	14
4.1.1	DRILLING METHODOLOGY	15
4.1.2	SOIL BORING OBSERVATIONS	16
4.1.3	CLOSURE CRITERIA	18
4.1.4	SOIL ANALYTICAL RESULTS	19
4.2	GROUNDWATER MONITORING	19
4.2.1	MONITORING WELL CONSTRUCTION	19
4.2.2	DESIGNATED GROUNDWATER ZONES	20
4.2.3	WATER SAMPLING AND ANALYSIS PROCEDURES	21
4.2.4	GROUNDWATER ELEVATIONS	22
4.2.5	GROUNDWATER ANALYTICAL RESULTS	23
5	REFINED CSM	26
5.1	SHALLOW GROUNDWATER PROTECTABILITY STATUS	28



6 CONCLUSIONS 31

7 RECOMMENDATION 33

BIBLIOGRAPHY 34



TABLES

TABLE 1	SOIL LABORATORY ANALYTICAL RESULTS
TABLE 2	MONITORING WELL CONSTRUCTION SUMMARY
TABLE 3	GROUNDWATER ELEVATION SUMMARY
TABLE 4	PRODUCT RECOVERY VOLUMES
TABLE 5	GROUNDWATER ANALYTICAL RESULTS
TABLE 6	GROUNDWATER CHEMISTRY ANALYTICAL RESULTS

GRAPHS

GRAPH 1	STIFF DIAGRAMS - FEBRUARY 2020
GRAPH 2	STIFF DIAGRAMS - JANUARY 2021
GRAPH 3	PIPER DIAGRAMS - FEBRUARY 2020
GRAPH 4	PIPER DIAGRAMS - JANUARY 2021

FIGURES

FIGURE 1	SITE LOCATION MAP
FIGURE 2	RELEASE EXTENT
FIGURE 3	CROSS SECTION LAYOUT
FIGURE 4	CROSS SECTION A-A'
FIGURE 5	CROSS SECTION B-B'
FIGURE 6	CROSS SECTION C-C'
FIGURE 7	CROSS SECTION D-D'
FIGURE 8	CROSS SECTION E-E' & F-F'
FIGURE 9	CROSS SECTION G-G'
FIGURE 10	INITIAL CONCEPTUAL SITE MODEL
FIGURE 11	BOREHOLE AND MONITORING WELL LOCATIONS
FIGURE 12	REFINED CROSS SECTION LAYOUT
FIGURE 13	CROSS SECTION I-I'
FIGURE 14	CROSS SECTION II-II'
FIGURE 15	CROSS SECTION III-III'
FIGURE 16	CROSS SECTION IV-IV'
FIGURE 17	SOIL ANALYTICAL RESULTS
FIGURE 18A	GROUNDWATER ANALYTICAL RESULTS – REZ
FIGURE 18B	GROUNDWATER ANALYTICAL RESULTS – SGZ
FIGURE 18C	GROUNDWATER ANALYTICAL RESULTS – NGZ
FIGURE 19	REFINED CONCEPTUAL SITE MODEL



APPENDICES

APPENDIX A BOREHOLE LITHOLOGIC/SOIL SAMPLING LOGS

APPENDIX B LABORATORY ANALYTICAL REPORTS

1 EXECUTIVE SUMMARY

On November 27, 2018, the Bureau of Land Management (BLM) observed fluids in a pasture, which appeared to have emanated from an existing core hole PCA 53 (Site) associated with a neighboring potash mine. The Site is located in Unit K, Section 23, Township 23 South, Range 29 East, in Eddy County, New Mexico. The fluid migrated along the ground surface to the north of the core hole and encompassed an area of approximately 189,230 square feet. The observed surface fluids in the pasture were attributed to a pressure loss associated with drilling operations at the Remuda South 25 State 101H oil well, which is owned by XTO Energy, Inc. (XTO).

Over the past two years, surficial and subsurface soil and groundwater assessments and remedial actions related to the November 2018 release at the Site have been completed. Remedial efforts have included the excavation and proper disposal of over 78,000 cubic yards of petroleum hydrocarbon and chloride impacted soil as well as the recovery of approximately 1,040 barrels (bbls) of impacted groundwater, which included over 67 gallons of phase separated hydrocarbons (PSH) as regulated under 19.15.29 of the New Mexico Administrative Code (NMAC) (Part 29).

XTO submitted previous reports documenting active subsurface remediation and compliance with the closure requirements of Part 29 for excavation and soil sampling. The identification of groundwater during subsurface delineation activities raised questions regarding applicability of 19.15.30 NMAC (Part 30) for abatement of groundwater. The previous reports presented data demonstrating a potential aquifer occurring near 90 feet bgs was not impacted by the release. Shallower disconnected lenses of groundwater with poor quality and hydrocarbon impacts were also identified. This report provides additional information regarding the shallow groundwater, particularly background water quality.

In general, three shallow groundwater zones were identified within the project area and have been designated by the Release Extent Zone (REZ), Southern Groundwater Zone (SGZ), and Northwest Groundwater Zone (NGZ). All three zones are within the Culebra Dolomite Unit and appear of naturally poor quality with total dissolved solids (TDS), iron, manganese, chloride, and sulfate exceeding their applicable New Mexico Water Quality Control Commission (NMWQCC) standards. In general, the two geological features that appear to control shallow subsurface water collection within the project area are troughs within the dolomite unit and collapse features with groundwater collecting within the dolomite unit. The poor quality was observed in all three zones, indicating the interactions between groundwater and dolomite likely has degraded the water quality.

Based on the analytical results and volume of recoverable water removed from the formation, fluid in the REZ is likely a combination of release fluid (produced water and crude oil mixtures) and naturally occurring briny water intermittently fed by the SGZ. Groundwater quality fingerprints for the REZ and SGZ appear to be similar, indicating a similar source of recharge; however, hydrocarbons are absent in the SGZ, further supporting the SGZ as representative of background water quality. The NGZ is separate from the REZ and SGZ, both in apparent lithological formation confinement and water source/recharge process. The groundwater fingerprint of NGZ is substantially different than REZ and SGZ, indicating a different source of recharge, such as precipitation infiltration and vertical migration (based on the presence of e. Coli in groundwater

samples within the NGZ) and final settlement in the dolomite unit. Hydrocarbons were not detected in groundwater within the NGZ, indicating this zone has not been impacted from the release and is not connected to the REZ.

Groundwater assessment results from all activities related to this Site indicate the naturally occurring TDS concentrations within the REZ and SGZ is not less than 10,000 milligrams per liter (mg/L), which is a condition for abatement in Part 30 and for application of water quality standards in 20.6.2.3103 NMAC (Ground and Surface Water Protection). While groundwater within the NGZ is considered protectable, this zone is disconnected from REZ and is not impacted. Identified gypsum and clay units beneath the dolomite unit act as confining units between the REZ and deeper aquifer, preventing any shallow groundwater impacts from vertically migrating to the deeper formation. Because of these factors, the groundwater ingestion exposure pathway at the Site appears to be incomplete at this time. All other exposure pathways have been demonstrated to be incomplete as they relate to this Site as described in previous reports.

As a result of these and previous findings, XTO is respectfully requesting No Further Action (NFA) for Release Permit (RP) Number 2RP-5169 / Incident ID NAB1901038306 under Part 29.

2 INTRODUCTION

WSP USA Inc. (WSP), on behalf of XTO Energy, Inc. (XTO), is pleased to present the New Mexico Oil Conservation Division (NMOCD) with this Additional Groundwater Assessment (AGWA) Report and Closure Request for the PCA 53 site (Site). The Site is located in Unit K, Section 23, Township 23 South, Range 29 East, in Eddy County, New Mexico (Figure 1).

This AGWA Report summarizes the release history, including extensive investigation and remediation by XTO, and adds the most recent groundwater assessment results. The latest investigation of groundwater was proposed in the Supplemental Remediation Work Plan (SRWP), dated October 3, 2020, and was conducted as a response to NMOCD's August 3, 2020 comments on the March 20, 2020 Remediation Investigation (RI) Report. This AGWA Report uses the newly acquired data to refine the Site's Conceptual Site Model (CSM) to further explain the release and associated impacts within the conditions of the local hydrogeologic setting.

The report evaluates applicability of New Mexico Administrative Codes (NMACs), specifically work conducted under 19.15.29 NMAC (Part 29) to delineate and remediate the release. Based on the results of remediation conducted by XTO over a two-year timeline since the release occurred and documentation of naturally occurring background conditions specific to groundwater quality, XTO does not believe the Site should be regulated under 19.15.30 NMAC (Part 30) and is requesting closure under Part 29.

2.1 RELEASE BACKGROUND

On November 27, 2018, the Bureau of Land Management (BLM) observed fluids in a pasture, which appeared to have emanated from an existing core hole associated with a neighboring potash mine. The fluid migrated along the ground surface to the north of the core hole and encompassed an area of approximately 189,230 square feet (Figure 2). The observed surface fluids in the pasture were attributed to a pressure loss associated with drilling operations at the Remuda South 25 State 101H oil well, which is owned by XTO. XTO submitted a Release Notification Form C-141 (Form C-141) to NMOCD and the Site was assigned Release Permit (RP) Number 2RP-5169 / Incident ID NAB1901038306 with requirements to delineate and remediate the release according to Part 29.

2.2 PROJECT CHRONOLOGY

Major milestones for this Site are listed below:

- November 27, 2018 – XTO notified by BLM/NMOCD of Release
- November 28 and 29, 2018 – Initial Assessment of Release
- February through March 2019 - Excavation of top 4 feet of release extent
- May 9 through June 29, 2019 – Initial borehole-delineation activities completed (BH01 through BH21)

- August 28, 2019 – Submittal of Remediation Work Plan to NMOCD
- August 2019 through May 2020 – Excavation to meet Closure Criteria
- October 28, 2019 – Approval of Remediation Work Plan with Conditions (COAs) received from NMOCD
- September 2019 through October 2019 - Advancement of four boreholes (BH22 through BH26) and three deep monitoring wells (MW01 through MW03)
- September 2019 through February 2020 - Advancement of 26 boreholes (BH27 through BH53)
- December 2019 – Shallow Groundwater Aquifer Assessment
- March 20, 2020 – Submittal of RI Report to NMOCD
- May 6, 2020 – Excavation completed (over 78,000 cubic yards)
- August 4, 2020 – NMOCD response to RI Report
- October 2, 2020 – Submittal of SRWP to NMOCD
- December 2020 – Completion of excavation backfill
- January 2021 – Additional groundwater assessment field activities per the SRWP
- February 2, 2021 – Submittal of SRWP Updates Letter to NMOCD

2.3 PROTECTABLE GROUNDWATER DESIGNATION

Releases associated with oil and gas development and production in New Mexico are regulated under Part 29 and require the responsible party to contain, report, and remediate releases. Following initial notification, site assessment and delineation typically proceed, followed by remediation according to prescribed closure requirements for soil. Remediation can be completed within 90 days of discovery and submitted in a final closure report to NMOCD for approval or the responsible party must complete remediation according to an approved remediation plan under Part 29 or an abatement plan under Part 30. NMOCD may notify the responsible party if an abatement plan is required under Part 30.

Part 30 regulates groundwater prevention and abatement of groundwater pollution by oil and gas development and production in New Mexico. The objective of Part 30 is stated in 19.15.30.6 NMAC:

To abate pollution of subsurface water so that ground water of the state that has a background concentration of 10,000 mg/l or less TDS is either remediated or protected for use as a domestic, industrial and agricultural water supply...

The requirements for abatement of groundwater are listed under 19.15.30.9A and B NMAC, which indicate:

..the vadose zone shall be abated so that water contaminants in the vadose zone will not with reasonable probability contaminate groundwater or surface water, in excess of standards identified in 20.6.2.7 and 20.6.2.3103 NMAC.

Section 19.15.30.9B restates that abatement of groundwater pollution to those standards is required:

..at a place of withdrawal for present or reasonably foreseeable future use where the total dissolved solids (TDS) concentration is 10,000 milligrams per liter (mg/L) or less.

Only the water quality standards listed in 20.6.2 NMAC apply to this Site, but it provides yet another regulatory reference to a definition of protectable groundwater, acknowledging in 20.6.2.3101 NMAC that the purpose of the water quality standards are:

..to protect groundwater of the State of New Mexico with concentrations of TDS of 10,000 mg/L or less for present and potential future domestic and agricultural water supplies.

Based on these references, groundwater containing naturally occurring TDS concentrations in excess of 10,000 mg/L does not meet the applied definition of protectable groundwater. WSP and XTO have utilized these definitions and objective throughout the site assessment, remediation, and exposure pathway evaluation process. As demonstrated in previous reports and confirmed in this report, XTO has demonstrated the following in compliance with Part 29 and Part 30:

- Remediation of the subsurface has been successfully completed under Part 29 through a remediation work plan accepted by the NMOCD;
- Groundwater containing a background concentration of 10,000 mg/L TDS or less has not been impacted; and
- Remediation of the subsurface not only meets the remediation requirements of Part 29, but also included removal of contaminants in the vadose zone such that no contaminants will, within reasonable probability, contaminate groundwater as directed in Part 30.

Subsequent sections in this AGWA Report will utilize these definitions/objectives as a basis for evaluating data, selecting appropriate remediation techniques, and drawing conclusions in closure evaluation.

3 CONCEPTUAL SITE MODEL

The Site's CSM was initially described in the August 2019 Remediation Work Plan and expanded upon in the March 2020 RI Report. Below is a summary of the CSM prior to the additional groundwater assessment activities conducted in January 2021, which will be described in later sections.

3.1.1 SETTING

The Site is located approximately 18 miles southeast of Carlsbad, New Mexico at an elevation ranging from approximately 3,005 feet to 3,030 feet above mean sea level (amsl). The climate in this area is characterized as semi-arid, with an average of 14 inches of precipitation of per year. The Site is located on BLM land and the area immediately surrounding the Site consists of pasture, oil and gas claims, and a potash-mine core hole associated with a nearby potash mine. The Site gently slopes to the north but has little topographic relief aside from several erosional features, caliche outcrops, and undulating hills.

3.1.2 GEOLOGY

A description of the regional and site-specific geology is presented below. A more detailed description of the regional geology can be reviewed in the March 2020 RI Report. Additional site-specific geological observations and conclusion are included in Section 4.1.2.

REGIONAL GEOLOGY

The Site is located within the Delaware Basin, a sedimentary region known for extensive potash and petroleum hydrocarbon production in the United States. More locally, the Site is located within the Nash Draw, a topographic depression approximately 4 to 6 miles east-west and 7 miles north-south (Vine, 1963). According to Vine, the draw has no external surface drainage and contains several lakes that have no surface outlet. Most notable in relation to the Site, Salt Lake is located approximately one mile to the west.

Geologic formations most affecting the Site consist of evaporite, carbonate, and clastic sedimentary facies of Permian and younger age. Based on descriptions presented by Vine, shallow rock formations present at the Site are thought to be part of the Rustler Formation of late Permian age. It is interpreted that the dolomite unit present at the Site (described below) is the regionally extensive Culebra Dolomite described by Vine (1963). Vine states the Culebra is light gray, microcrystalline, and contains numerous small cavities ranging from 1 to 10 millimeters in diameter. Vine states there is "little to no tendency for the cavities to be connected" and that the features likely were "formed by the solution of a highly soluble mineral aggregate or by the inclusion of a gas or liquid at the time the sediment was soft". Vine also states that Culebra

Dolomite surface exposures are present in the southern portion of the Nash Draw, east of the Salt Lake (the general location of the Site).

The Culebra Dolomite is underlain by the Los Medaños Member, named by Powers and Holt (1999) and formerly known as the “unnamed lower member”. The Los Medaños Member is the lowest member of the Rustler Formation, which generally consists of siltstone, very fine-grained sandstone, mudstone, and interbeds of gypsum and anhydrite, as seen at the Site underlying the Culebra Dolomite. The Salado Formation underlies the Rustler Formation and is capped by a massive halite bed. The dissolution of this halite member is thought to be the primary geomorphological control for the creation of Nash Draw (Vine, 1963).

Both regional- and local-scale features control the structural deformation of the Culebra Dolomite. As stated above, dissolution of the halite beds in the upper Salado Formation are partly responsible for the regional deformation present in this area. Vine states that “the rocks are locally deformed by solution collapse, which has caused the outcrop pattern to be irregular” and that because of this collapse the “Culebra was not seen in normal stratigraphic sequence with the underlying or overlying rocks in the Nash Draw quadrangle”. Local deformation also is present due to a very ductile mudstone underlying the Culebra dolomite and the dissolution of sulfate cements previously filling cavities and fractures in the dolomite (Holt, Beauheim, & Powers, 2005).

SITE-SPECIFIC GEOLOGY

In general, the stratigraphic sequence observed at the Site is as follows:

- Clayey/silty sand from ground surface to a maximum depth of approximately 17 feet below ground surface (bgs)
- High plasticity clays up to 30 feet thick
- Poorly- to moderately-consolidated caliche up to 20 feet thick
- Dolomite up to 35 feet thick
- Clay/mudstone up to 15 feet thick
- Gypsum/anhydrites up to 10 feet thick
- Clay/mudstone up to 18 feet thick
- Unconsolidated silty sandstone up to 57 feet thick
- Clay/mudstone that acts as a lower confining layer for the deeper groundwater

The above stratigraphic sequence is generally present across the Site; however, the elevations and thicknesses of units are highly variable. Additional interbedded clay and caliche units were present in several boreholes. Furthermore, several boreholes at the Site encountered caliche and dolomite at or near the ground surface (especially in the far western, northern, and eastern portions of the Site). Although shallow caliche and dolomite were observed, boreholes installed at the Site did not indicate conditions indicative of karst geology, such as sinkholes, voids, caves, and/or springs.

Based on observations recorded during the advancement of boreholes at the Site, the soil/rock stratigraphy variability is likely due to local- and regional-scale deformation (as described above). Initial cross-section interpretations prepared for the Site were presented in the March 2020 RI Report. Figure 3 illustrates cross-section locations. Cross-section Figures 4 through 9 suggest deformation has resulted in complex localized folding or possible faulting of the dolomite and the overlying/underlying units. This deformation likely is caused by post-depositional solution collapse of cavities within the dolomite unit, but more likely large-scale dissolution and subsequent collapse of underlying evaporite beds. Along with the localized fracturing and dissolution within the dolomite, these folds/faults appear to dictate where shallow water is encountered, the hydraulic properties of the dolomite unit, and the hydrological connections of shallow groundwater beneath the Site. Borehole lithologic/soil sampling logs prepared for the Site are included in Appendix A.

3.1.3 HYDROGEOLOGY

A description of the regional and site-specific hydrogeology is presented below.

REGIONAL HYDROGEOLOGY

According to Holt and others, the post-depositional deformational processes also have caused high variability/heterogeneity of hydraulic properties and groundwater geochemical composition of the Culebra Dolomite. Transmissivity values of the Culebra vary “over six orders of magnitude in a very small area” (Holt, Beauheim, & Powers, 2005). Based on the report prepared by Domski and Beauheim (2011), TDS concentrations in the Culebra Dolomite groundwater located to the north and west of the Waste Isolation Pilot Plan (WIPP) site range from 9,000 mg/L to 239,000 mg/L. The predominant ions present in this groundwater were sodium and chloride, with low potassium and magnesium concentrations. Regionally, the Los Medanos Member acts as a secondary aquifer, though tends to have disconformities due to the dissolution of underlaying salt within the Salado Formation.

SITE-SPECIFIC HYDROGEOLOGY

Based on observed conditions, shallow groundwater is present in the lower portion of dolomite unit at the Site, just below 50 feet bgs. The shallow monitoring wells were constructed within the

dolomite unit, interpreted to be part of the Culebra Dolomite. As discussed in the site-specific geology subsection above, it appears the localized post-depositional fracturing/dissolution of the dolomite and lower units as well as the resulting complex folding/faulting dictates 1) where shallow water is encountered, 2) the hydraulic connections between monitoring wells, and 3) the hydraulic properties of the dolomite beneath the Site. It appears the shallow water-bearing zone beneath the Site is locally discontinuous and water present in the dolomite tends to “pool” into troughs created by these post-depositional processes with clay/mudstone and gypsum beneath the dolomite unit acting as a lower confining layer, minimizing vertical migration to a deeper groundwater aquifer. These folds/troughs have created a “bathtub” effect at the Site collecting naturally occurring water within the formation, as well as fluid/water (and the associated contaminants) introduced into the dolomite. This “bathtub” interpretation is also supported by the number of dry boreholes that were advanced at the Site through the dolomite unit to shallower lower confining clay/mudstone and gypsum lithology that did not encounter shallow groundwater. Again, cross-section Figures 4 through 9 illustrate the structural control with depressions, or “bathtubs” containing water separated by structural highs at the base of the dolomite unit.

A deeper semi-consolidated, semi-confined silty sandstone unit containing groundwater has been observed beneath the shallow groundwater located within the dolomite unit. This unit occurs at approximately 85 feet to 90 feet bgs. It is vertically separated from the shallow groundwater by up to 25 feet of a high-plasticity clay that was observed to be dry in all boreholes. Based on the observed conditions during drilling (saturated soil), static groundwater elevations, and laboratory analytical results from groundwater samples, it appears that this silty sandstone unit is a potential aquifer with higher water quality (TDS less than 10,000 mg/L) than the shallow groundwater and is interpreted to be within the Los Medaños Member of the Rustler Formation. In addition to lithologic and vertical separation, water chemistry results, as presented in the Stiff and Piper diagrams (Graphs 1 and 3, respectively), indicate the chemical composition of the deeper water-bearing zone (silty sandstone unit), as represented by monitoring well MW02, is substantially different than the shallow water-bearing zone (dolomite unit), as represented by monitoring wells BH16, BH27, BH39 and BH46. These observations, along with the contaminant analytical data fully presented in the March 2020 RI Report, suggest that there is no communication between the shallow and deep water-bearing zones beneath the release extent of the Site.

3.1.4 RELEASE CHARACTERISTICS AND BEHAVIOR

The release characteristics and behavior were thoroughly described in the March 2020 RI Report and are summarized here. It is believed the release fluid originally migrated onto the Site from the core hole located in the southern end of the release extent (see Figure 2). Based on the presence of release fluid and associated impacts, it appears the majority of the release fluid exited the core hole at the ground surface resulting in lateral and vertical distribution of contaminants. The release

footprint at the surface extended approximately 189,230 square feet with subsequent infiltration of fluid from the ground surface penetrating as deep as 20 feet bgs. Soil samples from impacted soil indicated the contaminants of concern were benzene, total petroleum hydrocarbons (TPH), and chloride.

As the fluid traveled up the core hole, a portion of the fluid was introduced directly from the core hole into fractures/pore spaces within the dolomite unit in the subsurface. Based on the initial presence of free product/release fluid in several shallow monitoring wells, as well as the presence of chloride and TPH concentrations in subsurface soil to the east and west of the surface release extent where water was not present, it is believed that the release fluid was initially introduced into the dolomite unit under pressure as opposed to flowing with natural hydraulic gradients. In this case, initial release fluid movement would have been controlled by pressure gradients that allowed the fluid to move through pore spaces, fractures, and/or bedding planes (preferential pathways) within the dolomite. The maximum lateral extent of migration within the dolomite appears to have extended to the vicinity of boreholes BH28 to the east, BH51 to the north, BH48 to the west, and BH16 to the south. Figure 10 illustrates the interpreted fluid movement evolution, which consisted of free product and fluid containing elevated benzene, toluene, ethylbenzene, and total xylenes (BTEX) concentrations. There was no evidence of PSH or elevated BTEX/TPH concentrations in the deeper groundwater or soil samples collected greater than 55 feet bgs, indicating fluids did not escape the core hole at depths below the dolomite unit.

The extent of lateral migration of the release fluid within the dolomite unit may have been limited by one or more of the following factors:

- The loss of release pressure
- Undulations/folds/faults within the dolomite unit
- The high variability of hydraulic properties within the dolomite (hydraulic conductivity and transmissivity limited by connectedness of fractures/pore spaces)

Once the release reached the ground surface, it appears (based on the dry boreholes surrounding the wells) the fluid subsided within the formation to structural low spots or troughs within the dolomite unit.

Based on the analytical results and volume of water recovered from the formation, fluid in the shallow water-bearing zone is likely a combination of release fluid and naturally occurring briny groundwater located south of the release extent. As depicted in Figure 10, there appears to be two separate troughs within the dolomite unit at the Site; one trough located between monitoring wells BH26 and BH51 containing the most significant subsurface impacts and a perpendicular trough between monitoring wells BH39, BH46, and BH53. Based on the locations of the dolomite troughs and the analytical and water chemistry data from the shallow water-bearing zone, it is believed there is a structural separation/barrier in the dolomite between wells impacted by the release fluid (BH14, BH16, BH25, BH26, BH27, BH32, and BH37) within the northwest-southeast trough and non-impacted wells (BH39, BH46, and BH53) within the north-south trough.

The wells south of the impacted area contain elevated chloride and TDS concentrations, but no BTEX (dissolved or liquid phase) signature. Additionally, there are no hydrocarbon soil impacts identified in soils sampled from the southern boreholes. The lack of hydrocarbon signature in the soil and water, which are present in all impacted wells, combined with the structural separation between the two troughs, support the southern water representing background water quality.

As indicated by six quarters of deep groundwater monitoring events demonstrating no evidence of hydrocarbon impact, and a separate water chemistry signature, the impacts summarized above did not affect the underlying aquifer. As the release moved up the core hole, it did not escape into the deeper formation. Additionally, the clay/mudstone and gypsum units present beneath the dolomite unit (water-bearing zone) act as confining units between the shallow and deep water-bearing zones, preventing the shallow groundwater impacts from vertically migrating into the deeper freshwater aquifer. Because of this, the groundwater-ingestion pathway at the Site does not appear to be complete to human and/or ecological receptors.

3.2 NMOCD RESPONSE TO RI REPORT

The RI Report describing the CSM summarized above was submitted to NMOCD on March 20, 2020. A response from NMOCD came as an email to Mr. Kyle Littrell, SH&E Supervisor, for XTO on August 4, 2020:

Good afternoon Kyle,

The OCD accepts the data provided in the remedial investigation report and will accept the report in the fee application system. However, the division believes additional investigation must take place to determine the protectability of all shallow groundwaters at this site. At this time, there is not enough evidence to support the claim that the groundwater encountered at this site is not protectable.

The division supports XTO's efforts to continue to investigate the exposure pathways of this release and other releases related to the Remuda South 25 101 H fracking event. With what we currently understand of this release, the Division is considering the need to evaluate these incidents under 19.15.30 NMAC.

Please let me know if you have any questions.

Thanks,

Cristina Eads | 505-670-5601

In response to the email, XTO submitted the SRWP to NMOCD on October 2, 2020 outlining additional remedial actions and data completed after the RI Report submittal and outlining additional groundwater assessment activities.

REMEDIATION

As reported in the SRWP on October 2, 2020 and a subsequent update letter to NMOCD on February 2, 2021, XTO completed excavation of approximately 78,000 yards of material to as deep as approximately 20 feet bgs. XTO documented soil confirmation sampling to confirm removal of shallow soil impacts. XTO attempted to remove residual soil impacted through mechanical and microbial means. Utilization of a jack hammer to excavate caliche were unsuccessful. Alternatively, XTO utilized Micro-Blaze® in soil with residual petroleum hydrocarbon concentrations exceeding the Closure Criteria was applied at the remaining areas containing elevated petroleum hydrocarbon concentrations. Subsequent samples of excavation floor confirmation samples indicated BTEX and TPH concentrations were compliant with Table 1 Closure Criteria. A total of five floor samples located between approximately 8 feet and 20 feet bgs contained elevated chloride concentrations within dolomite or caliche. Two sidewall samples located directly adjacent to the core hole contained chloride exceeding Table 1 Closure Criteria and one of those samples exceeded Table 1 Closure Criteria for TPH; however, removal of additional soil in that location could compromise the integrity of the core hole.

Following removal of up to 20 feet of impacted soil, which included removal of all hydrocarbon impacts to soil, except for 241 milligrams per kilogram (mg/kg) in one sidewall sample directly adjacent to the core hole, there are no contaminants in the vadose zone that will with reasonable probability contaminate groundwater or surface water in excess of applicable water quality standards. As discussed in the SRWP, vertical migration of the limited residual chloride concentrations to the shallow groundwater through leaching is restricted by the soil the residual concentrations are in (low porosity bedrock), over 20 feet of soil overburden between the residual soil impacts and the shallowest water-bearing zone at the Site, and the fact that the shallow groundwater already has a background chloride concentration that exceeds water quality standards and 10,000 mg/L of TDS.

Free product was removed from the shallow water to the maximum extent practicable (MEP), including over 43,000 gallons of free product and dissolved phase hydrocarbon evacuation utilizing a hydrovac truck, down-hole pumps, and disposable bailers. Groundwater monitoring continued for the deeper freshwater aquifer, with no evidence of vertical migration of hydrocarbons. Leaching to the deeper aquifer is restricted by 35 feet of high-plastic clay and gypsum/anhydrite below the shallow groundwater, preventing any further migration of contaminants to the deeper groundwater aquifer.

Exposure pathways were evaluated and reported to be incomplete to all identified potential receptors. WSP and XTO believe all gross hydrocarbon impacts were removed and minor residual

impacts to shallow groundwater and shallow soil are not a threat to human health and environment. Lastly, the report notified NMOCD that additional assessment activities to confirm the non-protectable status of shallow groundwater had been initiated and would be reported to NMOCD.

The additional groundwater assessment activities occurred in January 2021 and are described in Section 4 below.

4 2021 GROUNDWATER ASSESSMENT

4.1 DRILLING PROGRAM

Due to the complex and hard rock geology beneath the Site, WSP retained Cascade Drilling, Inc. (Cascade) of Peoria, Arizona to advance 11 shallow boreholes (BH54 through BH64) utilizing a sonic drill rig. Eleven boreholes were installed between January 5 and January 12, 2021 to assess the following locations:

South

- Boreholes BH54, BH55, and BH56
- Compare the water quality, if present, to that in monitoring well BH53 and confirm presence or absence of BTEX constituents.
- Further investigate natural background water quality (and therefore protectability) and expand on the CSM described in the RI Report (summarized in Section 2.4 of this report).

West-Northwest

- Boreholes BH58, BH59, BH61, BH62, and BH63
- Assess the presence or absence of shallow groundwater outside of the previously identified shallow groundwater area (delineated by dry boreholes).
- If groundwater was present, evaluate water chemistry and hydraulic connection, if any, to the shallow fluid observed beneath the Site.

East

- Borehole BH60
- Assess the presence or absence of shallow groundwater outside of the previously identified shallow groundwater area (delineated by dry boreholes).
- If groundwater was present, evaluate water chemistry and hydraulic connection, if any, to the shallow fluid observed beneath the Site.

Data Gaps

- Boreholes BH57 and BH64
- Installed in and around the release extent to further delineate the shallow groundwater plume and potential lithologic controls.

The 11 installed boreholes are depicted on Figure 11.

4.1.1 DRILLING METHODOLOGY

FIELD SCREENING AND OBSERVATIONS PROCEDURES

Sonic cores of 6.15 inches in diameter were utilized for the collection of continuous soil samples. During the advancement of each borehole, the subsurface lithology was described in accordance with the Unified Soil Classification System (USCS) as specified in American Society of Testing and Materials (ASTM) D2488.

WSP staff screened soil for volatile aromatic hydrocarbons and chloride utilizing a calibrated photoionization detector (PID) and Hach® chloride QuanTab® test strips, respectively. The PID was calibrated with a 100-parts per million (ppm) by volume isobutylene. Calibration was conducted daily, with bump tests conducted throughout the day. In situations where elevated PID readings are recorded consistently, the PID requires re-calibrated with 100 ppm isobutylene.

Chloride screening with Hach® chloride QuanTab® test strips was conducted by weighing out 25 grams of soil and placing in a jar with a screw top cap. A total of 100 milliliters of distilled water was added to the jar, preparing a 1 to 4 dilution. The mixture was agitated for approximately one minute and allowed to settle. The solution was drawn into a poly-syringe and injected through a 0.45-micron filter to remove any additional sediments in the solution and placed into a decontaminated glass jar for measurement. Based on anticipated concentrations, a low range (30 parts per million (ppm) to 600 ppm) or high range (300 ppm to 6,000 ppm) titrator strip was placed into the jar and allowed to wick the solution per manufacturer directions. Results of the strip readings were multiplied by four to account for the dilution and then multiplied by a 40 percent (%) correction factor. The correction factor has been determined by statistical analysis of historical field screening versus laboratory analytical results for soils in southeast New Mexico.

Observations of petroleum hydrocarbon and/or salt staining and petroleum hydrocarbon odors were recorded for each screened soil sample and documented in field notes and lithologic/soil borehole logs. Lithology and field screening results collected during drilling activities are presented on the lithologic/soil borehole logs attached in Appendix A.

SOIL SAMPLING AND ANALYSIS PROCEDURES

Discrete soil samples were collected at a single depth or range of depths within each vertical borehole location depending on field screening and observations. Each sample was placed in two resealable 1-gallon plastic bags; one resealable bag for field screening and the other for potential laboratory analysis, which was immediately placed into an iced cooler.

Soil samples were placed into pre-cleaned glass jars, labeled with the location, date, time, sampler name, method of analysis, and immediately placed on ice. The soil samples were shipped at or below 4 degrees Celsius (°C) under strict chain-of-custody (COC) procedures to Xenco Laboratories (Xenco) in Carlsbad, New Mexico, for analysis of BTEX following United States Environmental Protection Agency (EPA) Method 8021B; TPH-gasoline range organics (GRO), TPH-diesel range organics (DRO), and TPH – oil range organics (ORO) following EPA Method 8015M/D; and chloride following EPA Method 300.0.

4.1.2 SOIL BORING OBSERVATIONS

Based on the observed subsurface lithology, shallow boreholes at the Site generally encountered the following stratigraphic sequence, which was consistent with the previously described stratigraphic sequence:

- Clayey/silty sand from the ground surface
- High plasticity clay
- Poorly- to moderately-consolidated caliche
- Dolomite
- High plasticity clay/mudstone
- Gypsum/Anhydrite

Figure 12 depicts selected new cross section locations to illustrate the subsurface geology beneath the Site. WSP presented six cross-sections in the original RI Report to illustrate results from the subsurface investigations. Cross-section I to I', depicted on Figure 13, extends the original cross-section C to C' to include the new southern wells. Cross-section I to I' illustrates the subsurface geology from the southern portion of the project area to the northernmost groundwater location.

Lithology and presence of shallow groundwater observed in boreholes BH54, BH55, and BH56 were similar to borehole BH53, with the exception of a caliche unit between the silty sand and high plasticity clay unit in the shallow section of the borehole. This stratigraphic sequence was observed north of borehole BH51 within borehole BH46, likely attributable to subsurface deformation from the collapse feature previously identified beneath and captured by borehole BH39.

Moving north of the collapse feature at BH39, borehole BH57 was installed between boreholes BH25 and BH37 to further support lithologic and structural interpretations within the release extent. The clay unit beneath the dolomite unit was observed at a depth shallower than measured groundwater in that vicinity. Groundwater was not observed in borehole BH57, confirming this location which was previously hinted observations from BH16, separates groundwater observed to the north in monitoring wells BH37 and BH51 (release trough in dolomite) from groundwater observed to the south, starting with monitoring well BH25 (southern dolomite trough). The structural high in the dolomite at this location separates the impacts identified in the release trough from the unimpacted water identified in the southern trough.

Borehole BH64 was installed west of the southern trough between boreholes BH38 and BH47 to confirm the presence or absence of groundwater through this data gap location. Lithology within borehole BH64 was similar to the two boreholes it was placed between with the confining clay/mudstone unit beneath the dolomite encountered shallower than observed groundwater in boreholes to the east, confirming this location was not part of the shallow groundwater zone and acts as a barrier for groundwater to move westward.

Cross-sections II to II' (Figure 14), III to III' (Figure 15), and IV to IV' (Figure 16) depict the subsurface lithology within the northwest and intersecting into the rest of the project area.

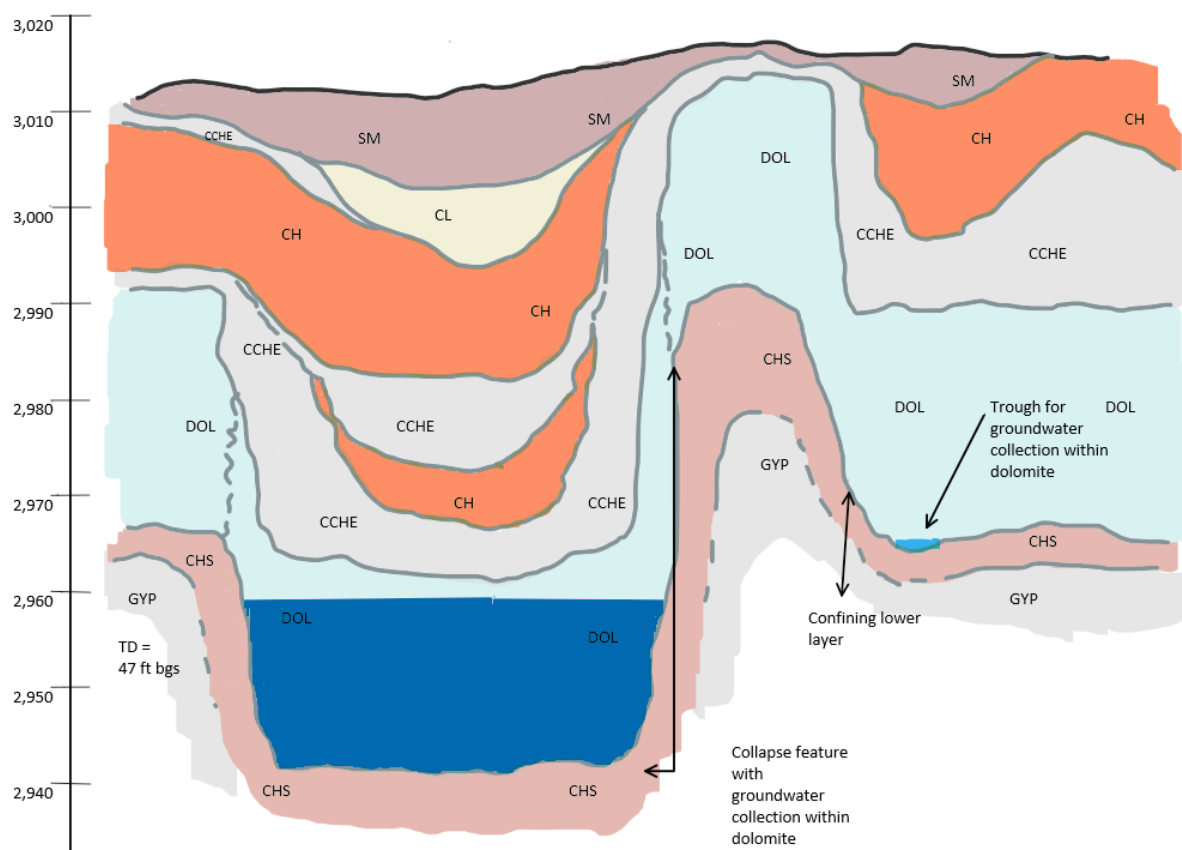
Lithology encountered in boreholes BH49 and BH58, located west-northwest of the release extent, was consistent with the stratigraphic sequence observed in the project area, but the lower confining clay/mudstone and gypsum units were observed above the general groundwater accumulation depth of approximately 55 feet bgs. As a result, groundwater was not observed in these two boreholes, as predicted (cross-section III to III'), and further delineate the impacted trough as dry holes.

To the north of these dry boreholes, the first encounter of dolomite within borehole BH59 was offset by over 20 feet downward when compared to surrounding boreholes, indicating the borehole was installed within a potential collapse feature west of the release extent. This feature is evident in cross-sections II to II' and IV to IV' and strikingly deeper than other "bathtubs" formed at the base of the dolomite unit. Groundwater was present within borehole BH59 and subsequently to the north in boreholes BH61 and BH63, though groundwater was shallower in borehole BH63, indicating groundwater is potentially semi-disconnected by either the lack of preferential pathways within the dolomite unit or a break within the dolomite unit by the confining clay/claystone unit at a shallower depth.

Borehole BH60 was installed east of the project area to determine the presence or absence of groundwater in that location. As observed in other boreholes east of the release extent, dolomite was encountered near the ground surface and the underlying confining clay/claystone unit was encountered at approximately 18 feet bgs, well above the average groundwater depth in the project area. As such, it appears groundwater is limited immediately east of the Site.

In general, the additional lithologic data confirmed that the two geological features that likely control shallow subsurface water collection within the project area are troughs within the dolomite unit and collapse features with groundwater collecting within the dolomite unit as depicted below.

Geological Features for Groundwater Collection



Notes:

Depth measured in feet above mean sea level (amsl)

CCHE – caliche

CH – high plasticity clay

CHS – high plasticity claystone

CL – clay

DOL – dolomite

GYP - gypsum

SM – silty sand

4.1.3 CLOSURE CRITERIA

Based on the Site receptors described in previous reports, the following lists NMOCD *Table 1 Soil Closure Criteria* for the Site's contaminants of concern within soil according to Part 29:

- Benzene: 10 milligrams per kilogram (mg/kg)
- BTEX: 50 mg/kg
- TPH-GRO + TPH-DRO: 1,000 mg/kg
- TPH: 2,500 mg/kg
- Chloride: 10,000 mg/kg

- Chloride (ground surface to 4 feet bgs in areas to be reclaimed immediately): 600 mg/kg

Because depth to water is between 51 feet and 100 feet bgs and the release exceeded 200 barrels (bbls) of unrecovered fluids, delineation of chloride in soil to 600 mg/kg is also required.

4.1.4 SOIL ANALYTICAL RESULTS

Soil analytical results for boreholes installed for the scope of work outlined above indicated the following:

- Benzene and total BTEX concentrations were below the NMOCD Table 1 Closure Criteria in all soil samples submitted for laboratory analysis;
- TPH-GRO/TPH-DRO and TPH exceeded their respective NMOCD Table 1 Closure Criteria in soil sample BH57 at approximately 50 feet bgs; and
- Chloride concentrations were below the NMOCD Table 1 Closure Criteria in all soil samples submitted for laboratory analysis.

Table 1 summarizes field screening and laboratory analytical results for soil. Soil analytical results are depicted on Figure 17 and the complete laboratory reports for borehole soil samples is included in Appendix B.

4.2 GROUNDWATER MONITORING

4.2.1 MONITORING WELL CONSTRUCTION

Once drilling was complete, each shallow borehole at the Site was left open for at least 72 hours to allow fluid, if present, to collect into the opening. Shallow monitoring wells (denoted with “BH”) were installed to intersect groundwater within the dolomite unit present at the Site. Groundwater collected in 6 of the 11 newly installed boreholes after 72 hours and as a result, permanent monitoring wells were constructed within boreholes BH54, BH55, BH56, BH59, BH61, and BH63.

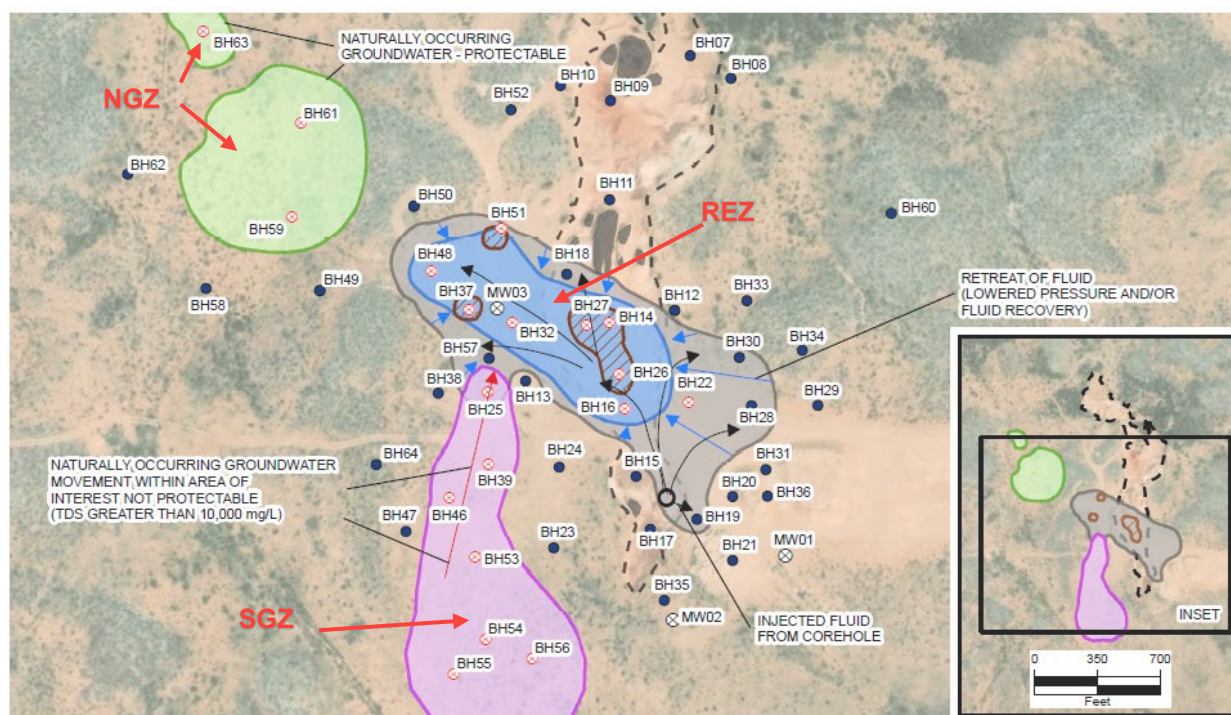
Monitoring wells were constructed following standard industry practice as detailed in both the ASTM Standard D 5092 – Standard Practice for Design and Installation of Groundwater Monitoring Wells in Aquifers (2016) and the New Mexico Environment Department (NMED) Groundwater Quality Bureau (GWQB) Monitoring Well Construction and Abandonment Guidelines (2011). All monitoring wells were constructed with 2-inch inside diameter (ID) Schedule 40 polyvinyl chloride (PVC) casing and screen. The screen was factory-slotted with a slot size of 0.010 inches. Shallow monitoring wells were constructed with 15 to 20 feet of screen and placed across the dolomite water-bearing unit with the bottom screen set just above the clay/mudstone and/or gypsum confining lower geologic layer. A 10-20 size silica sand pack was used to fill the annular space from the bottom of the screen to approximately 2 feet above the top of screen. The sand pack was overlain by hydrated bentonite chips and a grout slurry to the ground surface.

Once installed, the monitoring wells were surveyed with a GPS to determine the latitude and longitude. Top-of-casing elevations were surveyed to an accuracy of no less than plus or minus ($\pm$) 0.01 feet so that groundwater elevations could be determined relative to mean sea level. Well-construction information, including wellhead elevation, top-of-casing elevation, well diameter, screen length, and total well depth, is presented in Table 2.

4.2.2 DESIGNATED GROUNDWATER ZONES

As illustrated in the four refined cross sections depicted on Figures 13 through 16, groundwater beneath and around the Site appears to be disconnected in many locations and semi-disconnected in other areas. In general, three groundwater zones have been identified within the project area and have been designated by the following nomenclatures: Release Extent Zone (REZ), Southern Groundwater Zone (SGZ), and Northwest Groundwater Zone (NGZ). The REZ appears to be semi-disconnected with SGZ with borehole BH57 documenting the structural division between the two zones. The illustration below depicts the three zones.

Designated Groundwater Zones



4.2.3 WATER SAMPLING AND ANALYSIS PROCEDURES

After allowing to stabilize for at least 24 hours after well completion, monitoring wells were developed by purging a minimum of 10-casing volumes, or until the well was purged dry. A casing volume was determined by measuring the depth to water and total depth utilizing an oil-water interface probe capable of measuring fluid to 0.01 feet and then multiplying the water column thickness by the monitoring well inner area.

Sampling was conducted only after the monitoring well recharged for a minimum of 24 hours after well development. During each sampling event and prior to purging/sampling, the depth to water PSH, also known as light non-aqueous phase liquids or LNAPL, below top of casing was measured with an oil-water interface probe. Sampling was conducted using standard collection procedures using disposable bailers as to minimize cross contamination. Each monitoring well was purged prior to sample collection by removing three casing volumes of water or purging until the monitoring well ran dry.

During purging activities, WSP recorded water-quality parameters of pH, electrical conductivity (EC), temperature, dissolved oxygen (DO), and oxidation-reduction potential (ORP) of the fluid/water with a YSI 556 handheld multi-parameter probe or an equivalent instrument. Samples were submitted under strict COC protocol to Xenco for analysis of BTEX and chloride as well as TDS following Standard Method (SM) 2540C. In addition, water from several monitoring wells was analyzed for alkalinity (SM 2320B), carbon dioxide (SM 4500), major cations/anions (EPA Method 300.0), and metals (calcium, iron, manganese, potassium, and sodium by EPA Method 6010C), heterotrophic plate count (HPC) (SM9215B) and e. coli and coliform SM 9223-IDEXX Colisure). The sampling analyses for the various monitoring wells are listed below.

January 2021 Groundwater Analyses

Monitoring Well	BTEX/Chloride/TDS	Water Chemistry	E. Coli and Coliform
Release Extent Zone			
BH14	X		
BH16	X		X
BH22			
BH26*	X		
BH27	X		X
BH32	X		
BH37**	X	X	X
BH48	X	X	X
BH51			
Southern Groundwater Zone			
BH25	X	X	X

Monitoring Well	BTEX/Chloride/TDS	Water Chemistry	E. Coli and Coliform
BH39	X		X
BH46	X		X
BH53	X	X	
BH54	X	X	X
BH55	X	X	X
BH56	X	X	X
Northwest Groundwater Zone			
BH59	X	X	X
BH61	X	X	X
BH63	X	X	X

* - grab sample due to monitoring well access issues

** - BTEX only due to limited groundwater volume in monitoring well

Analytical results from the January 2021 groundwater sampling event and comparisons to previous sampling events are described below.

4.2.4 GROUNDWATER ELEVATIONS

The depth to water and depth to PSH measurements collected between November 2019 and January 2021 are presented on Table 3. Depth to water measurements were collected utilizing an oil-water interface probe capable of measuring product and water to 0.01-feet, which were then converted to elevations using the surveyed top-of-casing data for each monitoring well. When PSH was present in the monitoring well, a density correction of 0.8 was used to calculate the water elevations.

As stated in previous reports, groundwater beneath and around the Site generally collects within fractures and voids within the dolomite unit and as a result, uniform potentiometric surfaces are not associated with this type of environment.

In general, the product thickness in all monitoring wells has decreased throughout product recovery efforts since November 2019. Table 4 includes estimated product recovery volumes.

Release Extent Zone

Static groundwater elevations ranged between 2,964.91 feet and 2,968.23 feet above mean sea level (amsl) in the shallow monitoring wells within this zone. Based on groundwater elevations and subsurface lithology interpretations, groundwater in the vicinity of monitoring wells BH37 and BH51 appear to be semi-disconnected from the rest of the REZ as illustrated in Figures 13 and 15. Groundwater appears to generally flow to structural low spots, or troughs within the dolomite unit and confined below by clay/mudstone and gypsum stratigraphic units.

PSH has historically been present in monitoring wells BH14, BH26, BH27, BH37, and BH51. PSH was present in monitoring wells BH14, BH16, BH27, BH37, and BH51 during the January 2021 sampling event. PSH thicknesses ranged between 0.01 feet in monitoring well BH14 to 0.38 feet in monitoring well BH37.

Southern Groundwater Zone

Static groundwater elevations ranged between 2,964.45 feet and 2,966.97 feet amsl in the shallow monitoring wells within this zone. Groundwater in monitoring well BH46 is lower than the rest of the monitoring wells in this zone, which could be influenced by the interpreted collapse feature in the vicinity of monitoring well BH39 (see Figure 13). Groundwater observed within monitoring well BH39 appears to be semi-confined due to the interpreted collapse and as a result, groundwater appears to have risen to lower pressure (higher elevation) to within the overlain caliche and high plasticity clay. PSH has not been detected within any monitoring wells located in this zone.

Northwest Groundwater Zone

Static groundwater elevations ranged between 2,964.48 feet and 2,965.10 feet amsl. Based on the interpreted collapse feature that appears to have influenced water collection in this zone, groundwater could be semi-disconnected in the northern portion of the zone in the vicinity of monitoring well BH63 and rest of the zone (see Figure 14). Groundwater in monitoring well BH59 represents the lowest portion of this dissolution feature and the water is separated from the REZ by structural controls, such as the clay/mudstone and gypsum confining layers. PSH has not been detected in the three monitoring wells located in this zone.

4.2.5 GROUNDWATER ANALYTICAL RESULTS

Groundwater analytical results were compared to New Mexico Water Quality Control Commission (NMWQCC) standards as a method of evaluation and not necessarily because the standards apply to all groundwater identified. Laboratory analytical results for BTEX, chloride, and TDS are summarized in Table 5 and presented on Figures 18A (REZ), 18B (SGS) and 18C (NGZ). Laboratory analytical results for water chemistry are summarized in Table 6. Complete laboratory reports for the January 2021 water sampling event are attached as Appendix B.

Release Extent Zone

During the January 2021 sampling event, groundwater analytical results indicated:

- BTEX concentrations have exceeded one or more NMWQCC standards in monitoring wells BH14, BH16, BH25, BH26, BH27, and BH37 during one or more sampling events;
- TDS concentrations in groundwater within this zone ranged from 25,000 mg/L in monitoring well BH48 to 74,000 mg/L in monitoring well BH16; and
- Chloride in groundwater exceeded the NMWQCC standard in all monitoring wells within this zone at concentrations ranging from 26,800 mg/L in monitoring well BH32 to 67,000 mg/L in monitoring well BH16.

Southern Groundwater Zone

During the January 2021 sampling event, groundwater analytical results indicated:

- No BTEX concentrations in groundwater were detected in any monitoring wells within this zone;
- TDS concentrations in groundwater within this zone ranged from 17,200 mg/L in monitoring well BH53 and 42,800 mg/L in monitoring wells BH55 and BH56; and
- Chloride in groundwater exceeded the NMWQCC standard in all monitoring wells within this zone at concentrations ranging from 4,590 mg/L in monitoring well BH53 to 53,400 mg/L in monitoring well BH54.

Northwest Groundwater Zone

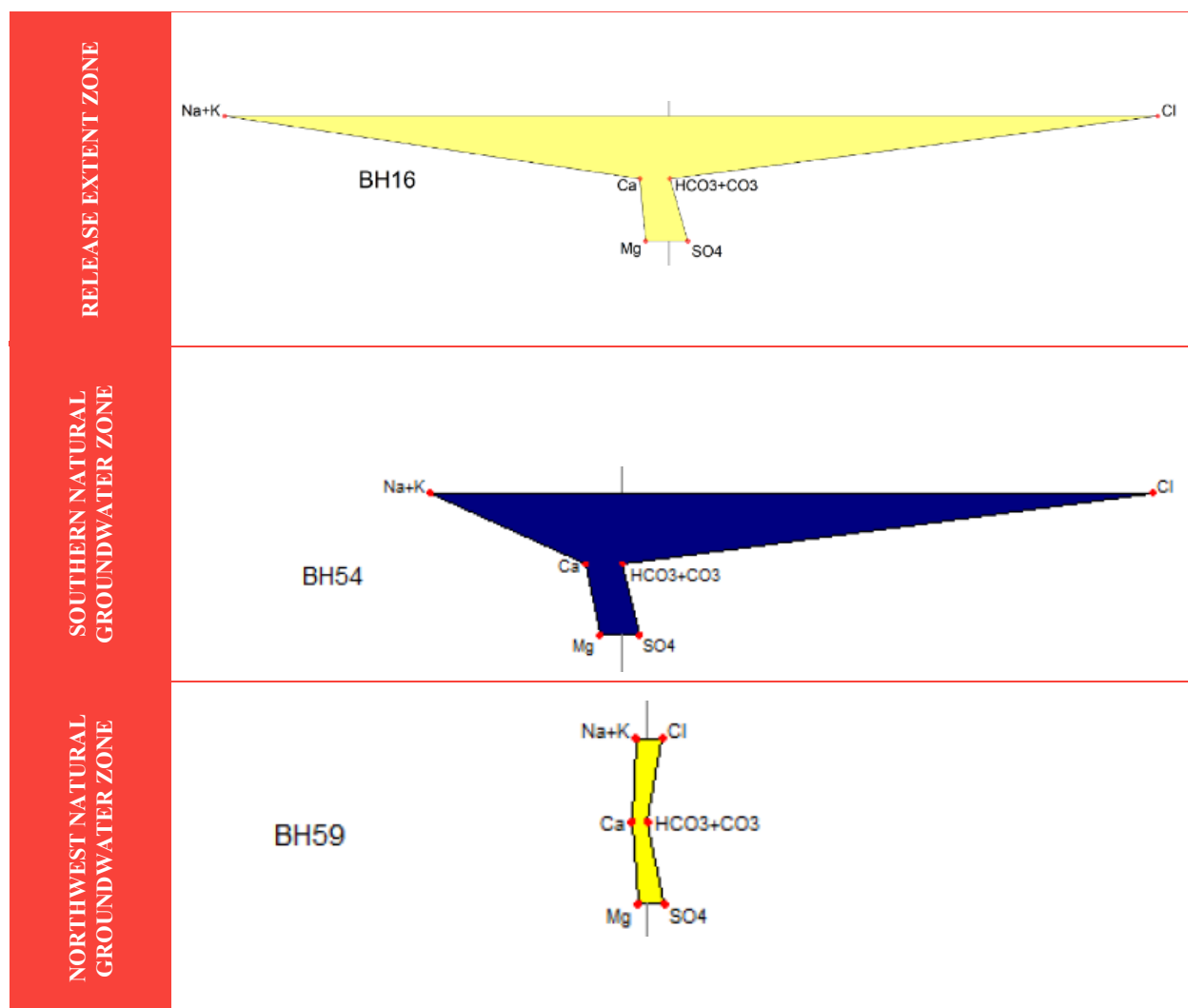
During the January 2021 sampling event, groundwater analytical results indicated:

- No BTEX was detected in groundwater within this zone;
- TDS concentrations in groundwater within this zone ranged from 5,100 mg/L in monitoring well BH59 to 7,090 mg/L in monitoring well BH63, which was greater than the domestic water supply NMWQCC standard, but below the agricultural/irrigation water supply NMWQCC standard; and
- Chloride in groundwater exceeded the NMWQCC standard in all monitoring wells within this zone at concentrations ranging from 1,350 mg/L in monitoring well BH59 to 3,790 mg/L in monitoring well BH61.

WATER CHEMISTRY ANALYTICAL RESULTS

By comparing cation and anions within groundwater, the water chemistry can be “fingerprinted” for similarly connected and feed waterbodies. Stiff and Piper diagrams also have been developed to display the water chemistry data from representative monitoring wells with the three zones and are displayed on Graphs 1 through 4. Overall shallow groundwater throughout the three zones appears to be of poor quality with iron, manganese, chloride, and sulfate exceeding their applicable NMWQCC standards. In general, the groundwater fingerprints within the REZ and SGZ have a higher proportion of sodium and potassium cations and chloride anions with lower calcium and magnesium cations and bicarbonate, carbonate, and sulfate anions, measured in milliequivalent per liter (meq/L). This is consistent with regional hydrogeology characteristics as described in Section 1.4.3. The groundwater fingerprint of the NGZ is low in all cation and anions. The table below illustrates representative groundwater ion chemistry within the three groundwater zones.

General Groundwater Fingerprints


Notes:

Cations are present on the left side of the graph and anions are present on the right side of the graph. Shapes of the graphs are based on milliequivalent per liter (meq/L) concentrations

Na+K – sodium and potassium

Cl – chloride

Ca – calcium

HCO₃+CO₃ – bicarbonate and carbonate

Mg – magnesium

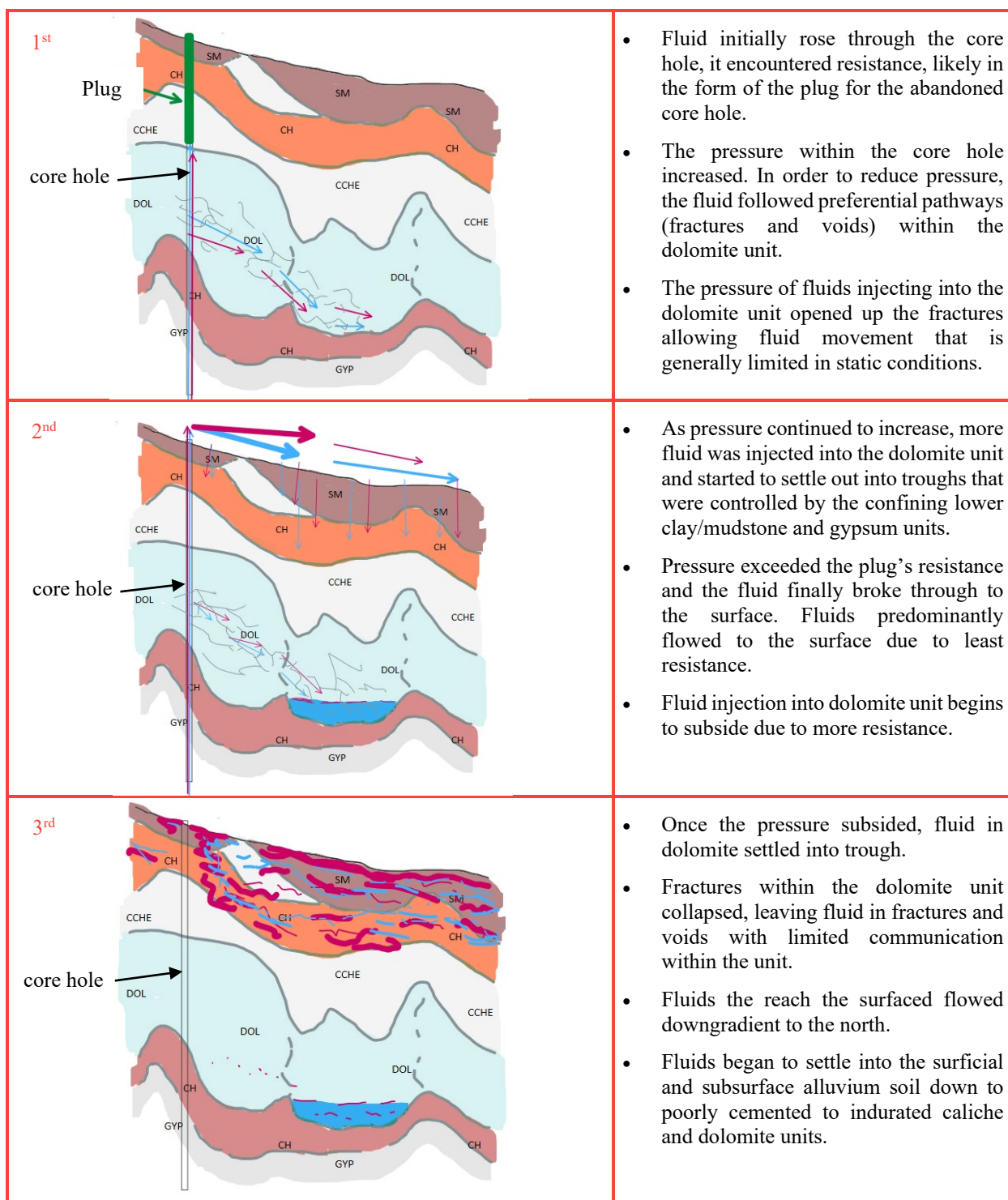
SO₄ - sulfate

Analytical results indicated e. Coli was present in all three monitoring wells within the NGZ, but not in any monitoring wells from the other two zones. Coliform was also detected in groundwater from monitoring well BH59 in the NGZ. No coliform was detected in any other groundwater.

5 REFINED CSM

The refined CSM continues to indicate the release fluid originally migrated onto the Site from the core hole located in the southern end of the release extent. As described previously in the RI report and summarized in previous sections of this report, the majority of the release fluids exited the core hole at the surface, impacting shallow soils to approximately 20 feet bgs. Based on the presence of release fluid and associated impacts in the subsurface, it appears some of the release fluid was introduced directly from the core hole into fractures/pore spaces within the dolomite unit in the subsurface. Distribution of the fluid was controlled by pressure from the release and preferential pathways in the lithology. The fluid subsided within the formation to structural low spots or troughs. Below is an illustration of the progression of fluid migration during the release event.

Fluid Migration



Notes:

Blue lines indicate produced water/briny water mixture,
Magenta lines indicated crude oil mixture

Based on the analytical results and volume of removable water in the formation determined through aquifer testing and fluid recovery (previously reported), fluid in the REZ is likely a combination of release fluid (produced water and crude oil mixtures) and naturally occurring briny water fed by the SGZ, limited to seasonality changes and/or large influx of shallow groundwater from sporadic substantial precipitation events. Groundwater fingerprints for REZ and SGZ appear to be similar, indicating a similar source of recharge, likely from a subsurface source south of SGZ, which contains significantly more fluid than the REZ. No hydrocarbon fingerprint has been observed in soil or groundwater in the SGZ, further supporting the SGZ as representative of background water quality.

The NGZ is completely separate from the REZ and SGZ, both in apparent lithological formation confinement and water source/recharge process. The NGZ was formed by a subsurface collapse beneath the dolomite unit, not simply by a trough at the base of the dolomite. The groundwater fingerprint of NGZ is substantially different than REZ and SGZ, indicating a different source of recharge, such as precipitation infiltration and vertical migration with final settlement in the dolomite unit. BTEX was not detected in groundwater within the NGZ. BTEX is soluble in water and if impacts from the core hole interacted within this zone, one or more BTEX constituents (dissolved or PSH) would have been detected through laboratory analysis, which is not the case. E. Coli and coliform in water are often attributable to the interaction of animal feces with that water. The presence of e. Coli in groundwater within the NGZ indicates the likely source of groundwater recharge in this zone is from surface infiltration and settling within the lower portions of the dolomite unit within the collapse feature vicinity, where REZ and SGZ appear to be recharged from groundwater emanating from the south and moving northward.

Additionally, the gypsum/clay units present beneath the dolomite (water-bearing zone) act as confining units between the shallow and deep water-bearing zones, preventing the shallow groundwater impacts from vertically migrating into the deeper aquifer. As documented in previous reports, all pathways to potential receptors are incomplete. This report confirms that conclusion.

5.1 SHALLOW GROUNDWATER PROTECTABILITY STATUS

XTO previously presented in the RI Report that the shallow groundwater identified in the dolomite unit was not protectable because it contains naturally occurring TDS concentrations in excess of 10,000 mg/L. The use of the word “protectable” is derived from the objective of Part 30, which is to abate pollution of groundwater that has a background concentration of 10,000 mg/L or less TDS such that it is remediated to the NMWQCC Standards in 20.6.2.3103 NMAC and toxic pollutant standards in 20.6.2.7 NMAC. The 10,000 mg/L TDS threshold is further used in 20.6.2 NMAC, which states the purpose of the water quality standards are to protect groundwater with concentrations of less than 10,000 mg/L of TDS. Part 30 also indicates the vadose zone must be abated so that water contaminants will not *with reasonable probability* contaminate groundwater or surface water. In response to XTO’s argument, NMOCD indicated additional investigation was required to determine protectability of all shallow groundwaters at the Site for consideration of the need to evaluate the incident under Part 30.

XTO has presented various reports documenting delineation and remediation of subsurface impacts under Part 29. Delineation identified disconnected groundwater present in shallow troughs

of the dolomite unit and a deeper potential aquifer. The shallow groundwater contained impacts from the release, including PSH and dissolved-phase BTEX concentrations. It also appeared to be naturally poor in water quality. The deeper aquifer is more extensive, fresher, and demonstrated no impacts from hydrocarbons over six quarters of monitoring. The water-bearing units appear to be separated by confining units as evidenced by lithologic observations, soil and groundwater sampling results, and water chemistry analysis.

XTO's initial CSM suggested the majority of the release occurred at the surface and migrated vertically through as much as 20 feet of the vadose zone. XTO remediated those impacts by removing approximately 78,000 cubic yards of material and applying a microbial amendment. The minor residual concentrations remaining are restricted in aerial extent, by depth, by concentration, and by lithology. They are unlikely to migrate vertically due to the vertical distance between them and any subsurface water and by the presence of low porosity lithologic units (high-plasticity clays, gypsum, anhydrite). XTO has addressed the impacts to soil under Part 29 and concurrently removed any reasonable probability that water contaminants in vadose zone will contaminate groundwater.

The subsurface investigations previously presented and expanded upon here confirm the presence of groundwater with naturally occurring concentrations of TDS exceeding 10,000 mg/L. Additional boreholes in the SGZ confirm the presence of water in a dolomite trough separated from the impacted trough with no identifiable hydrocarbon impacts to soil or groundwater. The water quality signature between the SGZ and REZ are comparable, indicating the two zones contain the same groundwater, although direct communication is doubtful. Groundwater quality is poor, the result of storage in dolomite and extremely common in the Delaware Basin, especially within Nash Draw. Groundwater in the SGZ and REZ is not protectable and abatement of impacts to NMWQCC water quality standards do not apply.

Although a separate trough was identified in the NGZ, its presence is the result of dissolution and collapse and is sourced from the surface, made clear by the contrasting water quality and presence of bacteria that is lacking in the other shallow groundwater zones. Two contrasting water quality signatures in close proximity is not unheard of in this region, especially in shallow perched groundwater zones with very little volume and controlled by dissolution and fracturing of carbonate facies. While groundwater within the NGZ is considered protectable, BTEX was not detected in groundwater within this zone. BTEX is soluble in water and if impacts from the core hole interacted within this zone, one or more BTEX constituents (dissolved or PSH) would have been detected through laboratory analysis, which is not the case. Therefore, chloride and TDS as well as other groundwater constituents such as iron, manganese, and sulfate appear to be naturally occurring at concentrations that indicate this groundwater is of poor quality and not reflective of impacts from the release.

Similarly, the deeper and fresher groundwater appears to be protectable. It is sourced separately from the shallow water-bearing unit as distinguished between water chemistry analysis and lithologic observations. Following six quarters of monitoring, there is no impact to the deeper water by this release and any reasonable probability of potential future impact by residual hydrocarbons in the vadose zone has been prevented by mass removal of impacted soil. Potential future impacts by residual hydrocarbons in shallow groundwater will be prevented by the vertical distance and lithologic characteristics of the sedimentary facies (gypsum and clay) observed in the

subsurface. These properties prevented impact during the release and 2 years after the release. Removal of impacted fluid to the MEP has been completed and residual impacts do not pose a reasonable threat to leaching. Because of these factors, the groundwater ingestion exposure pathway at the Site appears to be incomplete at this time.

6 CONCLUSIONS

Over the past two years, surficial and subsurface soil and groundwater assessments and remedial actions related to the November 2018 release at the PCA 53 Site have been completed. Remedial efforts have included the excavation and proper disposal of over 78,000 cubic yards of petroleum hydrocarbon and chloride impacted soil as well as the recovery of approximately 1,040 bbls of impacted groundwater, which included over 67 gallons of PSH.

The Site is located regionally within the Delaware Basin and locally within the Nash Draw in Eddy County, New Mexico. Surficial geology is made up of the Rustler Formation. The primary shallow aquifer in this region is the Culebra Dolomite Unit. Groundwater in the Culebra Dolomite generally contains naturally occurring TDS concentrations in excess of 10,000 mg/L TDS, which is not required to be abated per Rule 30 nor meet the standards listed in 20.6.2.3103 NMAC.

In general, three groundwater zones have been identified within the project area and have been designated by REZ, SGZ, and NGZ. All three zones are located with the Culebra Dolomite Unit and appear of naturally poor quality with iron, manganese, chloride, and sulfate exceeding their applicable NMWQCC standards. This poor quality has been observed in all three zone, indicating the interactions with the dolomite unit likely has degraded the water quality. In general, the two geological features that likely control shallow subsurface water collection within the project area are troughs within the dolomite unit and collapse features with groundwater collecting within the dolomite unit.

Based on the analytical results and volume of water able to be removed from the formation, fluid in the REZ is likely a combination of release fluid (produced water and crude oil mixtures) and naturally occurring briny water fed by the SGZ. Groundwater fingerprints for REZ and SGZ appear to be similar, indicating a similar source of recharge, likely from an upgradient subsurface source south of SGZ; however, no hydrocarbon fingerprint is apparent in the SGZ, further supporting the SGZ as representative of background water quality.

The NGZ is completely separate from the REZ and SGZ, both in apparent lithological formation confinement and water source/recharge process. The groundwater fingerprint of NGZ is substantially different than REZ and SGZ, indicating a different source of recharge, such as precipitation infiltration and vertical migration and final settlement in the dolomite unit. BTEX was not detected in groundwater within the NGZ, indicating this zone has not been impacted from the release and is not connected to the REZ.

Groundwater assessment results from all activities related to this Site indicate groundwater within the REZ and SGZ are not protectable under 20.6.2 NMAC. While groundwater within the NGZ is considered protectable, this zone is disconnected from REZ and is not impacted. The gypsum/clay units present beneath the dolomite (water-bearing zone) act as confining units between the shallow and deep water-bearing zones, preventing the shallow groundwater impacts from vertically migrating into the deeper freshwater aquifer.

Because of these factors, the groundwater ingestion exposure pathway at the Site appears to be incomplete at this time. All other exposure pathways have been demonstrated to be incomplete as they relate to this Site.

Remediation of the subsurface according to Part 29 was completed and documented in the previous SWGP report and included excavation of 78,000 cubic yards of soil and application of a microbial amendment, followed by confirmation sampling. All soil impacts have been delineated to Table 1 Closure Criteria and to 600 mg/kg chloride both laterally and vertically. Delineation identified impacts to shallow pockets of groundwater collecting in dolomite troughs. XTO removed 43,000 gallons of free product and dissolved phase hydrocarbon which included 47 gallons of free product. The excavation and fluid recovery removed reasonable probability of pollution to groundwater by contaminants in the vadose zone.

7 RECOMMENDATION

Based on previous documentation demonstrating compliance with remediation according to Part 29, and supplemental information provided here confirming all exposure pathways incomplete at this time, XTO is respectfully requesting No Further Action (NFA) for RP Number 2RP-5169 / Incident ID NAB1901038306. Once NMOCD approves this request, XTO will plug and abandon the existing monitoring wells per the New Mexico Office of the State Engineer (NM OSE) requirements. XTO will complete seeding of the Site in Spring 2021 and check to verify new growth coverage matches the surrounding area in Fall 2021.

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TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
NMOCD Table 1 Closure Criteria				NE	NE	10	50	NE	NE	NE	1,000	2,500	600(a)/10,000(b)
Pothole Soil Sample Results													
PH09A	12	CL	10/08/2019	1.2	<128	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	520
PH09B	14	CL	10/08/2019	2.9	<128	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	524
PH10A	12	CL	10/08/2019	28.8	<128	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	11.9
PH10B	14	CL	10/08/2019	1,936.0	<128	<0.00199	0.992	273	1,040	81.5	1,310	1,390	8.35
PH10C	16	CL	10/08/2019	17.4	<128	<0.00199	<0.00199	<50.0	95.1	<50.0	95.1	95.1	35.5
PH11A	18	CL	10/08/2019	570.2	2,760.0	<0.00198	0.00848	<49.9	148	<49.9	148	148	4,270
PH11B	20	CL	10/08/2019	112.2	440.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	791
PH11C	22	CL	10/08/2019	8.6	<128	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	222
PH12A	10	CL	10/08/2019	1,352.0	2,760.0	<0.00200	0.383	132	758	71.0	890	961	4,350
PH12B	12	CL	10/08/2019	354.0	2,760.0	<0.00200	0.0901	<50.0	376	<50.0	376	376	5,070
PH12C	14	CL	10/08/2019	931.0	6,352.0	0.00214	0.666	137	523	<50.0	660	660	11,400
PH12D	16	CL	10/08/2019	798.0	5,868.0	0.00281	0.898	107	441	<49.9	548	548	13,300
PH12E	18	CL	10/08/2019	762.0	6,352.0	0.0029	3.12	170	675	65.3	845	910	8,180
PH13A	12	CCHE	10/09/2019	3.4	16,300.0	<0.00201	0.481	86.6	1,040	95.6	1,130	1,220	15,900
PH13B	14	CCHE	10/09/2019	1,368.0	1,348.0	0.00818	7.84	418	1,760	159	2,180	2,340	13,200
PH13C	15	CCHE	10/09/2019	637.2	8,060.0	<0.00199	1.03	172	1,300	128	1,470	1,600	8,280
PH14A	12	CCHE	10/09/2019	4.9	11,232.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	14,200
PH14B	14	SP	10/09/2019	0.0	4,256.0	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	4,770
PH14C	16	SP	10/09/2019	0.0	1,648.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	3,540
PH14D	18	SP	10/09/2019	0.0	4,256.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	1,300
PH14E	20	SP	10/09/2019	0.0	276.0	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	1,700
PH15A	12	SM	10/09/2019	1,931.0	8,060.0	0.16	60.7	1,750	3,620	331	5,370	5,700	16,000
PH15B	14	SM	10/09/2019	1,730.0	7,440.0	0.0433	42.8	1,100	4,510	446	5,610	6,060	15,200
PH15C	16	SM	10/09/2019	1,602.0	11,232.0	0.026	19.3	734	2,380	230	3,110	3,340	18,300
PH15D	18	SM	10/09/2019	1,190.0	5,868.0	0.0132	11.6	304	1,330	136	1,630	1,770	14,800
PH15E	20	SM	10/09/2019	1,809.0	4,256.0	0.0104	9.85	501	1,820	172	2,320	2,490	11,500
PH16A	12	SW	10/09/2019	402.0	1,460.0	<0.00200	0.0352	<50.0	442	55.2	442	497	9,120
PH16B	14	SW	10/09/2019	23.6	2,760.0	<0.00199	<0.00199	<49.9	99.9	<49.9	99.9	99.9	7,500
PH16C	16	SW	10/09/2019	402.0	1,120.0	<0.00201	0.14	<49.9	323	<49.9	323	323	3,920
PH16D	18	SW	10/09/2019	18.7	536.0	<0.00198	<0.00198	<50.0	58.9	<50.0	58.9	58.9	2,210
PH17A	12	SW	10/09/2019	0.0	312.0	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	401

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
PH17B	14	SW	10/09/2019	0.0	<128	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	217
Borehole Soil Sample Results													
BH01	5	SM	05/15/2019	2.4	<112	<0.00199	<0.00199	<15.0	26.3	<15.0	26.3	26.3	95.6
BH01A	8	CCHE	05/15/2019	3.4	211.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	93.1
BH01B	21	DOL	05/15/2019	2.8	211.0	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	188
BH01C	28	DOL	05/15/2019	0.7	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	73.9
BH02	10	CCHE	05/09/2019	1.4	217.0	<0.00198	0.00945	<15.0	<15.0	<15.0	<15.0	<15.0	28.5
BH02A	30	DOL	05/09/2019	0.6	<124	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	102
BH03	2	SM	05/15/2019	1.0	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<5.00
BH03A	12	ML	05/15/2019	2.5	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<5.00
BH03B	30	SW	05/15/2019	3.6	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	<5.00
BH03C	38	CCHE	05/15/2019	1.3	729.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	429
BH03D	47	CL	05/15/2019	1.8	<112	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	149
BH04	6	ML	05/15/2019	1,017.0	2,284.0	0.137	4.95	1,010	4,220	418	5,230	5,650	2,020
BH04A	11	ML	05/15/2019	17.3	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	16.4
BH04B	21	CCHE	05/15/2019	4.8	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	49.3
BH04C	34	DOL	05/15/2019	6.4	211.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	162
BH05	5	SM	05/15/2019	2.9	<112	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	5.79
BH05A	7	DOL	05/15/2019	5.0	172.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	117
BH05B	17	DOL	05/15/2019	5.2	556.0	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	269
BH05C	21	DOL	05/15/2019	1.1	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	132
BH06	2	ML	05/16/2019	2.3	<112	<0.00202	<0.00202	<15.0	23.3	39.8	63.1	63.1	<4.99
BH06A	32	ML	05/16/2019	0.7	497.0	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	432
BH06B	37	ML	05/16/2019	0.7	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	155
BH06C	40	GYP	05/16/2019	0.4	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	51.0
BH07	6	ML	05/15/2019	2.0	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	9.32
BH07A	21	CCHE	05/15/2019	2.3	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	11.1
BH07B	31	GYP	05/15/2019	3.8	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	123
BH08	2	ML	05/16/2019	2.3	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	<5.03
BH08A	15	CCHE	05/16/2019	0.6	<112	<0.00199	<0.00199	<14.9	<14.9	<14.9	<14.9	<14.9	43.0
BH08B	42	ML	05/16/2019	0.4	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	30.1
BH09	6	ML	05/14/2019	8.9	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	55.9
BH09A	34	CCHE	05/14/2019	0.6	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	16.5
BH09B	41	GYP	05/14/2019	1.3	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	<50.2

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH10	0.5	GYP	05/16/2019	1.5	512.0	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	107
BH10A	1	ML	05/16/2019	1.9	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	440
BH10B	9	CCHE	05/16/2019	0.6	240.0	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	85.1
BH10C	18	DOL	05/16/2019	0.4	512.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	239
BH10D	24	DOL	05/16/2019	0.7	384.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	219
BH11	6	SM	05/13/2019	1,252.0	1,286.0	0.403	61	2,990	4,960	495	7,950	8,450	964
BH11A	35	DOL	05/13/2019	1.0	262.0	<0.00202	0.00879	<15.0	<15.0	<15.0	<15.0	<15.0	319
BH11B	58	GYP	05/13/2019	0.7	<112	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	59.1
BH12	2	ML	05/16/2019	0.0	<112	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	74.6
BH12A	12	ML	05/16/2019	0.3	556.0	<0.00201	<0.00201	<14.9	<14.9	<14.9	<14.9	<14.9	538
BH12B	17	CCHE	05/16/2019	0.7	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	110
BH12C	27	CCHE	05/16/2019	1.0	697.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	336
BH12D	65	ML	05/17/2019	5.3	<112	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	23.9
BH13	10	SM	05/10/2019	1.1	384.0	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	5.4
BH13A	48	DOL	05/10/2019	337.2	884.8	<0.00199	0.0117	15.4	107	<15.0	122	122	516
BH13B	52	DOL	05/10/2019	337.0	845.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	178
BH13C	58	DOL	05/10/2019	1.1	<172	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	142
BH14	5	SM	05/11/2019	480.0	11,120.0	0.00426	0.511	160	280	33.8	440	474	19,700
BH14A	20	CCHE	05/11/2019	20.4	8,700.0	<0.00200	0.00413	<14.9	<14.9	<14.9	<14.9	<14.9	15,000
BH14B	45	DOL	05/11/2019	1,400.0	1,116.0	0.00267	0.458	362	1,630	227	1,630	2,220	1,300
BH14C	54	CL	05/11/2019	10.4	<124	<0.00201	0.00442	<14.9	44.2	<14.9	44.2	44.2	556
BH14D	58	GYP	05/11/2019	550.0	200.0	<0.00200	0.0158	20.9	322	45.0	343	388	232
BH15	6	CCHE	05/09/2019	1,123.0	16,692.0	0.13	26.2	1,980	5,590	641	7,570	8,210	19,200
BH15A	15	ML	05/09/2019	5.4	217.0	<0.00199	0.00404	<15.0	<15.0	<15.0	<15.0	<15.0	190
BH15B	24	DOL	05/09/2019	2.4	9,576.0	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	1,450
BH15C	55	CL	05/10/2019	0.6	<124	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	24.8
BH15D	59	CL	05/10/2019	0.2	<124	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	31.2
BH16	6	SM	05/14/2019	1,530.0	13,479.0	0.0526	1.07	186	1,930	458	2,116	2,570	18,700
BH16A	13	CL	05/14/2019	29.1	211.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	750
BH16B	18	CL	05/14/2019	11.7	1,286.0	<0.00200	<0.00200	<14.9	<14.9	<14.9	<14.9	<14.9	1,250
BH16C	21	CCHE	05/14/2019	14.9	<112	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	75.3
BH16D	52	DOL	05/14/2019	3.4	4,944.0	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	5,190
BH16E	64	CL	05/14/2019	0.9	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	33.0
BH17	5	CL	05/11/2019	4.9	211.0	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	22.3

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH17A	19	CCHE	05/11/2019	13.9	698.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	390
BH17B	24	DOL	05/11/2019	11.6	698.0	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	436
BH17C	40	DOL	05/11/2019	108.0	9,376.0	<0.00199	<0.00199	<15.0	28.3	<15.0	28.3	28.3	5,980
BH17D	44	DOL	05/11/2019	11.8	<172	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	96.6
BH17E	46	CL	05/12/2019	4.1	<172	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	20.1
BH17F	52	GYP	05/12/2019	1.7	<172	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	<5.05
BH17G	54	CL	05/12/2019	2.2	<172	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	27.3
BH18	6	ML	05/17/2019	4.8	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	<5.01
BH18A	13	CCHE	05/17/2019	3.9	<112	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	22.3
BH18B	43	DOL	05/17/2019	5.7	2,227.0	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	1,350
BH18C	57	ML	05/17/2019	4.2	2,105.0	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	2,340
BH19	2	ML	05/17/2019	2.8	<112	<0.00202	<0.00202	<14.9	<14.9	<14.9	<14.9	<14.9	20.9
BH19A	14	ML	05/17/2019	3.2	672.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	556
BH19B	22	CCHE	05/17/2019	2.8	<112	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	96.8
BH19C	34	DOL	05/17/2019	0.6	942.0	<0.00198	<0.00198	<15.0	<15.0	<15.0	<15.0	<15.0	647
BH19D	40	CL	05/17/2019	32.1	1,177.0	<0.00202	<0.00202	<15.0	<15.0	<15.0	<15.0	<15.0	3,520
BH19E	42	CCHE	05/17/2019	153.0	992.0	<0.00200	<0.00200	<15.0	31.7	<15.0	31.7	31.7	476
BH19F	46	DOL	05/17/2019	652.0	7,366.0	<0.00201	0.0457	53.9	586	147	733	787	7,420
BH19G	56	DOL	05/17/2019	15.2	14,324.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	6,930
BH19H	62	DOL	05/17/2019	2.4	7,993.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	4,110
BH19I	77	CL	05/18/2019	1.0	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	89.0
BH20	17	ML	06/05/2019	4.7	672.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	1,170
BH20A	25	CCHE	06/05/2019	22.8	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	71.8
BH20B	37	DOL	06/05/2019	9.8	294.0	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	258
BH20C	47	DOL	06/05/2019	9.5	825.0	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	743
BH20D	57	CH	06/05/2019	23.3	345.0	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	338
BH20E	70	GYP	06/05/2019	5.3	<112	<0.00199	<0.00199	<15.0	<15.0	<15.0	<15.0	<15.0	18.4
BH21	29	DOL	06/05/2019	9.8	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	153
BH21A	35	CH	06/06/2019	1.9	403.0	<0.00201	<0.00201	<15.0	<15.0	<15.0	<15.0	<15.0	275
BH21B	51	CH	06/06/2019	2.8	<112	<0.00200	<0.00200	<15.0	<15.0	<15.0	<15.0	<15.0	45.0
BH22A	6	CCHE	09/19/2019	1.1	<172	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	228
BH22B	16	CCHE	09/19/2019	0.0	<172	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	132
BH22C	18	CH	09/19/2019	0.0	212.0	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	680
BH22D	47	DOL	09/19/2019	37.2	7,006.0	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	2,540

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH22E	52	DOL	09/19/2019	2,385.0	6,468.0	<0.499	21.9	749	1,910	129	2,660	2,790	3,250
BH22F	70	GYP	09/19/2019	5.9	>172	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	8.23
BH23 A	20	CCHE	09/23/2019	0.6	<172	<0.000994	<0.000994	<50.0	<50.0	<50.0	<50.0	<50.0	81.7
BH23 B	24	DOL	09/23/2019	0.6	<172	<0.000996	<0.000996	<49.8	<49.8	<49.8	<49.8	<49.8	126
BH23 C	49	CH	09/23/2019	0.2	<128	<0.00101	<0.00101	<50.3	<50.3	<50.3	<50.3	<50.3	52.6
BH24 A	24	CCHE	09/23/2019	0.3	218.0	<0.00101	<0.00101	<50.3	<50.3	<50.3	<50.3	<50.3	193
BH24 B	48	DOL	09/23/2019	1.0	<172	<0.00101	<0.00101	<50.1	<50.1	<50.1	<50.1	<50.1	74.4
BH24 C	50	DOL	09/23/2019	3.6	1,752.0	<0.00101	<0.00101	<50.0	<50.0	<50.0	<50.0	<50.0	2,050
BH24 D	56	CH	09/23/2019	0.5	<128	<0.00101	<0.00101	<50.0	<50.0	<50.0	<50.0	<50.0	36.3
BH25A	48	DOL	09/20/2019	0.1	212.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	391
BH25B	75	CH	09/20/2019	0.0	<218	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	167
BH26A	10	CH	09/21/2019	0.0	<172	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	572
BH26B	13	CH	09/21/2019	0.2	<172	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	307
BH26C	15	CH	09/21/2019	0.0	<172	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	358
BH26D	18	CH	09/21/2019	0.0	<172	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	404
BH26E	20	CH	09/21/2019	0.0	<172	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	343
BH26F	25	CCHE	09/21/2019	0.6	172.0	<0.00200	<0.00200	<49.9	51.6	<49.9	51.6	51.6	272
BH26G	30	CCHE	09/21/2019	0.8	<172	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	110
BH26H	35	DOL	09/21/2019	0.2	<172	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	7.56
BH26I	40	DOL	09/21/2019	2.4	386.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	432
BH26J	45	DOL	09/21/2019	845.8	1,372.0	0.0391	0.941	407	1,090	65.6	1,500	1,560	5,670
BH26K	50	DOL	09/22/2019	425.1	829.0	0.00243	0.0488	<49.9	223	<49.9	223	223	902
BH26L	52	DOL	09/22/2019	445.2	4,334.0	0.0215	0.529	53.3	149	<49.9	202	202	2,820
BH26M	54	DOL	09/22/2019	1,020.0	1,587.0	<0.505	6.36	638	1,170	73.7	1,810	1,880	2,740
BH26N	55	DOL	09/22/2019	1,758.0	3,587.0	<0.200	12.5	1,790	2,960	183	4,750	4,930	4,060
BH26O	58	CH	09/22/2019	4.1	<172	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	129
BH27 A	9	CCHE	09/23/2019	1,259.0	6,872.0	<0.00101	0.445	<50.1	291	<50.1	291	291	8,930
BH27 B	14	CL	09/23/2019	7.2	3,600.0	<0.00100	<0.00100	<50.1	<50.1	<50.1	<50.1	<50.1	9,740
BH27 C	20	CH	09/23/2019	0.0	<172	<0.00101	<0.00101	<49.9	<49.9	<49.9	<49.9	<49.9	2,500
BH27 D	25	CCHE	09/23/2019	0.4	180.0	<0.00101	<0.00101	<49.9	<49.9	<49.9	<49.9	<49.9	198
BH27 E	30	CCHE	09/23/2019	0.0	<172	<0.00100	<0.00100	<50.1	<50.1	<50.1	<50.1	<50.1	25.1
BH27 F	35	DOL	09/23/2019	0.5	386.0	<0.00101	<0.00101	<50.2	<50.2	<50.2	<50.2	<50.2	380
BH27 G	40	DOL	09/24/2019	3.5	252.0	<0.00101	<0.00101	<49.8	<49.8	<49.8	<49.8	<49.8	227
BH27 H	45	DOL	09/24/2019	161.1	991.0	<0.00101	0.0732	<50.3	<50.3	<50.3	<50.3	<50.3	928

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH27 I	51	DOL	09/24/2019	408.6	2,878.0	1.85	69.5	1,410	3,250	<49.8	4,660	4,660	3,980
BH27 J	55	CH	09/24/2019	630.1	<172	0.0178	4.29	231	873	<49.8	1,100	1,100	82.9
BH27 K	57	CH	09/24/2019	3.4	<172	<0.00101	<0.00101	<50.2	<50.2	<50.2	<50.2	<50.2	51.2
BH27 L	60	GYP	09/24/2019	8.2	<172	<0.00101	<0.00101	<50.0	<50.0	<50.0	<50.0	<50.0	<9.98
BH28 A	6	CCHE	09/24/2019	0.0	<179	<0.00101	<0.00101	<49.9	<49.9	<49.9	<49.9	<49.9	<9.90
BH28 B	13	CH	09/24/2019	0.0	156.0	<0.00100	<0.00100	<50.2	<50.2	<50.2	<50.2	<50.2	819
BH28 C	18	CH	09/24/2019	0.0	156.0	<0.00100	<0.00100	<50.3	<50.3	<50.3	<50.3	<50.3	500
BH28 D	21	CCHE	09/24/2019	0.0	<179	<0.000990	<0.000990	<50.1	<50.1	<50.1	<50.1	<50.1	55.4
BH28 E	32	CCHE	09/24/2019	2.3	218.0	<0.00101	<0.00101	<50.2	<50.2	<50.2	<50.2	<50.2	215
BH28 F	47	DOL	09/25/2019	8.4	<179	<0.00100	<0.00100	<50.2	<50.2	<50.2	<50.2	<50.2	82.2
BH28 G	52	DOL	09/25/2019	2.6	5.4	<0.000994	<0.000994	<49.8	<49.8	<49.8	<49.8	<49.8	8,230
BH28 H	55	DOL	09/25/2019	4,000.0	4.8	<0.00101	0.0738	447	1210	<50.0	1,660	1,660	8,250
BH28 I	61	CH	09/25/2019	0.2	<179	<0.00101	<0.00101	<50.2	<50.2	<50.2	<50.2	<50.2	22.7
BH29A	6	CCHE	09/25/2019	0.6	<173	<0.00101	<0.00101	<50.0	<50.0	<50.0	<50.0	<50.0	20.4
BH29B	13	CH	09/25/2019	0.1	437.0	<0.00100	<0.00100	<50.2	<50.2	<50.2	<50.2	<50.2	818
BH29C	18	CH	09/25/2019	0.4	<179	<0.00101	<0.00101	<49.8	<49.8	<49.8	<49.8	<49.8	863
BH29D	30	CCHE	09/26/2019	11.2	<179	<0.000986	<0.000986	<50.0	<50.0	<50.0	<50.0	<50.0	65.5
BH29E	47	DOL	09/26/2019	4.2	341.0	<0.000992	<0.000992	<49.8	<49.8	<49.8	<49.8	<49.8	299
BH29F	52	DOL	09/26/2019	3.0	493.0	<0.00100	<0.00100	<49.9	<49.9	<49.9	<49.9	<49.9	480
BH29G	55	DOL	09/26/2019	6.0	5,040.0	<0.000998	<0.000998	<50.1	<50.1	<50.1	<50.1	<50.1	4,930
BH29H	60	CH	09/26/2019	0.2	<179	<0.000998	<0.000998	<50.2	<50.2	<50.2	<50.2	<50.2	42.8
BH30A	6	CH	10/05/2019	0.5	<179	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	202
BH30B	13	CH	10/05/2019	2.7	341.0	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	549
BH30C	18	BH	10/05/2019	3.5	252.0	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	39.7
BH30D	27	CCHE	10/05/2019	9.1	<179	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	45.6
BH30E	32	DOL	10/05/2019	3.2	<179	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	100
BH30F	42	DOL	10/05/2019	6.1	296.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	518
BH30G	44	DOL	10/05/2019	379.0	>3,488	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	5,630
BH30H	50	DOL	10/05/2019	792.0	>3,488	0.00319	5.03	204	585	<50.0	789	789	5,810
BH30I	55	DOL	10/05/2019	329.0	3,488.0	<0.00198	0.065	<49.8	287	<49.8	287	287	3,430
BH30J	57	DOL	10/05/2019	964.0	3,024.0	<0.00202	0.377	56.6	293	<50.0	350	350	3,140
BH30K	61	DOL	10/05/2019	168.0	828.0	<0.00198	0.0288	<50.0	<50.0	<50.0	<50.0	<50.0	697
BH30L	63	CH	10/05/2019	2.0	<179	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	70.3
BH31A	5	SM	10/05/2019	1.5	<179	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	<4.96

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH31B	9	SM	10/05/2019	1.5	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	33.5
BH31C	15	CH	10/05/2019	2.1	492.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	587
BH31D	20	CH	10/05/2019	3.0	<179	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	507
BH31E	30	CCHE	10/05/2019	4.0	<179	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	16.4
BH31F	36	DOL	10/05/2019	6.0	<179	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	246
BH31G	40	DOL	10/05/2019	3.2	386.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	327
BH31H	52	DOL	10/06/2019	11.1	252.0	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	175
BH31I	55	DOL	10/06/2019	4.6	218.0	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	129
BH31J	58	DOL	10/06/2019	4.5	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	40.2
BH31K	60	CH	10/06/2019	4.0	<179	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	28.9
BH32A	9	CL	10/02/2019	0.0	<179	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	15.0
BH32B	14	CH	10/02/2019	0.0	<179	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	97.1
BH32C	20	CH	10/02/2019	0.0	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	202
BH32D	25	CCHE	10/02/2019	0.6	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	76.6
BH32E	30	CCHE	10/02/2019	3.1	<179	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	148
BH32F	35	DOL	10/02/2019	0.7	341.0	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	262
BH32G	40	DOL	10/02/2019	1.0	218.0	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	287
BH32H	45	DOL	10/02/2019	0.8	386.0	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	428
BH32I	51	DOL	10/02/2019	0.8	252.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	204
BH32J	52	DOL	10/02/2019	1.1	828.0	<0.00185	<0.00185	<50.0	<50.0	<50.0	<50.0	<50.0	1,410
BH32K	55	DOL	10/02/2019	0.1	2,290.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	2,500
BH32L	57	CH	10/02/2019	1.3	<172	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	66.2
BH32M	59	CH	10/02/2019	0.1	<172	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	58.5
BH33A	6	CH	10/06/2019	0.8	<179	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	88.1
BH33B	13	CH	10/06/2019	3.5	252.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	298
BH33C	18	CH	10/06/2019	4.2	<179	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	329
BH33D	27	CH	10/06/2019	4.5	252.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	330
BH33E	32	DOL	10/06/2019	3.9	<179	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	106
BH33F	37	DOL	10/06/2019	4.5	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	67.7
BH33G	39	CH	10/06/2019	2.8	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	61.6
BH33H	49	GYP	10/06/2019	1.5	<179	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	12.0
BH34A	6	DOL	10/06/2019	2.8	436.0	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	495
BH34B	15	DOL	10/06/2019	2.4	492.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	673
BH34C	28	DOL	10/07/2019	3.9	252.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	323

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH34D	30	CH	10/07/2019	2.1	252.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	1,460
BH34E	34	GYP	10/07/2019	0.6	<179	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	14.2
BH35A	5	CH	10/07/2019	0.6	341.0	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	723
BH35B	10	CCHE	10/07/2019	3.2	<179	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	90.7
BH35C	30	DOL	10/07/2019	2.3	252.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	232
BH35D	40	DOL	10/07/2019	5.1	252.0	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	218
BH35E	44	DOL	10/07/2019	5.1	<179	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	87.3
BH35F	45	CH	10/07/2019	3.4	<179	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	40.6
BH35G	50	GYP	10/07/2019	2.4	<179	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	<4.97
BH35H	56	GYP	10/08/2019	1.6	<179	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	9.84
BH35I	58	GYP	10/08/2019	0.8	<179	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	<4.97
BH36A	5	SM	10/09/2019	<179	1.2	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	200
BH36B	17	CCHE	10/09/2019	<179	2.3	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	75.9
BH36C	21	CL	10/09/2019	<179	1.1	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	238
BH36D	26	CL	10/09/2019	<127	1.2	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	244
BH36E	31	CL	10/09/2019	<127	2.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	135
BH36F	40	CCHE	10/09/2019	<127	1.2	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	74.7
BH36G	46	CCHE	10/09/2019	156.0	1.6	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	98.8
BH36H	50	DOL	10/11/2019	<127	2.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	232
BH36I	65	DOL	10/11/2019	<179	3.9	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	86.2
BH36J	66	CL	10/11/2019	<179	3.5	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	54.5
BH36K	70	CL	10/11/2019	<179	1.5	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	38.9
BH37	1	SM	12/12/2019	0.9	<128	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	12.5
BH37A	3	CCHE	12/12/2019	0.7	<128	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	<10.1
BH37B	7	CL	12/12/2019	1.8	375.0	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	361
BH37C	10	CH	12/12/2019	1.9	285.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	472
BH37D	17	CCHE	12/12/2019	2.6	<128	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	110
BH37E	30	DOL	12/13/2019	6.5	120.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	204
BH37F	44	DOL	12/13/2019	7.2	240.0	<0.00197	<0.00197	<50.2	<50.2	<50.2	<50.2	<50.2	334
BH37G	50	DOL	12/13/2019	6.2	1,058.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	1,290
BH 37H	52	DOL	12/13/2019	2.3	890.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	2,460
BH37I	54	CH	12/13/2019	2.3	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	44.2
BH37J	56	CH	12/13/2019	3.0	<120	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	28.7
BH38	1	SM	12/11/2019	0.3	<128	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	<9.98

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH38A	3	CCHE	12/11/2019	0.5	<128	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	<10.1
BH38B	10	CH	12/11/2019	3.8	<128	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	260
BH38C	20	CCHE	12/12/2019	1.7	<128	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	62.7
BH38D	34	DOL	12/12/2019	5.4	212.0	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	161
BH38E	42	DOL	12/12/2019	4.8	257.0	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	174
BH38F	45	DOL	12/12/2019	5.1	128.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	140
BH38G	49	DOL	12/12/2019	2.3	128.0	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	74.2
BH38H	51	DOL	12/12/2019	4.9	<128	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	79.5
BH38I	53	CH	12/12/2019	3.5	<128	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	16.9
BH39	1	SM	12/13/2019	0.9	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	<9.96
BH39A	12	CH	12/13/2019	11.4	<120	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	<9.88
BH39B	17	CCHE	12/13/2019	7.0	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	30.9
BH39C	22	CH	12/13/2019	8.0	<120	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	135
BH39D	38	SP-S	12/14/2019	3.6	<120	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	60.2
BH39E	41	CCHE	12/14/2019	3.3	<120	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	91.0
BH39F	55	CH	12/14/2019	9.6	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	80.7
BH39G	62	CCHE	12/14/2019	3.6	1,344.0	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	2,540
BH39H	67	DOL	12/14/2019	5.4	604.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	781
BH39I	73	DOL	12/14/2019	3.8	3,136.0	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	4,260
BH39J	77	DOL	12/14/2019	1.1	3,830.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	5,530
BH39K	84	DOL	12/14/2019	0.8	739.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	1,160
BH39L	92	DOL	12/17/2019	2.6	3,368.0	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	5,080
BH39M	95	DOL	12/17/2019	0.5	3,628.0	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	4,070
BH39N	96	CH	12/17/2019	0.0	240.0	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	718
BH40	14	CCHE	12/16/2019	416.0	285.0	<0.00200	0.0563	82.0	920	64.6	1,000	1,070	617
BH40A	16	CCHE	12/16/2019	425.0	<120	<0.00201	0.134	154	1,840	145	1,990	2,140	283
BH40B	18	CCHE	12/16/2019	316.0	<120	<0.00201	<0.00201	<49.9	209	<49.9	209	209	148
BH40C	19	CCHE	12/16/2019	3.4	<120	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	39.6
BH40D	21	CCHE	12/16/2019	1.2	<120	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	121
BH46	1	SP	12/18/2019	0.2	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	80.8
BH46A	7	SP-S	12/18/2019	1.0	<120	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	9.77
BH46B	12	CCHE	12/18/2019	1.8	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	7.19
BH46C	19	SM	12/18/2019	0.3	<120	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	62.0
BH46D	23	CH	12/18/2019	4.3	<120	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	57.7

TABLE 1
SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH46E	27	CCHE	12/18/2019	0.9	<120	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	80.3
BH46F	29	CH	12/18/2019	1.0	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	301
BH46G	39	CCHE	12/18/2019	1.0	<120	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	81.5
BH46H	50	DOL	12/18/2019	3.0	240.0	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	268
BH46I	55	DOL	12/18/2019	5.1	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	164
BH46J	61	DOL	12/18/2019	3.0	285.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	617
BH46K	65	DOL	12/18/2019	0.9	1,450.0	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	1,860
BH46L	67	DOL	12/18/2019	1.6	2,727.0	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	3,720
BH46M	72	DOL	12/18/2019	0.9	1,680.0	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	1,810
BH46N	76	DOL	12/19/2019	0.6	<120	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	121
BH46O	77.5	CH	12/19/2019	0.5	<120	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	142
BH47	1	SW	12/19/2019	0.5	<120	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	<5.05
BH47A	9	CH	12/19/2019	2.8	<120	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	545
BH47B	19	CH	12/19/2019	1.9	425.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	868
BH47C	21	CCHE	12/19/2019	3.9	<120	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	152
BH47D	32	DOL	12/19/2019	10.5	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	261
BH47E	41	DOL	12/20/2019	3.8	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	63.2
BH47F	51	DOL	12/20/2019	5.5	974.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	1,230
BH47G	53	CH	12/20/2019	0.9	<120	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	212
BH48	1	SM	12/20/2019	0.6	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	16.5
BH48A	7	CCHE	12/20/2019	0.9	425.0	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	382
BH48B	9	CH	12/20/2019	1.0	604.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	576
BH48C	14.5	SP-S	12/20/2019	1.5	330.0	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	450
BH48D	21	CCHE	12/20/2019	1.9	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	399
BH48E	33	CH	12/20/2019	1.0	<120	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	47.5
BH48F	40	CCHE	12/20/2019	3.2	<120	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	463
BH48G	49	DOL	12/20/2019	2.8	481.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	942
BH48H	57	DOL	12/20/2019	2.4	543.0	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	963
BH48 I	60	DOL	01/13/2020	1.1	352.0	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	524
BH48 J	65	DOL	01/13/2020	4.0	588.0	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	472
BH48 K	68	DOL	01/13/2020	6.4	<120	<0.00202	<0.00202	<50.3	<50.3	<50.3	<50.3	<50.3	212
BH48 L	71	DOL	01/13/2020	0.4	2,105.0	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	3,820
BH48 M	73	CH	01/13/2020	0.0	<120	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	38.4
BH48 N	76	CH	01/13/2020	0.0	<120	<0.00198	<0.00198	<50.2	<50.2	<50.2	<50.2	<50.2	38.4

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH49	1	SM	01/22/2020	0.1	<120	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	13.1
BH49A	5	CH	01/22/2020	0.9	375.0	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	790
BH49B	10	CCHE	01/22/2020	0.6	120.0	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	180
BH49C	15	CCHE	01/22/2020	4.6	812.0	<0.00201	<0.00201	<50.3	<50.3	<50.3	<50.3	<50.3	726
BH49D	21	CCHE	01/22/2020	10.7	425.0	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	277
BH49E	22	DOL	01/22/2020	4.5	375.0	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	381
BH49F	27	DOL	01/22/2020	10.6	425.0	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	286
BH49G	32	DOL	01/22/2020	10.9	481.0	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	273
BH49H	41	CH	1/29/2021	1.3	120.0	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	139
BH49I	42	CH	1/29/2020	0.2	<120	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	211
BH49J	45	GYP	1/29/2020	0.2	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	21.9
BH50	1	CCHE	01/22/2020	0.8	<120	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	111
BH50A	2	DOL	01/22/2020	8.9	<120	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	156
BH50B	7	DOL	01/22/2020	4.3	168.0	<0.00198	<0.00198	<49.8	<49.8	<49.8	<49.8	<49.8	233
BH50C	22	DOL	01/22/2020	1.5	<120	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	95.5
BH50D	23	DOL	01/22/2020	0.8	<120	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	230
BH50E	25	CH	01/22/2020	1.1	173.0	<0.00201	<0.00201	<50.3	<50.3	<50.3	<50.3	<50.3	282
BH50F	38	CH	01/22/2020	2.4	<120	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	44.1
BH50G	39	GYP	01/22/2020	0.6	<120	<0.00198	<0.00198	<50.3	<50.3	<50.3	<50.3	<50.3	<10.1
BH50H	40	GYP	01/22/2020	0.3	<120	<0.00201	<0.00201	<50.2	<50.2	<50.2	<50.2	<50.2	<9.98
BH51	1	SM	1/29/2020	0.3	<120	<0.00201	<0.00201	<50.1	<50.1	<50.1	<50.1	<50.1	12.3
BH51A	6	CH	1/29/2020	0.3	<120	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	<10.1
BH51B	19	CHEE	1/29/2020	1.9	<120	<0.00200	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	18.9
BH51C	26	DOL	1/29/2020	0.3	285.0	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	1,410
BH51D	37	DOL	1/29/2020	0.8	543.0	<0.00201	<0.00201	<50.0	<50.5	<50.5	<50.0	<50.5	598
BH51E	47	DOL	1/29/2020	1,018.0	2,223.0	0.0162	3.23	99.5	629	<49.9	729	729	2,030
BH51F	49	DOL	1/29/2020	1,268.0	672.0	1.35	47.7	3,150	4,600	358	7,750	8,110	528
BH51G	52	CH	1/29/2020	1.2	<120	<0.00202	0.0158	<49.9	<49.9	<49.9	<49.9	<49.9	32.1
BH52	1	SM	1/30/2020	5.4	<120	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	21.7
BH52A	2	CCHE	1/30/2020	0.0	168.0	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	10
BH52B	19	DOL	1/30/2020	0.0	168.0	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	219
BH52C	41	CH	1/30/2020	0.0	<120	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	285
BH52D	42	CH	1/30/2020	0.0	<120	<0.00199	0.00987	<49.8	<49.8	<49.8	<49.8	<49.8	88.7
BH52E	45	CH	1/30/2020	0.0	<120	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	49

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH53	1	SP	1/30/2020	0.3	<120	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	<10.2
BH53A	9	CCHE	1/30/2020	0.0	<120	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	39.9
BH53 B	14	SM	1/31/2020	1.2	<120	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	156
BH53 C	20	CH	1/31/2020	0.4	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	445
BH53 D	28	CCHE	1/31/2020	0.8	NT	<0.00200	<0.00200	<50.2	<50.2	<50.2	<50.2	<50.2	54.4
BH53 E	42	DOL	1/31/2020	0.6	240.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	210
BH53 F	57	DOL	1/31/2020	0.6	604.0	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	459
BH53 G	59	DOL	1/31/2020	0.7	--	<0.00202	<0.00202	<50.2	<50.2	<50.2	<50.2	<50.2	1,870
BH53 H	61	CH	1/31/2020	1.0	168.0	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	<9.92
BH53 I	62	CH	1/31/2020	1.0	<120	<0.00199	<0.00199	<50.3	<50.3	<50.3	<50.3	<50.3	36.4
BH54	42	CCHE	1/5/2021	0.1	<124	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	<9.92
BH54 A	60	DOL	1/5/2021	2.7	1,140.0	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	1,570
BH54 B	66	CH	1/5/2021	0.0	274.0	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	30
BH55	40	CH	1/6/2021	0.0	<124	<0.00199	<0.00199	<476	<476	<476	<476	<476	46.3
BH55 A	60	DOL	1/6/2021	0.5	2,609.0	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	1,630
BH55 B	65	CH	1/6/2021	0.0	<124	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	33.5
BH56	42	CCHE	1/6/2021	0.2	<124	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	79.3
BH56 A	58	DOL	1/7/2021	0.3	1,400.0	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	1,640
BH56 B	66	CH	1/7/2021	0.4	--	<0.00200	<0.00200	<49.8	<49.8	<49.8	<49.8	<49.8	37.6
BH57	26	CCHE	1/7/2021	0.3	--	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	204
BH57 A	50	DOL	1/7/2021	384.0	<124	<0.00200	0.201	<49.9	4,520	58.9	4,520	4,580	192
BH57 B	53	CH	1/7/2021	4.2	<124	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	43
BH58	26	CCHE	1/8/2021	0.5	<124	<0.00199	<0.00199	<50.1	<50.1	<50.1	<50.1	<50.1	23.6
BH58 A	40	DOL	1/8/2021	2.2	274.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	205
BH58 B	47	CH	1/8/2021	0.4	<135	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	141
BH59	48	CH	1/8/2021	1.0	<120	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	27.9
BH59 A	50	CCHE	1/8/2021	0.6	<120	<0.00202	<0.00202	<49.9	<49.9	<49.9	<49.9	<49.9	230
BH59 B	63	DOL	1/9/2021	0.1	<120	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	311
BH59 C	70	CH	1/9/2021	0.2	<120	<0.00199	<0.00199	<50.2	<50.2	<50.2	<50.2	<50.2	100
BH60	1.5	SW	1/9/2021	0.1	<120	<0.00200	<0.00200	<50.1	<50.1	<50.1	<50.1	<50.1	21.3
BH60 A	18	DOL	1/9/2021	0.1	<120	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	999
BH60 B	22	CH	1/9/2021	0.1	<121	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	1,130
BH61	25	DOL	1/11/2021	0.1	<124	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	197
BH61 A	54	CH	1/11/2021	0.5	<124	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	82.2

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
BH61 B	57	CH	1/11/2021	0.1	<124	<0.00200	<0.00200	<50.3	<50.3	<50.3	<50.3	<50.3	46.9
BH62	19	DOL	1/11/2021	0.3	274.0	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	221
BH62 A	45	CH	1/11/2021	0.3	<124	<0.00198	<0.00198	<50.1	<50.1	<50.1	<50.1	<50.1	158
BH62 B	47	GYP	1/11/2021	0.5	<124	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	22.3
BH63	16	CCHE	1/12/2021	0.1	--	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	46.2
BH63 A	40	DOL	1/12/2021	0.5	<124	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	127
BH63 B	45	GYP	1/12/2021	0.1	<124	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	65.6
BH64	17	DOL	1/12/2021	1.1	1,237.0	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	852
BH64 A	37	DOL	1/12/2021	0.1	<124	<0.00202	<0.00202	<50.1	<50.1	<50.1	<50.1	<50.1	32.6
BH64 B	43	CH	1/12/2021	0.3	<124	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	38.2
BH64 C	50	GYP	1/12/2021	0.3	<124	<0.00196	<0.00196	<49.8	<49.8	<49.8	<49.8	<49.8	27.7
Deep Monitoring Well Soil Sample Results													
MW01A	5	SM	10/10/2019	1.0	<179	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	203
MW01B	17	CL	10/10/2019	4.0	252.0	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	356
MW01C	25	CCHE	10/10/2019	<179	3.4	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	391
MW01D	35	CCHE	10/10/2019	<179	4.1	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	39.3
MW01E	47	CCHE	10/10/2019	252.0	4.1	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	119
MW01F	59	DOL	10/10/2019	<179	6.3	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	108
MW01G	64	DOL	10/10/2019	<179	3.5	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	41
MW01H	66	CL	10/10/2019	<179	0.8	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	28.3
MW01I	69	GYP	10/10/2019	<179	1.6	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	<5.00
MW01J	75	CL	10/10/2019	<179	2.4	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	20.1
MW01K	90	SM	10/10/2019	<179	1.0	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	89.6
MW01L	99	SM	10/10/2019	<179	3.6	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	49.4
MW01M	110	SM	10/10/2019	<179	2.3	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	52.5
MW03A	1	SM	10/02/2019	0.0	<172	<0.00199	<0.00199	<50.0	<50.0	<50.0	<50.0	<50.0	16.3
MW03B	5	CCHE	10/02/2019	0.0	<172	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	<4.99
MW03C	10	CH	10/02/2019	0.0	<172	<0.00202	<0.00202	<49.8	<49.8	<49.8	<49.8	<49.8	381
MW03D	20	CCHE	10/02/2019	0.0	<172	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	146
MW03E	35	DOL	10/02/2019	6.5	<179	<0.00200	0.0252	<50.0	<50.0	<50.0	<50.0	<50.0	184
MW03F	47	DOL	10/03/2019	1.9	1,271.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	1,700
MW03G	50	DOL	10/03/2019	1.5	683.0	<0.00198	<0.00198	<50.0	<50.0	<50.0	<50.0	<50.0	531
MW03H	51	DOL	10/03/2019	0.8	296.0	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	288
MW03I	54	DOL	10/03/2019	1.4	<179	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	41.2

TABLE 1

SOIL ANALYTICAL RESULTS
PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Depth (feet bgs)	USCS / Lithology Description	Sample Date	PID Result (ppm)	Chloride Screening (ppm)	Benzene (mg/kg)	Total BTEX (mg/kg)	GRO (mg/kg)	DRO (mg/kg)	ORO (mg/kg)	Total GRO+DRO (mg/kg)	TPH (mg/kg)	Chloride (mg/kg)
MW03J	55	CH	10/03/2019	1.3	<179	<0.00201	<0.00201	<50.0	<50.0	<50.0	<50.0	<50.0	38.5
MW03K	65	GYP	10/03/2019	1.5	<179	<0.00201	<0.00201	<49.9	<49.9	<49.9	<49.9	<49.9	54.0
MW03L	74	CH	10/03/2019	6.8	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	50.9
MW03M	92	SM	10/03/2019	2.1	<179	<0.00199	<0.00199	<49.8	<49.8	<49.8	<49.8	<49.8	54.5
MW03N	100	SM	10/03/2019	2.7	<179	<0.00202	<0.00202	<50.0	<50.0	<50.0	<50.0	<50.0	47.2
MW03O	110	SM	10/04/2019	1.8	<179	<0.00201	<0.00201	<49.8	<49.8	<49.8	<49.8	<49.8	65.3
MW03P	120	SM	10/04/2019	2.1	<179	<0.00198	<0.00198	<49.9	<49.9	<49.9	<49.9	<49.9	108
MW03Q	130	SM	10/04/2019	2.0	<179	<0.00200	<0.00200	<50.0	<50.0	<50.0	<50.0	<50.0	57.9
MW03R	140	SM	10/04/2019	1.3	<179	<0.00200	<0.00200	<49.9	<49.9	<49.9	<49.9	<49.9	63.4
MW03S	150	CH	10/04/2019	0.8	<179	<0.00199	<0.00199	<49.9	<49.9	<49.9	<49.9	<49.9	47.6

Notes:

(a) - closure criteria for soil 0-4 ft bgs
 (b) - closure criteria for soil greater than 4 feet bgs
 bgs - below ground surface
 BTEX - benzene, toluene, ethylbenzene, and total xylenes
 CCHE - caliche
 CL - clay
 DOL - dolomite
 DRO - diesel range organics

GRO - gasoline range organics
 GYP - gypsum
 mg/kg - milligrams per kilogram
 ML - silt
 NMOCD - New Mexico Oil Conservation Division
 NE - not established
 ORO - motor oil range organics
 PID - Photoionization Detector

ppm - parts per million
 SC - clayey sand
 SP/SM - poorly graded sand / silty sand
 SW - well graded sand
 TPH - total petroleum hydrocarbons
Bold - indicates result exceeds the applicable Closure Criteria.
 < - indicates result is below laboratory reporting limits
 -- no data available

TABLE 2
MONITORING WELL ELEVATION AND CONSTRUCTION INFORMATION

PCA 53
REMEDIATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Well ID	Wellhead Elevation, TOC (feet AMSL)	Wellhead Elevation, Ground Surface (feet AMSL)	Well Diameter (inches)	Well Screen Length (feet)	Total Well Depth (feet BTOC)
Release Extent Zone					
BH14	3,015.56	3,013.05	2	20	56.45
BH16	3,015.56	3,015.09	2	20	54.73
BH22	3,023.59	3,020.71	2	20	60.12
BH26	3,015.12	3,011.93	6	20	53.00
BH27	3,011.77	3,008.79	2	20	50.80
BH32	3,020.98	3,018.01	2	20	60.78
BH37	3,021.10	3,018.18	2	20	59.28
BH48	3,020.97	3,017.77	2	20	62.67
BH51	3,019.46	3,016.55	2	20	55.15
Southern Groundwater Zone					
BH25	3,022.86	3,019.83	2	20	66.90
BH39	3,024.53	3,021.49	2	20	68.76
BH46	3,023.28	3,020.22	2	20	72.49
BH53	3,027.13	3,023.97	2	20	64.30
BH54	3,029.53	3,026.81	2	20	70.19
BH55	3,030.29	3,027.62	2	20	69.65
BH56	3,030.67	3,027.85	2	20	70.29
Northwest Groundwater Zone					
BH59	3,015.13	3,012.62	2	20	74.49
BH61	3,012.00	3,009.36	2	20	59.48
BH63	3,010.12	3,007.28	2	20	47.59
Deep Wells					
MW01	3,031.74	3,028.90	2	30	112.80
MW02	3,030.80	3,028.00	2	30	111.70
MW03	3,020.77	3,017.87	2	30	112.60

Notes:

BTOC - below top of casing

TOC - top of casing

TABLE 3
GROUNDWATER ELEVATIONS AND THICKNESS OF PHASE-SEPARATED HYDROCARBONS

PCA 53
REMEDIATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Well ID	Wellhead Elevation, TOC (feet AMSL)	Wellhead Elevation, Ground Surface (feet AMSL)	Sample Date	Depth to Water (feet BTOC)	Depth to Product (feet BTOC)	PSH Thickness (feet)	Adjusted GWEL (feet)
Release Extent Zone							
BH14	3,015.56	3,013.05	11/25/2019	47.88	47.42	0.46	2,968.05
			01/07/2020	48.74	48.45	0.29	2,967.05
			02/19/2020	49.28	49.15	0.13	2,966.38
			08/17/2020	48.51	48.49	0.02	2,967.07
	3,020.50	3,017.49	11/25/2020	53.23	53.22	0.01	2,967.28
			01/19/2021	53.40	53.39	0.01	2,967.11
BH16	3,015.56	3,015.09	11/25/2019	48.16	---	---	2,967.40
			01/07/2020	47.54	---	---	2,968.02
			02/19/2020	47.62	---	---	2,967.94
			08/17/2020	47.28	---	---	2,968.28
	3,023.00	3,019.98	11/25/2020	54.64	54.48	0.16	2,968.49
			01/19/2021	54.80	54.76	0.04	2,968.23
BH22	3,023.59	3,020.71	11/25/2019	---	---	---	Dry
			01/07/2020	---	---	---	Dry
			02/19/2020	---	---	---	Dry
			08/17/2020	60.08	---	---	2,963.51
			11/25/2020	---	---	---	Dry
			01/19/2021	---	---	---	Dry
BH26	3,015.12	3,011.93	11/25/2019	47.25	47.10	0.15	2,967.99
			01/07/2020	48.53	48.34	0.19	2,966.74
			02/19/2020	48.84	48.81	0.03	2,966.30
			08/17/2020	48.28	---	---	2,966.84
			11/25/2020	47.79	---	---	2,967.33
			01/19/2021	---	---	---	---
BH27	3,011.77	3,008.79	11/25/2019	44.55	43.62	0.93	2,967.96
			01/07/2020	45.36	44.89	0.47	2,966.79
			02/19/2020	45.85	45.42	0.43	2,966.26
			08/17/2020	45.27	44.82	0.45	2,966.86
	3,021.02	3,017.75	11/25/2020	54.20	53.86	0.34	2,967.09
			01/19/2021	54.41	54.03	0.38	2,966.91
BH32	3,020.98	3,018.01	11/25/2019	53.21	---	---	2,967.77
			01/07/2020	54.25	---	---	2,966.73
			02/19/2020	54.79	---	---	2,966.19
			08/17/2020	54.25	---	---	2,966.73
			11/25/2020	53.83	---	---	2,967.15
			01/19/2021	54.01	---	---	2,966.97
BH37	3,021.10	3,018.18	01/07/2020	54.30	---	---	2,966.80
			02/19/2020	55.30	54.85	0.45	2,966.16
			08/17/2020	57.32	57.11	0.21	2,963.95
			11/25/2020	56.27	56.14	0.13	2,964.93

TABLE 3
GROUNDWATER ELEVATIONS AND THICKNESS OF PHASE-SEPARATED HYDROCARBONS

PCA 53
REMEDIATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Well ID	Wellhead Elevation, TOC (feet AMSL)	Wellhead Elevation, Ground Surface (feet AMSL)	Sample Date	Depth to Water (feet BTOC)	Depth to Product (feet BTOC)	PSH Thickness (feet)	Adjusted GWEL (feet)
			01/19/2021	56.25	56.18	0.07	2,964.91
BH48	3,020.97	3,017.77	01/28/2020	54.42	---	---	2,966.55
			02/19/2020	54.72	---	---	2,966.25
			08/17/2020	55.82	---	---	2,965.15
			11/25/2020	55.83	---	---	2,965.14
			01/19/2021	55.55	---	---	2,965.42
BH51	3,019.46	3,016.55	02/06/2020	---	54.55	0.60	2,964.91
			02/19/2020	---	54.62	0.53	2,964.84
			08/17/2020	---	55.04	0.11	2,964.42
			11/25/2020	---	54.61	0.54	2,964.85
			02/23/2021	---	54.63	0.52	2,964.83
Southern Groundwater Zone							
BH25	3,022.86	3,019.83	11/25/2019	55.00	---	---	2,967.86
			01/07/2020	55.99	---	---	2,966.87
			02/18/2020	56.55	---	---	2,966.31
			08/17/2020	56.14	---	---	2,966.72
			11/25/2020	55.70	---	---	2,967.16
			01/19/2021	55.89	---	---	2,966.97
BH39	3,024.53	3,021.49	01/07/2020	57.71	---	---	2,966.82
			02/18/2020	58.31	---	---	2,966.22
			08/17/2020	57.89	---	---	2,966.64
			11/25/2020	57.43	---	---	2,967.10
			01/19/2021	57.62	---	---	2,966.91
BH46	3,023.28	3,020.22	01/07/2020	58.90	---	---	2,964.38
			02/18/2020	59.50	---	---	2,963.78
			08/17/2020	59.11	---	---	2,964.17
			11/25/2020	58.65	---	---	2,964.63
			01/19/2021	58.83	---	---	2,964.45
BH53	3,027.13	3,023.97	02/06/2020	60.16	---	---	2,966.97
			02/18/2020	60.84	---	---	2,966.29
			08/17/2020	60.51	---	---	2,966.62
			11/25/2020	60.03	---	---	2,967.10
			01/19/2021	60.24	---	---	2,966.89
BH54	3,029.53	3,026.81	01/19/2021	62.88	---	---	2,966.65
BH55	3,030.29	3,027.62	01/19/2021	63.63	---	---	2,966.66
BH56	3,030.67	3,027.85	01/19/2021	64.08	---	---	2,966.59
Northwest Groundwater Zone							
BH59	3,015.13	3,012.62	01/19/2021	50.65	---	---	2,964.48
BH61	3,012.00	3,009.36	01/19/2021	47.42	---	---	2,964.58

TABLE 3
GROUNDWATER ELEVATIONS AND THICKNESS OF PHASE-SEPARATED HYDROCARBONS

PCA 53
REMEDIATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Well ID	Wellhead Elevation, TOC (feet AMSL)	Wellhead Elevation, Ground Surface (feet AMSL)	Sample Date	Depth to Water (feet BTOC)	Depth to Product (feet BTOC)	PSH Thickness (feet)	Adjusted GWEL (feet)
BH63	3,010.12	3,007.28	01/19/2021	45.02	---	---	2,965.10
Deep Wells							
MW01	3,031.74	3,028.90	10/28/2019	99.81	---	---	2,931.93
			12/27/2019	92.29	---	---	2,939.45
			02/19/2020	92.46	---	---	2,939.28
			05/18/2020	92.11	---	---	2,939.63
			08/18/2020	92.23	---	---	2,939.51
			11/24/2020	92.07	---	---	2,939.67
MW02	3,030.80	3,028.00	10/28/2019	89.41	---	---	2,941.39
			12/27/2019	88.48	---	---	2,942.32
			02/19/2020	88.71	---	---	2,942.09
			05/18/2020	88.16	---	---	2,942.64
			08/19/2020	88.20	---	---	2,942.60
			11/24/2020	87.83	---	---	2,942.97
MW03	3,020.77	3,017.87	10/28/2019	62.93	---	---	2,957.84
			12/27/2019	63.35	---	---	2,957.42
			02/19/2020	59.25	---	---	2,961.52
			05/18/2020	59.16	---	---	2,961.61
			08/19/2020	58.56	---	---	2,962.21
			11/24/2020	58.03	---	---	2,962.74

Notes:

BTOC - below top of casing

GWEL - groundwater elevation

PSH - phase-separated hydrocarbon

TOC - top of casing

- indicates no GWEL or PSH measured

When PSH is detected, the GWEL is corrected using an estimated density correction factor of 0.8

TABLE 4
ESTIMATED PRODUCT RECOVERY

PCA 53
REMEDIATION PERMIT 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Date	Product Recovered (gal), Bailer	Product Recovered (gal), Socks (assumes 17 oz per sock per event)
11/25/2019 to 1/31/2020	35.0	---
2/11/20	0.35	---
2/12/20	0.60	---
2/13/20	0.60	---
2/24/20	1.57	---
2/25/20	0.95	---
2/26/20	0.85	---
3/2/20	1.30	---
3/3/20	0.85	---
3/10/20	0.55	---
3/11/20	0.13	---
3/16/20	0.04	0.66
3/17/20	0.75	0.66
3/18/20	0.00	0.66
3/23/20	0.25	0.66
3/24/20	0.10	0.66
3/27/20	0.00	0.66
3/31/20	0.00	0.66
4/1/20	0.00	0.66
4/2/20	0.00	0.66
4/7/20	0.00	0.66
4/8/20	0.00	0.66
4/9/20	0.00	0.66
4/16/20	0.00	0.66
4/20/20	0.25	0.53
4/21/20	0.10	0.53
4/22/20	0.15	0.40
4/29/20	0.10	0.40
4/30/20	0.00	0.40
5/4/20	0.00	0.40
5/5/20	0.00	0.40
5/11/20	0.30	0.00
5/12/20	0.00	0.00
5/13/20	0.00	0.30

TABLE 4
ESTIMATED PRODUCT RECOVERY

PCA 53
REMEDIATION PERMIT 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Date	Product Recovered (gal), Bailer	Product Recovered (gal), Socks (assumes 17 oz per sock per event)
5/18/20	0.25	0.30
5/19/20	0.25	0.30
5/20/20	0.10	0.30
5/26/20	0.10	0.30
5/27/20	0.10	0.30
6/1/20	0.00	0.40
6/3/20	0.00	0.20
6/8/20	0.00	0.30
6/10/20	0.00	0.30
6/11/20	0.00	0.30
6/15/20	0.00	0.30
6/17/20	0.00	0.30
6/23/20	0.00	0.30
6/29/20	0.00	0.20
7/6/20	0.25	0.00
7/15/20	0.25	0.00
7/20/20	0.25	0.00
7/27/20	0.25	0.00
8/3/20	0.25	0.00
8/11/20	0.50	0.00
8/12/20	0.30	0.00
8/13/20	0.30	0.00
8/17/20	0.30	0.00
8/18/20	0.30	0.00
8/19/20	0.30	0.00
8/20/20	0.30	0.00
8/25/20	0.30	0.00
9/1/20	0.30	0.00
9/11/20	0.02	0.00
9/14/20	0.07	0.00
9/21/20	0.03	0.10
9/28/20	0.03	0.10
10/5/20	0.04	0.00
10/20/20	0.08	0.00
10/28/20	0.04	0.00

TABLE 4
ESTIMATED PRODUCT RECOVERY

PCA 53
REMEDIATION PERMIT 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Date	Product Recovered (gal), Bailer	Product Recovered (gal), Socks (assumes 17 oz per sock per event)
11/5/20	0.04	0.00
11/25/20	0.03	0.00
11/30/20	0.16	0.00
12/8/20	0.03	0.00
12/15/20	0.06	0.00
12/21/20	0.05	0.00
12/22/20	0.11	0.00
1/6/21	0.14	0.00
2/18/21	0.05	0.00
2/23/21	0.14	0.00
3/1/21	0.11	0.00
Subtotal	50.96	16.24
Total Product Recovered (gallons)		67.20

Notes:

gal - gallon

oz - ounce

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

PCA 53
REMEDIATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)	Total Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)
NMWQCC Standard		0.005	1	0.7	0.62	250	1,000 (a)/10,000 (b)
Release Extent Zone							
BH14	10/25/2019	1.15	3.64	0.104	8.20	27,000	43,900
BH14	12/27/2019	269	7,110	5,310	9,740	30,900	40,300
BH14	02/21/2020	0.542	1.34	0.0470	1.02	26,400	40,010
BH14	01/21/2021	0.251	1.03	0.0280	0.958	43,300	33,100
BH16	10/25/2019	0.799	2.03	0.0458	0.644	54,900	106,000
BH16	12/27/2019	0.478	0.550	0.0207	0.285	83,100	102,000
BH16	02/21/2020	0.929	1.34	0.0273	0.481	57,000	94,100
BH16	01/21/2021	1.12	1.31	0.0212	0.665	67,000	74,400
BH22	10/25/2019	DRY					
BH22	12/27/2019	DRY					
BH22	02/21/2020	DRY					
BH26	10/25/2019	13.5	21.8	14.6	37.4	26,500	46,800
BH26	12/27/2019	0.503	0.866	0.0392	0.525	38,800	58,600
BH26	02/21/2020	0.192	0.466	<0.100	0.558	39,100	59,800
BH26	01/21/2021	0.258	0.747	0.0288	0.538	49,600	35,300
BH27	10/25/2019	49.5	306	79.0	1,130	24,900	48,900
BH27	12/27/2019	144	1,020	299	6,810	23,000	37,600
BH27	02/21/2020	0.171	0.98	0.102	2.32	34,900	57,200
BH27	01/21/2021	0.0700	0.375	0.028	0.958	35,800	30,400
BH32	10/25/2019	0.00552	0.012	<0.00200	0.00729	27,600	52,100
BH32	12/27/2019	0.00525	0.0129	<0.00200	0.0104	27,100	40,000
BH32	02/21/2020	0.00283	0.00702	<0.00200	0.0114	25,600	41,400
BH32	01/21/2021	<0.00200	0.0186	0.0223	0.186	26,800	37,000
BH37	12/27/2019	0.0174	0.0718	0.00900	0.0324	19,400	32,200
BH37	02/21/2020	0.253	1.25	0.10500	2.89	19,300	34,800
BH37	01/21/2021	0.0402	0.387	0.02290	0.768	NS	NS
BH48	01/28/2020	<0.00200	<0.00200	<0.00200	<0.00200	13,900	33,000
BH48	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	12,900	26,700
BH48	01/21/2021	0.00511	<0.00200	<0.00200	<0.00200	33,100	25,100
Southern Groundwater Zone							
BH51	02/06/2020	Not Sampled, PSH Present in Well, Water Not Present					
BH25	10/25/2019	0.0156	<0.00200	<0.00200	<0.00200	10,800	24,500
BH25	12/27/2019	<0.00200	<0.00200	<0.00200	<0.00200	12,600	21,600
BH25	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	18,500	29,900
BH25	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	16,500	21,100
BH39	12/27/2019	<0.00200	<0.00200	<0.00200	<0.00200	26,400	42,100
BH39	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	22,200	38,700
BH39	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	28,000	34,100
BH46	12/27/2019	<0.00200	<0.00200	<0.00200	<0.00200	25,800	41,100
BH46	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	21,600	38,900
BH46	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	27,300	34,300
BH53	02/06/2020	<0.00200	<0.00200	<0.00200	<0.00200	11,400	21,100
BH53	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	11,500	21,600
BH53	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	4,590	17,200

TABLE 5
GROUNDWATER ANALYTICAL RESULTS

PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

Sample Name	Sample Date	Benzene (mg/L)	Toluene (mg/L)	Ethyl-benzene (mg/L)	Total Xylenes (mg/L)	Chloride (mg/L)	TDS (mg/L)
BH54	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	53,400	41,600
BH55	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	39,700	42,800
BH56	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	32,200	42,800
Northwest Groundwater Zone							
BH59	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	1,350	5,100
BH61	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	3,790	5,870
BH63	01/21/2021	<0.00200	<0.00200	<0.00200	<0.00200	2,790	7,090
Deep Wells							
MW01	10/28/2019	<0.00200	<0.00200	<0.00200	<0.00200	410	3,370
MW01	12/27/2019	<0.00200	<0.00200	<0.00200	<0.00200	526	3,150
MW01	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	551	4,580
MW01	05/18/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW01	08/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW01	11/24/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW02	10/28/2019	<0.00200	<0.00200	<0.00200	<0.00200	1,110	5,950
MW02	12/27/2019	<0.00200	<0.00200	<0.00200	<0.00200	1,120	5,680
MW02	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	1,150	5,640
MW02	05/18/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW02	08/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW02	11/24/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW03	10/28/2019	<0.00200	<0.00200	<0.00200	<0.00200	443	3,960
MW03	12/27/2019	<0.00200	<0.00200	<0.00200	<0.00200	408	3,740
MW03	02/21/2020	<0.00200	<0.00200	<0.00200	<0.00200	422	4,220
MW03	05/18/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW03	08/19/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS
MW03	11/24/2020	<0.00200	<0.00200	<0.00200	<0.00200	NS	NS

Notes:

mg/L - milligrams per liter

NMWQCC - New Mexico Water Quality Control Commission

TDS - total dissolved solids

Bold - indicates result exceeds the applicable regulatory standard

< - indicates result is below laboratory reporting limits

(a) - standard for domestic water supply

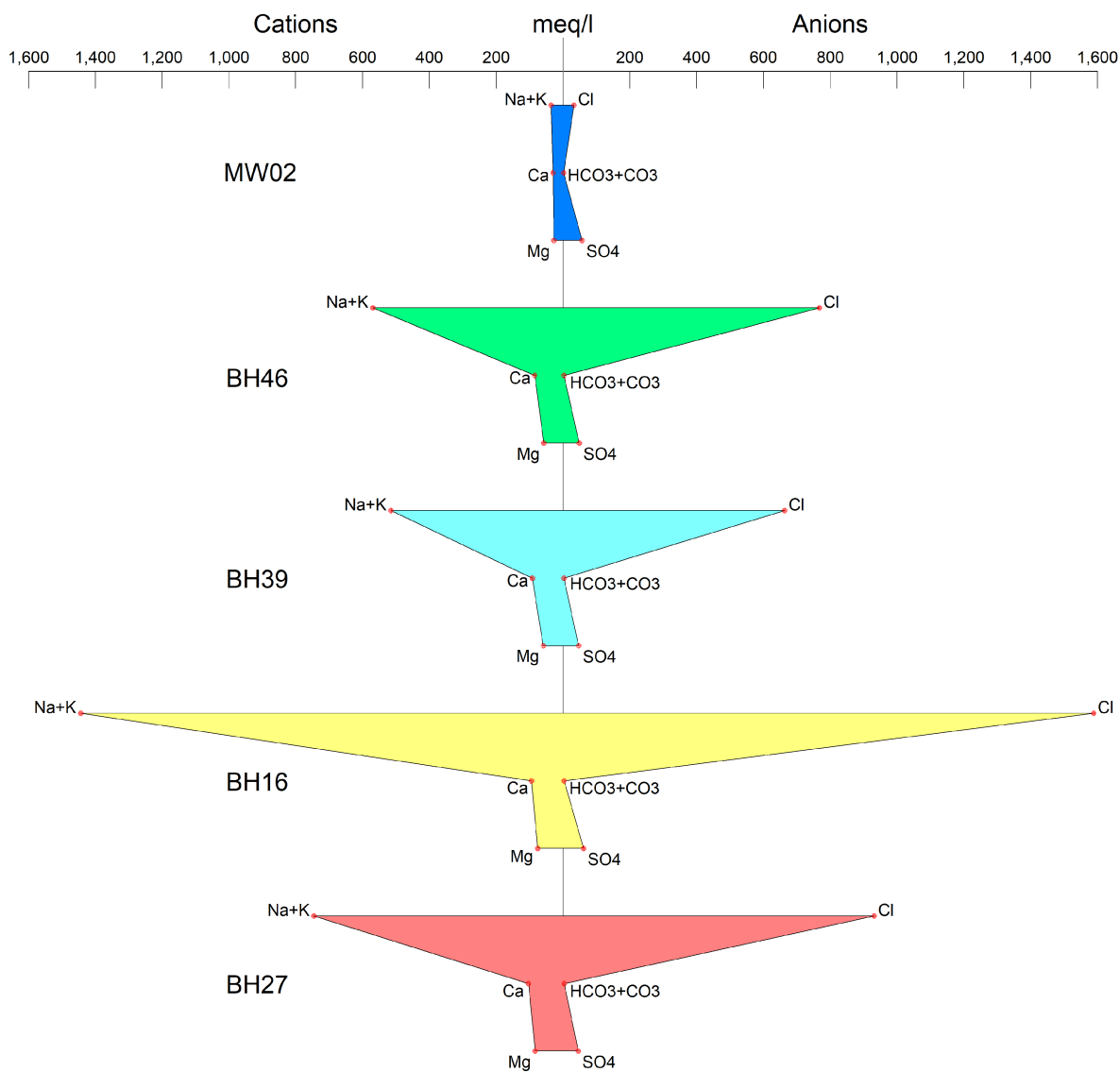
(b) - standard for agricultural water supply

TABLE 6
GROUNDWATER CHEMISTRY

PCA 53
REMEDATION PERMIT NUMBER 2RP-5169
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC

Sample Name	Sample Date	Standard Method 2320b: Alkalinity	bicarbonate (As CaCO ₃)	carbonate (As CaCO ₃)	total alkalinity	Standard Method 4500-CO ₂ D: Carbon Dioxide	Carbon Dioxide, (Free)	Carbon Dioxide	Cation-Anion Balance Calculation	Cation-Anion Balance	SW-846 6010C: Dissolved Metals	Iron	Manganese	USEPA Method 300.0: Anions	chloride	sulfate	Nitrogen, Nitrite as N	Nitrogen, Nitrate as N	SW846 6010C: Total Metals	calcium	magnesium	potassium	sodium	Standard Method 9215B: Heterotrophic Plate Count	HPC @ 35 Degrees	SM 9223-IDEX Colisure	Total Coliform	E. Coli
Unit		mg/L	mg/L	mg/L		mg/L	mg/L		%		mg/L	mg/L		mg/L	mg/L	mg/L	mg/L		mg/L	mg/L	mg/L	mg/L		cfu/ml				
NMWQCC Standard		NE	NE	NE		NE	NE		NE		1.0	0.2		250	600	NE	NE		NE	NE	NE	NE		NE				
BH16	2/3/2020 1/20/2021	186 ---	<4.00 ---	186 ---		48.9 K+ ---	201 K+ ---		1.40 ---		<0.200 ---	1.18 ---		56,300 D ---	2,940 D ---	<10.0 ---	<0.100 ---		1,900 ---	925 ---	1,180 ---	32,500 ---		10,000 K ---		---	Absent	Absent
BH25	1/20/2021	152	<4.00	152		18.3 K+			6.40		1.77	0.0863			2,100	12.8	3.08		1,680	570 D	116	5,680 D		983,333		Absent	Absent	
BH27	2/3/2020 1/20/2021	228 ---	<4.00 ---	228 ---		41.6 K+ ---	165 K+ ---		2.60 ---		<0.200 ---	1.04 ---		33,000 D ---	2,180 D ---	<10.0 ---	<0.100 ---		2,080 ---	1,020 ---	421 ---	16,900 ---		26,700 K ---		---	Absent	Absent
BH32	1/21/2021	200	<4.00	200		61.8 K+			4.10		1.92 D	0.216 D			2,110	8.19	<2.00		2,050 D	818 D	262 D	11,000 D		636,667		Absent	Absent	
BH39	2/3/2020 1/20/2021	144 ---	<4.00 ---	144 ---		21.6 K+ ---	163 K+ ---		3.50 ---		<0.200 ---	0.0244 ---		23,500 D ---	2,240 D ---	<10.0 ---	0.885 K ---		1,840 ---	718 ---	255 ---	11,700 ---		20,000 K ---		---	Absent	Absent
BH 46	2/3/2020 1/20/2021	145 ---	<4.00 ---	145 ---		---	---		7.10 ---		<0.200 ---	<0.0200 ---		27,200 D ---	2,320 D ---	<10.0 ---	1.52 K ---		1,700 ---	699 ---	328 ---	12,900 ---		---		---	Absent	Absent
BH48	1/20/2021	145	<4.00	145		21.0 K+			5.40		11.7	0.224			2,600	14.3	2.39		1,560 D	622 D	185	6,590 D		59,333		Absent	Absent	
BH53	1/20/2021	146	<4.00	146		12.4 K+			1.10		6.40	0.323			2,380	10.7	3.93		1,380 D	495 D	104	4,630 D		126,666		Absent	Absent	
BH54	1/20/2021	147	<4.00	147		18.6 K+			1.60		6.28	0.265			2,440	20.7	2.04		2,060 D	759 D	306 D	12,300 D		67		Absent	Absent	
BH55	1/20/2021	124	<4.00	124		15.3 K+			0.200		15.9	0.351			2,410	23.1	<2.00		2,440 D	829 D	288 D	13,000 D		107		Absent	Absent	
BH56	1/20/2021	144	<4.00	144		14.8 K+			3.20		5.71	0.301			2,460	25.8	<2.00		2,370 D	864 D	270 D	12,200 D		403		Absent	Absent	
BH59	1/20/2021	168	<4.00	168		10.2 K+			0.800		4.49	0.366			2,100 D	<0.200	3.97 D		746 D	254 D	19.7	594 D		253,333		Present	Present	
BH61	1/20/2021	184	<4.00	184		14.0 K+			8.30		7.29	0.239			1,890 D	<2.00	4.46 D		1,180 D	302 D	40.5	803 D		143,333		Present	Absent	
BH63	1/20/2021	172	<4.00	172		13.4 K+			1.80		65.0 D	0.829			1,960 D	2.03 D	3.54 D		1,040 D	391 D	42.2 D	988 D		283,333		Present	Absent	
MW02	2/3/2020	93.8	<4.00	93.8		---	---		0.400		<0.200	0.0792		1,150 D	2,730 D	10.1 KD	0.165 K		597 D	333 D	50.0	796 D		---		---	---	

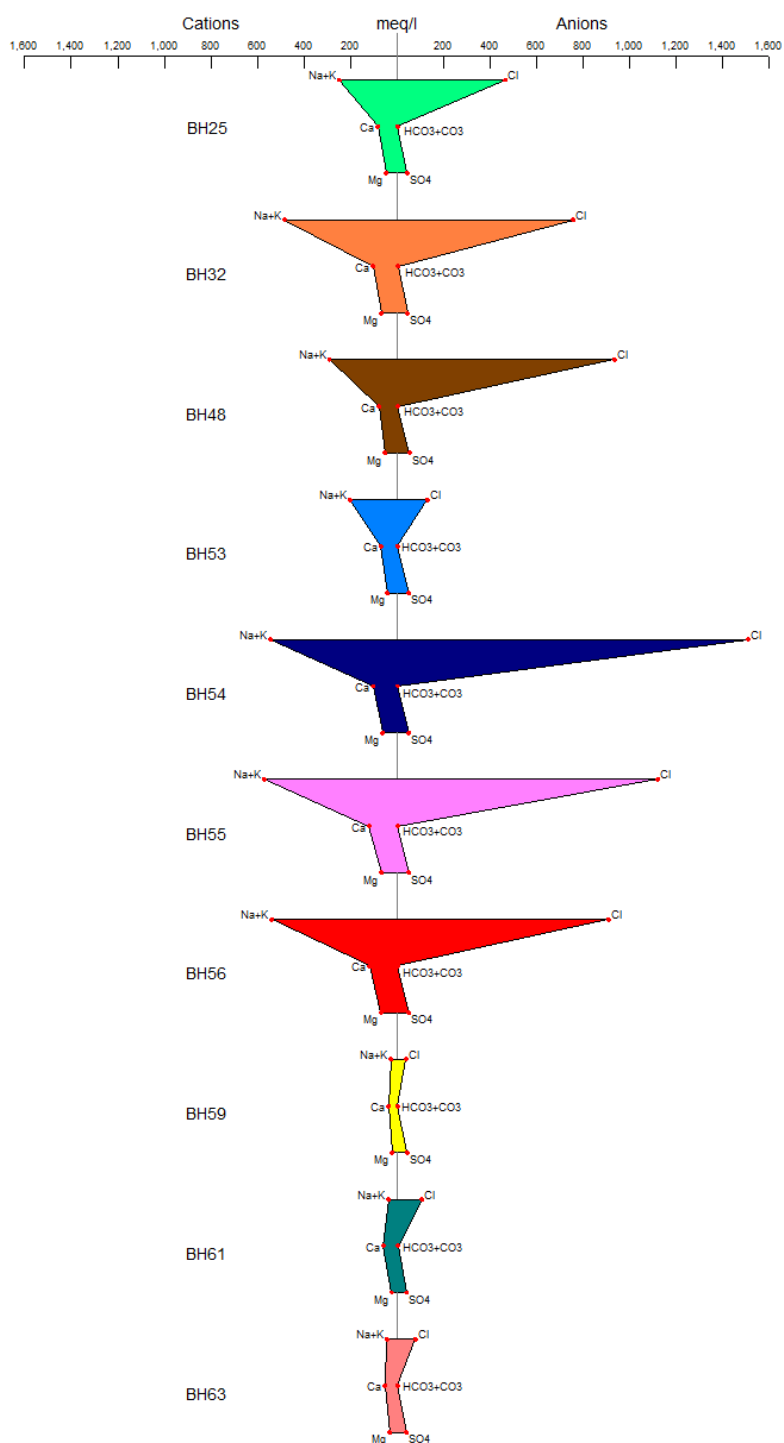
Notes:
% - percent
+ - NELAC certification not offered for this compound
--- - not analyzed
BOLD - indicates concentration exceeds the NMWQCC standard
cfu/ml - colony-forming units per milliliter
D - samples diluted due to targets detected over the highest point of calibration curve, or due to matrix interference. Dilution factors are included in the final results. The result is from a diluted sample.
K - sample analyzed outside of recommended hold time
µg/L - micrograms per liter
mg/L - milligrams per liter
NE - not established
NMWQCC - New Mexico Water Quality Control Commission
USEPA - United States Environmental Protection Agency

**LEGEND**

Ca: CALCIUM
 Cl: CHLORIDE
 CO₃: CARBONATE
 HCO₃: BICARBONATE
 K: POTASSIUM
 Mg: MAGNESIUM
 Na: SODIUM
 SO₄: SULFATE
 meq/l: MILLIEQUIVALENTS PER LITER

GRAPH 1
 STIFF DIAGRAMS
 FEBRUARY 14, 2020
 PCA 53
 UNIT K SEC 23 T23S R29E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.

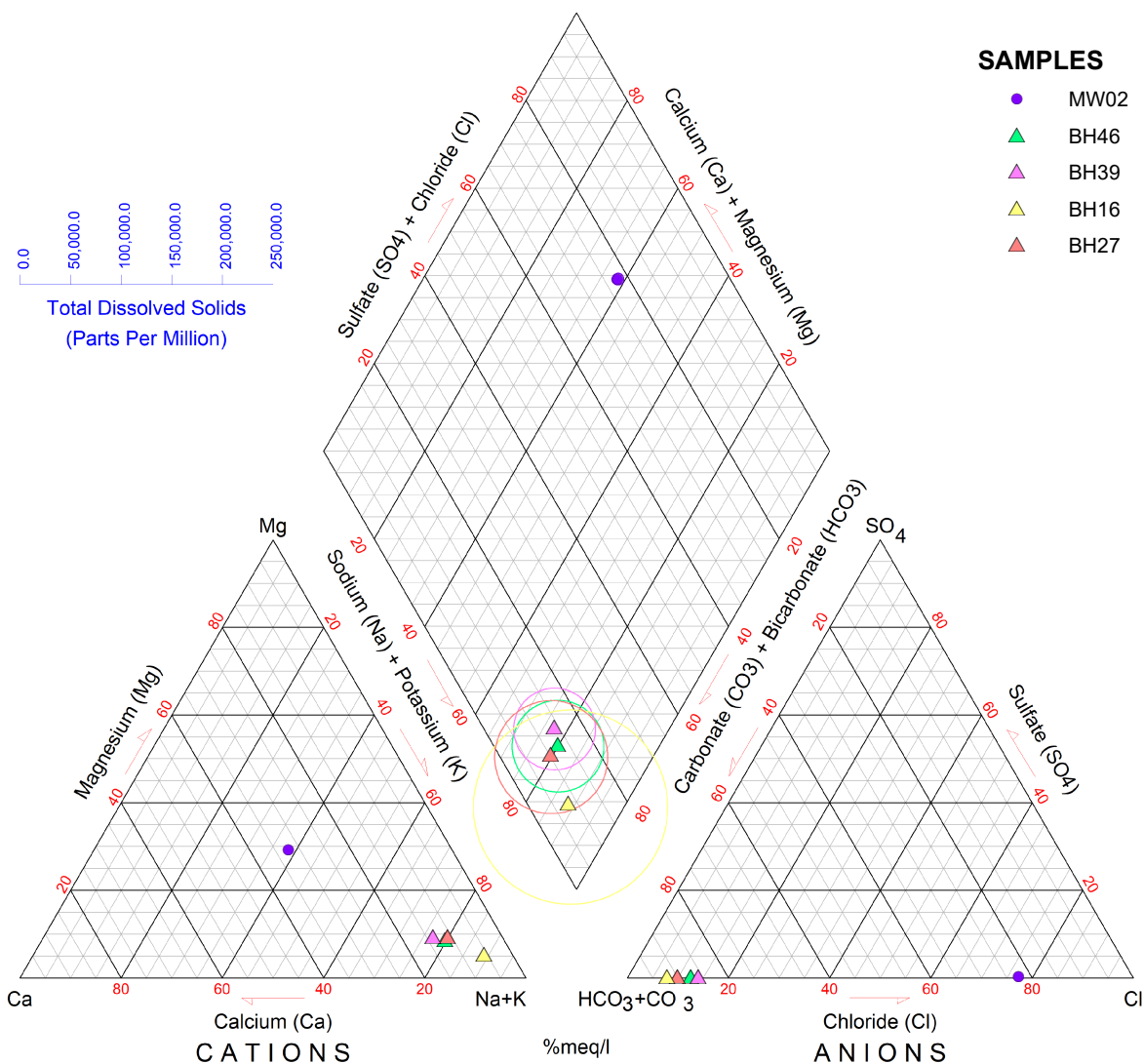


**LEGEND**

Ca: CALCIUM
 Cl: CHLORIDE
 CO3: CARBONATE
 HCO3: BICARBONATE
 K: POTASSIUM
 Mg: MAGNESIUM
 Na: SODIUM
 SO4: SULFATE
 meq/l: MILLIEQUIVALENTS PER LITER

GRAPH 2
 STIFF DIAGRAMS
 JANUARY 21, 2021
 PCA 53
 UNIT K SEC 23 T23S R29E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.

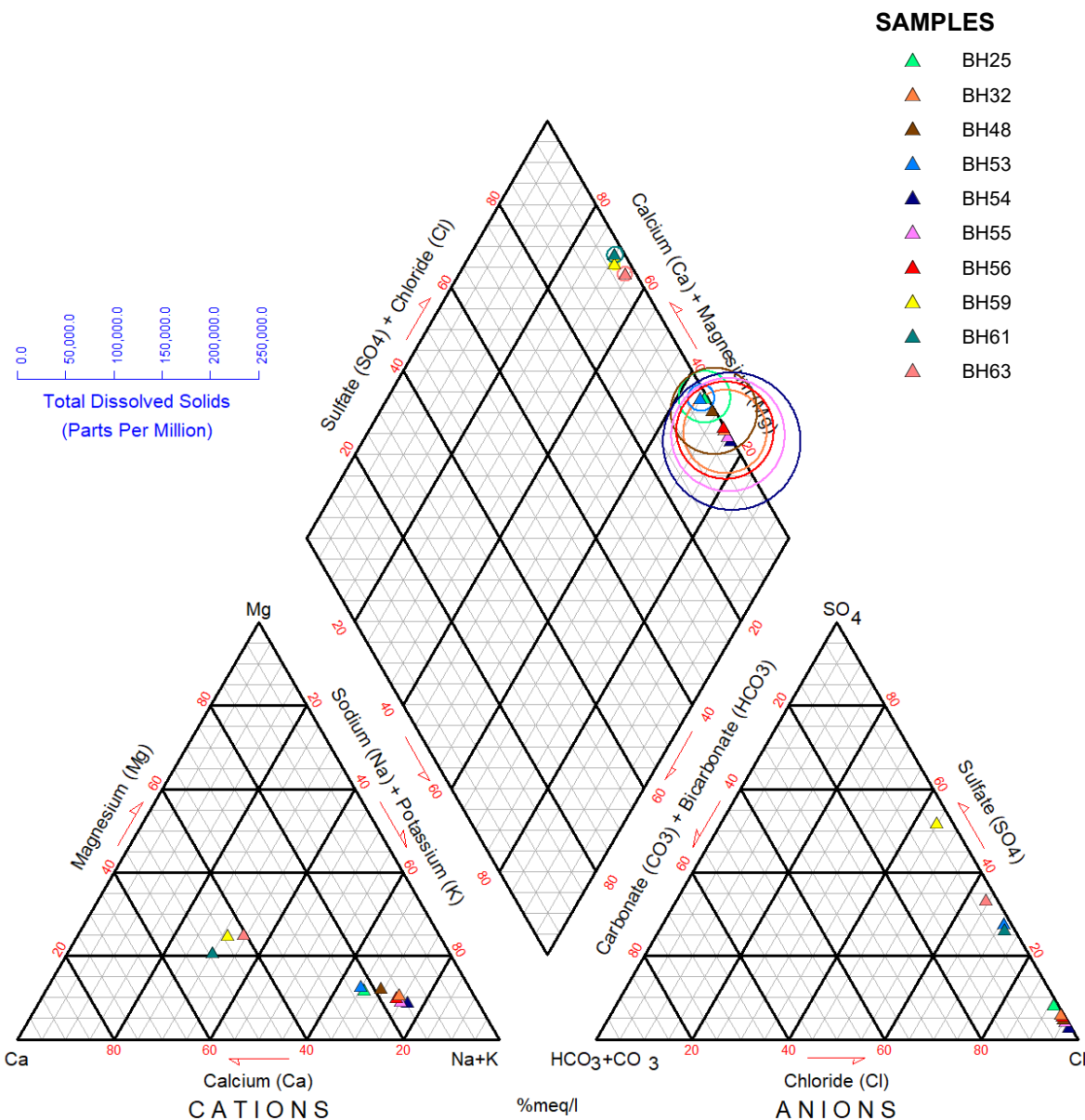
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**LEGEND**

Ca: CALCIUM
 Cl: CHLORIDE
 CO₃: CARBONATE
 HCO₃: BICARBONATE
 K: POTASSIUM
 Mg: MAGNESIUM
 Na: SODIUM
 SO₄: SULFATE
 meq/l: MILLIEQUIVALENTS PER LITER

GRAPH 3
 PIPER DIAGRAM
 FEBRUARY 14, 2020
 PCA 53
 UNIT K SEC 23 T23S R29E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.



**LEGEND**

Ca: CALCIUM
 Cl: CHLORIDE
 CO₃: CARBONATE
 HCO₃: BICARBONATE
 K: POTASSIUM
 Mg: MAGNESIUM
 Na: SODIUM
 SO₄: SULFATE
 meq/l: MILLIEQUIVALENTS PER LITER

GRAPH 4
 PIPER DIAGRAM
 JANUARY 21, 2021
 PCA 53
 UNIT K SEC 23 T23S R29E
 EDDY COUNTY, NEW MEXICO
 XTO ENERGY, INC.



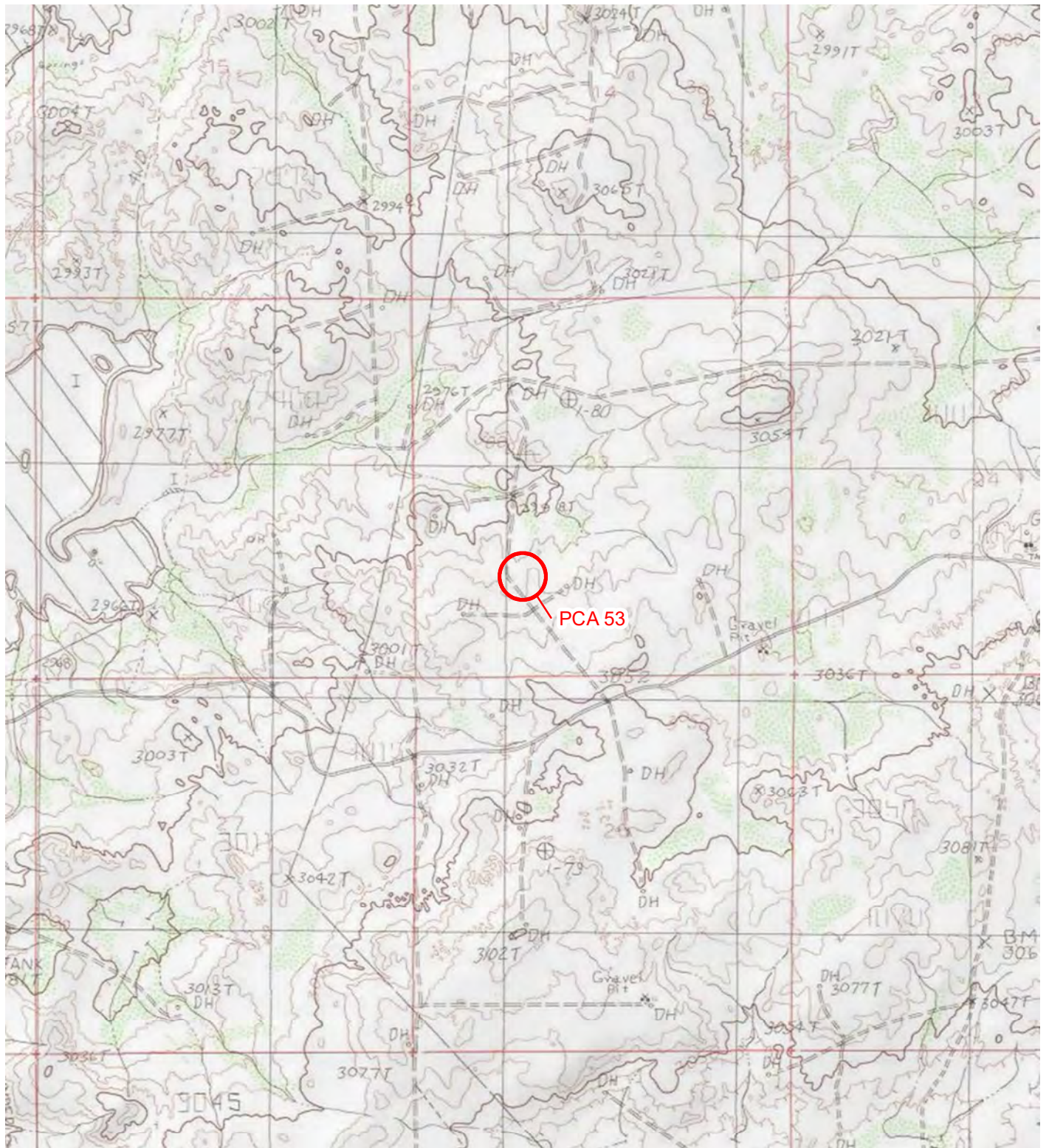


IMAGE COURTESY OF ESRI/USGS

LEGEND

 SITE LOCATION

0 2,000 4,000
Feet



NOTE: REMEDIATION PERMIT
NUMBER 2RP-5169

FIGURE 1
SITE LOCATION MAP
PCA 53
UNIT K SEC 23 T23S R29E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



P:\XTO Energy\GIS\MXD\012918187_PCA 53\012918187_FIG01_SL_MAP_5169.mxd



IMAGE COURTESY OF ESRI

LEGEND

X RELEASE LOCATION

 RELEASE EXTENT

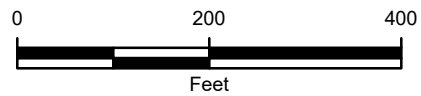
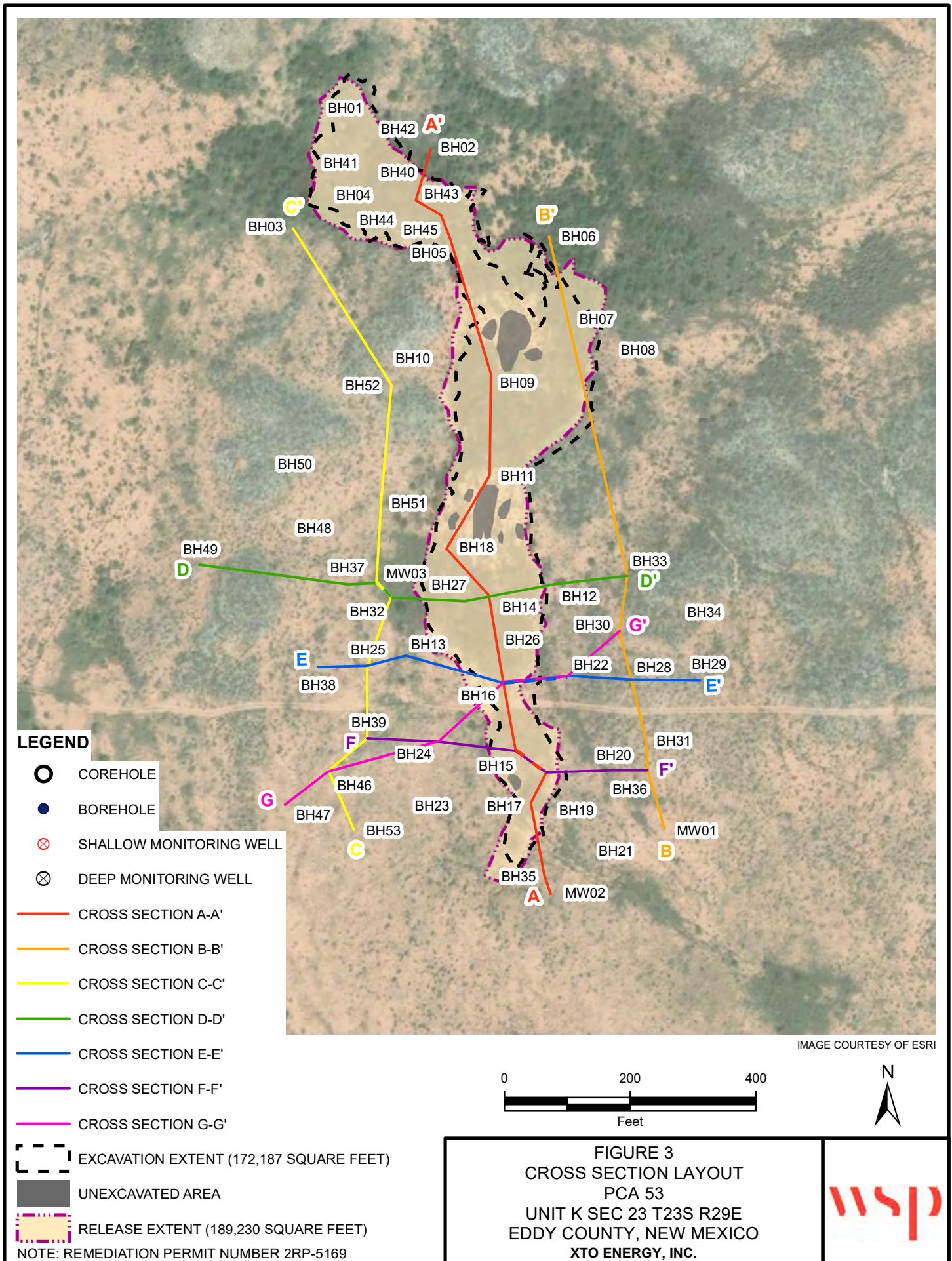
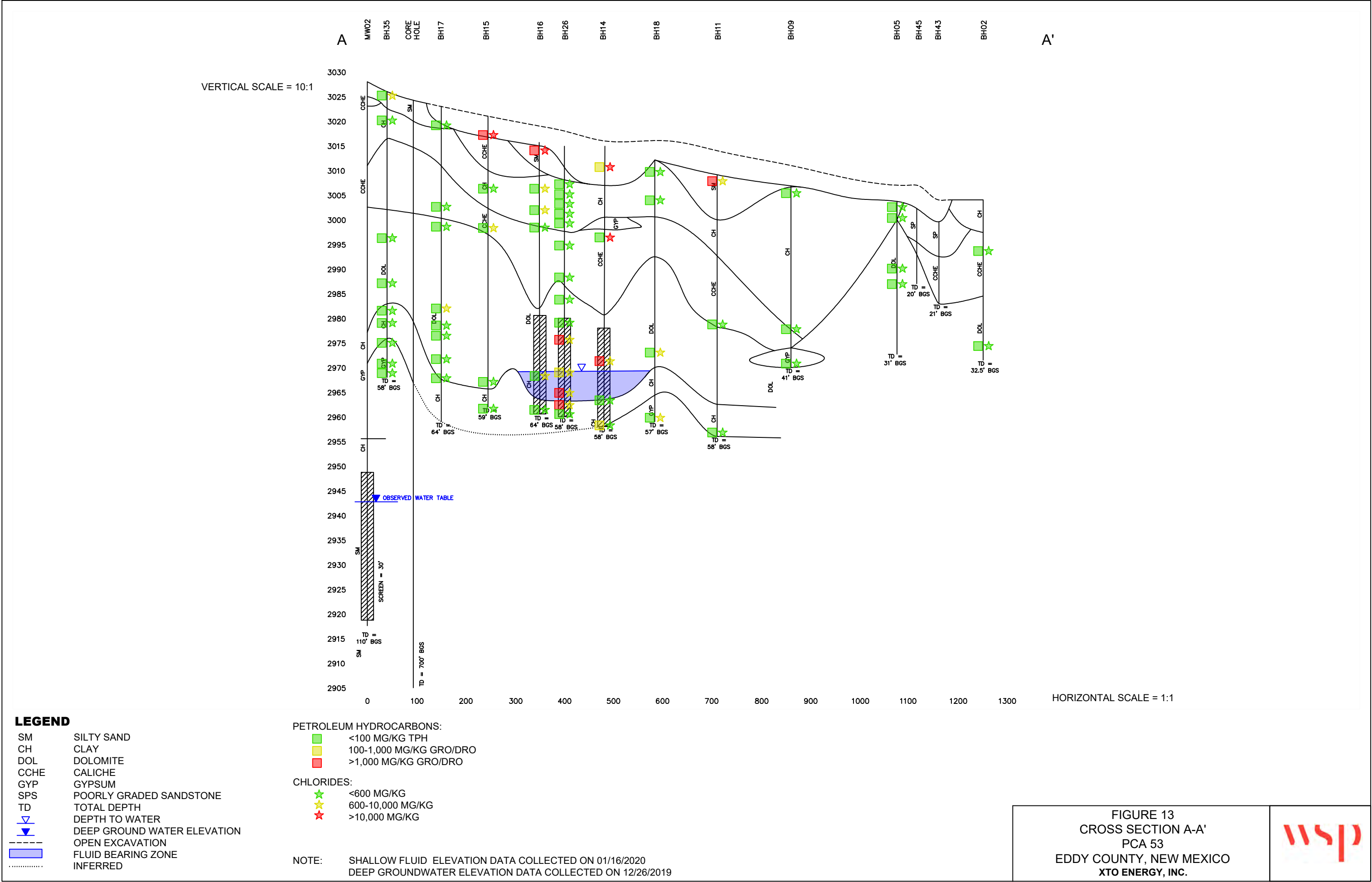


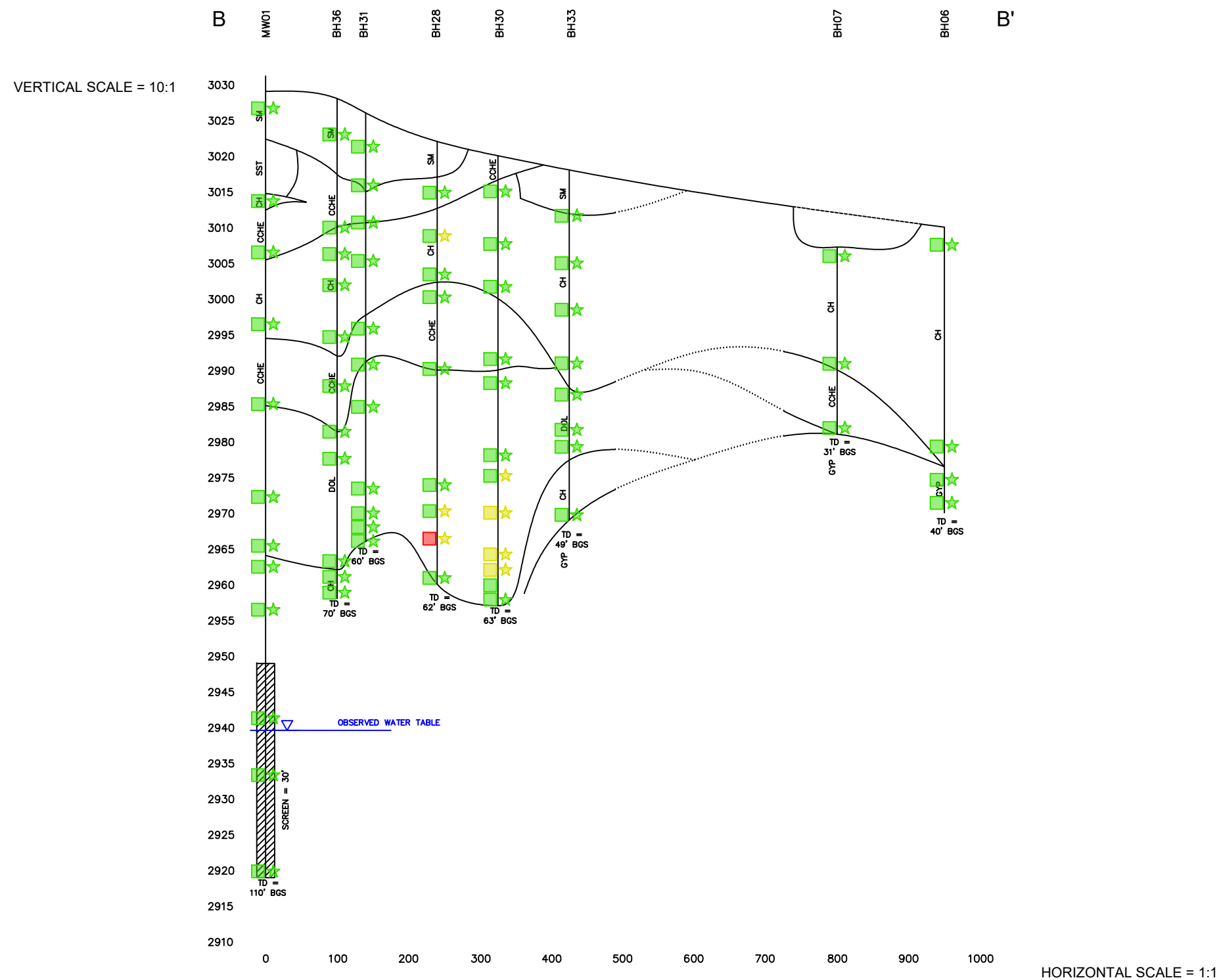
FIGURE 2
RELEASE EXTENT
PCA 53
UNIT K SEC 23 T23S R29E
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.



NOTE: REMEDIATION PERMIT NUMBER 2RP-5169







LEGEND

SM	SILTY SAND
CH	CLAY
DOL	DOLOMITE
CCHE	CALICHE
GYP	GYPSUM
SPS	POORLY GRADED SANDSTONE
TD	TOTAL DEPTH
	DEPTH TO WATER
	DEEP GROUND WATER ELEVATION
----	OPEN EXCAVATION
	FLUID BEARING ZONE
.....	INFERRED

PETROLEUM HYDROCARBONS:

	<100 MG/KG TPH
	100-1,000 MG/KG GRO/DRO
	>1,000 MG/KG GRO/DRO

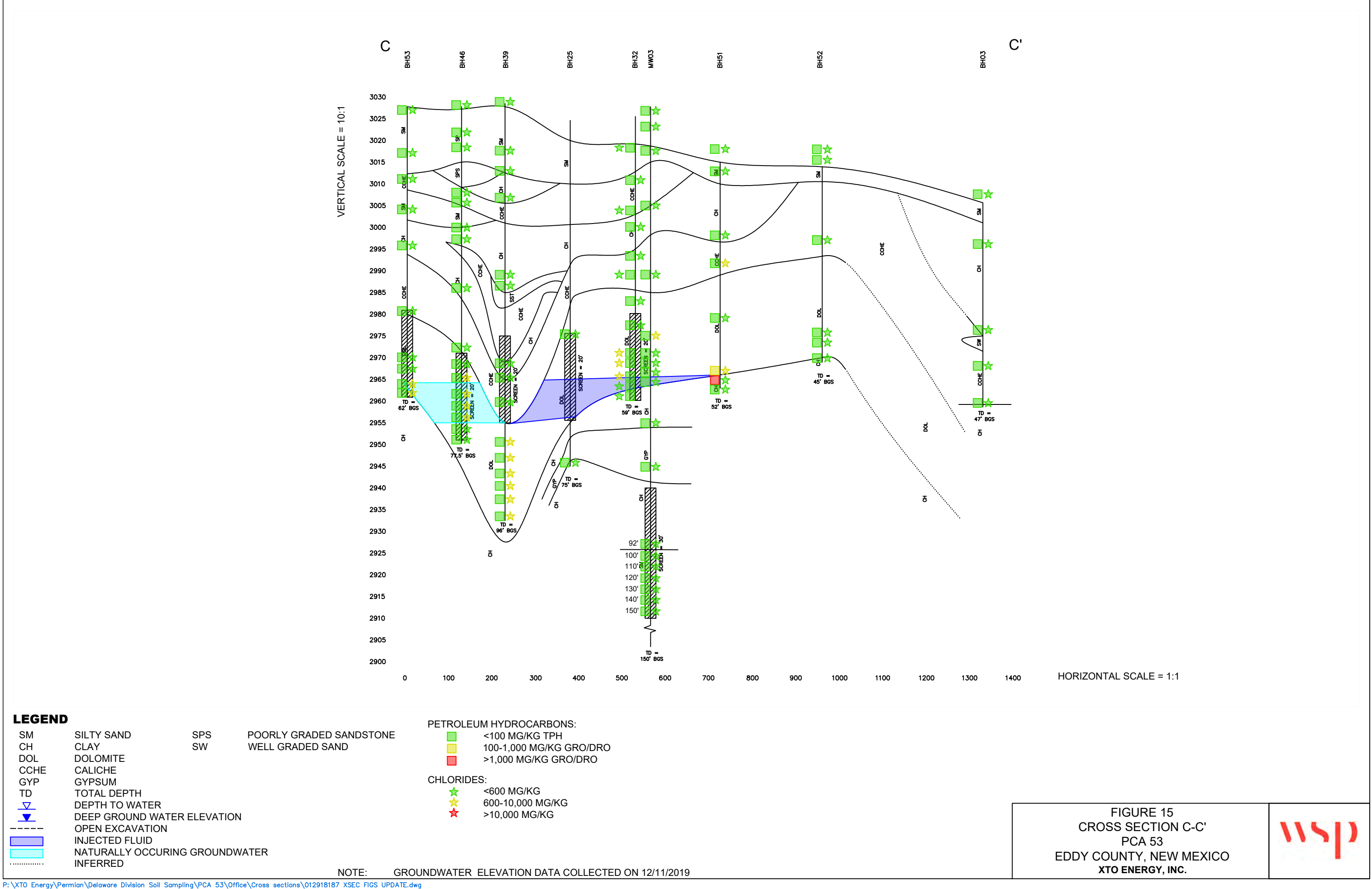
CHLORIDES:

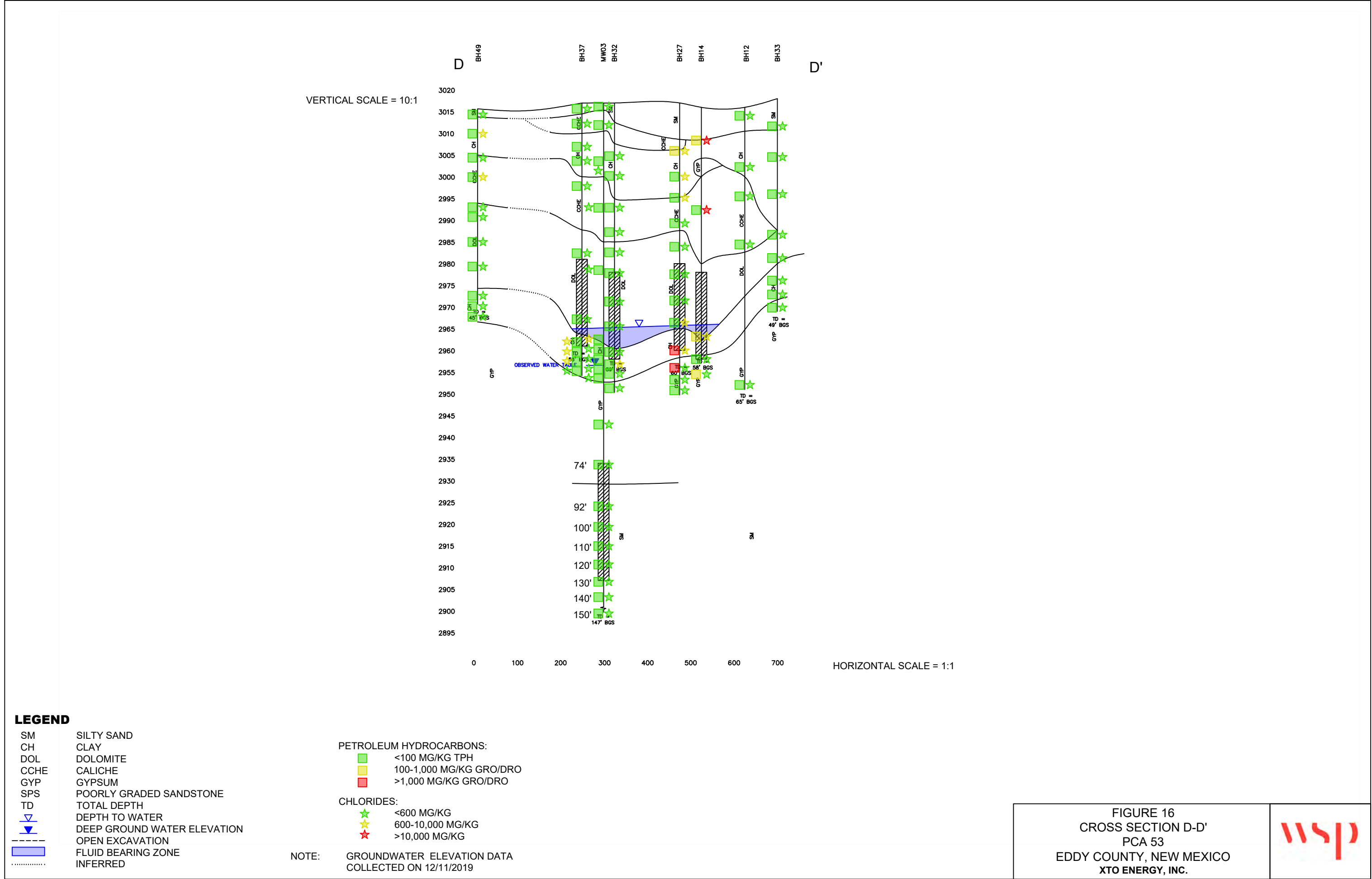
	<600 MG/KG
	600-10,000 MG/KG
	>10,000 MG/KG

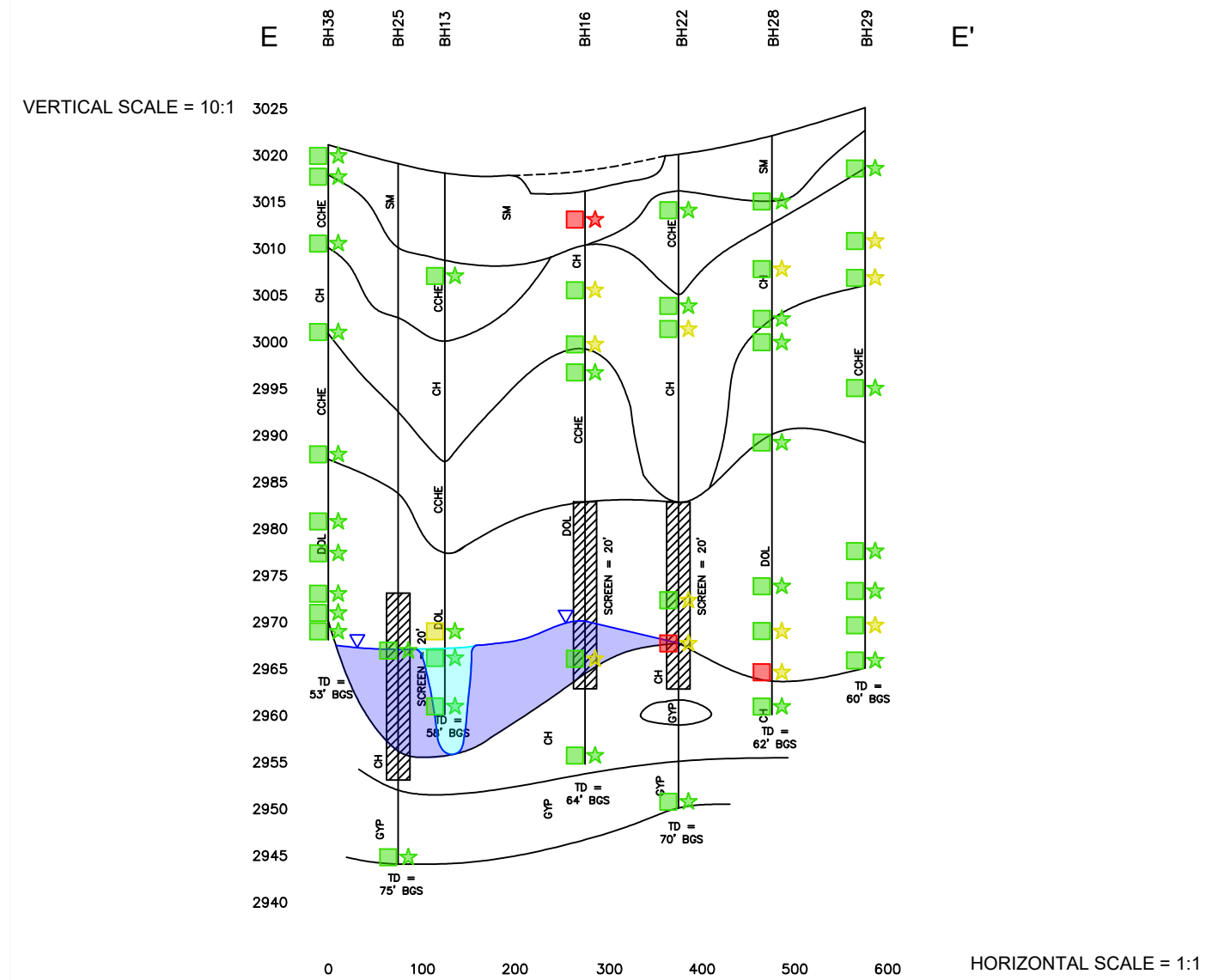
NOTE: SHALLOW FLUID ELEVATION DATA
COLLECTED ON 01/16/2020

FIGURE 14
CROSS SECTION B-B'
PCA 53
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.









LEGEND

SM
CH
DOL
CCHE
GYP
SPS
TD
▽

[Blue Box]
[Light Blue Box]

SILTY SAND
CLAY
DOLOMITE
CALICHE
GYPSUM
POORLY GRADED SANDSTONE
TOTAL DEPTH
DEPTH TO WATER
OPEN EXCAVATION
FLUID BEARING ZONE
FLUID LOCATION OFFSET 20' NORTH

PETROLEUM HYDROCARBONS:
[Green Box]
[Yellow Box]
[Red Box]

<100 MG/KG TPH
100-1,000 MG/KG GRO/DRO
>1,000 MG/KG GRO/DRO

CHLORIDES:
[Green Star]
[Yellow Star]
[Red Star]

<600 MG/KG
600-10,000 MG/KG
>10,000 MG/KG

NOTE:

GROUNDWATER ELEVATION DATA
COLLECTED ON 12/11/2019

VERTICAL SCALE = 10:1

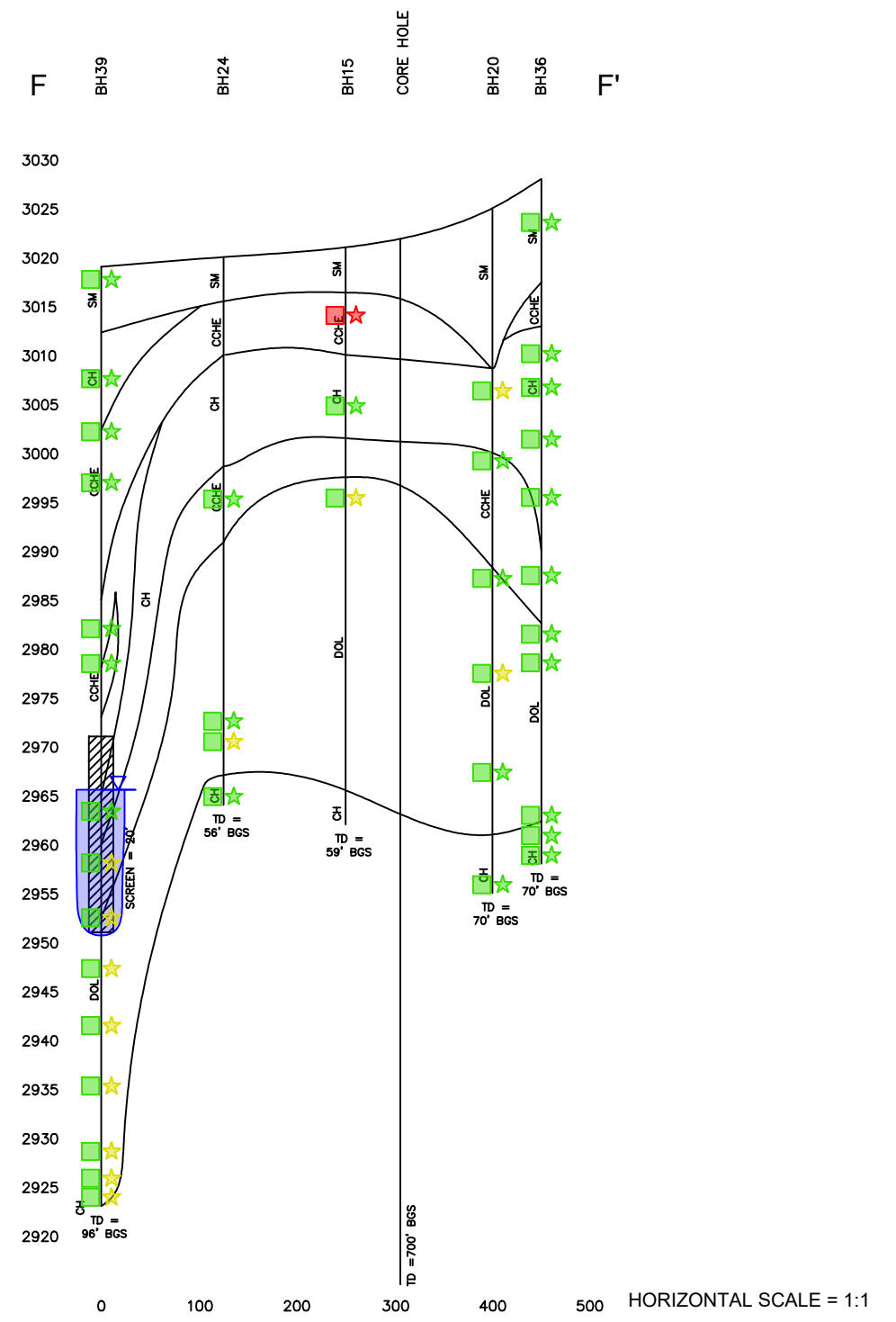
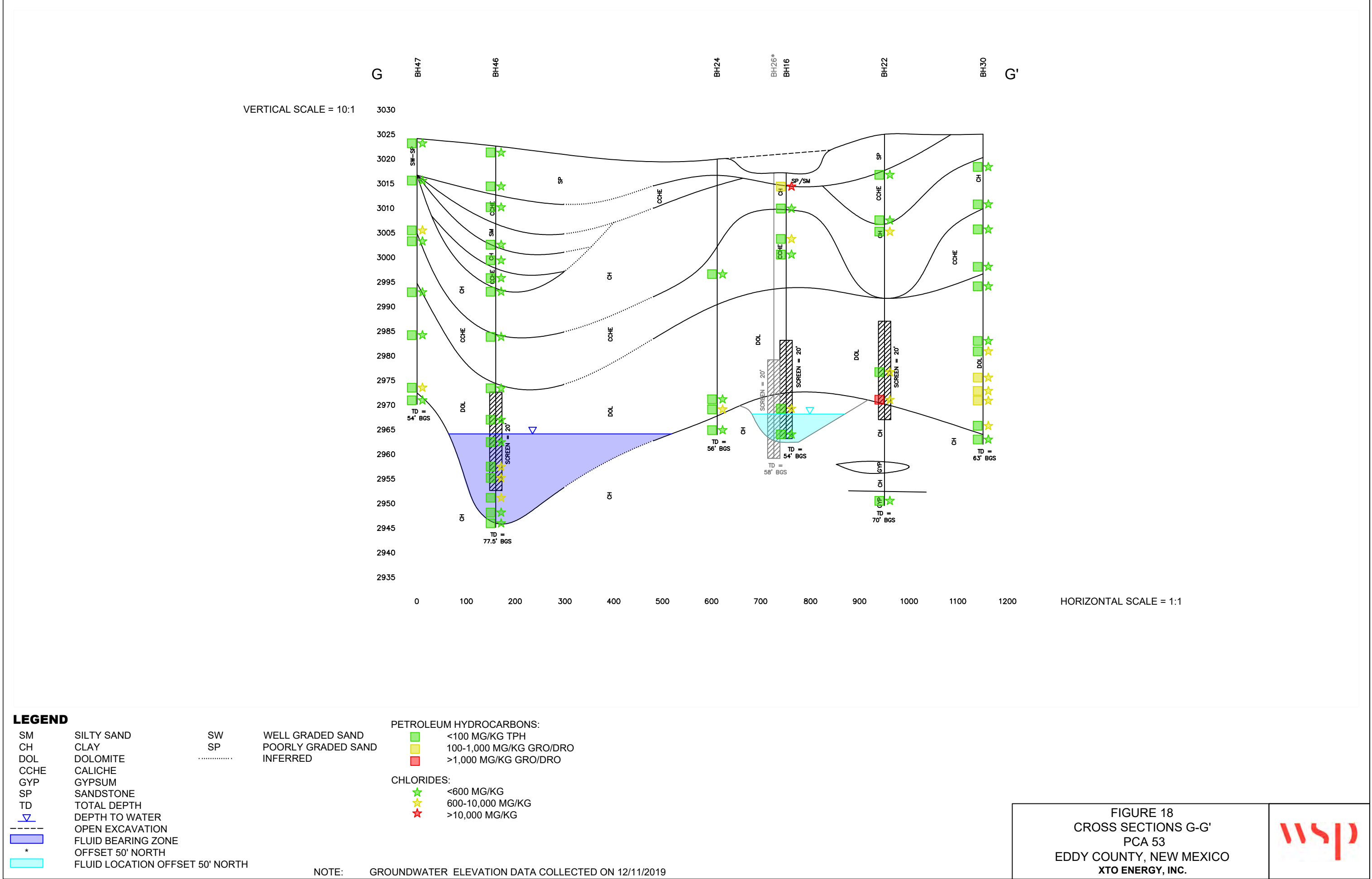
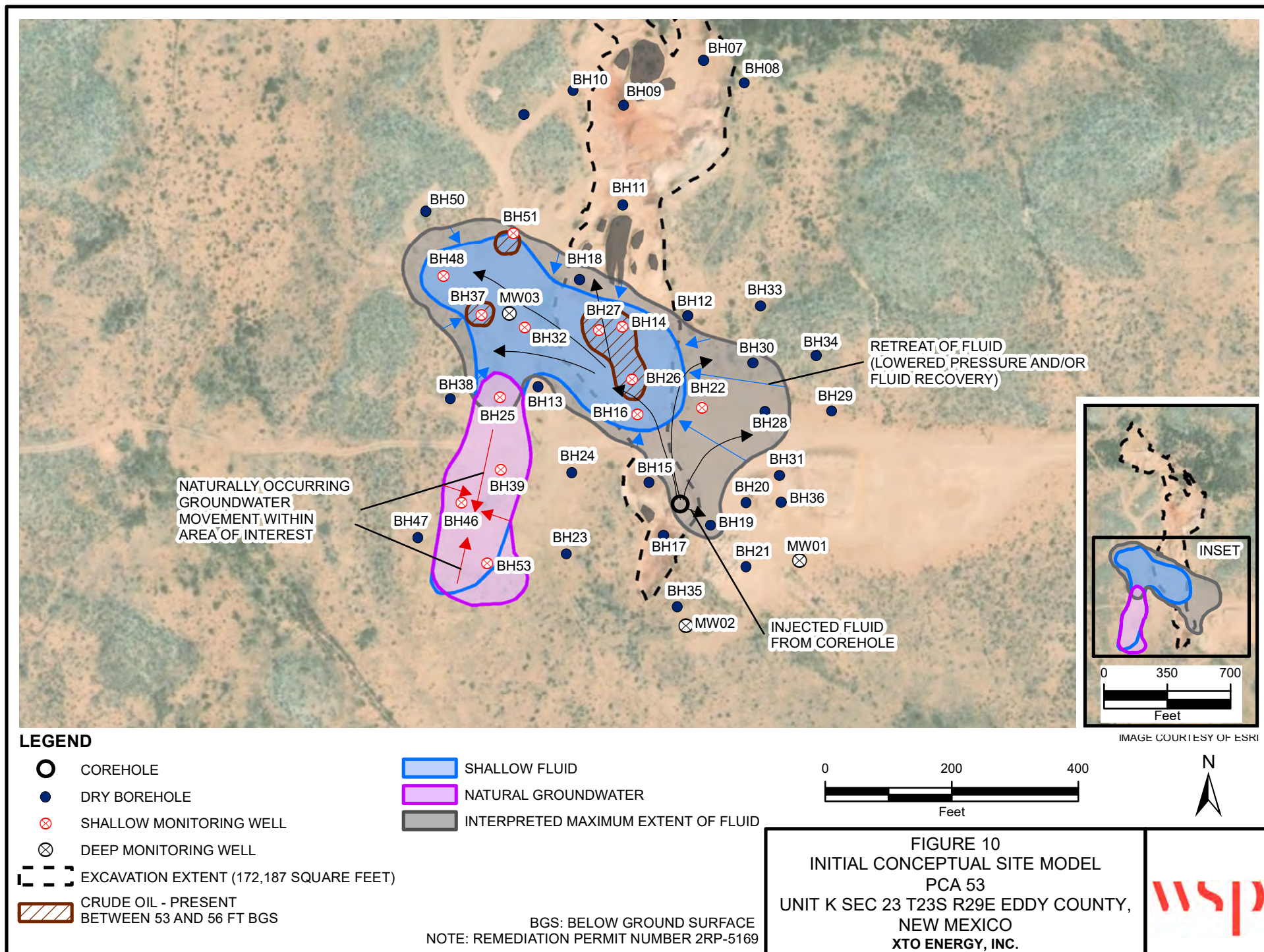
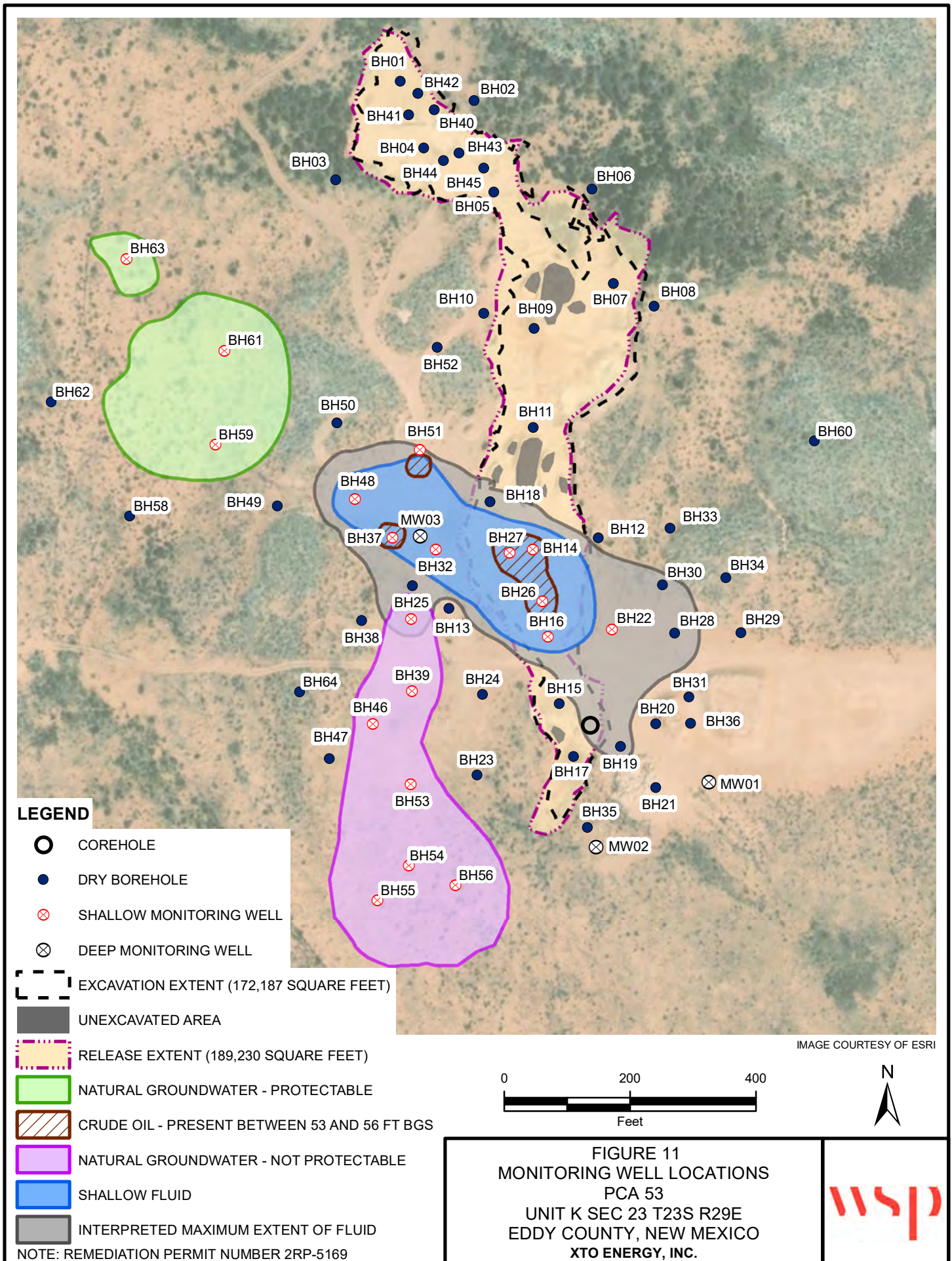


FIGURE 17
CROSS SECTIONS E-E' & F-F'
PCA 53
EDDY COUNTY, NEW MEXICO
XTO ENERGY, INC.

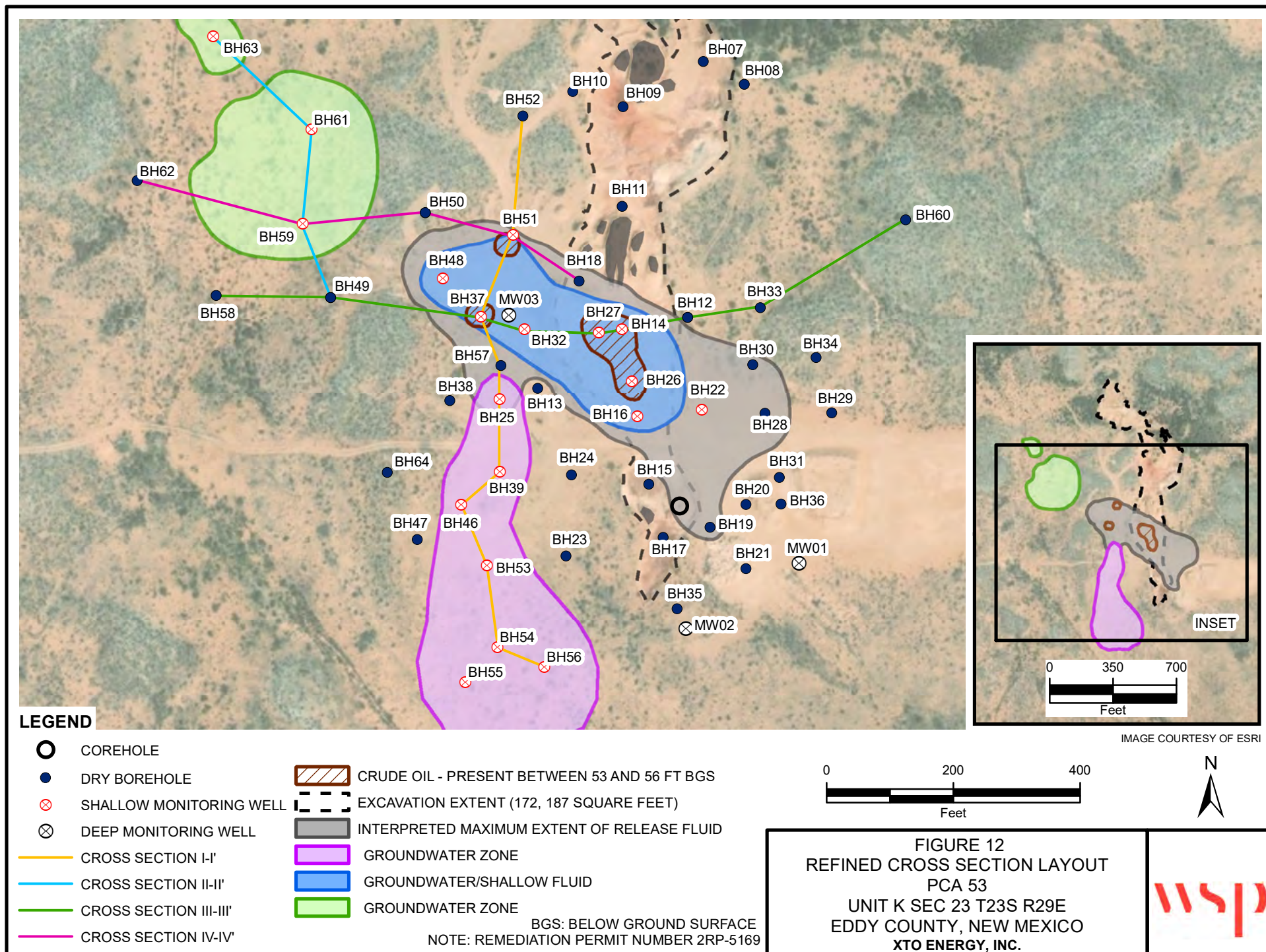




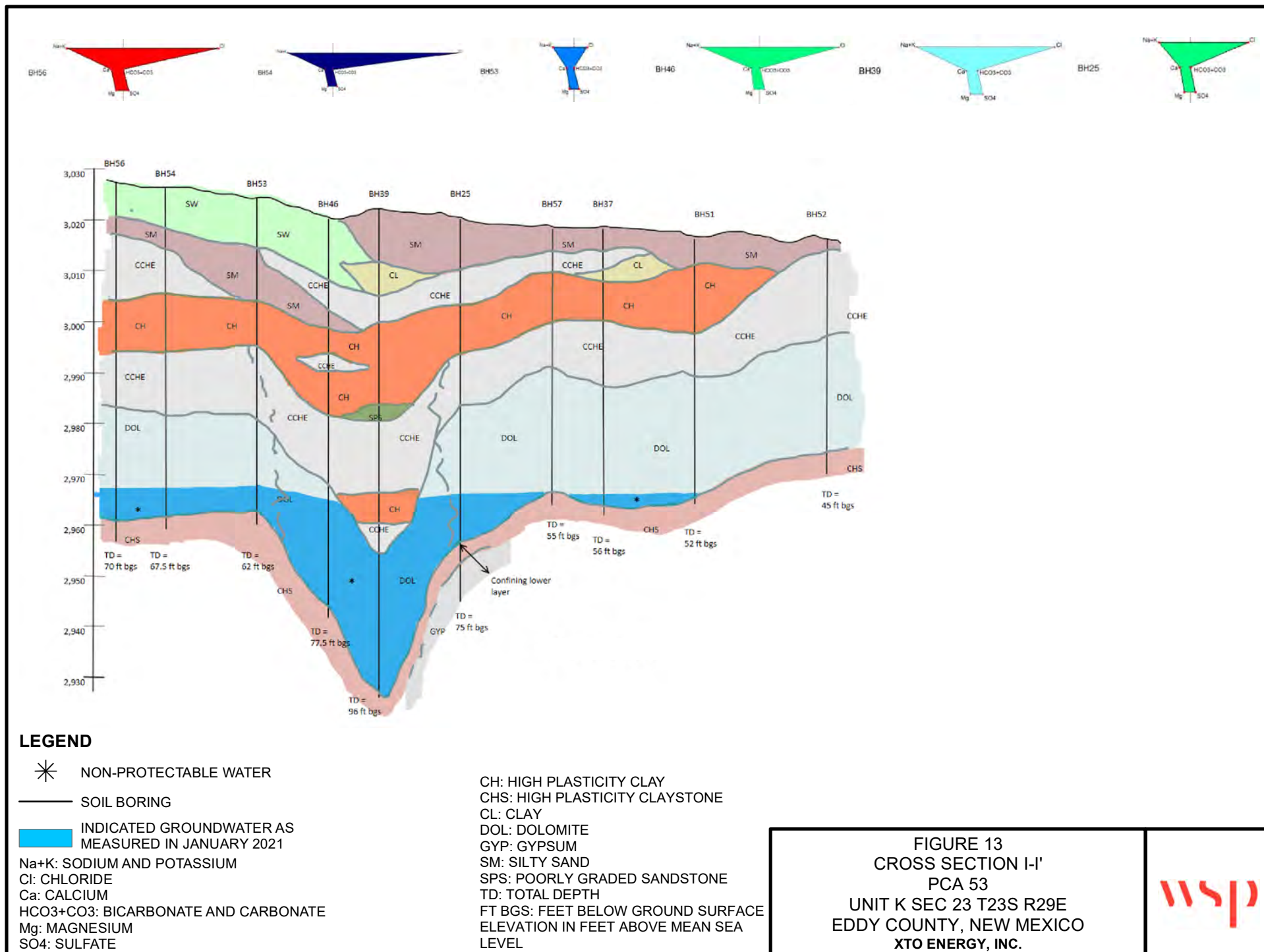


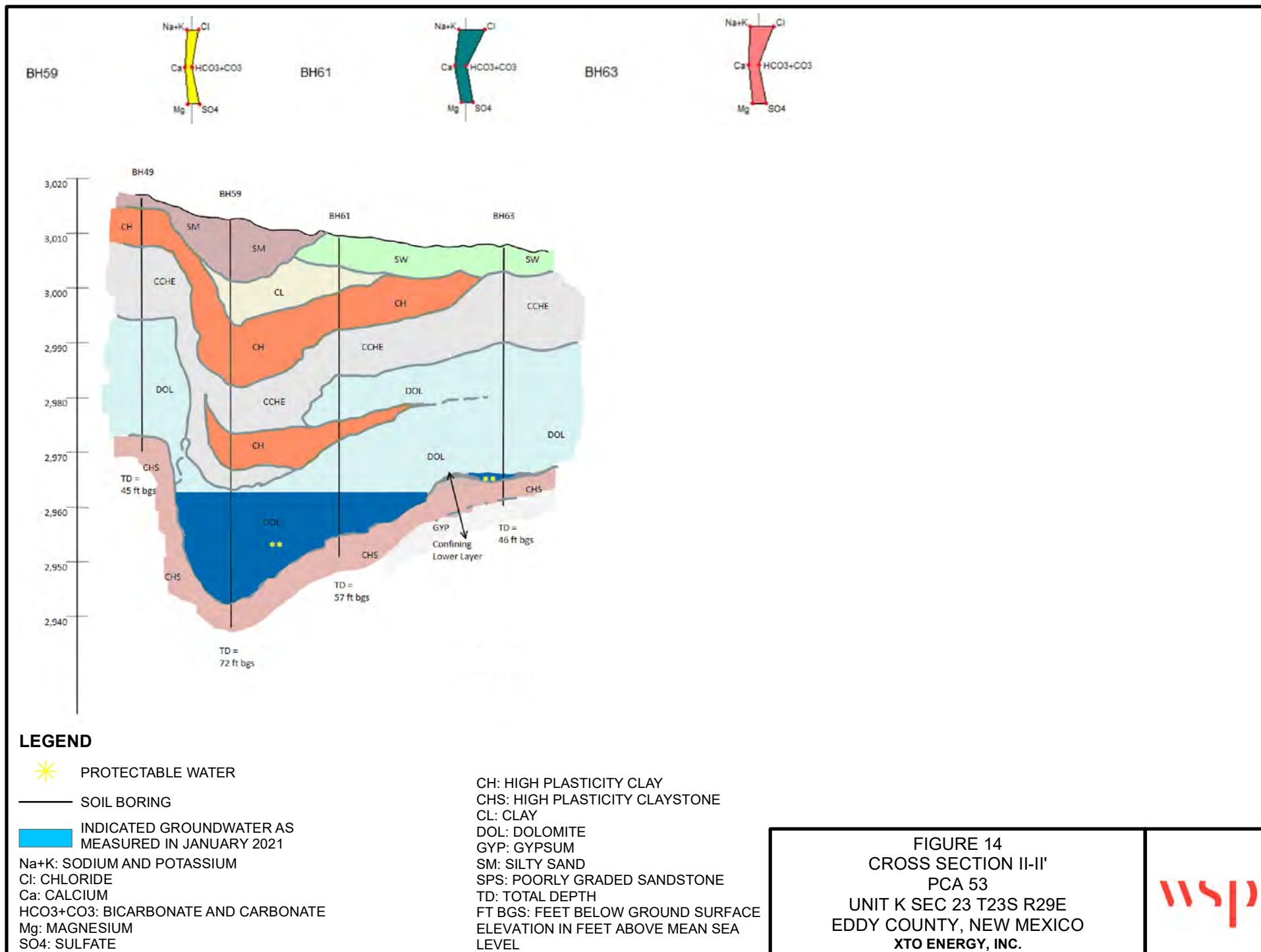


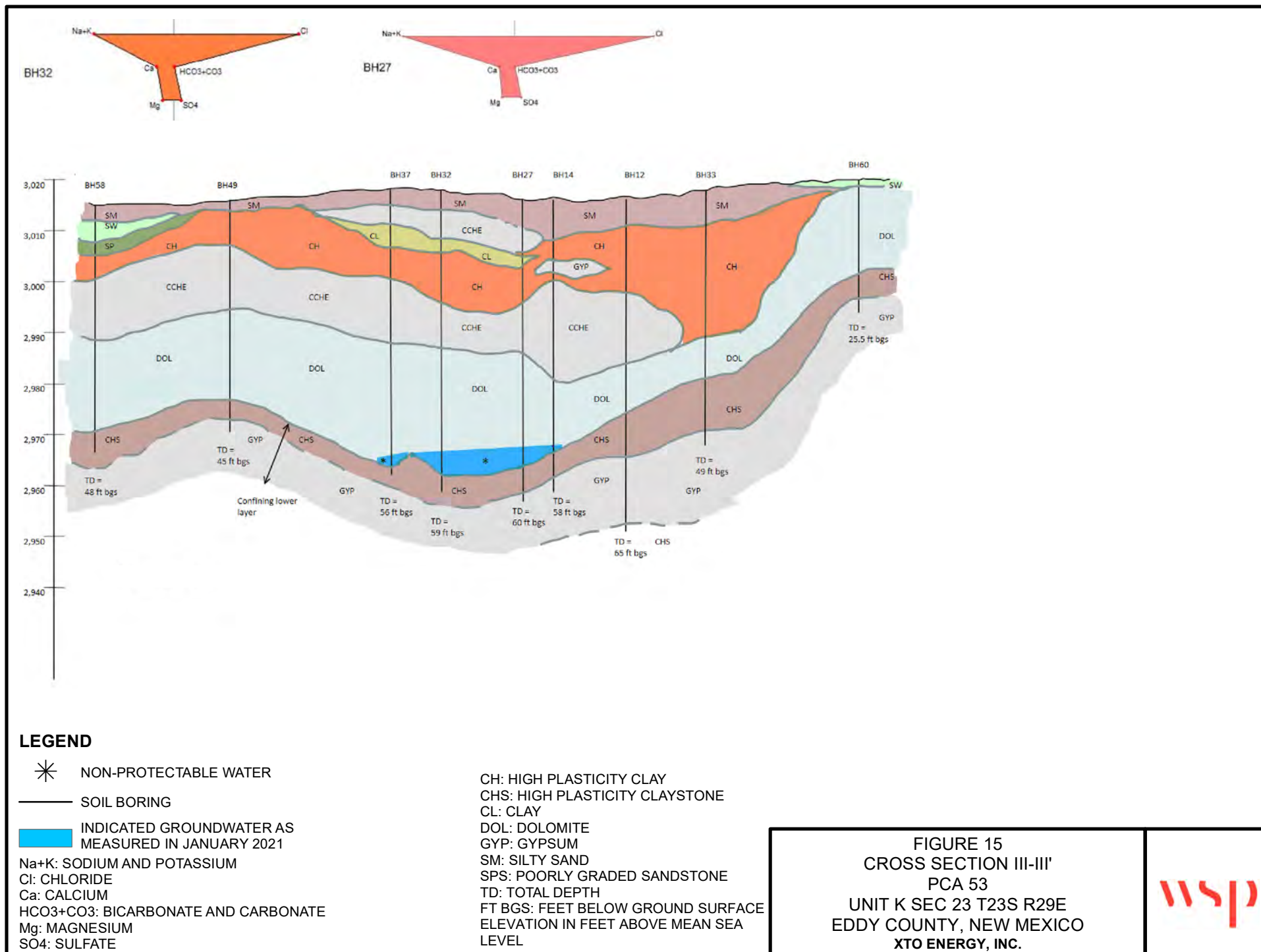
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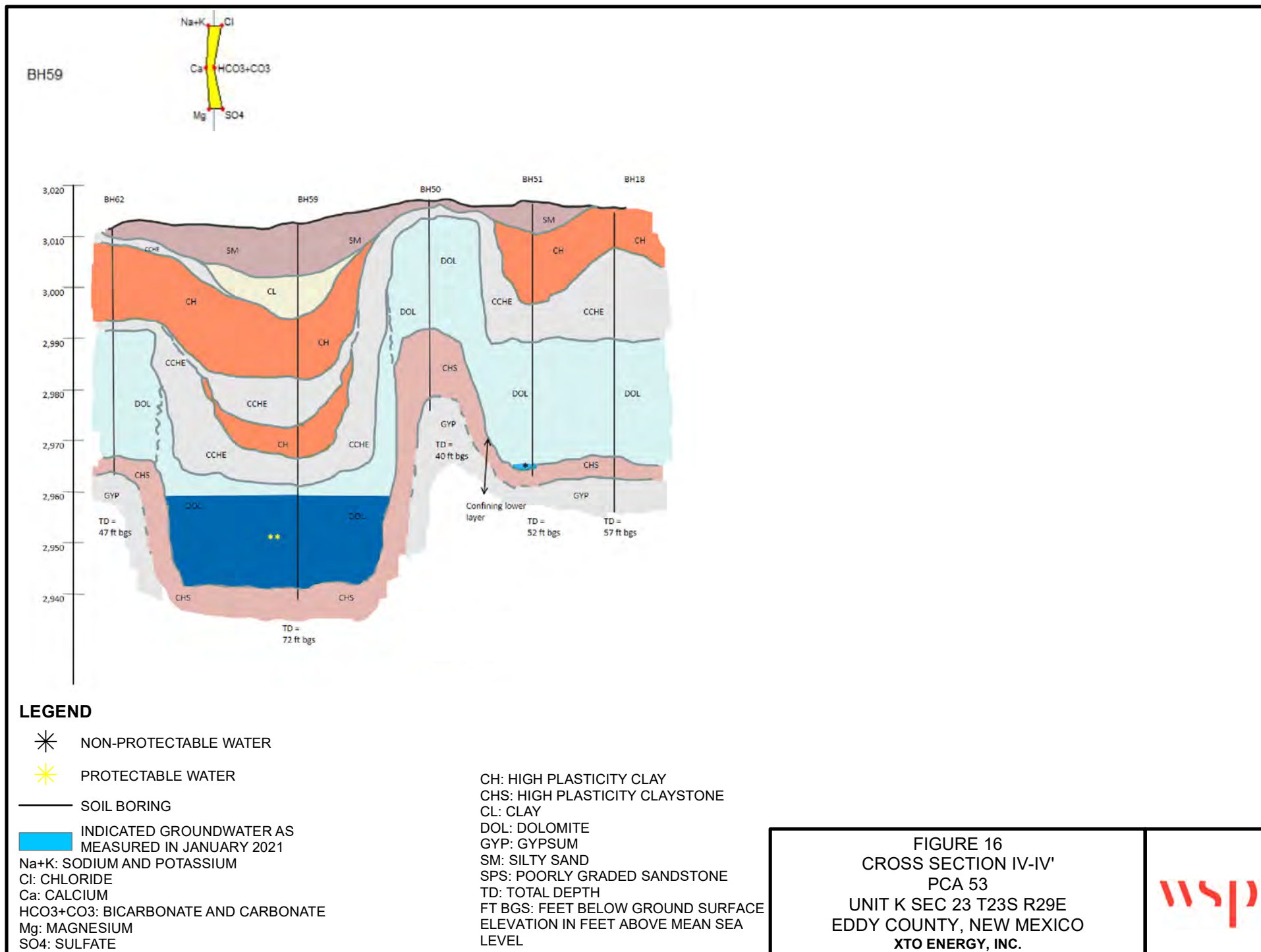


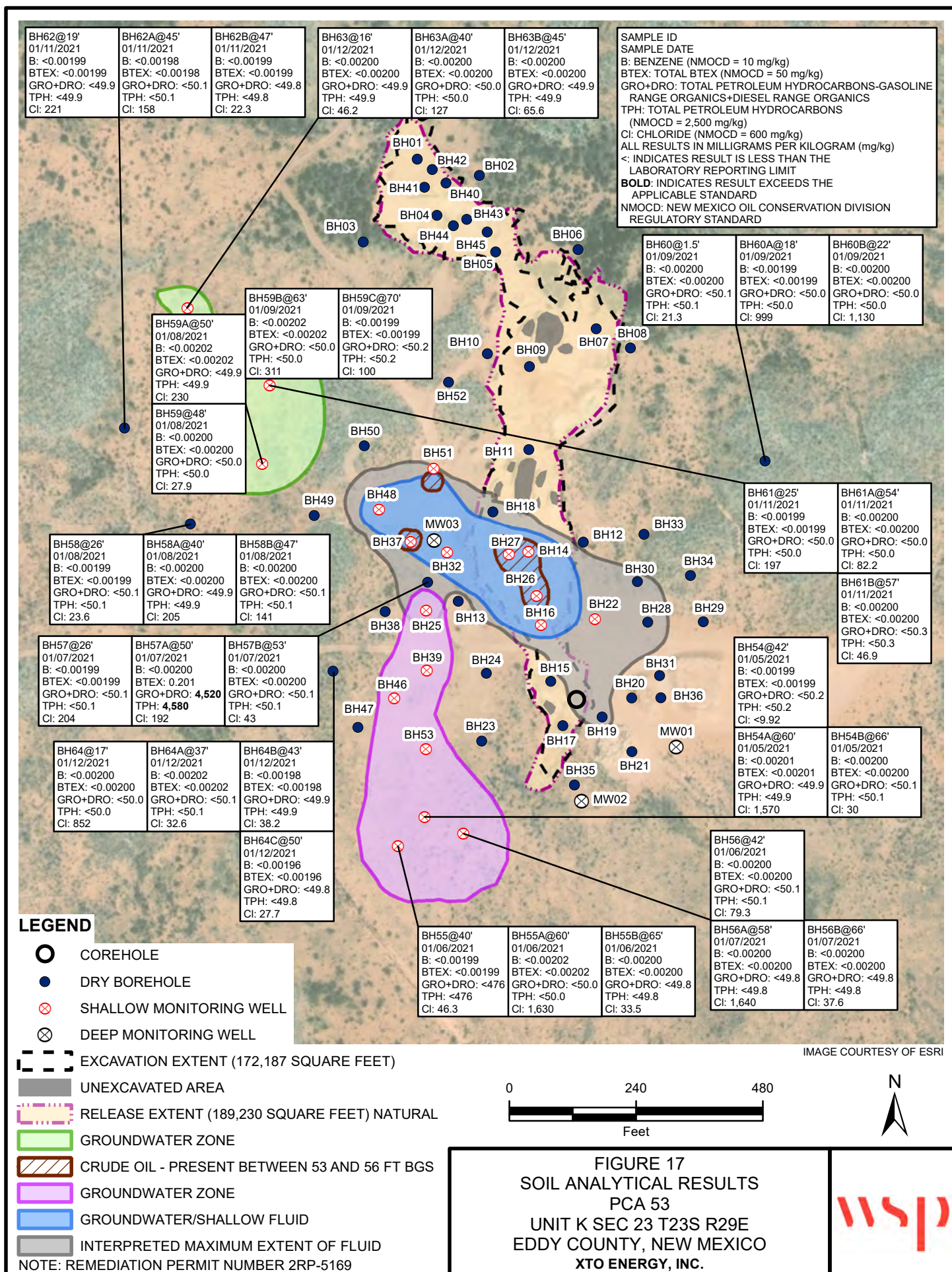
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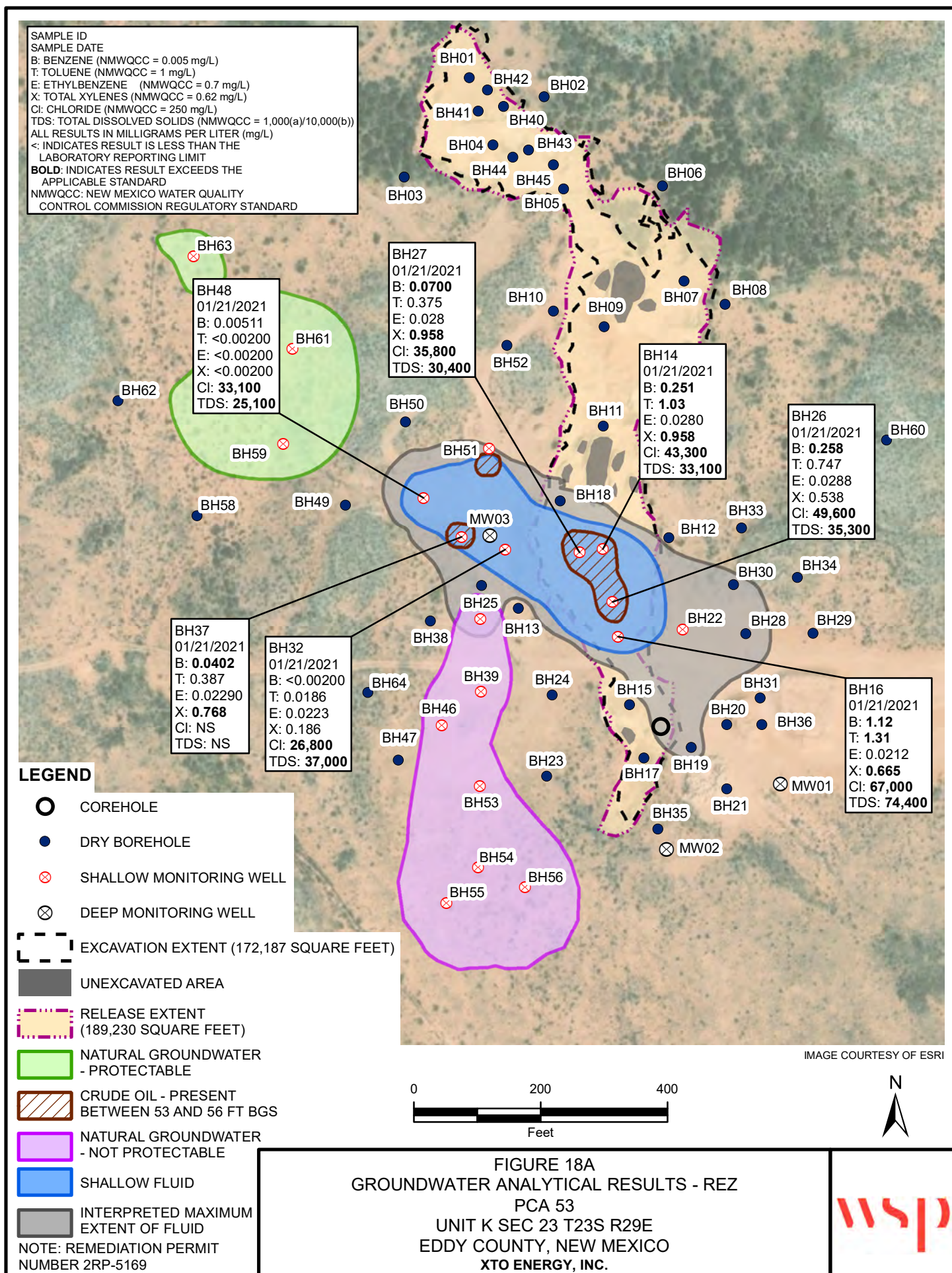


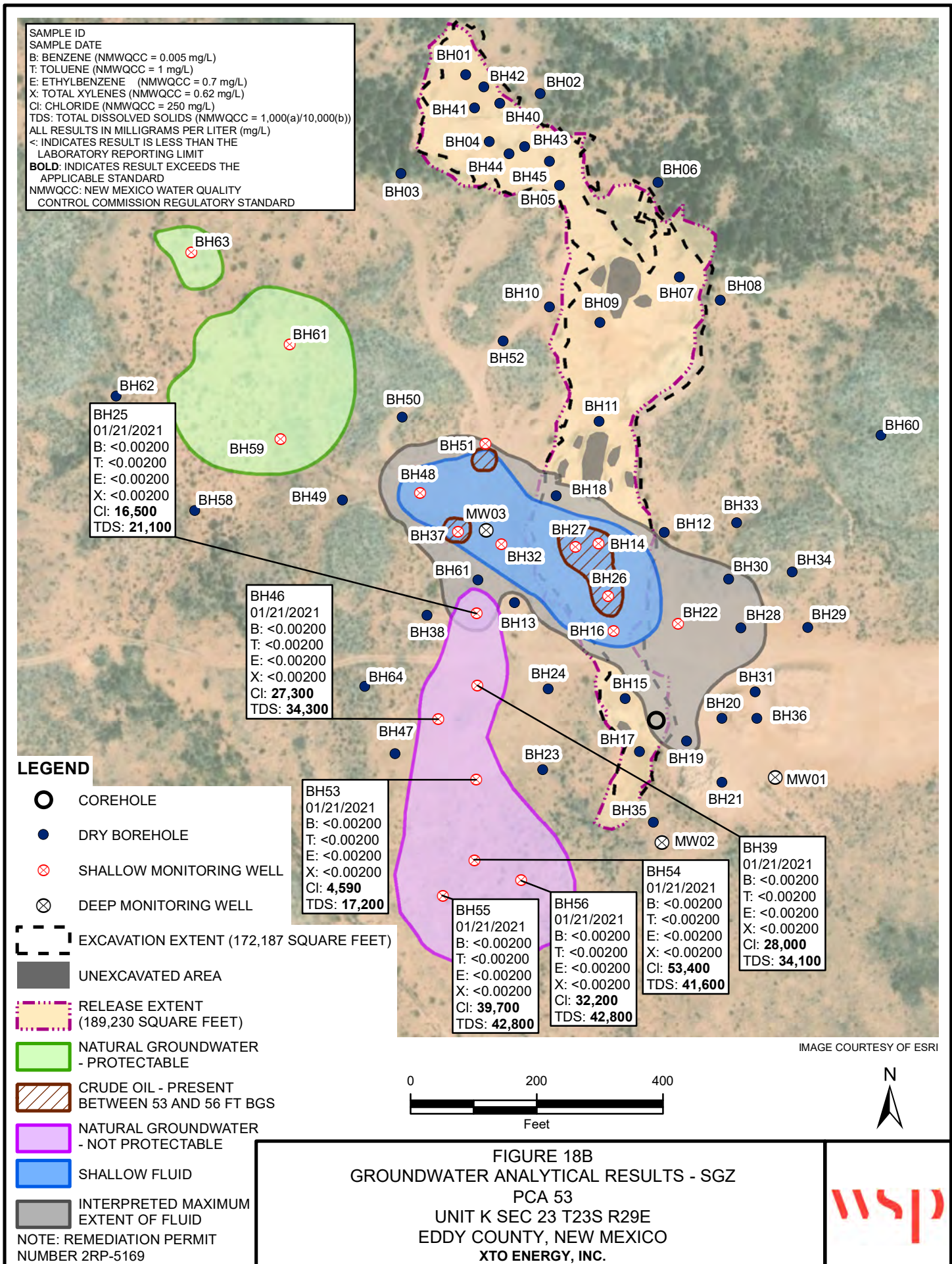


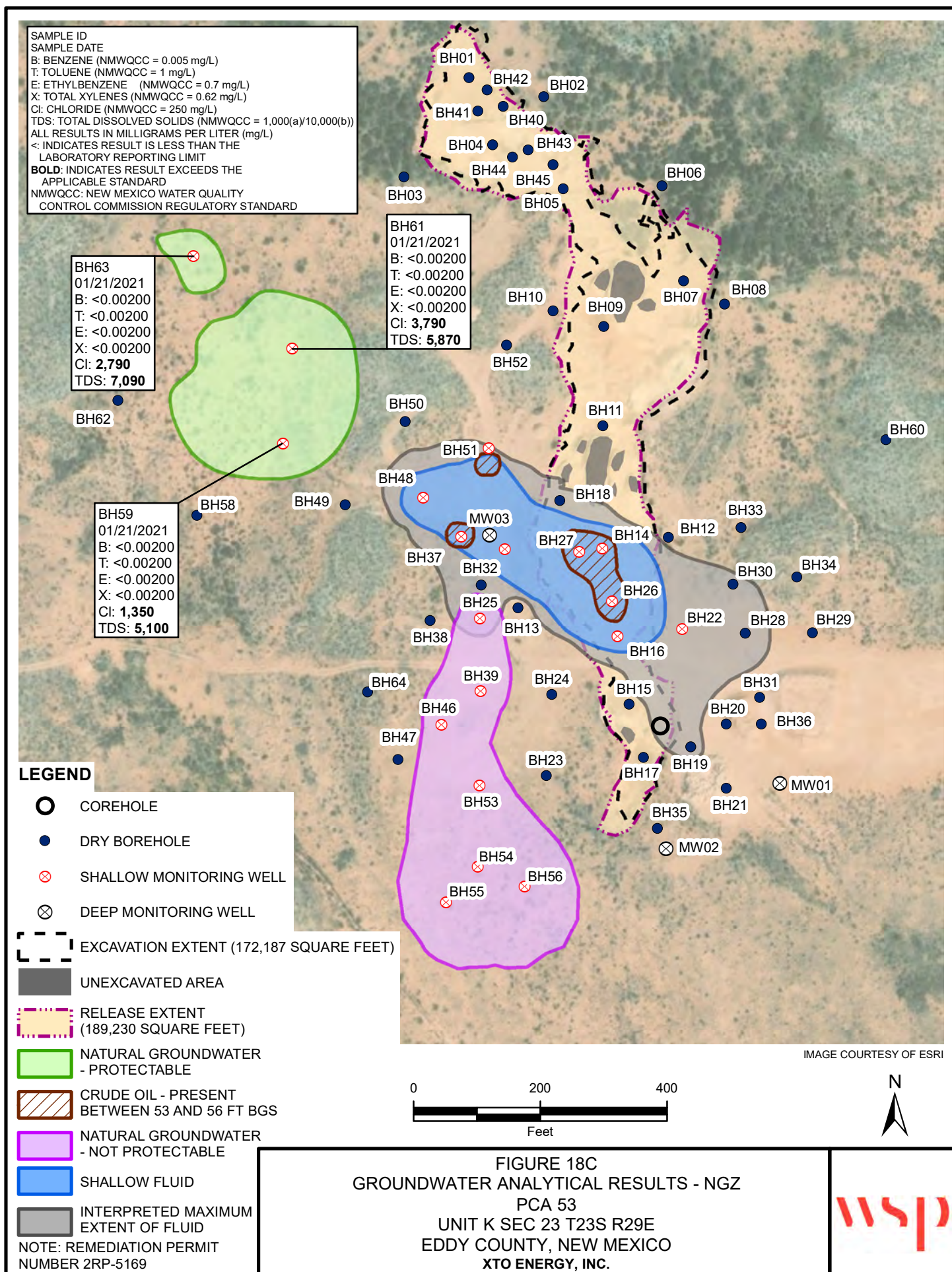


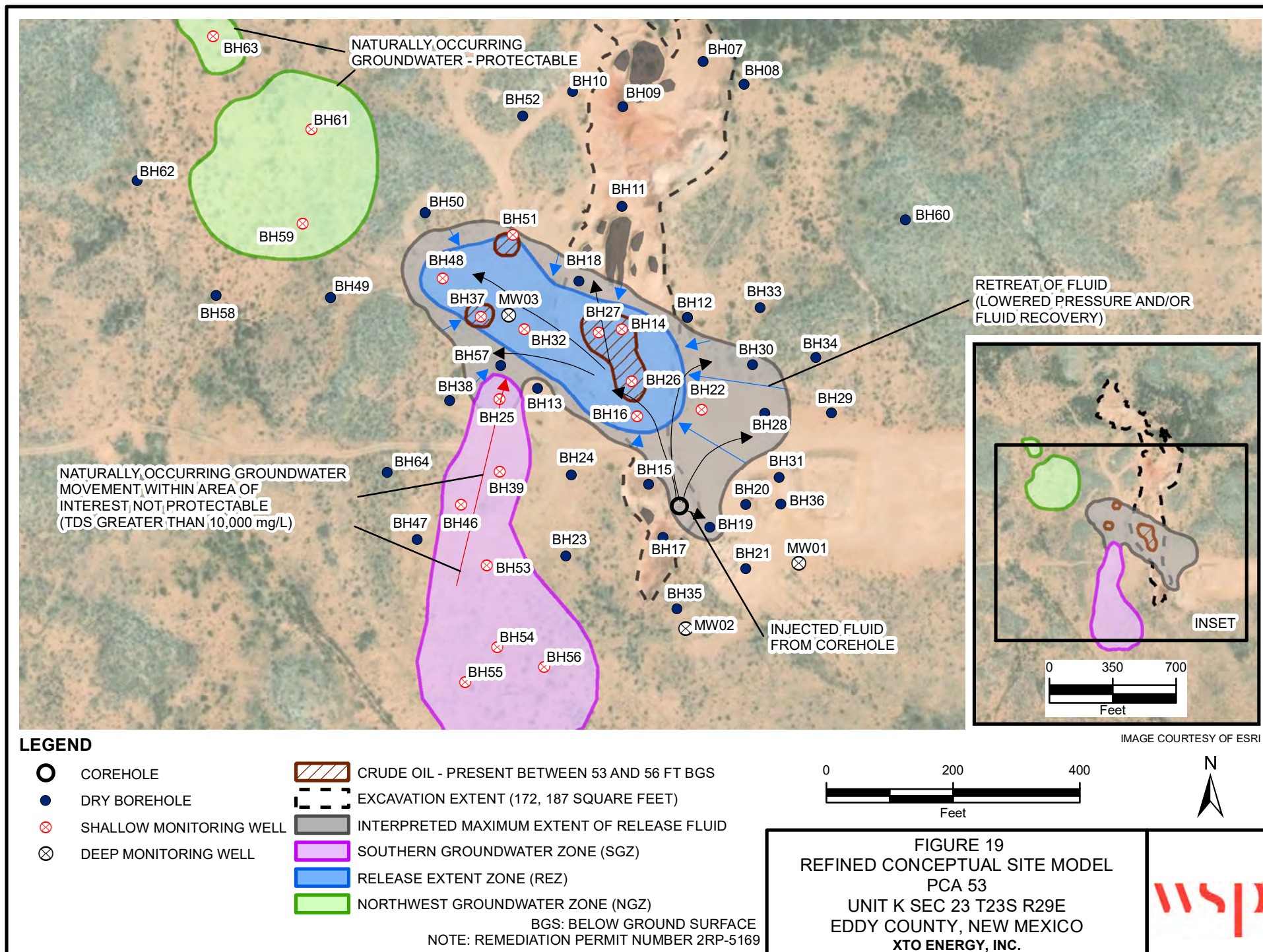












APPENDICES

APPENDIX

APPENDIX A

BOREHOLE LITHOLOGIC / SOIL SAMPLING LOGS/ SOIL SAMPLING LOGS

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH01	Date: 5/15/2019					
		Project Name: PCA 53	RP Number: 2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, PID	Hole Diameter: 6.15"					
Total Depth: 28'								
Comments:								
Moisture Content	Chloride (ppm)	Organic Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			open excavation
dry	<112	2.4	no	BH01	5	5'	CH	CLAY, dry, brown/red, high plasticity, cohesive, no stain, no odor
dry	211	3.4	no	BH01A	8		CCHE	CALICHE, dry, off white/tan, well consolidated, some calcium carbonate clasts w/ calcite vugs (1mm-5mm), effervescent, no stain, no odor
					10			
					15			
dry	211	2.8	no	BH01B	20	21'	DOL	DOLOMITE, dry, light grey, low reaction to HCl, some calcite dissolution features, no stain, no odor
					25			
dry	<112	0.7	no	BH01C	28	28'	DOL	DOLOMITE, dry, light grey, no odor, low reaction to HCl
					30			Total Depth 28 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH02		Date: 5/9/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6.15"		Total Depth: 32.5'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<124	4.9	no	BH02	0	2'	SM	SILTY SAND, dry, light brown-tan, poorly graded, fine-grained, no stain, no odor
dry	<124	3.2	no	BH02A	6	6'	CH	CLAY, dry, brown-dark brown, high plasticity, cohesive, no stain, no odor
dry	217	0.8	no	BH02B		8'	CCHE	CALICHE, dry, off white-tan, well consolidated, trace brown-light brown fine sand, some calcium carbonate clasts w/ calcite vugs (1mm-5mm), no stain, no odor
dry	217	1.4	no	BH02C		10'	CCHE	
dry	<124	1.4	no	BH02D	12	15'	CCHE	CALICHE, dry, off white-tan, well consolidated, light reaction to HCl, some calcite embedded between small vesicles, no odor
moist	<124	0.6	no	BH02E	18	20'	DOL DOL	DOLOMITE, moist, dark grey-light brown, very well consolidated, light reaction to HCl, some calcite embedded between small vesicles, no odor
moist	<124	2.2	no	BH02F	24	25'	DOL	
moist	<124	0.6	no	BH02G	30	30'	DOL	
					Total Depth 32.5 feet bgs			
					36			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH03	Date: 5/15/2019					
		PCA 53	2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, PID	Hole Diameter: 6.15"					
Total Depth: 47'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<112	1.0	no	BH03	0	2'	SM	SILTY SAND, dry, brown-red, poorly graded, fine-average grain size, no odor
					8		CH	CLAY, dry, dark brown-red, high plasticity, cohesive, no stain, no odor
dry	<112	2.5	no	BH03A	12'		CH	
					16			
					24			
dry	<112	3.6	no	BH03B	30'		CH	CLAY, dry, dark brown-red, high plasticity, cohesive, no stain, some fine-grained sand, no odor
					32		CCHE	CALICHE, dry, off white-tan, well consolidated, no stain, no odor
wet	729	1	no	BH03C	38'		CCHE	
					40			
dry	<112	1.8	no	BH03D	47'		CL CL	CLAY, dry, brown-red, medium plasticity, some red silt, no odor
					48			Total Depth 47 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH04		Date: 5/15/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6.15"		Total Depth: 34'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
moist	2,284	1,017	yes	BH04	5	6'	CH	CLAY, moist, dark brown-red, high plasticity, cohesive, staining, strong petroleum odor
dry	<112	17.3	no	BH04A	10	11'	CH	
dry	<112	4.8	no	BH04B	20	21'	CCHE	CALICHE, dry, off white-light grey, well consolidated, no stain, no odor
					25			
					30		DOL	DOLOMITE, dry, light grey-pale green, well consolidated, some calcite dissolution patterns, no stain, no odor
dry	211	6.4	no	BH04C	34	34'	DOL	
					35			Total Depth 34 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH05		Date: 5/15/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, TPH, BTEX		Hole Diameter: 6.15"		Total Depth: 21'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
					2			
					4			
dry	<112	2.9	no	BH05		5'	CH CH	CLAY, dry, dark brown-red, high plasticity, cohesive, few fine grained sand, no stain, no odor
dry	172	5.0	no	BH05A		7'	DOL	DOLOMITE, dry, off white-light grey, well consolidated, some calcite dissolution features, no stain, no odor
					8			DOLOMITE, dry, light grey-green, well consolidated, low reaction to HCl, no odor
					10			
					12			
					14			
					16			
					18			
dry	556	5.2	no	BH05B		17'	DOL	DOLOMITE, dry, light grey-green, well consolidated, low reaction to HCl, no odor
					20			DOLOMITE, dry, light grey-green, well consolidated, low reaction to HCl, no odor
					22			
					24			
dry	<112	1.1	no	BH05C		21'	DOL	DOLOMITE, dry, light grey-green, well consolidated, low reaction to HCl, no odor
					Total Depth 21 feet bgs			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH06	Date: 5/16/2019					
		PCA 53	2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, PID	Hole Diameter: 6.15"					
Total Depth: 40'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<112	2.3	no	BH06	0		SM	SILTY SAND, dry, brown-light brown, well graded, fine grained, no stain, no odor
						2'	CH	CLAY, dry, dark brown-red, high plasticity, cohesive, few fine-grained sand, no stain, no odor
					5			
					10			
					15			
					20			
					25			
					30			
dry	497	0.7	no	BH06A		32'	CH	
					35		GYP	GYPSUM, dry, off white-light grey, some light brown anhydrite, no stain, no odor
wet	<112	0.7	no	BH06B		37'	GYP	
dry	<112	0.4	no	BH06C	40	40'	GYP	Total Depth 40' feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH07	Date: 5/15/2019					
		PCA 53	2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, PID	Hole Diameter: 6.15"					
Total Depth: 31'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
dry	<112	2.0	no	BH07	6	6'	CH	CLAY, dry, dark brown-red, high plasticity, cohesive, few fine-grained sand, no stain, no odor
					12			
					18			
dry	<112	2.3	no	BH07A	21'		CCHE	CALICHE, dry, off white-tan, medium-well consolidated, high reaction to HCl, no stain, no odor
					24			
							GYP	GYP SUM, dry, off white-tan, some light brown anhydrite, no stain, no odor
wet	<112	3.8	no	BH07B	30	31'	GYP	
								Total Depth 31 feet bgs
					36			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH08		Date: 5/16/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6.15"		Total Depth: 47'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<112	2.3	no	BH08	0	2'	SM	SILTY SAND, dry, brown-light brown, well graded, fine-grained, no stain, no odor
							SM	
dry	<112	0.6	no	BH08A	8		CH	CLAY, dry, dark brown-red, high plasticity, cohesive, few fine grained sand, no stain, no odor
							CH	
dry	<112	0.6	no	BH08A	16	15'	CCHE	CALICHE, dry, off white-tan, well consolidated, no stain, no odor
							CCHE	
dry	<112	0.4	no	BH08B	24		CH	CLAY, dry, dark brown-red, high plasticity, cohesive, some gypsum inclusions
							CH	
dry	<112	0.4	no	BH08B	40	42'	CH	CLAY, dry, dark brown-red, high plasticity, cohesive, some gypsum inclusions
							CH	
					48		GYP	GYP SUM, dry, off white-light grey, well consolidated, some light brown anhydrite, no stain, no odor
							GYP	Total Depth 47 feet bgs
					56			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH09	Date: 5/14/2019					
		PCA 53	2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, PID	Hole Diameter: 6.15"					
Total Depth: 41'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
dry	<112	8.9	no	BH09	6	6'	CH	CLAY, dry, dark brown-red, high plasticity, cohesive, few fine-grained sand, no stain, no odor
					12			
					18			
					24			
					30			
dry	<112	0.6	no	BH09A		34'	CCHE	CALICHE, dry, light brown-tan, well consolidated, no stain, no odor
					36		GYP	GYPSUM, dry, off white-tan, some light brown anhydrite, no stain no odor
dry	<112	1.3	no	BH09B		41'	GYP	
					42			Total Depth 41 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH10		Date: 5/16/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 6.15"		Total Depth: 24'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
dry	512	1.5	no	BH10	0	0.5	GYP	GYP SUM, dry, light brown-tan, poorly consolidated, some silt, no stain, no odor	
dry	<112	1.9	no	BH10A	2	1'	CH	CLAY, dry, brown-light brown, high plasticity, some coarse crystalline gypsum inclusions, cohesive, no stain, no odor	
					4				
					6				
					8				
dry	240	0.6	no	BH10B	10	9'	CCHE	CALICHE, dry, off white-tan, well consolidated, high reaction to HCl, some calcium carbonate clasts, no stain, no odor	
					12				
					14				
					16				
moist	512	0.4	no	BH10C	18	18'	DOL	DOLOMITE, moist, light grey-green, well consolidated, low reaction to HCl, some calcite dissolution features, no stain, no odor	
					20				
					22				
moist	384	0.7	no	BH10D	24	24'	DOL	Total Depth 24 feet bgs	

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH11		Date: 5/13/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, TPH, BTEX		Hole Diameter: 6.15"		Total Depth: 58'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
moist	1,286	1,252	yes	BH11	10	6'	SM	SILTY SAND, moist, light brown-tan, well graded, some poorly consolidated caliche gravel, poorly sorted, strong petroleum odor, stain
moist	<122	56.5	no	BH11A	20	14'	CL	CLAY, moist, dark brown-red, high plasticity, cohesive, no stain, no odor
					30		CCHE	CALICHE, dry, tan-off white, well consolidated, some calcium carbonate clasts w/ calcite crystal vugs (1mm-3mm), no stain, no odor
					40		DOL	DOLOMITE, moist, light grey-pale green, well consolidated, some calcite dissolution features, no stain, no odor
dry	262	1.0	no	BH11B	50	45'	DOL	
							CH	CLAY, moist, dark grey-pale green, high plasticity, cohesive, no stain, no odor
dry	<112	0.7	no	BH11C	60	58'	GYP GYP	GYPSUM, dry, off white-tan, some light brown anhydrite, some dark brown/red clay, no stain, no odor
					Total Depth 58 feet bgs			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH12		Date: 5/16/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 6.15"		Total Depth: 65'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
dry	<112	0.0	no	BH12	0	2'	SM SM	SILTY SAND, dry, light brown-tan, fine grained, well graded, some caliche gravel, no stain, no odor	
					10		CH	CLAY, moist, dark brown-red, high plasticity, cohesive, some fine-grained sand, no stain, no odor	
dry	556	0.3	no	BH12A		12'	CH		
dry	<112	0.7	no	BH12B		17'	CCHE	CALICHE, dry, light brown-off white, well consolidated, some calcium carbonate clasts w/ calcite crystal vugs (1mm-3mm), no stain, no odor	
dry	697	1.0	no	BH12C		27'	CCHE		
					40		DOL	DOLOMITE, dry, light grey-pale green, well consolidated, some calcite crystallization features, no stain, no odor	
							CH	CLAY, moist, grey-pale green, high plasticity, cohesive, no stain, no odor	
					50		GYP	GYPSUM, dry, off white, well consolidated, some light brown-tan, fine crystalline anhydrite, no stain, no odor	
					60				
dry	<112	5.3	no	BH12D		65'	CH CH	CLAY, moist, brown-red, high plasticity, some gypsum inclusions, no stain, no odor	
					Total Depth 65 feet bgs				
					70				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH13		Date: 5/10/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6.15"		Total Depth: 58'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	384	1.1	no	BH13	0		SM	SILTY SAND, dry, light brown-tan, fine grained, well graded, few caliche gravel, no stain, no odor
					10	10'	CCHE	CALICHE, dry, light pink-tan, moderately consolidated, some calcium carbonate clasts, no stain, no odor
					20		CH	CLAY, moist, brown-red, high plasticity, cohesive, no stain, no odor
					30			
							CCHE	CALICHE, dry, off white-tan, some calcium carbonate clasts, well consolidated, no stain, no odor
					40		DOL	DOLOMITE, moist, light grey-pale green, some calcite dissolution features, well consolidated, no stain, no odor
dry	845	337	yes	BH13B	50	48'	DOL	
dry	<172	1.1	no	BH13C	58'		DOL	
					60			Total Depth 58 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH14	Date: 5/11/2019						
		PCA 53	2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill						
Lat/Long:		Field Screening: Chloride, PID	Hole Diameter: 6.15"						
Total Depth: 58'									
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Riser extends beyond excavated surface approximately 2.5 feet. Top of casing is approximately 2.5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			OPEN EXCAVATION	
dry	11,120	480	no	BH14		5'	SM	SILTY SAND, dry, light brown-tan, fine-grained, well graded, some caliche gravel, no stain, strong odor	
					10		CH CH	CLAY, moist, dark brown-red, high plasticity, cohesive, trace fine-grained brown sand, no stain, no odor	
							GYP	GYPSUM, dry, brown-off white, moderately consolidated, no stain, no odor	
							CCHE	CALICHE, dry, off white-tan, well consolidated, some calcium carbonate clasts w/ calcite vugs (1mm-3mm), no stain, mild petro odor	
dry	8,700	20.4	no	BH14A	20	20'	CCHE		
					30				
					40		DOL	DOLOMITE, moist, grey-pale green, well consolidated, some calcite dissolution features, no stain, strong petro odor	
moist	1,116	1,400	no	BH14B	45'	45'	DOL		
					50				
moist	<124	10	no	BH14C	54'	54'	CL	CLAY, moist, dark-light grey, low plasticity, trace silt, low-mild reaction to HCl, strong petro odor	
dry	200	550.0	no	BH14D	58'	58'	GYP	GYPSUM, dry, yellow-dark green/grey, moderately well consolidated, no reaction to HCl, light brown anhydrite, no odor	
					60			Total Depth 58 feet bgs	

2-inch PVC screen and riser
 Bentonite chips
 from 5' - 36' bgs

10-20 silica sand from
 36' - 58 feet bgs
 Screen from 38' - 58'
 bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH15		Date: 5/9/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 6.15"		Total Depth: 59'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0			OPEN EXCAVATION	
moist	16,692	1,123	yes	BH15		6'	CCHE CCHE	CALICHE, moist, light brown-tan, poorly consolidated, trace light brown sand, staining, strong petro odor	
					10				
moist	217	5.4	no	BH15A		15'	CH CH	CLAY, moist, red-dark brown, high plasticity, cohesive, no stain, trace petro odor	
					20				
							CCHE	CALICHE, dry, off white-tan, well consolidated, trace medium-grained sand (dark brown), no stain, no odor	
dry	9,576	2.4	yes	BH15B		24'	DOL	DOLOMITE, moist, grey-pale green, well consolidated, some calcite dissolution features, no stain, no odor	
					30				
					40				
					50				
moist	<124	0.6	no	BH15C		55'	CH	CLAY, moist, dark brown-red, high plasticity, cohesive, no stain, no odor	
moist	<124	0.2	no	BH15D		59'	CH		
					60			Total Depth 59 feet bgs	

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH16		Date: 5/11/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 4"		Total Depth: 64'	
Comments: All chloride tests include a 40% correction factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
moist	13,479	1,530	yes	BH16		5'	SM	SILTY SAND, moist, light brown-brown, well graded, some caliche gravel, no stain, strong odor.
					10		CH	CLAY, moist, dark brown-red, high plasticity, cohesive, no stain, strong petro odor
moist	211	29.1	no	BH16A		13'	CH	
moist	1,286	11.7	no	BH16B		18'	CH	
dry	<112	14.9	no	BH16C	20	21'	CCHE	CALICHE, dry, off white-tan, well consolidated, some calcium carbonate clasts w/ calcite vugs (1mm-3mm), no stain, no odor.
					30			
					40	37'	DOL	DOLOMITE, moist, grey-pale green, well consolidated, some calcite dissolution features, no stain, no odor.
dry	4,944	4.9	no	BH16D	50	52'	DOL	
					60	57'	CH	CLAY, moist, dark grey-pale green, high plasticity, cohesive, no stain, no odor
dry	<112	0.9	no	BH16E		64'	CH	
					Total Depth 64 feet bgs			

2-inch PVC screen and riser
 Bentonite Chips from
 5 - 32' bgs

10-20 silica sand
 from
 Screen from
 34 - 54' bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH17		Date: 5/14/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 4"		Total Depth: 54'		
Comments: All chloride tests include a 40% correction factor.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft. bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks	Well Completion
					0			OPEN EXCAVATION	
M	211.2	4.9	N	BH17		5'	CH	CLAY, moist, dark brown/brown, high plasticity, cohesive, no stain, petroleum odor	 Bentonite Chips from 0 - 54' bgs
D	< 172.8	7.7			10		CCHE	CALICHE, dry, off white-tan, medium consolidation, some calcium carbonate clasts, no stain, no odor	
D	262.4	5.6	N						
D	697.6	13.9	N	BH17A	20	19'	CCHE		
D	697.6	11.6	N	BH17B		24'	DOL	DOLOMITE, moist, light grey-pale green, well consolidated, some calcite dissolution features, no stain, no odor	
M									
D	620.8	17.8	N		30				
D	1,190.4	31.9	Y						
D	2924.8	342.9	Y						
D	5254.4	453.1	Y						
D	937.6	108.1	Y	BH17C	40	40'	DOL		
D	<172.8	11.8	N	BH17D		44'	DOL		
M	<172.8	4.1	N	BH17E		46'	CH CH	CLAY, moist, grey-pale green, high plasticity, cohesive, no stain no odor	
M	<172.8	2.2	N		50				
D	<172.8	1.7	N	BH17F		52'	CH		
M	<172.8	2.2	N	BH17G		54'	CH		
Total Depth 54 feet bgs									
					60				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH18		Date: 5/17/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6.15"		Total Depth: 57'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
dry	<112	4.8	no	BH18		6'	CH CH	CLAY, dry, brown-light brown, high plasticity, cohesive, no stain, no odor
dry	<112	3.9	no	BH18A		13'	CCHE	CALICHE, dry, off white-tan, well consolidated, high reaction to HCl, some calcium carbonate clasts w/ calcite vugs (1mm-3mm), no stain, no odor
							DOL	DOLOMITE, moist, light grey-pale green, well consolidated, some calcite dissolution features, no stain, no odor
moist	2,227	6	no	BH18B		43'	DOL	
							CH	CLAY, moist, dark grey-pale green, high plasticity, cohesive, some gypsum inclusions, no stain, no odor
wet	2,105	4.2	no	BH18C		57'	GYP	GYP SUM, wet, light brown-tan, well consolidated, some anhydrite, trace halite, no stain, odor
					60	Total Depth 57 feet bgs		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH19		Date: 5/17/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, TPH, BTEX		Hole Diameter: 6.15"		Total Depth: 77'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<112	2.8	no	BH19	0	2'	SM SM	SILTY SAND w/ caliche gravel, dry, light brown-tan, well graded, no stain, no odor
dry	672	3.2	no	BH19A	10	14'	CH	CLAY, dry, brown, high plasticity, cohesive, no stain, no odor
dry	<112	2.8	no	BH19B	20	22'	CCHE	CALICHE, dry, off white-tan, well consolidated, trace silt, high reaction to HCl, no odor
dry	942	0.6	no	BH19C	30	34'	CCHE	
moist	1,177	32.1	no	BH19D	40	40'	CL	CLAY w/ dolomite, brown-red, medium-high plasticity, trace petro odor
dry	992	153	no	BH19E		42'	DOL	DOLOMITE, moist, light grey-pale green, well consolidated, some calcite dissolution features, no stain, strong petroleum odor
moist	7,366	652	no	BH19F		46'	DOL	
					50			
moist	14,324	15.2	no	BH19G		56'	DOL	
moist	7,993	2.4	no	BH19H	60	62'	DOL	
					70			
moist	<112	1.0	no	BH19I		77'	CL	CLAY w/ dolomite, red-brown, high plasticity, light green dolomite throughout, no odor
					80	Total Depth 77 feet bgs		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH20		Date: 6/5/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 4"		Total Depth: 70'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
dry	239	1.2	no		0		SM	SILTY SAND w/ caliche gravel, dry, light brown-tan, well graded, no stain, no odor	
						5'	SM		
					10				
moist	672	4.7	no	BH20		17'	CH	CLAY, moist, brown-dark brown, high plasticity, cohesive, no stain, no odor	
dry	<112	22.8	no	BH20A		25'	CCHE	CALICHE, dry, off white, well consolidated, high reaction to HCl, no odor	
					30				
dry	294	9.8	no	BH20B		37'	DOL	DOLOMITE, moist, light grey-pale green, well consolidated, some calcite dissolution features, no stain, no odor	
					40				
					50				
					60				
dry	<112	5.2	no	BH20D		64'	CH	CLAY, moist, dark grey-pale green, high plasticity, no stain, no odor	
dry	<112	5.3	no	BH20E	70	70'	GYP	GYPSUM, dry, off white, well consolidated, some tan anhydrite no stain, no odor	
								Total Depth 70 feet bgs	

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH21		Date: 6/5/2019-6/6/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 4"		Total Depth: 51'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0		SM	SILTY SAND w/ caliche gravel, dry, light brown/brown, fine grained, poorly graded, no stain, no odor
					10		CCHE	CALICHE, dry, tan-off white, poorly consolidated, trace light brown sand, no odor
							CH	CLAY, dry, dark brown-red, high plasticity, cohesive, no stain, no odor
					20		CCHE	CALICHE, dry, off white, moderately consolidated, fine crystalline calcium carbonate clasts, high reaction to HCl, no stain, no odor
dry	294	3.8	no	BH21	30	30'	DOL	DOLOMITE, dry, light grey-green, well consolidated, no odor
moist	<112	1.9	no	BH21A		45'	CH	CLAY, moist, light grey-pale green, high plasticity, cohesive, no stain, no odor
moist	<112	2.8	no	BH21B	50	51'	CH	
Total Depth 150 feet bgs								

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH22 PCA 53	Date: 9/19/2019 2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: JE	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, TPH, BTEX	Hole Diameter: 6" 4"@25'					
Total Depth: 70'								
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Rise extends beyond excavated surface approximately 2.5 feet. Top of casing is approximately 2.5 feet from actual ground surface.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	172	1.1	no	BH22A	0		SP	SILTY SAND, dry, light ta, caliche cobbles, no stain, no odor
						6'	CCHE	CALICHE, dry, dark grey-grey, well consolidated, mild effervescence, calcium carbonate clast, no stain, no odor
dry	<172	0.0	no	BH22B	13'		CCHE	CALICHE, dry, dark grey-grey, well consolidated, mild effervescence, calcium carbonate clast, increase in porosity, calcite crystal dissolution features, no stain, no odor
moist	212	0.0	no	BH22C	18	18'	CH CH	CLAY, moist, dark brown, high plasticity, cohesive, grey modelling, few calcium carbonate inclusions, no stain, no odor
					26			
					35			
					44		DOL	DOLOMITE, dry, light grey-grey, mild effervescence, some porosity/dissolution features, calcite recrystallization, no stain, no odor
dry	7,006	37.2	no	BH22D	47'		DOL	
dry	6,468	2,385	no	BH22E	51'		DOL	DOLOMITE, dry, petroleum odor
					53		CH	CLAY w/ interbedded dolomite, moist-dry, brown (clay)-light green (dolomite), high plasticity, mild effervescence, no stain, no odor
					62		GYP	GYPSUM, dry, light grey-white, well consolidated, no stain, no odor
							CH	CLAY, moist, brown-red, high plasticity, some gypsum mineralization, no stain, no odor
dry	>172	5.9	no	BH22F	70'		GYP	GYPSUM, dry, light grey-white, well consolidated, no stain, no odor
					71			Total Depth 70 feet bgs

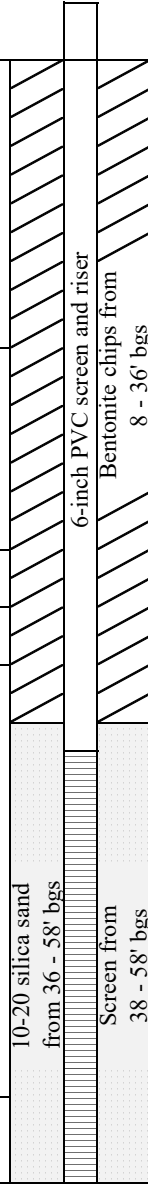
2-inch PVC screen and riser
 Bentonite Chips from 0 - 36' bgs

10-20 silica sand from 36 - 58' bgs
 Screen from 38 - 58' bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH23		Date: 9/23/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 49'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0		SW	SILTY SAND, dry, brown/tan, well graded, no stain, no odor
							CCHE	CALICHE, dry, off white, calcium carbonate inclusions, no stain, no odor
							CH	CLAY, dry, brown, high plasticity, cohesive, calcium carbonate inclusions, no stain, no odor
					7			
							GYP	GYP SUM, dry, off white-light pink matrix, well consolidated, dark grey-red calcium carbonate inclusions, no stain, no odor
							CH	CLAY, dry, brown-red, high plasticity, cohesive, trace gypsum inclusions, no stain, no odor
					14		CCHE	CALICHE, dry, off white, light grey- brown calcium carbonate, well consolidated, no stain, no odor
dry	<172	0.6	no	BH23A		20'	DOL	DOLOMITE, dry, off white-light grey, moderately consolidated, no stain, no odor
dry	<172	0.6	no	BH23B		24'		DOLOMITE, dry, off white-light grey, moderately consolidated, calcium carbonate inclusions, dissolution features, no stain, no odor
					28			
					35			
					42			
moist	<128	0.2	no	BH23C	49	49'	CH	CLAY, moist, dark green-dark grey, high plasticity, cohesive, medium-grained sand laminations, no stain, no odor
								Total Depth 49 feet bgs
					56			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH24		Date: 9/23/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: SL		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 56'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	1.8	1.1	no	BH24A	0		SW	SILTY SAND, dry trace gravel, well graded, no stain, no odor
					8		CCHE	CALICHE, dry, off white-white, calcium carbonate inclusions, no stain, no odor
					16		CH	CLAY, dry, brown, calcium carbonate inclusions, high plasticity, cohesive, no stain, no odor
					24	24'	CCHE CCHE	CALICHE, dry, grey, recrystallized calcium carbonate inclusions, dolomite inclusions, poorly cemented, no stain, no odor
moist	<172	1.0	no	BH24B	32		DOL	DOLOMITE w/ clay, dry, grey, brown (clay), well consolidated, calcite inclusions w/ recrystallization, high plasticity, cohesive, no stain, no odor
					40		DOL	DOLOMITE w/ clay, moist, grey, brown (clay), well consolidated, calcite carbonate inclusions w/ recrystallization, high plasticity, cohesive, pockets of fine-grained sandstone (red) within calcium carbonate
					48	48'	DOL	
moist	1,752	3.6	no	BH24C	50'		DOL	
moist	<128	0.5	no	BH24D	56	56'	CH CH	CLAY, moist, grey, high plasticity, cohesive, few sand laminations no stain, no odor
								Total Depth 56 feet bgs
					64			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH25 PCA 53	Date: 9/20/2019 2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chloride, TPH, BTEX	Hole Diameter: 6"					
Total Depth: 75'								
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Top of casing is approximately 2.5 feet from actual ground surface.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
D	<172	0.7	N	BH25A	0		SM	SILTY SAND, dry, light brown-brown, few gravel, well graded, no stain, no odor
D	<172	0.3	N					
D	<172	0.2	N		10		CCHE	CALICHE, dry, light pink-tan, moderately consolidated, red - dark brown limestone clasts, no stain, no odor
N	<172	0.8	N					
N	<172	0.8	N					
M	<172	0.9	N		20		CH	CLAY, moist, dark brown, limestone inclusions, high plasticity, cohesive, no stain, no odor
M	<172	0.4	N					
D	<172	0.4	N		30		CCHE	CALICHE w/ limestone clasts, dry, light tan, medium-coarse grained sand inclusions, fining downwards, no stain, no odor
D	<172	2.9	N					
D	218	1.8	N		40		DOL	DOLOMITE, dry, light grey, calcite recrystallization, dissolution features, permeable
D	180	0	N					
dry	212	0.1	no	BH25B	50	48'	DOL	
D	244	1.1	N					
M	<128	1.2	N		60			
M	<128	1.2	N				CH	CLAY, moist, dark grey, high plasticity, cohesive, gypsum mineralization, no stain, no odor
M	<128	0.6	N					
D	<128	0.0	N					
dry	<128	0	N		70		GYP	GYPSUM, dry, light grey-grey, slightly translucent edges, well consolidated, no stain, no odor
dry	<128	0.0	N				CH	CLAY, dry, dark red-dark brown, high plasticity, cohesive, some gypsum mineralization, no stain, no odor
							CH	
								Total Depth 75 feet bgs
					80			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH26 PCA 53	Date: 9/21/2019 2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: SL	Method: Sonic Drill						
Lat/Long:		Field Screening: Chloride, TPH, BTEX	Hole Diameter: Borehole 10" , 6" dia PVC Total Depth: 58'						
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Riser extends beyond excavated surface approximately 2.5 feet. Top of casing is approximately 5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			OPEN EXCAVATION	
moist	<172	0.0	no	BH26A	8	10'	CH	CLAY, moist, brown, high plasticity, cohesive, grey limestone inclusions, no stain, no odor	
moist	<172	0.2	no	BH26B	13'	CH			
moist	<172	0.0	no	BH26C	15'	CH			
					16				
moist	<172	0.0	no	BH26D	18'	CH			
dry	<172	0.0	no	BH26E	20'	CCHE	CALICHE w/ limestone inclusions (1"-6" diameter), dry, white-tan no stain, no odor		
dry	<172	0.6	no	BH26F	24	CCHE CCHE	CALICHE, dry, tan-brown-pink, dissolution features, well cemented, some calcium carbonate clasts, no stain, no odor		
dry	<172	0.8	no	BH26G	30'	DOL	DOLOMITE, dry, grey, calcite recrystallization, dissolution features, no stain, no odor		
moist	<172	0.2	no	BH26H	32	CCHE	CALICHE w/ limestone inclusions, dry, white-tan, no stain, no odor		
moist	386	2.4	no	BH26I	40	DOL	DOLOMITE, dry, grey, calcite recrystallization, dissolution features, no stain, no odor		
moist	1,372	845.8	no	BH26J	45'	DOL	DOLOMITE, moist, grey, calcite recrystallization, dissolution features, pockets of sand, pockets of recrystallization, increased odor		
moist	829	425	no	BH26K	48	50'	DOL		
wet	4,334	445.2	no	BH26L		52'	DOL		
wet	7,587	1,020	no	BH26M		54'	DOL		
wet	2,587	1,758	no	BH26N		55'	DOL		
dry	<172	4.1	no	BH26O	56	58'	CH	CLAY, dry-moist, brown, high plasticity, cohesive, slight odor	
								Total Depth 58 feet bgs	
					64				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH27 PCA 53	Date: 9/23/2019 2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill						
Lat/Long:		Field Screening: Chloride, TPH, BTEX	Hole Diameter: 6" - 4" Total Depth: 60'						
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Riser extends beyond excavated surface approximately 2.5 feet. Top of casing is approximately 5.5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
					0			Open Excavation	
					8				
dry	6,872	1,259	no	BH27A		9'	CCHE	CALICHE, dry, white, odor, calcium carbonate inclusions, no stain no odor	
							SC	CLAYEY SAND, dry, brown, fine-coarse, calcium carbonate inclusions, odor, no stain	
							CL	SANDY CLAY, moist, brown, low plas., odor	
moist	3,600	7.2	no	BH27B		14'	CH	CLAY, moist, brown, high plasticity, cohesion, grey mottle, no odor	
moist	<172	0	no	BH27C		20'	CH	CLAY, moist, grey, black mottling, high plasticity, cohesion, calcium carbonate inclusions, no odor	
					24		CCHE	CALICHE, moist, calcium carbonate inclusions (1-6" diameter), dissolution features	
dry	180	0.4	no	BH27D		25'	CCHE		
moist	<172	0	no	BH27E		30'	DOL	DOLOMITE, moist, grey, calcium carbonate inclusions, no odor, no staining, recrystallization, dissolution features	
moist	386	0.5	no	BH27F		35'	DOL	DOLOMITE, moist, grey, calcium carbonate inclusions, no odor, no staining, recrystallization, dissolution features, consolidation	
moist	252	3.5	no	BH27G	40	40'	DOL	DOLOMITE, moist, grey, recrystallization calcium carbonate, sand pockets, slight odor	
moist	991	161.1	no	BH27H		45'	DOL	DOLOMITE, moist, grey, recrystallization calcium carbonate, sand pockets, odor	
wet	2,878	408.6	no	BH27I		51	DOL	DOLOMITE, wet, grey, recrystallization calcium carbonate, sand pockets, odor	
							CH	CLAY, moist, grey, high plasticity, calcium carbonate inclusions cohesion, no stain, no odor	
moist	<172	630.1	no	BH27J	56	55'	CH		
moist	<172	8.2	no	BH27K		57'	CH	CLAY, moist, brown/red, high plasticity, cohesion, no stain, no odor	
dry	<172	8	no	BH27L		60'	GYP	GYP SUM, dry, light grey/white, well consolidated, translucent edges, no stain, no odor	
					64		GYP	Total Depth 60 feet bgs	

2-inch PVC screen and riser
 Bentonite chips from 9 - 33' bgs

10-20 silica sand from 33 - 55' bgs
 Screen from 35 - 55' bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH28		Date: 9/24/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 62'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<179	0.0	no	BH28A	0		SW	SAND w/ caliche gravel, dry, light brown/tan, fine grained, well graded, no odor, no stain
					8	6'	CCHE	CALICHE, dry, light brown/tan, calcium carbonate inclusions, no stain, no odor
							CL	CLAY, moist, light brown/grey, low plasticity, non-cohesive, no odor, no stain
moist	156	0.0	no	BH28B		13'	CH	CLAY, moist, red/dark brown, light grey calcium carbonate mineralization, high plasticity, no stain, no odor
moist		0.0	no	BH28C		18'	CH	
dry	<179	0.0	no	BH28D	24	21'	CCHE CCHE	CALICHE w/ calcium carbonate clasts, dry, off-white/tan, well consolidated, fine-coarse calcium carbonate crystals, pockets of fine-grained sand
dry	218	2.3	no	BH28E	40	32'	DOL	DOLOMITE, dry, grey/light green, well consolidated, pockets of calcium carbonate recrystallization, dissolution features, no stain, no odor
moist	<179	8.4	no	BH28F		47'	DOL	DOLOMITE, dry, grey/light green, well consolidated, calcium carbonate clasts, pockets of light brown sand (medium-grained)
moist	5.4	2.6	no	BH28G		52'	DOL	
moist	4.8	4,000	no	BH28H	56	55'	DOL	DOLOMITE, dry, grey/light green, well consolidated, calcium carbonate clasts, pockets of light brown sand (medium-grained), strong petroleum odor
moist	<179	0.2	no	BH28I	64	62'	CH CH	CLAY, dry, dark grey/dark green, high plasticity, cohesive, grey dolomite inclusions, light brown pockets of sand, no stain, no odor CLAY, moist, dark red, high plasticity, cohesive, gypsum inclusions
					Total Depth 62 feet bgs			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH29		Date: 9/24/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 62'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<173	1	no	BH29A	0		SW	SAND w/ caliche gravel, fry, tan, fine-grained, well graded, no odor no stain
							CCHE	CALICHE, dry, off-white, calcium carbonate inclusion, moderate consolidation, no stain, no odor
moist	437	0.1	no	BH29B	6'		CL	CLAY, moist, grey/brown, low plasticity, non cohesive, no stain no odor
					8		CH	CLAY, moist, dark brown/red, calcium carbonate mineralization, high plasticity, cohesive, no stain, no odor
moist	<179	0	no	BH29C	13'		CH	
					16		CH	
dry	<179	11.2	no	BH29D	18'		CH	
					24		CCHE	CALICHE, dry, grey, calcium carbamate inclusions, dissolution features, well consolidated, no stain, no odor
dry	<179	11.2	no	BH29D	30'		CCHE	
					32		DOL	DOLOMITE, dry, grey, well consolidated, dissolution features, calcium carbonate recrystallization, no stain, no odor
dry	341	4.2	no	BH29E	40		DOL	
					48		DOL	
dry	493	3.0	no	BH29F	52'		DOL	
					56		DOL	
dry	5,040	6.0	no	BH29G	55'		DOL	
					60'		CH	CLAY, moist, grey/pale green, trace gypsum inclusions, high plasticity, cohesive, no stain, no odor
moist	<179	0.2	no	BH29H			CH	
					64		CH	Total Depth 62 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH30		Date: 10/5/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 4"		Total Depth: 63'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
moist	<179	0.5	no	BH30A	0		CCHE	CALICHE, dry, light brown/tan, moderately consolidated, no stain, no odor
						6'	CH	CLAY, moist, dark brown/red, high plasticity, cohesive, no stain, no odor
					8		CH	
moist	341	2.7	no	BH30B		13'	CH	CLAY, stronger caliche component, dry, light brown-tan, well consolidated
moist	252	3.5	no	BH30C	16	18'	CH	
							CCHE	CALICHE w/calcium carbonate clasts, dry, off white/tan, well consolidated, fine-course crystalline calcium carbonate clasts
					24			
dry	<179	9.1	no	BH30D		27'	CCHE	CALICHE w/calcium carbonate clasts, dry, off white/tan, well consolidated, fine-course crystalline calcium carbonate clasts, vugs of light brown fine-grained sand
dry	<179	3.2	no	BH30E	32	32'	DOL DOL	DOLOMITE, dry, grey-pale green, well consolidated, abundant calcite dissolution features, some calcite recrystallization veins, no stain, no odor
					40			
moist	296	6.1	no	BH30F		42'	DOL	
moist	>3,488	379	no	BH30G		44'	DOL	DOLOMITE, dry, grey-pale green, well consolidated, abundant calcite dissolution features, some calcite recrystallization veins, no stain, strong petroleum odor
					48			
moist	>3,488	792	no	BH30H		50'	DOL	
moist	3,488	329	no	BH30I		55'	DOL	
moist	3,024	964	no	BH30J	56	57'	DOL	
moist	828	168	no	BH30K		61'	DOL	
moist	<179	2.0	no	BH30L		63'	CH	CLAY, moist, grey-dark green, high plasticity, cohesive, no stain, no odor
					64	Total Depth 63 feet bgs		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH31		Date: 10/5/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 60'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
moist	<179	1.5	no	BH31A	0	5'	SM	SILTY SAND w/ caliche gravel, moist, light brown-brown, well graded, dark brown sub-angular sandstone gravel, no stain, no odor
dry	<179	1.5	no	BH31B	8	9'	SM	
							CCHE	CALICHE, dry, off white-tan, moderately consolidated, no stain, no odor
moist	492	2.1	no	BH31C	16	15'	CH	CLAY, moist, dark brown-dark red, high plasticity, cohesive, some light grey-pale green calcium carbonate mineralization
moist	<179	3.0	no	BH31D	24	20'	CH	CLAY, moist, dark brown-dark red, high plasticity, cohesive
dry	<179	4.0	no	BH31E	32	30'	CCHE	CALICHE, dry, off white-tan, moderately consolidated, no stain, no odor
							CCHE	
moist	<179	6.0	no	BH31F		36'	DOL	DOLOMITE, moist, light grey-grey, well consolidated, some calcite dissolution features, trace calcite recrystallization veins
moist	386	3.2	no	BH31G	40	40'	DOL	
					48			
moist	252	11.1	no	BH31H		52'	DOL	
moist	218	4.6	no	BH31I	56	55'	DOL	
moist	<179	4.5	no	BH31J		58'	DOL	
moist	<179	4.0	no	BH31K		60'	CH CH	CLAY, moist, dark grey-dark green, high plasticity, cohesive, some orange fine-grained sand laminations, trace off white gypsum inclusions, no stain, no odor
					64	Total Depth 60 feet bgs		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH32 PCA 53	Date: 10/2/2019 2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB,SL	Method: Sonic Drill						
Lat/Long:		Field Screening: Chloride, TPH, BTEX	Hole Diameter: 6" Total Depth: 59'						
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Top of casing is approximately 2.5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft bgs)	Sample Depth ft bgs	Soil/Rock Type	Lithology/Remarks	Well Completion
moist	<179	0.0	no	BH32A	0		SM	SILTY SAND w/ caliche gravel, dry, light brown-brown, well graded, no stain, no odor	2-inch PVC screen and riser Bentonite chips from 0 - 46' bgs
					8		CCHE	CALICHE, moist, off white-tan, moderately consolidated, some calcium carbonate clasts, some medium-grained sand, no stain, no odor	
					9'		CL	CLAY, moist, off white-tan, low plasticity, trace calcite gravel, no stain, no odor	
moist	<179	0.0	no	BH32B	16	14'	CH	CLAY, moist, brown-red, high plasticity, cohesive, some light grey fine-grained sand pockets within trace dark grey modelling, no stain, no odor	
moist	<179	0.0	no	BH32C		20'	CH		
dry	<179	0.6	no	BH32D	24	25'	CCHE	CALICHE, dry, off white-tan, well consolidated, olive-pale green calcium carbonate clasts, no stain, no odor	
moist	<179	3.1	no	BH32E	32	30'	CCHE		
moist	341	0.7	no	BH32F		35'	DOL	DOLOMITE, moist, light grey-pale green, well consolidated, some calcite dissolution features, few calcite recrystallization veins, no stain, no odor	
moist	218	1.0	no	BH32G	40	40'	DOL		
moist	386	0.8	no	BH32H	48	45'	DOL		
moist	252	0.8	no	BH32I		51'	DOL		
moist	828	1.1	no	BH32J		52'	DOL		
moist	2,290	0.1	no	BH32K	56	55'	DOL		
moist	<172	1.3	no	BH32L		57'	CH	CLAY, moist, dark grey, high plasticity, cohesive, some light brown-orange medium-grained sand pockets, no stain, no odor	
moist	<172		no	BH32M		59'	CH		
								Total Depth 59 feet bgs	
					64				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH33		Date: 10/6/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 49'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<179	0.8	no	BH33A	0		SM	SILTY SAND, dry, light brown-tan, well graded, some caliche gravel, no stain, no odor
					7	6'	CH	CLAY, dry, brown-red, high plasticity, cohesive, trace caliche cobbles, no stain, no odor
dry	252	3.5	no	BH33B	14	13'	CH	
dry	<179	4.2	no	BH33C	21	18'	CH	
moist	252	4.5	no	BH33D	28	27'	CH	CLAY, moist, dark brown-dark red, high plasticity, cohesive, trace caliche cobbles, calcium carbonate mineralization, trace gypsum inclusions, no stain, no odor
dry	<179	3.9	no	BH33E	35	32'	DOL DOL	DOLOMITE, dry, light green-light grey, well consolidated, some caliche dissolution fractures, trace calcite recrystallization veins, no stain, no odor
dry	<179	4.5	no	BH33F		37'	DOL	
moist	<179	2.8	no	BH33G	42	39'	CH CH	CLAY, moist, dark red-dark brown, high plasticity, cohesive, some off white-white gypsum inclusions, no stain, no odor
dry	<179	1.5	no	BH33H	49	49'	GYP GYP	GYP SUM, dry, grey-white, well consolidated, no stain, no odor
					Total Depth 49 feet bgs			
					56			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH34		Date: 10/6/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 34'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
moist	436	2.8	no	BH34A	0		CCHE	CALICHE, dry, off white-light grey, moderately-well consolidated no stain, no odor
					5	6'	DOL	DOLOMITE, moist, light grey-grey, well consolidated, some calcite dissolution features, trace calcite recrystallization veins, no stain, no odor
moist	492	2.4	no	BH34B	15	15'	DOL	
					20			
moist	252	3.9	no	BH34C	25	28'	DOL	
moist	252	2.1	no	BH34D	30	30'	CH	CLAY, moist, dark grey-pale green, high plasticity, cohesive, some light brown medium-grained sand pockets, no stain, no odor
dry	<179	0.6	no	BH34E	35	34'	GYP GYP	GYP SUM, dry, light grey-white, well consolidated, micro-fine crystalline, no stain, no odor
								Total Depth 34 feet bgs
					40			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH35		Date: 10/7/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 6"		Total Depth: 58'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
moist	341	0.6	no	BH35A	0		SM	SILTY SAND, dry, light brown-tan, fine-grained, some caliche gravel and cobbles, no stain, no odor	
					5'	CH	CLAY w/ caliche gravel and cobbles, moist, dark brown-dark red, high plasticity, some dry silt, no stain, no odor		
dry	<179	3.2	no	BH35B	8		CH		
					10'	CCHE	CALICHE, dry, light grey-off white, well consolidated, some light brown medium-grained sand pockets, some grey-pale green		
moist	252	2.3	no	NH35C	16				
					24	DOL	DOLOMITE, moist, light grey-grey, well consolidated, some caliche dissolution features (1mm-2mm thick), some calcite recrystallization veins, no stain, no odor		
moist	252	5.1	no	BH35D	32		DOL		
					40'	DOL			
moist	<179	5.1	no	BH35E	44'		DOL		
moist	<179	3.4	no	BH35F	45'		CH	CLAY, moist, pale green-grey, high plasticity, cohesive, some light brown medium-grained sand laminations, no stain, no odor	
dry	<179	2.4	no	BH35G	48				
					50'	GYP	GYPSUM, dry, light grey-grey, slightly translucent, well consolidated, micro-fine crystalline, no stain, no odor		
dry	<179	1.6	no	BH35H	56		GYP		
					58'	GYP			
dry	<179	0.8	no	BH35I				Total Depth 58 feet bgs	
					64				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH36		Date: 10/9/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 70'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<179	1.2	no	BH36A	0	5'	SM	SILTY SAND w/ gravel, dry, brown, well graded, tan caliche gravel and cobbles, some dark brown sub-angular sandstone gravel, no stain, no odor
					9			
dry	<179	2.3	no	BH36B	18	17'	CCHE	CALICHE, dry, tan-off white, well consolidated, some dark grey calcium carbonate clasts with vugs (1mm-5mm), no stain, no odor
moist	<179	1.1	no	BH36C	21'		CH	CLAY, moist, dark brown-dark red, high plasticity, cohesive, some light grey-pale green calcium carbonate mineralization, trace coarse gypsum inclusions, no stain, no odor
moist	<127	1.2	no	BH36D	27	26'	CH	
moist	<127	2.0	no	BH36E	36	31'	CH	
					45	40'	CCHE	CALICHE, dry, tan-off white, well consolidated, trace calcium carbonate clasts, no stain, no odor
dry	156	1.6	no	BH36G	46'		CCHE	CALICHE, dry, tan-off white, moderately consolidated, absences of calcium carbonate clasts, no stain, no odor
moist	<127	2.0	no	BH36H	54	50'	DOL	DOLOMITE, moist, grey-light grey, well consolidated, some calcium dissolution features (1mm-3mm), dark grey calcite crystallization veins, trace red siltstone, no stain, no odor
moist	<179	3.9	no	BH36J	63	65'	DOL	
moist	<179	3.5	no	BH36J	66'		CH	CLAY, moist, dark grey, high plasticity, cohesive, some light grey gypsum inclusions, no stain, no odor
moist	<179	1.5	no	BH36K	72	70'	CH	
					Total Depth 70 feet bgs			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH37		Date: 12/12/19-12/13/19		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 4"/6"		Total Depth: 56'	
Comments: Monitoring well set @56' bgs. Screened from 46' to 56', sand from 44' to 56', bentonite clay chips from 44' to surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
dry	<128	0.9	no	BH37	0	1'	SM	SILTY SAND, dry, light brown, fine-medium grained, well graded, some round caliche cobble and gravel, some roots, no stain, no odor	2-inch PVC and riser Bentonite chips from 0 - 44' bgs
dry	<128	0.7	no	BH37A		3'	CCHE	CALICHE, dry, off white-tan, poorly consolidated, no stain, no odor	
dry	375	1.8	no	BH37B		7'	CL	CLAY, dry, light gray, low plasticity, cohesive, trace light brown fine sand, no stain, no odor	
dry	285	1.9	no	BH37C	10	10'	CH	CLAY, dry, brown-red, high plasticity, cohesive, no stain, no odor	
dry	<128	2.6	no	BH37D	20	17'	CCHE	CALICHE, dry, tan-off white, well consolidated, some dark gray-dark brown calcium carbonate clasts, some calcite crystalline pockets (1mm-3mm), no stain, no odor	
dry	120	6.5	no	BH37E	30	30'	DOL	DOLOMITE, dry, light gray-gray, well consolidated, some calcite mineralization with	
moist					40			moist, light gray to pale green	
moist	240	7.2	no	BH37F		44'	DOL		
moist	1,058	6.2	no	BH37G	50	50'	DOL		
moist	890	2.3	no	BH37H		52'	DOL		
moist	<120	2.3	no	BH37I		54'	CH	CLAY, moist, dark green-dark gray, high plasticity, cohesive, trace pale green dolomite laminations, no stain, no odor	10-20 silica sand from 44 - 56' bgs Screened from 46 - 56' bgs
moist	<120	3.0	no	BH37J	60	56'	CH	Total Depth 56 feet bgs	

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH38		Date: 12/11/19-12/12/19		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH			Hole Diameter: 4"/6"		Total Depth: 53'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
dry	<128	0.3	no	BH38	0	1'	SM	SILTY SAND, dry, light brown, fine-coarse grained, well graded, some round caliche cobble and gravel, some roots, no stain, no odor	
dry	<128	0.5	no	BH38A		3'	CCHE	CALICHE, dry, tan-light pink, moderately consolidated, some fine crystalline calcium carbonate clasts, no stain, no odor	
moist	<128	3.8	no	BH38B	10	10'	CH	CLAY, moist, brown-red, high plasticity, cohesive, some off white gypsum mineralization, no stain, no odor	
dry	<128	1.7	no	BH38C	20	20'	CCHE	CALICHE, dry, tan-off white, well consolidated, some dark gray-brown calcium carbonate clasts, some calcite crystalline pockets (1mm-5mm), no stain, no odor	
damp	212	5.4	no	BH38D	30	34'	DOL	DOLOMITE, damp, off white-light gray, well consolidated, some calcite recrystallization veins, some calcite voids (1mm), no stain, no odor	
moist	257	4.8	no	BH38E	40	42'	DOL	moist, light gray to pale green	
moist	128	5.1	no	BH38F		45'	DOL		
moist	128	2.3	no	BH38G		49'	DOL		
moist	<128	4.9	no	BH38H	50	51'	DOL		
moist	<128	3.5	no	BH38I		53'	CH	CLAY, moist, dark green-dark gray, high plasticity, cohesive, trace pale green dolomite laminations, no stain, no odor	
Total Depth 53 feet bgs									
					60				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH39		Date: 12/13/19 - 12/14/19		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH		Hole Diameter: 4"/6"		Total Depth: 96'		
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Top of casing is approximately 2.5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
moist	<120	0.9	no	BH39	0	1'	SM	SILTY SAND, moist, brown, fine-medium grained, well graded, some roots, some well rounded cobble, no stain, no odor	2-inch PVC screen and riser Bentonite chips from 0 - 48' bgs
					10	9'	CH	CLAY, dry, brown-red, high plasticity, cohesive, no stain, no odor	
dry	<120	11.4	no	BH39A		12'	CH		
dry	<120	7.0	no	BH39B		17'	CCHE	CALICHE, dry, tan-light brown, poorly consolidated, some medium grain sand, no stain, no odor	
dry	<120	8.0	no	BH39C		22'	CH	CLAY, dry, red-brown, high plasticity, cohesive, no stain, no odor	
					30				
dry	<120	3.6	no	BH39D		38'	SP-S	SANDSTONE, dry, red-brown, very fine grained, calcareous cemented, well consolidated, no stain, no odor	
dry	<120	3.3	no	BH39E		41'	CCHE	CALICHE, dry, tan-off white, moderately consolidated, some dry red-brown sandstone, no stain, no odor	
					50				
dry	<120	9.6	no	BH39F		55'	CH	CLAY, moist, red-dark brown, high plasticity, cohesive, some gypsum mineralization, no stain no odor	
					60	60'	CCHE	CALICHE, wet, off white-light gray, poorly consolidated, no stain, no odor	10-20 silica sand from 48 - 70' bgs Screened from 50 - 70' bgs
wet	1,344	3.6	no	BH39G		62'			
moist	604	5.4	no	BH39H		67'	DOL	DOLOMITE, moist, gray-light gray, moderately consolidated, some calcite crystallization voids (1mm-3mm), no stain, no odor	
moist	3,136	3.8	no	BH39I		73'	DOL		
wet	3,830	1.1	no	BH39J		77'	DOL		
moist	739	0.8	no	BH39K		84'	DOL	dissolution features (1mm-5mm)	
moist	3,368	2.6	no	BH39L		92'	DOL		
moist	3,628	0.5	no	BH39M		95'	DOL		
moist	240	0.0	no	BH39N		96'	CH	CLAY, moist, dark gray-pale green, high plasticity, cohesive, some orange very fine grain sand laminations, no stain, no odor	
					100	Total Depth 96 feet bgs			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH40		Date: 12/16/2019		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH			Hole Diameter: 4"		Total Depth: 21'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0			OPEN EXCAVATION	
					2				
					4				
					6				
					8				
					10	10'	CH	sandy CLAY, moist, brown, high plasticity, cohesive, mild H/C odor, no stain, fill	
					12				
moist	285	416	yes	BH40	14	14'	CCHE	CALICHE, moist, tan-off white, well consolidated, dark brown calcium carbonate clasts with pockets of brown medium grain sand, strong H/C odor, some dark gray staining	
moist	<120	425	yes	BH40A	16	16'	CCHE		
moist	<120	316	no	BH40B	18	18'	CCHE	no stain	
dry	<120	3.4	no	BH40C	19	19'	CCHE	no odor	
					20				
dry	<120	1.2	no	BH40D	21	21'	CCHE		
					22			Total Depth 21 feet bgs	
					24				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH41		Date: 12/16/2019		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH			Hole Diameter: 4"		Total Depth: 19'	
Comments: Field screenings only, no soil samples submitted.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0			OPEN EXCAVATION	
					2				
					4				
					6				
					8				
moist	<120	0.5	no		10	10'	CH	CLAY w/ sand, moist, brown, high plasticity, cohesive, mild H/C odor, no stain, fill	
moist	<120	0.5	no		12	12'	CH		
moist	<120	0.5	no		14	14'	CCHE	CALICHE, moist, tan-off white, well consolidated, dark brown calcium carbonate clasts with some brown calcite crystalline vugs (1mm-15mm), no stain, no odor	
moist	<120	0.5	no		16	16'	CCHE		
moist	<120	0.5	no		18	18'	CCHE		
moist	<120	0.6	no		20	20'	CCHE		
moist	<120	0.6	no		22	22'	CCHE		
					24			Total Depth 19 feet bgs	

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH42	Date: 12/16/2019					
		Project Name: PCA 53	RP Number: 2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: CHLORIDES, PID	Hole Diameter: 4"					
Total Depth: 20'								
Comments: Field screenings only, no soil samples submitted.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
					0			OPEN EXCAVATION
					2			
					4			
					6			
moist	<120	0.5	no		8	8'	CH	sandy CLAY, moist, brown, high plasticity, cohesive, no stain, no odor.
						9'	CCHE	CALICHE, dry, tan-off white, well consolidated, dark brown-dark gray fine crystalline calcium carbonate clasts, trace pockets of light brown medium grain sand pockets, no stain, no odor.
dry		0.6	no		10	10'	CCHE	
dry	<120	0.5	no		12	12'	CCHE	
dry		0.5	no		14	14'	CCHE	
dry	<120	0.6	no		16	16'	CCHE	
dry		1.3	no		18	18'	CCHE	
dry	<120	2.6	no		20	20'	CCHE	
								Total Depth 20 feet bgs
					22			
					24			

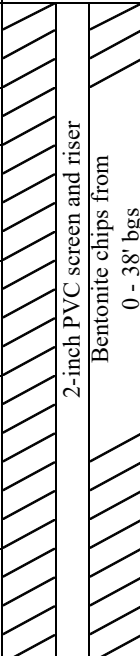
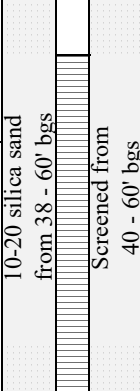
 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation						Identifier: BH43		Date: 12/16/2019	
						Project Name: PCA 53		RP Number: 2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG						Logged By: BB		Method: Sonic Drill	
Lat/Long:				Field Screening: Chlorides, TPH		Hole Diameter: 4"		Total Depth: 21'	
Comments: Field screenings only, no soil samples submitted.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0			OPEN EXCAVATION	
					2				
moist	<120	0.5	no		4	4'	SP	SAND w/ clay, moist, brown, poorly graded, fine grained, some cobble, no stain, no odor	
moist		0.5	no		6	7'	SP	some off white caliche gravel	
moist		1.0	no		8	9'	SP		
dry	207	0.6	no		10	11'	CCHE	CALICHE, dry, off white,-tan, well consolidated, some gray-brown calcium carbonate clasts, no stain, no odor	
dry		0.5	no		12	13'	CCHE		
dry		0.6	no		14	14'	CCHE	some calcite crystalline vugs (1mm-3mm)	
dry	<120	2.4	no		16	17'	CCHE		
dry	<120	1.3	no		18	19'	CCHE	some dolomite gravel and cobble	
dry	<120	0.5	no		20	21'	CCHE	Total Depth 21 feet bgs	
					22				
					24				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH44		Date: 12/16/2019		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH			Hole Diameter: 4"		Total Depth: 20'	
Comments: Field screenings only, no soil samples submitted.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0			OPEN EXCAVATION	
					2				
					4				
moist	<120	1.0	no		5'		SP	SAND w/ clay, moist, brown, poorly graded, fine-medium grained, some cobble, no stain, no odor	
moist		1.5	no		7'		SP		
moist	<120	5.2	no		9'		SP		
moist		2.6	no		11'		SP		
					12				
dry	<120	4.8	no		13'		CCHE	CALICHE, dry, tan-off white, well consolidated, some light brown-gray calcium carbonate clasts with calcite crystalline vugs (1mm-2mm), no stain, no odor	
dry	<120	3.0	no		15'		CCHE		
					16				
dry	<120	3.8	no		18'		CCHE		
dry	<120	1.3	no		20'		CCHE		
					22			Total Depth 20 feet bgs	
					24				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH45		Date: 12/16/2019		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH			Hole Diameter: 4"		Total Depth: 20'	
Comments: Field screenings only, no soil samples submitted.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
					0			OPEN EXCAVATION	
					2				
moist	<120	0.6	no		4	4'	SP		
moist		0.6	no		6	6'	SP	SAND w/ clay, moist, brown, poorly graded, fine-medium grained, trace cobble, no stain, no odor	
moist		0.7	no		8	8'	SP		
moist	<120	1.1	no		10	10'	CCHE		
dry	<120	2.0	no		12	12'	CCHE	CALICHE, dry, off white,-tan, well consolidated, some gray-brown calcium carbonate clasts, no stain, no odor	
dry	<120	2.2	no		14	14'	CCHE		
dry	<120	5.2	no		16	16'	DOL		
dry	<120	5.0	no		18	18'	DOL	DOLOMITE, dry, light gray-gray, well consolidated, some dissolution features (1mm-2mm), no stain, no odor	
dry	257	6.2	no		20	20'	DOL		
					22				
					24			Total Depth 20 feet bgs	

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH46	Date: 12/18/2019						
		Project Name: PCA 53	RP Number: 2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill						
Lat/Long:		Field Screening: Chlorides, TPH	Hole Diameter: 4"/6"						
Total Depth: 77.5'									
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Top of casing is approximately 2.5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
dry	<120	0.2	no	BH46	0	1'	SP	SAND, dry, light brown-brown, fine grained, poorly graded, some roots, trace clay, no stain, no odor	2-inch PVC screen and riser Bentonite chips from 0 - 48' bgs
dry	<120	1.0	no	BH46A	10	7'	SP-S	SANDSTONE, dry, brown-red, fine grained, calcarous cemented, well consolidated, no stain, no odor	
dry	<120	1.8	no	BH46B		12'	CCHE	CALICHE, dry, tan-off white, moderately consolidated, some gray-brown calcium carbonate clasts with calcite crystalline voids (1mm-3mm), no stain, no odor	
dry	<120	0.3	no	BH46C	20	17' 19'	SM SM	SAND w/ silt, dry, tan-light brown, fine-medium grained, poorly graded, no stain, no odor	
dry	<120	4.3	no	BH46D		22' 23'	CH CH	CLAY, dry, brown-red, high plasticity, cohesive, trace fine grained sand, no stain, no odor	
dry	<120	0.9	no	BH46E	30	26'	CCHE	CALICHE, dry, off white-tan, moderately consolidated, no stain, no odor	
moist	<120	1.0	no	BH46F		27' 29'	CCHE CH	CLAY, moist, dark red-brown, high plasticity, cohesive, some light gray fine crystalline calcium carbonate inclusions, no stain, no odor	
dry	<120	1.0	no	BH46G	40	39'	CCHE	CALICHE, dry, off white, moderately consolidated, no stain, no odor	
moist	240	3.0	no	BH46H	50	49.5' 50'	DOL	DOLOMITE, moist, gray-light gray, well consolidated, some dissolution features (1mm-5mm), some calcite recrystallization veins, no stain, no odor	
moist	<120	5.1	no	BH46I	60	55'	DOL	gray-pale green	
moist	285	3.0	no	BH46J		58'	DOL		
wet	1,450	0.9	no	BH46K	70	61'	DOL		
moist	2,727	1.6	no	BH46L		65' 67'	DOL DOL		
moist	1,680	0.9	no	BH46M	70	72'	DOL	10-20 silica sand from 48 - 70' bgs Screened from 50 - 70' bgs	
moist	<120	0.6	no	BH46N		76'	DOL		
moist	<120	0.5	no	BH46O		76.5' 77.5'	CH CH		CLAY, moist, dark gray-dark green, high plasticity, cohesive, some orange fine grained sand laminations, no stain, no odor
					80	Total Depth 77.5 feet bgs			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH47		Date: 12/19/2019		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH			Hole Diameter: 4"/6"		Total Depth: 54'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
dry	<120	0.5	no	BH47	0	1'	SW	SAND, dry, light brown-brown, fine grained, well graded, some some round caliche cobble, no stain, no odor	
dry	<120	2.8	no	BH47A	10	9'	CH	CLAY, dry, light brown, high plasticity, cohesive, some caliche gravel, some fine grain sand, no stain, no odor	
moist						11'			
						15'		light green calcium carbonate inclusions	
moist	425	1.9	no	BH47B	20	19'	CH		
dry	<120	3.9	no	BH47C		20'	CCHE	CALICHE, dry, off white, moderately consolidated, no stain, no odor	
						21'			
						23'		well consolidated	
					30				
dry	<120	10.5	no	BH47D		31'	DOL	DOLOMITE, dry, light gray-gray, well consolidated, some dissolution features (1mm-4mm) with calcite crystalline, no stain, no odor	
						32'			
						34'			
					40				
moist	<120	3.8	no	BH47E		41'	DOL		
						45'		gray to pale green	
					50				
moist	974	5.5	no	BH47F		51'	DOL		
moist	<120	0.9	no	BH47G		52'	CH	CLAY, moist, dark gray-dark green, high plasticity, cohesive, some brown-orange fine grain sand pockets, no stain, no odor	
						53'			
								Total Depth 54 feet bgs	
					60				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH48	Date: 12/20/2019, 1/13/2020						
		Project Name: PCA 53	RP Number: 2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill						
Lat/Long:		Field Screening: Chlorides, TPH	Hole Diameter: 4"/6"						
Total Depth: 76'									
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips. Top of casing is approximately 2.5 feet from actual ground surface.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	Well Completion
dry	<120	0.6	no	BH48	0	1'	SM	SILTY SAND, dry, light brown-brown, fine-medium grained, well graded, some round-sub rounded caliche coble and gravel, some roots, no stain, no odor.	
dry	425	0.9	no	BH48A		6' 7'	CCHE CCHE	CALICHE, dry, tan, moderately consolidated, some fine grain light brown sand, no stain, no odor.	
dry	604	1.0	no	BH48B	10	7.5' 9'	CH CH	CLAY, dry, red-brown, high plasticity, cohesive, some caliche inclusions, trace fine grain sand, no stain, no odor.	
dry	330	1.5	no	BH48C		14.5'	SP-S	SANDSTONE, dry, brown-red, well consolidated, fine grain, calcareous cemented, no stain, no odor.	
dry	<120	1.9	no	BH48D	20	21'	CCHE	CALICHE, dry, tan-light brown, well consolidated, some fine grain sand, no stain, no odor.	
moist	<120	1.0	no	BH48E	30	32' 33'	CH CH	CLAY, moist, red-brown, high plasticity, cohesive, trace caliche gravel, no stain, no odor.	
dry	<120	3.2	no	BH48F	40	39' 40'	CCHE CCHE	CALICHE, dry, tan-off white, well consolidated, some calcium carbonate clasts, no stain, no odor.	
moist	488	2.8	no	BH48G	50	48' 49'	DOL DOL	DOLOMITE, moist, gray-light gray, well consolidated, some dissolution features (1mm-2mm) with calcite crystalline, few calcite recrystallization veins, no stain, no odor.	
moist	543	2.4	no	BH48H		57'	DOL		
wet	352	1.1	no	BH48I	60	60'	DOL		
moist	588	4.0	no	BH48J		65'	DOL		
moist	<120	6.4	no	BH48K	70	68'	DOL		
moist	2,105	0.4	no	BH48L		71'	DOL		
moist	<120	0.0	no	BH48M		73'	CH	CLAY, moist, brown-red, high plasticity, cohesive, some orange fine grain sand inclusions, no stain,	
moist	<120	0.0	no	BH48N		76'	CH		
					80	Total Depth 76 feet bgs			

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220		Identifier: BH49		Date: 1/22/2020		
				Site Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: BB, FS		Method: Sonic		
Lat/Long:		Field Screening: Chloride, PID		Hole Diameter: 4"/6"		Total Depth: 45'		
Comments: Field screenings only, no soil samples submitted. All chloride tests include a 40% correction factor.								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth	Depth (ft bgs)	Soil/Rock Symbol	Lithology/Remarks
D	120	0	N	BH49	1'	0	SM	SILTY SAND, dry, brown, poorly graded, fine-medium grain, trace caliche gravel, no stain, no odor
M	375	1	N	BH49A	5'	2	CH	CLAY, moist, brown-red, high plasticity, cohesive, some fine grain sand, no stain, no odor
						8	CH	
D	120	0.6	N	BH49B	10'	10	CCHE	CALICHE, dry, off white-light pink, well consolidated, some gray-dark gray, calcium carbonate clasts, no stain, no odor
D	812	5	N	BH49C	15'	16	CCHE	
D	425	10.7	N	BH49D	21'		CCHE	
D	375	4.5	N	BH49E	22'	22	DOL	DOLOMITE, dry, gray-light gray, well consolidated, some dissolution features consisting of calcite crystalline (1mm-4mm), no stain, no odor
						24		
D	425	11	N	BH49F	27'		DOL	
M	481	10.9	N	BH49G	32'	32	DOL	
						40		
D	120	1.3	N	BH49H	41'		DOL	
M	<120	0.2	N	BH49I	42'	42	CH	CLAY, moist, pale green, high plasticity, cohesive, few orange laminations, trace gypsum inclusions, no stain no odor
						44	GYP	GYPSUM, dry, tan-light brown, slightly translucent, white in powder form, well consolidated, no stain, no odor
D	<120	0.2	N	BH49J	45'	45	GYP	
								Total Depth 45 feet bgs

		LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH50		Date: 1/22/2020		
				Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG				Logged By: BB		Method: Sonic Drill		
Lat/Long:		Field Screening: Chlorides, TPH		Hole Diameter: 4"/6"		Total Depth: 40'		
Comments: All chloride tests include a 40% correction factor								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth	Depth (ft bgs)	Soil/Rock Symbol	Lithology/Remarks
						0	SP	SAND w/ caliche gravel and cobble, dry, light brown-brown, poorly graded, fine grain, no stain, no odor
D	<120	0.8	N	BH50	1'	1	CCHE	CALICHE, dry, light gray-off white, well consolidated, some dark gray calcium carbonate clasts, trace light gray dolomite, no stain, no odor
D	<120	8.9	N	BH50A	2'	2	DOL	DOLOMITE, dry, dark gray-light gray, well consolidated, abundant dissolution features w/ calcite crystalline
D	173	4.3	N	BH50B	7'	8	DOL	(1mm-4mm), no stain, no odor
						16		
M	<120	1.5	N	BH50C	22'		DOL	
M	<120	0.8	N	BH50D	23'		DOL	
M	173	1.1	N	BH50E	25'	24	CH	CLAY, moist, dark brown-red, high plasticity, cohesive, some pale green mottling, few gypsum inclusions, few dark gray mottling, no stain, no odor
						32		
M	<120	2.4	N	BH50F	38'		CH	
D	<120	0.6	N	BH50G	39'	39	GYP	GYPSUM, dry, gray-dark gray, off white when pulverized, slightly translucent on edges, well consolidated, trace light brown-tan anhydrite, no stain, no odor
D	<120	0.3	N	BH50H	40'	40	GYP	
Total Depth 40 feet bgs								
						48		

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 <i>Compliance · Engineering · Remediation</i>		Identifier: BH51 Project Name: PCA 53	Date: 1/29/2020 RP Number: 2RP-5169						
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB, LD	Method: Sonic Drill						
Lat/Long:		Field Screening: Chlorides, TPH	Hole Diameter: 4"/6" Total Depth: 52'						
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth	Depth (ft bgs)	Soil/Rock Symbol	Lithology/Remarks	Well Completion
D	<120	0.3	N	BH51	1'	0	SM SM	SILTY sand w/ gravel, dry, light brown, poorly graded, fine grain, sub-rounded caliche gravel, no stain, no odor	2-inch PVC screen and riser Hydrated Bentonite Chips from 0 to 30'bgs
D	<120	0	N	BH51A	6'	5	CH CH	CLAY, dry, dark brown-brown, high plasticity, cohesive, some light gray dolomite inclusions, no stain, no odor	
						9			
D	<120	1.9	N	BH51B	19'	18 19	CCHE	CALICHE, dry, tan-off white, well consolidated, some dark brown calcium carbonate clasts, no stain, no odor	
D	285	0.3	N	BH51C	26'	26	DOL	DOLOMITE, dry, gray-light gray, well consolidated, abundant dissolution features (1mm-5mm), some calcite crystalline in dissolution features, no stain, no odor	10-20 Silica Sand from 52' to 30'bgs Screened from 52' to 32'bgs
M	543	4.3	N	BH51D	37'	36	DOL		
M	2223	1018	N	BH51E	47'	45	DOL		
M	672	1268	N	BH51F	49'		DOL		
M	<120	1.2	N	BH51G	52'	50 52	CH	CLAY, moist, dark red-dark brown, high plasticity, cohesive, no stain, no odor	
								Total Depth 52 feet bgs	
						54			

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation		Identifier: BH52	Date: 1/30/2020					
		Project Name: PCA 53	RP Number: 2RP-5169					
LITHOLOGIC / SOIL SAMPLING LOG		Logged By: BB	Method: Sonic Drill					
Lat/Long:		Field Screening: Chlorides, TPH	Hole Diameter: 4"/6"					
Total Depth: 45'								
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth	Depth (ft bgs)	Soil/Rock Symbol	Lithology/Remarks
D	<120	5.4	N	BH52	1'	0	SM	SILTY SAND, dry, brown, poorly graded, fine-medium grain, trace caliche gravel, no stain, no odor.
D	168	0.0	N	BH52A	2'	2	CCHE	CALICHE, dry, off white, well consolidated, trace light brown, fine grained sand, no stain, no odor.
						8		
						16		
D	168	0.0	N	BH52B	19'	19	DOL	DOLOMITE, dry, gray-light gray, well consolidated, some dissolution features (1mm-2mm), few calcite crystalline embedded within dissolution features, no stain, no odor.
						24		
						32		
						40		
M	<120	0.0	N	BH52C	41'	41	CH	CLAY, moist, dark green-dark gray, high plasticity, cohesive, no stain, no odor.
M	<120	0.0	N	BH52D	42'		CH	
M	<120	0.0	N	BH52E	45'	45	CH	
								Total Depth 45 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: BH53		Date: 1/30/2020		
					Project Name: PCA 53		RP Number: 2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB, LD, FS		Method: Sonic Drill		
Lat/Long:			Field Screening: Chlorides, TPH		Hole Diameter: 4"/6"		Total Depth: 62'		
Comments: Monitoring well completed with a 2-in dia 0.010-inch slot PVC pipe and solid riser. 10-20 silica sand filled annular space around screen and extended 2 feet. Remaining annular space filled with hydrated bentonite chips.									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth	Depth (ft bgs)	Soil/Rock Symbol	Lithology/Remarks	Well Completion
D	<120	0.3	N	BH53	1'	0	SP SP	SAND with gravel and pebbles, dry, brown-light brown, poorly graded, fine grain, some sub-angular caliche gravel some roots, no stain, no odor.	2-inch PVC screen and riser Bentonite chips from 0 - 40' bgs
D	<120	0.0	N	BH53A	9'	9 10	CCHE CCHE	CALICHE, dry, off white, well consolidated, some gray calcium carbonate clasts, no stain, no odor.	
D	<120	1.2	N	BH53B	14'	13	SM SM	silty SAND, dry, light brown-brown, poorly graded, fine grain, some caliche gravel and cobble, no stain, no odor.	
M	<120	0.4	N	BH53C	20'	20	CH	CLAY, moist, dark brown-red, high plasticity, cohesive, some caliche gravel and pebble, no stain, no odor.	
D	<120	0.8	N	BH53D	28'	28 30 40	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark gray calcium carbonate clasts w/ some medium grain sand pockets, no stain, no odor.	
D	240	0.6	N	BH53E	42'	42 50	DOL	DOLOMITE, dry gray-light gray, well consolidated, some calcite dissolution features (<0.5mm-0.5mm), no stain, no odor.	10-20 silica sand from 40 - 62' bgs Screen from 42 - 62' bgs
M	604	0.6	N	BH53F	57'		DOL		
M	<120	0.7	N	BH53G	59'		DOL		
M	168	1.0	N	BH53H	61'	60	CH CH	CLAY, moist, dark green-dark gray, high plasticity, cohesive, trace dolomite inclusions, no stain, no odor.	
M	<120	1.0	N	BH53I	62'	62	CH CH	Total Depth 62 feet bgs	
						70			
						80			

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH54		1/5/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
LTE Job Number: TE012918187								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long: 32.286011, -103.957869		Field Screening: Chloride, PID		Hole Diameter: 6"				
				Total Depth: 67.5'				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	<124	0.1	n	BH54	42'	0	SW	SAND w/ caliche gravel, dry, light brown, well graded, fine-very grain, some sub-angular-angular caliche gravel, no stain, no odor
						4	CCHE	CALICHE, dry, tan-off white, moderately consolidated, some fine grain reddish brown interbedded calcium carbonate clasts, no stain, no odor
						6	SW-S	SANDSTONE w/ interbedded claystone, dry, red-light brown, well graded, well consolidated, calcareous cemented, fine-very fine grain, no stain, no odor
						9.5	SM	SILTY SAND, light brown-brown, poorly graded, fine grain, some caliche gravel and cobble, no stain, no odor
						12	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark gray calcium carbonate, clasts w/ some medium grain sand pockets, no stain, no odor
m	1140	2.7	n	BH54A	60'	21	CH-S	MUDSTONE, moist, reddish brown, high plasticity, cohesive, poorly consolidated, some light gray mottling, trace orange fine grain sand pockets, trace dark grey mottling, no stain, no odor
						32	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark gray calcium carbonate, clasts w/ abundant orange medium grain sand pockets, no stain, no odor
						40		
						44	DOL	DOLOMITE, moist, gray-light gray, well consolidated, some dissolution features (1mm-3mm) w/ calcite crystalline, few calcite crystalline veins (<1mm), no stain, no odor
						50		
m	<124	0.0	n	BH54B	66'	65	CH	CLAY, moist, dark gray-dark green, moderately consolidated, high plasticity, cohesive, some brown fine grain sand pockets, no stain, no odor
						67.5		
Total Depth: 67.5' bgs								

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH55		1/6/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
LTE Job Number: TE012918187								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long: 32.285849,-103.958032		Field Screening: Chloride, PID		Hole Diameter: 6"				
				Total Depth: 67				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	<124	0.0	n	BH55	40'	0	SW	SAND w/ caliche gravel, dry, light brown, well graded, fine-very fine grain, some sub-angular caliche gravel and cobble, no stain, no odor
						7	SW-S	SANDSTONE w/ interbedded clayston, dry, reddish brown-light brown, well graded, well consolidated, fine-very fine grain, calcareous cemented, no stain, no odor
						10		
						15	CCHE	CALICHE, dry, off white-tan, well consolidated, abundant dark gray calcium carbonate clasts, no stain, no odor
						20		
m	2,609	0.5	n	BH55A	60'	21	CH	CLAY, moist, reddish brown, high plasticity, cohesive, poorly consolidated, some off white caliche inclusions, no stain, no odor
						30	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark gray calcium carbonate clasts w/ few orange sand pockets, no stain, no odor
						40		
						41	DOL	DOLOMITE, dry, gray-light gray, well consolidated, some dissolution features (1mm-2mm) w/ calcite crystalline inclusion, trace calcite crystalline veins (<1mm), no stain, no odor
						50		
m	<124	0.0	n	BH55B	65'	60		
						64	CH	CLAY, moist, dark gray-dark green, moderately consolidated, high plasticity, cohesive, some orange medium grain sand pockets, no stain, no odor
						67		
Total Depth: 67' bgs								

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH56		1/6/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
		LTE Job Number: TE012918187						
LITHOLOGIC / SOIL SAMPLING LOG				Logged By BB/FS				
Lat/Long: 32.285914, -103.957630		Field Screening: Chloride, PID		Method: Sonic Drill				
		Hole Diameter: 6"		Total Depth: 70				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	<124	0.2	n	BH56	42'	0	SW	SAND w/ caliche gravel, dry, light brown, well graded, fine-very fine grain, some sub-angular-angular caliche gravel, no stain, no odor
						5	SW-S	SANDSTONE w/ interbedded claystone, dry, reddish brown-light brown, well graded, well consolidated, fine-very fine grain, calcareous cemented, no stain, no odor
						8	SM	SILTY SAND, dry, light brown, poorly graded, no stain, no odor
						9	CCHE	CALICHE, dry, tan-light brown, well consolidated, abundant dark grey calcium carbonate clasts, no stain, no odor
m	1,400	0.5	n	BH56A	58'	20		
						23	CH	CLAY, moist, reddish brown, high plasticity, cohesive, poorly consolidated, some off white caliche inclusions, some fine grain sand, no stain, no odor
						30		
						32	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark gray calcium carbonate clasts w/ few orange sand pockets, no stain, no odor
m		0.4	n	BH56B	66'	40		
						43	DOL	DOLOMITE, dry, gray-light gray, well consolidated, some dissolution features (1mm-2mm), trace calcite crystalline veins (<1mm), no stain, no odor
						50		
						60		
						65	CH	CLAY, moist, dark gray, poorly consolidated, high plasticity, cohesive, some very fine grain sand, no stain, no odor
						70		
								Total Depth: 70' bgs

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH57		1/7/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
LTE Job Number: TE012918187								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long: 32.287222,-103.957845		Field Screening: Chloride, PID		Hole Diameter: 6"				
				Total Depth: 55'				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry		0.3	n	BH57	26'	0	SM	SILTY SAND, dry, brown, fine-medium gravel, well graded, some well rounded-round cobble, no stain, no odor
						4	CCHE	CALICHE, dry, off white-tan, moderately consolidated, very silty, no stain, no odor
						7 10	CH	CLAY, moist, reddish brown, high plasticity, cohesive, some very fine grain sand, no stain, no odor
						17 20	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark brown-dark gray calcium carbonate clasts, no stain, no odor
m	<124	384.0	n	BH57A	50'	50 30	DOL	DOLOMITE, dry, gray-light gray, well consolidated, some dissolution features (1mm-3mm) w/ medium crystalline calcite, some calcite crystalline veins (1mm), no stain, no odor
m	<124	4.2	n	BH57B	53'	51 55	CH	CLAY, moist, dark gray-dark green, poorly consolidated, high plasticity, cohesive some orange medium grain sand pockets, no stain, no odor
								Total Depth: 55' bgs

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH58		1/8/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
LTE Job Number: TE012918187								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long: 32.287530,-103.959297		Field Screening: Chloride, PID		Hole Diameter: 6"				
				Total Depth: 48'				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	<124	0.5	n	BH58	26'	0	SM	SILTY SAND w/ caliche gravel, dry, light brown, well graded, fine grain, some sub-angular caliche gravel, no stain, no odor
						3	SW-S	SANDSTONE, dry, reddish brown-light brown, moderately-well consolidated, well graded, fine-very fine grain, some interbedded claystone, calcareous cemented, no stain, no odor
						8 10	SP-S	SANDSTONE, dry, off white-light gray, moderately consolidated, fine-very fine grain, some silt, trace fine crystalline gypsum, no stain, no odor
						11	CH	CLAY, moist, reddish brown, poorly consolidated, high plasticity, cohesive, no stain, no odor
						15 20	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark gray calcium carbonate clasts w/ some voids (1mm-5mm), no stain, no odor
m	274	2.2	n	BH58A	40'	27 30	DOL	DOLOMITE, dry, gray-light gray, well consolidated, abundant dissolution features (1mm) w/ medium crystalline calcite, some calcite crystalline veins (<1mm), no stain, no odor
						44	CH	CLAY, moist, dark pale green, poorly consolidated, high plasticity, cohesive, very silty, no stain, no odor
m	<135	0.4	n	BH58B	47'	48		
Total Depth: 48' bgs								

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 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH61		1/11/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
LTE Job Number: TE012918187								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long: 32.288252, -103.958808		Field Screening: Chloride, PID		Hole Diameter: 6"				
				Total Depth: 57'				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	<124	0.1	n	BH61	25'	0	SW	SAND, dry, brown, well graded, fine grain, trace caliche gravel, no stain, no odor
						5	CL	SANDY CLAY, dry, light brown-tan, low plasticity, cohesive, some very fine grain sand, no stain, no odor
						8	CH	CLAY, moist, reddish brown, high plasticity, cohesive, some fine grain sand, no stain, no odor
						10		
						16	CCHE	CALICHE, dry, off white-tan, well consolidated, some dark brown-dark gray calcium carbonate clasts w/ few dissolution features (1mm-2mm), no stain, no odor
						20		
						25	DOL	DOLOMITE, dry, light gray-gray, well consolidated, some calcite crystalline veins (1mm), few dark gray calcium carbonate clasts, no stain, no odor
						30	CH	CLAY, moist, reddish brown, high plasticity, cohesive, some fine grain brown sand, gradual transition from dolomite, no stain, no odor
32								
35	DOL	DOLOMITE, moist, gray-light gray, well consolidated, some dissolution features (1mm), few calcite crystalline veins (<1mm), no stain, no odor						
40								
50								
m	<124	0.5	n	BH61A	54'	54	CH	CLAY, moist, dark gray-dark pale green, high plasticity, cohesive, trace silt, no stain, no odor
m	<124	0.1	n	BH61B	57'	57		
								Total Depth: 57' bgs



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH62

Date:

1/11/2021

Site Name: PCA 53

RP or Incident Number: 2RP-5169

LTE Job Number: TE012918187

LITHOLOGIC / SOIL SAMPLING LOG

Logged By BB/EL

Method: Sonic Drill

Lat/Long:

32.288030,-103.959698

Field Screening:

Chloride, PID

Hole Diameter:

6"

Total Depth:

47'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
						0	SW	SAND, dry, brown, well graded, fine grain, roots, no stain, no odor
						1	CCHE	CALICHE, dry, tan-off white, slightly consolidated, no stain, no odor
						2	CH	CLAY, moist, dark brown-brown, high plasticity, cohesive, few caliche inclusions, no stain, no odor
						10		
						17	CCHE	CALICHE, dry, tan-light brown, moderately consolidated, few dark brown calcium carbonate clasts w/ voids (1mm-2mm), no stain, no odor
						19	DOL	DOLOMITE, dry, light gray-gray, well consolidated, trace dissolution features (1mm), no stain, no odor
						20		
						30		
						40		
						44	CH	CLAY, moist, dark gray-dark green, high plasticity, cohesive, some reddish brown mottling, no stain, no odor
						45	GYP	GYPSUM w/ anhydrite, dry, dark brown-dark gray, slightly translucent, well consolidated, no stain, no odor
						47		
								Total Depth: 47' bgs



WSP USA

508 West Stevens Street
Carlsbad, New Mexico 88220

BH or PH Name:

BH63

Date:

1/12/2021

Site Name: PCA 53

RP or Incident Number: 2RP-5169

LTE Job Number: TE012918187

LITHOLOGIC / SOIL SAMPLING LOG

Logged By BB/EL

Method: Sonic Drill

Lat/Long:

32.288655,-103.959310

Field Screening:

Chloride, PID

Hole Diameter:

6"

Total Depth:

46'

Comments:

Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry		0.1	n	BH63	16'	0	SW	SAND, dry, brown-light brown, well graded, fine-very fine grain, no stain, no odor
						4	CCHE	CALICHE, dry, off white, well consolidated, some brown-dark gray calcium carbonate clasts w/ trace voids (1mm-2mm), no stain, no odor
						10		
m	<124	0.5	n	BH63A	40'	17	DOL	DOLOMITE, dry, light gray-gray, well consolidated, abundant calcite crystalline veins (<1mm), some dissolution features (1mm), no stain, no odor
						20		
						30		
m	<124	0.1	n	BH63B	45'	40		
						41	CH	CLAY, moist, dark pale green, high plasticity, cohesive, some light brown-orange mottling, no stain, no odor
						45	GYP	GYPSUM w/ anhydrite, dry, off white in powder form, dark brown, slightly translucent, well consolidated, no stain, no odor
						46		
Total Depth: 46' bgs								

 WSP USA 508 West Stevens Street Carlsbad, New Mexico 88220		BH or PH Name:		Date:				
		BH64		1/12/2021				
		Site Name: PCA 53						
		RP or Incident Number: 2RP-5169						
LTE Job Number: TE012918187								
LITHOLOGIC / SOIL SAMPLING LOG								
Lat/Long: 32.286760,-103.958427		Field Screening: Chloride, PID		Hole Diameter: 6"				
				Total Depth: 50'				
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Sample Depth (ft bgs)	Depth (ft bgs)	USCS/Rock Symbol	Lithology/Remarks
dry	1,237	1.1	n	BH64	17'	0	SW	SAND w/ caliche, dry, brown-light brown, well graded, fine-very fine grain, some caliche gravel and cobble, few dark gray-dark brown calcium carbonate clasts w/ trace voids (1-2mm), no stain, no odor
						2	CCHE	CALICHE, dry, off white-tan, well consolidated, some brown-dark gray calcium carbonate clasts w/ trace voids (1mm-3mm), no stain, no odor
						7 10	DOL	DOLOMITE, dry gray-light gray, well consolidated, trace dissolution features (1mm-2mm, no stain, no odor
m	<124	0.1	n	BH64A	37'	20 30		
m	<124	0.3	n	BH64B	43'	40 41	CH	CLAY, moist, dark pale green-dark gray, high plasticity, cohesive, some orange medium grain sand pockets, no stain, no odor
dry	<124	0.3	n	BH64C	50'	49 50	GYP	GYPSUM w/ anhydrite, dry, off white in powder form, dark brown, slightly translucent, well consolidated, no stain, no odor
Total Depth: 50' bgs								

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: MW01		Date: 10/10/2019	
					PCA 53		2RP-5169	
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill	
Lat/Long:			Field Screening: Chloride, PID		Hole Diameter: 6"		Total Depth: 110'	
Comments:								
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks
dry	<179	1.0	no	MW01A	0	5'	SM	SILTY SAND, dry, brown-red, well graded, some subangular sandstone gravel, no stain, no odor
							SW-S	SANDSTONE w/ interbedded claystone, dry, light brown-red, well graded, moderately consolidated, trace caliche cobbles, no stain, no odor
dry	252	4.0	no	MW01B	15	17'	CH	CLAY, moist, brown-dark red, high plasticity, cohesive, trace medium-grained sand, no stain, no odor
moist	<179	3.4	no	MW01C		25'	CCHE CCHE	CALICHE w/ interbedded gypsum, dry, off white-tan, moderately consolidated, some interbedded brown siltstone, fine crystalline, no stain, no odor
					30		CH	CLAY, moist, dark brown-dark red, high plasticity, cohesive, some fine crystalline gypsum mineralization, no stain, no odor
dry	<179	4.1	no	MW01D		35'	CCHE	CALICHE, dry, tan-off white, well consolidated, some calcium carbonate clasts with subangular vugs (1mm-10mm), no stain, no odor
moist	252	4.1	no	MW01E	45	47'	DOL DOL	DOLOMITE, moist, light grey-grey, well consolidated, some calcite dissolution features, trace calcite recrystallization veins, no stain, no odor
moist	<179	6.3	no	MW01F		59'	DOL	
moist	<179	3.5	no	MW01G	60	64'	DOL	
moist	<179	0.8	no	MW01H		66'	CH	CLAY, moist, brown-red, cohesive, plasticity, no stain, no odor
dry	<179	1.6	no	MW01I		69'	GYP	GYPSUM, dry, grey-dark grey, slightly translucent, well consolidated, fine-micro crystalline, no stain, no odor
moist	<179	2.4	no	MW01J	75	75'	CH CH	CLAY, moist, brown-red, high plasticity, cohesive, abundant micro-fine crystalline gypsum inclusions, some grey mottling
m-w	<179	1.0	no	MW01K	90	90'	SM	SILTY SAND, moist-wet, brown, some grey mottling, fine-medium grained, water bearing, no stain, no odor
moist	<179	3.6	no	MW01L		99'	SM	
					105			
moist	<179	2.3	no	MW01M		110'	SM	
					120			Total Depth 110 feet bgs

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: MW02		Date: 10/8/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 6"		Total Depth: 110'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
moist	252	1.4	no	MW02A	0	5'	CH	SILTY SAND w/ interbedded caliche, dry, light brown-tan, fine-grained, poorly graded, no stain, no odor CLAY, dry, brown-red, high plasticity, cohesive, trace medium-grained sand, trace dry silt, no stain, no odor	
dry	<179	3.2	no	MW02B	15	17'	CCHE	CALICHE, dry, light grey-off white, moderately consolidated, some pale green fine crystalline calcium carbonate clasts, no stain, no odor	
moist	386	1.1	no	MW02C		26'	DOL	DOLOMITE, moist, light grey-grey, some calcite recrystallization veins, trace calcite dissolution features, no stain, no odor	
moist	296	6.4	no	MW02D	30	30'	DOL		
moist	<179	2.9	no	MW02E		40'	DOL		
					45				
moist	<179	2.8	no	MW02F		51'	CH	CLAY, moist, dark grey-pale green, high plasticity, cohesive, some light brown fine-grained sand laminations, some fine-coarse crystalline gypsum inclusion, no stain, no odor	
dry	<179	1.1	no	MW02G		57'	GYP	GYPSUM, dry, light grey-grey, slightly translucent, well consolidated, fine crystalline, trace coarse crystalline, no stain, no odor	
dry	<179	1.3	no	MW02H	60	61'	GYP		
moist	<179	1.3	no	MW02I		70'	CH	CLAY, moist, brown-red, high plasticity, cohesive, some coarse crystalline gypsum inclusions	
					75				
moist	<179	4.5	no	MW02J		80'	CH		
m-w	<179	1.7	no	MW02K	90	90'	SM	SILTY SAND, moist-wet, brown, poorly graded, some fine grain, some grey mottling, no stain, no odor	
moist	<179	4.1	no	MW02L		96'	SM		
					105				
moist	<179	2.9	no	MW02M		110'	SM	Total Depth 110 feet bgs	
					120				

 LT Environmental, Inc. 508 West Stevens Street Carlsbad, New Mexico 88220 Compliance · Engineering · Remediation					Identifier: MW03		Date: 10/2/2019		
					PCA 53		2RP-5169		
LITHOLOGIC / SOIL SAMPLING LOG					Logged By: BB, SL		Method: Sonic Drill		
Lat/Long:			Field Screening: Chloride, PID			Hole Diameter: 6"		Total Depth: 150'	
Comments:									
Moisture Content	Chloride (ppm)	Vapor (ppm)	Staining	Sample #	Depth (ft. bgs.)	Sample Depth	Soil/Rock Type	Lithology/Remarks	
dry	<172	0.0	no	MW03A	0	1'	CCHE	CALICHE w/ silty sand, dry, off white-tan, dry, poorly consolidated, no stain, no odor	
dry	<172	0.0	no	MW03B		5'	CCHE		
dry	<172	0.0	no	MW03C		10'	CH CH	CLAY, dry, light brown-brown, low-high plasticity, low-high cohesion, trace caliche, no stain, no odor	
dry	<172	0.0	no	MW03D	19	20'	CCHE	CALICHE, dry, off white-tan, poorly consolidated, calcium carbonate clasts (2"-6"), dissolution features, no stain, no odor	
moist	<179	6.5	no	MW03E	38	35'	DOL	DOLOMITE, moist, grey, calcium carbonate dissolution features, grey-dark grey calcium carbonate recrystallization veins, no stain, no odor	
moist	1,271	1.9	no	MW03F		47'	DOL		
moist	683	1.5	no	MW03G		50'	DOL		
moist	296	0.8	no	MW03H		51'	DOL		
moist	<179	1.3	no	MW03I		54'	DOL		
moist	<179	1.4	no	MW03J	57	55'	CH	CLAY, moist, grey-dark grey, high plasticity, cohesive, some orange sand pockets, no stain, no odor	
dry	<179	1.5	no	MW03K		65'	GYP	GYPSUM, dry, light grey-white, micro crystalline, trace coarse crystalline, slightly translucent, no stain, no odor	
moist	<179	6.8	no	MW03L	76	74'	CH	CLAY, moist, brown-red, high plasticity, cohesive, some light grey gypsum inclusions, no stain, no odor	
moist	<179	2.1	no	MW03M	95	92'	SM	SILTY SAND, moist, grey-light green (some red), poorly graded, fine-grained, no stain, no odor	
moist	<179	2.7	no	MW03N		100'	SM		
moist	<179	1.8	no	MW03O	114	110'	SM	SILTY SAND, moist, grey-light green (some red), poorly graded, trace white gypsum crystalline inclusions, fine-grained, no stain, no odor	
moist	<179	2.1	no	MW03P		120'	SM		
moist	<179	2.0	no	MW03Q	133	130'	SM		
moist	<179	1.3	no	MW03R		140'	SM		
moist	<179	0.8	no	MW03S	152	150'	CH CH		CLAY, moist, brown-red, high plasticity, cohesive, dry light brown interbedded silt, white-trans. gypsum inclusions, no stain, no odor
								Total Depth 150 feet bgs	

APPENDIX

APPENDIX B

LABORATORY ANALYTICAL REPORTS

Certificate of Analysis Summary 683993



LT Environmental, Inc., Arvada, CO

Project Name: PCA 53

Project Id: TE012918187

Date Received in Lab: Fri 01.08.2021 12:33

Contact: Dan Moir

Report Date: 01.13.2021 09:57

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	683993-001	683993-002	683993-003	683993-004	683993-005	683993-006
	<i>Field Id:</i>	BH54	BH54 A	BH54 B	BH55	BH55 A	BH55 B
	<i>Depth:</i>	42- ft	60- ft	66- ft	40- ft	60- ft	65- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.05.2021 15:00	01.05.2021 17:00	01.06.2021 09:00	01.06.2021 11:15	01.06.2021 15:35	01.06.2021 16:30
BTEX by EPA 8021B	<i>Extracted:</i>	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00
	<i>Analyzed:</i>	01.09.2021 02:46	01.09.2021 03:09	01.09.2021 03:31	01.09.2021 03:54	01.09.2021 04:16	01.09.2021 04:39
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Toluene		<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Ethylbenzene		<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
m,p-Xylenes		<0.00398 0.00398	<0.00402 0.00402	<0.00401 0.00401	<0.00398 0.00398	<0.00404 0.00404	<0.00399 0.00399
o-Xylene		<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Total Xylenes		<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Total BTEX		<0.00199 0.00199	<0.00201 0.00201	<0.00200 0.00200	<0.00199 0.00199	<0.00202 0.00202	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46
	<i>Analyzed:</i>	01.09.2021 05:24	01.09.2021 05:42	01.09.2021 05:48	01.09.2021 05:54	01.09.2021 06:00	01.09.2021 06:17
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		<9.92 9.92	1570 50.3	30.0 10.0	46.3 9.98	1630 49.8	33.5 10.0
TPH by SW8015 Mod	<i>Extracted:</i>	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00
	<i>Analyzed:</i>	01.09.2021 02:32	01.09.2021 03:32	01.09.2021 03:52	01.09.2021 04:11	01.09.2021 04:31	01.09.2021 04:51
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<49.9 49.9	<50.1 50.1	<476 476	<50.0 50.0	<49.8 49.8
Diesel Range Organics (DRO)		<50.2 50.2	<49.9 49.9	<50.1 50.1	<476 476	<50.0 50.0	<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<49.9 49.9	<50.1 50.1	<476 476	<50.0 50.0	<49.8 49.8
Total GRO-DRO		<50.2 50.2	<49.9 49.9	<50.1 50.1	<476 476	<50.0 50.0	<49.8 49.8
Total TPH		<50.2 50.2	<49.9 49.9	<50.1 50.1	<476 476	<50.0 50.0	<49.8 49.8

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 683993



LT Environmental, Inc., Arvada, CO

Project Name: PCA 53

Project Id: TE012918187

Date Received in Lab: Fri 01.08.2021 12:33

Contact: Dan Moir

Report Date: 01.13.2021 09:57

Project Location:

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	683993-007	683993-008	683993-009	683993-010	683993-011	683993-012
	<i>Field Id:</i>	BH56	BH56 A	BH56 B	BH57	BH57 A	BH57 B
	<i>Depth:</i>	42- ft	58- ft	66- ft	26- ft	50- ft	53- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.07.2021 09:35	01.07.2021 10:30	01.07.2021 11:00	01.07.2021 13:00	01.07.2021 16:00	01.07.2021 16:30
BTEX by EPA 8021B	<i>Extracted:</i>	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00	01.08.2021 17:00
	<i>Analyzed:</i>	01.09.2021 05:01	01.09.2021 05:24	01.09.2021 05:46	01.09.2021 06:09	01.09.2021 07:29	01.09.2021 07:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	0.0164 0.00200	<0.00200 0.00200
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	0.0215 0.00200	<0.00200 0.00200
m,p-Xylenes		<0.00401 0.00401	<0.00399 0.00399	<0.00401 0.00401	<0.00398 0.00398	0.114 0.00399	<0.00401 0.00401
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	0.0492 0.00200	<0.00200 0.00200
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	0.163 0.00200	<0.00200 0.00200
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	0.201 0.00200	<0.00200 0.00200
Chloride by EPA 300	<i>Extracted:</i>	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46	01.08.2021 16:46
	<i>Analyzed:</i>	01.09.2021 06:23	01.09.2021 06:29	01.09.2021 06:35	01.09.2021 06:41	01.09.2021 06:47	01.09.2021 07:05
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		79.3 9.98	1640 49.7	37.6 9.98	204 10.0	192 9.92	43.0 9.92
TPH by SW8015 Mod	<i>Extracted:</i>	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00	01.08.2021 18:00
	<i>Analyzed:</i>	01.09.2021 05:11	01.09.2021 05:31	01.09.2021 05:51	01.09.2021 06:11	01.09.2021 06:51	01.09.2021 07:10
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<49.8 49.8	<49.8 49.8	<50.1 50.1	<49.9 49.9	<50.1 50.1
Diesel Range Organics (DRO)		<50.1 50.1	<49.8 49.8	<49.8 49.8	<50.1 50.1	4520 49.9	<50.1 50.1
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<49.8 49.8	<49.8 49.8	<50.1 50.1	58.9 49.9	<50.1 50.1
Total GRO-DRO		<50.1 50.1	<49.8 49.8	<49.8 49.8	<50.1 50.1	4520 49.9	<50.1 50.1
Total TPH		<50.1 50.1	<49.8 49.8	<49.8 49.8	<50.1 50.1	4580 49.9	<50.1 50.1

BRL - Below Reporting Limit

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



Analytical Report 683993

for

LT Environmental, Inc.

Project Manager: Dan Moir

PCA 53

TE012918187

01.13.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.13.2021

Project Manager: **Dan Moir**

LT Environmental, Inc.

4600 W. 60th Avenue

Arvada, CO 80003

Reference: Eurofins Xenco, LLC Report No(s): **683993**

PCA 53

Project Address:

Dan Moir:

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) 683993. 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. 683993 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads "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

**Sample Cross Reference 683993****LT Environmental, Inc., Arvada, CO**

PCA 53

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH54	S	01.05.2021 15:00	42 ft	683993-001
BH54 A	S	01.05.2021 17:00	60 ft	683993-002
BH54 B	S	01.06.2021 09:00	66 ft	683993-003
BH55	S	01.06.2021 11:15	40 ft	683993-004
BH55 A	S	01.06.2021 15:35	60 ft	683993-005
BH55 B	S	01.06.2021 16:30	65 ft	683993-006
BH56	S	01.07.2021 09:35	42 ft	683993-007
BH56 A	S	01.07.2021 10:30	58 ft	683993-008
BH56 B	S	01.07.2021 11:00	66 ft	683993-009
BH57	S	01.07.2021 13:00	26 ft	683993-010
BH57 A	S	01.07.2021 16:00	50 ft	683993-011
BH57 B	S	01.07.2021 16:30	53 ft	683993-012



CASE NARRATIVE

Client Name: *LT Environmental, Inc.*

Project Name: *PCA 53*

Project ID: *TE012918187*
Work Order Number(s): *683993*

Report Date: *01.13.2021*
Date Received: *01.08.2021*

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH54**
 Lab Sample Id: 683993-001

Matrix: Soil
 Date Collected: 01.05.2021 15:00

Date Received: 01.08.2021 12:33
 Sample Depth: 42 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	<9.92	9.92	mg/kg	01.09.2021 05:24	U	1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	01.09.2021 02:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	01.09.2021 02:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	01.09.2021 02:32	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	01.09.2021 02:32	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	01.09.2021 02:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	01.09.2021 02:32	
o-Terphenyl	84-15-1	106	%	70-135	01.09.2021 02:32	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH54**
 Lab Sample Id: 683993-001

Matrix: Soil
 Date Collected: 01.05.2021 15:00

Date Received: 01.08.2021 12:33
 Sample Depth: 42 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.09.2021 02:46	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.09.2021 02:46	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.09.2021 02:46	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.09.2021 02:46	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.09.2021 02:46	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.09.2021 02:46	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.09.2021 02:46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.09.2021 02:46		
4-Bromofluorobenzene	460-00-4	122	%	70-130	01.09.2021 02:46		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH54 A**
 Lab Sample Id: 683993-002

Matrix: Soil
 Date Collected: 01.05.2021 17:00

Date Received: 01.08.2021 12:33
 Sample Depth: 60 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1570	50.3	mg/kg	01.09.2021 05:42		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.09.2021 03:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.09.2021 03:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.09.2021 03:32	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.09.2021 03:32	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.09.2021 03:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	01.09.2021 03:32	
o-Terphenyl	84-15-1	124	%	70-135	01.09.2021 03:32	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH54 A**
 Lab Sample Id: 683993-002

Matrix: Soil
 Date Collected: 01.05.2021 17:00

Date Received: 01.08.2021 12:33
 Sample Depth: 60 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00201	0.00201	mg/kg	01.09.2021 03:09	U	1
Toluene	108-88-3	<0.00201	0.00201	mg/kg	01.09.2021 03:09	U	1
Ethylbenzene	100-41-4	<0.00201	0.00201	mg/kg	01.09.2021 03:09	U	1
m,p-Xylenes	179601-23-1	<0.00402	0.00402	mg/kg	01.09.2021 03:09	U	1
o-Xylene	95-47-6	<0.00201	0.00201	mg/kg	01.09.2021 03:09	U	1
Total Xylenes	1330-20-7	<0.00201	0.00201	mg/kg	01.09.2021 03:09	U	1
Total BTEX		<0.00201	0.00201	mg/kg	01.09.2021 03:09	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	01.09.2021 03:09	
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.09.2021 03:09	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH54 B**
 Lab Sample Id: 683993-003

Matrix: Soil
 Date Collected: 01.06.2021 09:00

Date Received: 01.08.2021 12:33
 Sample Depth: 66 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	30.0	10.0	mg/kg	01.09.2021 05:48		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.09.2021 03:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.09.2021 03:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.09.2021 03:52	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.09.2021 03:52	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.09.2021 03:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	01.09.2021 03:52	
o-Terphenyl	84-15-1	106	%	70-135	01.09.2021 03:52	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH54 B**
 Lab Sample Id: 683993-003

Matrix: Soil
 Date Collected: 01.06.2021 09:00

Date Received: 01.08.2021 12:33
 Sample Depth: 66 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 03:31	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.09.2021 03:31	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.09.2021 03:31	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.09.2021 03:31	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.09.2021 03:31	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.09.2021 03:31	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.09.2021 03:31	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	01.09.2021 03:31		
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.09.2021 03:31		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH55**
 Lab Sample Id: 683993-004

Matrix: Soil
 Date Collected: 01.06.2021 11:15

Date Received: 01.08.2021 12:33
 Sample Depth: 40 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.3	9.98	mg/kg	01.09.2021 05:54		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<476	476	mg/kg	01.09.2021 04:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<476	476	mg/kg	01.09.2021 04:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<476	476	mg/kg	01.09.2021 04:11	U	1
Total GRO-DRO	PHC628	<476	476	mg/kg	01.09.2021 04:11	U	1
Total TPH	PHC635	<476	476	mg/kg	01.09.2021 04:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	01.09.2021 04:11	
o-Terphenyl	84-15-1	104	%	70-135	01.09.2021 04:11	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH55**
 Lab Sample Id: 683993-004

Matrix: Soil
 Date Collected: 01.06.2021 11:15

Date Received: 01.08.2021 12:33
 Sample Depth: 40 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.09.2021 03:54	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.09.2021 03:54	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.09.2021 03:54	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.09.2021 03:54	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.09.2021 03:54	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.09.2021 03:54	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.09.2021 03:54	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	108	%	70-130	01.09.2021 03:54		
4-Bromofluorobenzene	460-00-4	123	%	70-130	01.09.2021 03:54		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH55 A** Matrix: Soil Date Received: 01.08.2021 12:33
 Lab Sample Id: 683993-005 Date Collected: 01.06.2021 15:35 Sample Depth: 60 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 01.08.2021 16:46 % Moisture:
 Seq Number: 3147352 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1630	49.8	mg/kg	01.09.2021 06:00		5

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: CAC
 Analyst: CAC Date Prep: 01.08.2021 18:00 % Moisture:
 Seq Number: 3147333 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.09.2021 04:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.09.2021 04:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.09.2021 04:31	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.09.2021 04:31	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.09.2021 04:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	01.09.2021 04:31	
o-Terphenyl	84-15-1	114	%	70-135	01.09.2021 04:31	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH55 A**
 Lab Sample Id: 683993-005

Matrix: Soil
 Date Collected: 01.06.2021 15:35

Date Received: 01.08.2021 12:33
 Sample Depth: 60 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.09.2021 04:16	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.09.2021 04:16	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.09.2021 04:16	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	01.09.2021 04:16	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.09.2021 04:16	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.09.2021 04:16	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.09.2021 04:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.09.2021 04:16	
4-Bromofluorobenzene	460-00-4	122	%	70-130	01.09.2021 04:16	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH55 B**
 Lab Sample Id: 683993-006

Matrix: Soil
 Date Collected: 01.06.2021 16:30

Date Received: 01.08.2021 12:33
 Sample Depth: 65 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	33.5	10.0	mg/kg	01.09.2021 06:17		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.09.2021 04:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.09.2021 04:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.09.2021 04:51	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	01.09.2021 04:51	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.09.2021 04:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	01.09.2021 04:51	
o-Terphenyl	84-15-1	118	%	70-135	01.09.2021 04:51	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH55 B**
 Lab Sample Id: 683993-006

Matrix: Soil
 Date Collected: 01.06.2021 16:30

Date Received: 01.08.2021 12:33
 Sample Depth: 65 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 04:39	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.09.2021 04:39	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.09.2021 04:39	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.09.2021 04:39	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.09.2021 04:39	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.09.2021 04:39	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.09.2021 04:39	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.09.2021 04:39		
4-Bromofluorobenzene	460-00-4	120	%	70-130	01.09.2021 04:39		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH56**
 Lab Sample Id: 683993-007

Matrix: Soil
 Date Collected: 01.07.2021 09:35

Date Received: 01.08.2021 12:33
 Sample Depth: 42 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	79.3	9.98	mg/kg	01.09.2021 06:23		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.09.2021 05:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.09.2021 05:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.09.2021 05:11	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.09.2021 05:11	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.09.2021 05:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	107	%	70-135	01.09.2021 05:11	
o-Terphenyl	84-15-1	110	%	70-135	01.09.2021 05:11	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH56**
 Lab Sample Id: 683993-007

Matrix: Soil
 Date Collected: 01.07.2021 09:35

Date Received: 01.08.2021 12:33
 Sample Depth: 42 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 05:01	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.09.2021 05:01	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.09.2021 05:01	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.09.2021 05:01	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.09.2021 05:01	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.09.2021 05:01	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.09.2021 05:01	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	122	%	70-130	01.09.2021 05:01	
1,4-Difluorobenzene	540-36-3	108	%	70-130	01.09.2021 05:01	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH56 A**
 Lab Sample Id: 683993-008

Matrix: Soil
 Date Collected: 01.07.2021 10:30

Date Received: 01.08.2021 12:33
 Sample Depth: 58 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1640	49.7	mg/kg	01.09.2021 06:29		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.09.2021 05:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.09.2021 05:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.09.2021 05:31	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	01.09.2021 05:31	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.09.2021 05:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	01.09.2021 05:31	
o-Terphenyl	84-15-1	90	%	70-135	01.09.2021 05:31	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH56 A**
 Lab Sample Id: 683993-008

Matrix: Soil
 Date Collected: 01.07.2021 10:30

Date Received: 01.08.2021 12:33
 Sample Depth: 58 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 05:24	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.09.2021 05:24	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.09.2021 05:24	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.09.2021 05:24	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.09.2021 05:24	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.09.2021 05:24	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.09.2021 05:24	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	01.09.2021 05:24	
4-Bromofluorobenzene	460-00-4	116	%	70-130	01.09.2021 05:24	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH56 B**
 Lab Sample Id: 683993-009

Matrix: Soil
 Date Collected: 01.07.2021 11:00

Date Received: 01.08.2021 12:33
 Sample Depth: 66 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	37.6	9.98	mg/kg	01.09.2021 06:35		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.09.2021 05:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.09.2021 05:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.09.2021 05:51	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	01.09.2021 05:51	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.09.2021 05:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.09.2021 05:51	
o-Terphenyl	84-15-1	118	%	70-135	01.09.2021 05:51	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH56 B**
 Lab Sample Id: 683993-009

Matrix: Soil
 Date Collected: 01.07.2021 11:00

Date Received: 01.08.2021 12:33
 Sample Depth: 66 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 05:46	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.09.2021 05:46	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.09.2021 05:46	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.09.2021 05:46	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.09.2021 05:46	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.09.2021 05:46	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.09.2021 05:46	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	01.09.2021 05:46		
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.09.2021 05:46		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH57** Matrix: Soil Date Received: 01.08.2021 12:33
 Lab Sample Id: 683993-010 Date Collected: 01.07.2021 13:00 Sample Depth: 26 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 01.08.2021 16:46 % Moisture:
 Seq Number: 3147352 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	204	10.0	mg/kg	01.09.2021 06:41		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: CAC
 Analyst: CAC Date Prep: 01.08.2021 18:00 % Moisture:
 Seq Number: 3147333 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.09.2021 06:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.09.2021 06:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.09.2021 06:11	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.09.2021 06:11	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.09.2021 06:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	110	%	70-135	01.09.2021 06:11	
o-Terphenyl	84-15-1	107	%	70-135	01.09.2021 06:11	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH57**
 Lab Sample Id: 683993-010

Matrix: Soil
 Date Collected: 01.07.2021 13:00

Date Received: 01.08.2021 12:33
 Sample Depth: 26 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.09.2021 06:09	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.09.2021 06:09	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.09.2021 06:09	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.09.2021 06:09	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.09.2021 06:09	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.09.2021 06:09	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.09.2021 06:09	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	01.09.2021 06:09		
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.09.2021 06:09		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH57 A** Matrix: Soil Date Received: 01.08.2021 12:33
 Lab Sample Id: 683993-011 Date Collected: 01.07.2021 16:00 Sample Depth: 50 ft
 Analytical Method: Chloride by EPA 300 Prep Method: E300P
 Tech: MAB
 Analyst: MAB Date Prep: 01.08.2021 16:46 % Moisture:
 Seq Number: 3147352 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	192	9.92	mg/kg	01.09.2021 06:47		1

Analytical Method: TPH by SW8015 Mod Prep Method: SW8015P
 Tech: CAC
 Analyst: CAC Date Prep: 01.08.2021 18:00 % Moisture:
 Seq Number: 3147333 Basis: Wet Weight

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.09.2021 06:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	4520	49.9	mg/kg	01.09.2021 06:51		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	58.9	49.9	mg/kg	01.09.2021 06:51		1
Total GRO-DRO	PHC628	4520	49.9	mg/kg	01.09.2021 06:51		1
Total TPH	PHC635	4580	49.9	mg/kg	01.09.2021 06:51		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	01.09.2021 06:51	
o-Terphenyl	84-15-1	109	%	70-135	01.09.2021 06:51	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH57 A**
 Lab Sample Id: 683993-011

Matrix: Soil
 Date Collected: 01.07.2021 16:00

Date Received: 01.08.2021 12:33
 Sample Depth: 50 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 07:29	U	1
Toluene	108-88-3	0.0164	0.00200	mg/kg	01.09.2021 07:29		1
Ethylbenzene	100-41-4	0.0215	0.00200	mg/kg	01.09.2021 07:29		1
m,p-Xylenes	179601-23-1	0.114	0.00399	mg/kg	01.09.2021 07:29		1
o-Xylene	95-47-6	0.0492	0.00200	mg/kg	01.09.2021 07:29		1
Total Xylenes	1330-20-7	0.163	0.00200	mg/kg	01.09.2021 07:29		1
Total BTEX		0.201	0.00200	mg/kg	01.09.2021 07:29		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	112	%	70-130	01.09.2021 07:29		
1,4-Difluorobenzene	540-36-3	98	%	70-130	01.09.2021 07:29		



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH57 B**
 Lab Sample Id: 683993-012

Matrix: Soil
 Date Collected: 01.07.2021 16:30

Date Received: 01.08.2021 12:33
 Sample Depth: 53 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 16:46

% Moisture:
 Basis: Wet Weight

Seq Number: 3147352

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	43.0	9.92	mg/kg	01.09.2021 07:05		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.08.2021 18:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147333

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.09.2021 07:10	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.09.2021 07:10	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.09.2021 07:10	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.09.2021 07:10	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.09.2021 07:10	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	01.09.2021 07:10	
o-Terphenyl	84-15-1	119	%	70-135	01.09.2021 07:10	



Certificate of Analytical Results 683993

LT Environmental, Inc., Arvada, CO

PCA 53

Sample Id: **BH57 B**
 Lab Sample Id: 683993-012

Matrix: Soil
 Date Collected: 01.07.2021 16:30

Date Received: 01.08.2021 12:33
 Sample Depth: 53 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.08.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147345

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.09.2021 07:52	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.09.2021 07:52	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.09.2021 07:52	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.09.2021 07:52	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.09.2021 07:52	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.09.2021 07:52	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.09.2021 07:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.09.2021 07:52	
4-Bromofluorobenzene	460-00-4	129	%	70-130	01.09.2021 07:52	

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



LT Environmental, Inc.
PCA 53

Analytical Method: Chloride by EPA 300

Seq Number: 3147352

MB Sample Id: 7718775-1-BLK

Matrix: Solid

LCS Sample Id: 7718775-1-BKS

Prep Method: E300P

Date Prep: 01.08.2021

LCSD Sample Id: 7718775-1-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	262	105	263	105	90-110	0	20	mg/kg	01.09.2021 05:12	

Analytical Method: Chloride by EPA 300

Seq Number: 3147352

Parent Sample Id: 683993-001

Matrix: Soil

MS Sample Id: 683993-001 S

Prep Method: E300P

Date Prep: 01.08.2021

MSD Sample Id: 683993-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.96	199	209	105	210	104	90-110	0	20	mg/kg	01.09.2021 05:30	

Analytical Method: Chloride by EPA 300

Seq Number: 3147352

Parent Sample Id: 683993-011

Matrix: Soil

MS Sample Id: 683993-011 S

Prep Method: E300P

Date Prep: 01.08.2021

MSD Sample Id: 683993-011 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	192	200	408	108	407	108	90-110	0	20	mg/kg	01.09.2021 06:53	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147333

MB Sample Id: 7718844-1-BLK

Matrix: Solid

LCS Sample Id: 7718844-1-BKS

Prep Method: SW8015P

Date Prep: 01.08.2021

LCSD Sample Id: 7718844-1-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	1060	106	1140	114	70-135	7	35	mg/kg	01.09.2021 01:53	
Diesel Range Organics (DRO)	<50.0	1000	1030	103	1030	103	70-135	0	35	mg/kg	01.09.2021 01:53	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	88		100		126		70-135	%	01.09.2021 01:53
o-Terphenyl	86		91		103		70-135	%	01.09.2021 01:53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147333

Matrix: Solid

MB Sample Id: 7718844-1-BLK

Prep Method: SW8015P

Date Prep: 01.08.2021

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.09.2021 01:33	

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

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

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

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



LT Environmental, Inc.

PCA 53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147333

Parent Sample Id: 683993-001

Matrix: Soil

MS Sample Id: 683993-001 S

Prep Method: SW8015P

Date Prep: 01.08.2021

MSD Sample Id: 683993-001 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)	<50.3	1010	1120	111	1060	106	70-135	6	35	mg/kg	01.09.2021 02:52	
Diesel Range Organics (DRO)	<50.3	1010	1220	121	1230	123	70-135	1	35	mg/kg	01.09.2021 02:52	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	125		104		70-135	%	01.09.2021 02:52
o-Terphenyl	114		122		70-135	%	01.09.2021 02:52

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147345

MB Sample Id: 7718847-1-BLK

Matrix: Solid

LCS Sample Id: 7718847-1-BKS

Prep Method: SW5035A

Date Prep: 01.08.2021

LCSD Sample Id: 7718847-1-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	0.101	101	0.102	102	70-130	1	35	mg/kg	01.09.2021 00:41	
Toluene	<0.00200	0.100	0.0961	96	0.0947	95	70-130	1	35	mg/kg	01.09.2021 00:41	
Ethylbenzene	<0.00200	0.100	0.0992	99	0.0996	100	71-129	0	35	mg/kg	01.09.2021 00:41	
m,p-Xylenes	<0.00400	0.200	0.199	100	0.204	102	70-135	2	35	mg/kg	01.09.2021 00:41	
o-Xylene	<0.00200	0.100	0.102	102	0.101	101	71-133	1	35	mg/kg	01.09.2021 00:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	104		102		100		70-130	%	01.09.2021 00:41
4-Bromofluorobenzene	112		109		108		70-130	%	01.09.2021 00:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147345

Parent Sample Id: 683993-001

Matrix: Soil

MS Sample Id: 683993-001 S

Prep Method: SW5035A

Date Prep: 01.08.2021

MSD Sample Id: 683993-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00202	0.101	0.107	106	0.0953	94	70-130	12	35	mg/kg	01.09.2021 01:26	
Toluene	<0.00202	0.101	0.0997	99	0.0837	83	70-130	17	35	mg/kg	01.09.2021 01:26	
Ethylbenzene	<0.00202	0.101	0.104	103	0.0853	84	71-129	20	35	mg/kg	01.09.2021 01:26	
m,p-Xylenes	<0.00404	0.202	0.214	106	0.175	87	70-135	20	35	mg/kg	01.09.2021 01:26	
o-Xylene	<0.00202	0.101	0.105	104	0.0871	86	71-133	19	35	mg/kg	01.09.2021 01:26	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		103		70-130	%	01.09.2021 01:26
4-Bromofluorobenzene	112		111		70-130	%	01.09.2021 01:26

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

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

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

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



Chain of Custody

Work Order No: 1683993

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Page 1 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	bbellill@ltenv.com

Project Name:	PCA53	Turn Around	
Project Number:	TE01245187	Routine	☒
P.O. Number:	288-S169	Rush:	
Sampler's Name:	Benjamin Bellill	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
	Temperature (°C):	1.0/0.8	Thermometer ID: TNM007			
	Received Intact:	Yes	No	Correction Factor: -0.2		
	Cooler Custody Seals:	Yes	No	Total Containers: 12		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EPA)	BTEX (EPA)	Chloride	Sample Comments									
BA54	S	1/5/21	1500	42'	1	X	X	X										
BA54A		↓	1700	60'	1	X	X	X										
BA54B		1/6/21	0900	66'	1	X	X	X										
BA55		↓	1115	40'	1	X	X	X										
BA55A		↓	1535	60'	1	X	X	X										
BA55B		↓	1630	65'	1	X	X	X										
BA56		1/7/21	0935	42'	1	X	X	X										
BA56A		↓	1030	58'	1	X	X	X										
BA56B		↓	1100	66'	1	X	X	X										
BA57		↓	1300	26'	1	X	X	X										

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn

Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$3 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	1/8/21 12:33			

Work Order No: 483993

Page 4 of 4

Project Name:	PCA 53	Turn Around	ANALYSIS REQUEST								Work Order Notes
Project Number:	ME012418187		Routine	☒							
P.O. Number:	282-569		Rush:								
Sampler's Name:	Benjamin Beilii		Due Date:								

[illegible]

Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		11/8/21 17:32			2

[illegible]

Certificate of Analysis Summary 684392



WSP USA, Dallas, TX

Project Name: PLA 53

Project Id: TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Tue 01.12.2021 13:30

Report Date: 01.15.2021 14:07

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	684392-001	684392-002	684392-003	684392-004	684392-005	684392-006
	<i>Field Id:</i>	BH58	BH58 A	BH58 B	BH59	BH59 A	BH59 B
	<i>Depth:</i>	26- ft	40- ft	47- ft	48- ft	50- ft	63- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.08.2021 09:00	01.08.2021 10:20	01.08.2021 13:00	01.08.2021 14:10	01.08.2021 15:50	01.09.2021 08:20
BTEX by EPA 8021B	<i>Extracted:</i>	01.13.2021 15:23	01.13.2021 15:23	01.13.2021 15:23	01.13.2021 15:23	01.13.2021 15:23	01.13.2021 15:23
	<i>Analyzed:</i>	01.14.2021 14:00	01.14.2021 14:23	01.14.2021 14:45	01.14.2021 15:07	01.14.2021 15:30	01.14.2021 15:52
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398	<0.00399 0.00399	<0.00403 0.00403	<0.00404 0.00404
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200	<0.00202 0.00202	<0.00202 0.00202
Chloride by EPA 300	<i>Extracted:</i>	01.12.2021 16:30	01.12.2021 16:30	01.12.2021 16:30	01.12.2021 16:30	01.12.2021 16:30	01.12.2021 16:30
	<i>Analyzed:</i>	01.12.2021 20:51	01.12.2021 21:09	01.12.2021 21:27	01.12.2021 21:33	01.12.2021 21:39	01.12.2021 21:45
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		23.6 9.94	205 9.98	141 10.1	27.9 10.1	230 9.94	311 9.98
TPH by SW8015 Mod	<i>Extracted:</i>	01.12.2021 16:03	01.12.2021 16:03	01.12.2021 16:03	01.12.2021 16:03	01.12.2021 16:03	01.12.2021 16:03
	<i>Analyzed:</i>	01.12.2021 22:33	01.12.2021 22:52	01.12.2021 23:12	01.12.2021 23:32	01.12.2021 23:52	01.13.2021 00:12
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.1 50.1	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.0 50.0
Diesel Range Organics (DRO)		<50.1 50.1	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.0 50.0
Motor Oil Range Hydrocarbons (MRO)		<50.1 50.1	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.0 50.0
Total GRO-DRO		<50.1 50.1	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.0 50.0
Total TPH		<50.1 50.1	<49.9 49.9	<50.1 50.1	<50.0 50.0	<49.9 49.9	<50.0 50.0

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 684392



WSP USA, Dallas, TX

Project Name: PLA 53

Project Id: TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Tue 01.12.2021 13:30

Report Date: 01.15.2021 14:07

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	684392-007	684392-008	684392-009	684392-010		
	Field Id:	BH59 C	BH60	BH60 A	BH60 B		
	Depth:	70- ft	1.5- ft	18- ft	22- ft		
	Matrix:	SOIL	SOIL	SOIL	SOIL		
	Sampled:	01.09.2021 09:55	01.09.2021 11:20	01.09.2021 13:00	01.09.2021 15:00		
BTEX by EPA 8021B	Extracted:	01.13.2021 15:23	01.13.2021 15:23	01.13.2021 15:23	01.13.2021 15:23		
	Analyzed:	01.14.2021 16:15	01.14.2021 16:37	01.14.2021 16:59	01.14.2021 17:22		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00398 0.00398	<0.00399 0.00399		
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00199 0.00199	<0.00200 0.00200		
Chloride by EPA 300	Extracted:	01.12.2021 16:30	01.12.2021 16:30	01.12.2021 16:30	01.12.2021 16:30		
	Analyzed:	01.12.2021 21:51	01.12.2021 21:57	01.12.2021 22:03	01.12.2021 22:09		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Chloride		100 9.96	21.3 9.98	999 49.6	1130 49.9		
TPH by SW8015 Mod	Extracted:	01.12.2021 16:03	01.12.2021 16:03	01.12.2021 16:03	01.12.2021 16:03		
	Analyzed:	01.13.2021 00:32	01.13.2021 00:51	01.13.2021 01:11	01.13.2021 01:31		
	Units/RL:	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL		
Gasoline Range Hydrocarbons (GRO)		<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.0 50.0		
Diesel Range Organics (DRO)		<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.0 50.0		
Motor Oil Range Hydrocarbons (MRO)		<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.0 50.0		
Total GRO-DRO		<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.0 50.0		
Total TPH		<50.2 50.2	<50.1 50.1	<50.0 50.0	<50.0 50.0		

BRL - Below Reporting Limit

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



Analytical Report 684392

for

WSP USA

Project Manager: Dan Moir

PLA 53

TE012918187

01.15.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.15.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **684392**

PLA 53

Project Address:

Dan Moir:

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) 684392. 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. 684392 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads "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

**Sample Cross Reference 684392****WSP USA, Dallas, TX**

PLA 53

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH58	S	01.08.2021 09:00	26 ft	684392-001
BH58 A	S	01.08.2021 10:20	40 ft	684392-002
BH58 B	S	01.08.2021 13:00	47 ft	684392-003
BH59	S	01.08.2021 14:10	48 ft	684392-004
BH59 A	S	01.08.2021 15:50	50 ft	684392-005
BH59 B	S	01.09.2021 08:20	63 ft	684392-006
BH59 C	S	01.09.2021 09:55	70 ft	684392-007
BH60	S	01.09.2021 11:20	1.5 ft	684392-008
BH60 A	S	01.09.2021 13:00	18 ft	684392-009
BH60 B	S	01.09.2021 15:00	22 ft	684392-010



CASE NARRATIVE

Client Name: WSP USA

Project Name: PLA 53

Project ID: TE012918187
Work Order Number(s): 684392

Report Date: 01.15.2021
Date Received: 01.12.2021

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH58**
 Lab Sample Id: 684392-001

Matrix: Soil
 Date Collected: 01.08.2021 09:00

Date Received: 01.12.2021 13:30
 Sample Depth: 26 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	23.6	9.94	mg/kg	01.12.2021 20:51		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.12.2021 22:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.12.2021 22:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.12.2021 22:33	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.12.2021 22:33	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.12.2021 22:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	01.12.2021 22:33	
o-Terphenyl	84-15-1	98	%	70-135	01.12.2021 22:33	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH58**
 Lab Sample Id: 684392-001

Matrix: Soil
 Date Collected: 01.08.2021 09:00

Date Received: 01.12.2021 13:30
 Sample Depth: 26 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.14.2021 14:00	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.14.2021 14:00	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.14.2021 14:00	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.14.2021 14:00	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.14.2021 14:00	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.14.2021 14:00	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.14.2021 14:00	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	117	%	70-130	01.14.2021 14:00		
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.14.2021 14:00		



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH58 A**
 Lab Sample Id: 684392-002

Matrix: Soil
 Date Collected: 01.08.2021 10:20

Date Received: 01.12.2021 13:30
 Sample Depth: 40 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	205	9.98	mg/kg	01.12.2021 21:09		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.12.2021 22:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.12.2021 22:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.12.2021 22:52	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.12.2021 22:52	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.12.2021 22:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	102	%	70-135	01.12.2021 22:52	
o-Terphenyl	84-15-1	106	%	70-135	01.12.2021 22:52	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH58 A**
 Lab Sample Id: 684392-002

Matrix: Soil
 Date Collected: 01.08.2021 10:20

Date Received: 01.12.2021 13:30
 Sample Depth: 40 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.14.2021 14:23	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.14.2021 14:23	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.14.2021 14:23	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.14.2021 14:23	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.14.2021 14:23	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.14.2021 14:23	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.14.2021 14:23	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	01.14.2021 14:23	
4-Bromofluorobenzene	460-00-4	117	%	70-130	01.14.2021 14:23	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH58 B**
 Lab Sample Id: 684392-003

Matrix: Soil
 Date Collected: 01.08.2021 13:00

Date Received: 01.12.2021 13:30
 Sample Depth: 47 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	141	10.1	mg/kg	01.12.2021 21:27		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.12.2021 23:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.12.2021 23:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.12.2021 23:12	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.12.2021 23:12	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.12.2021 23:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	129	%	70-135	01.12.2021 23:12	
o-Terphenyl	84-15-1	112	%	70-135	01.12.2021 23:12	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH58 B**
 Lab Sample Id: 684392-003

Matrix: Soil
 Date Collected: 01.08.2021 13:00

Date Received: 01.12.2021 13:30
 Sample Depth: 47 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.14.2021 14:45	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.14.2021 14:45	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.14.2021 14:45	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.14.2021 14:45	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.14.2021 14:45	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.14.2021 14:45	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.14.2021 14:45	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	122	%	70-130	01.14.2021 14:45	
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.14.2021 14:45	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59**
Lab Sample Id: 684392-004

Matrix: Soil
Date Collected: 01.08.2021 14:10

Date Received: 01.12.2021 13:30
Sample Depth: 48 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.9	10.1	mg/kg	01.12.2021 21:33		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.12.2021 23:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.12.2021 23:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.12.2021 23:32	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.12.2021 23:32	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.12.2021 23:32	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	01.12.2021 23:32	
o-Terphenyl	84-15-1	110	%	70-135	01.12.2021 23:32	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59**
 Lab Sample Id: 684392-004

Matrix: Soil
 Date Collected: 01.08.2021 14:10

Date Received: 01.12.2021 13:30
 Sample Depth: 48 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.14.2021 15:07	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.14.2021 15:07	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.14.2021 15:07	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.14.2021 15:07	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.14.2021 15:07	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.14.2021 15:07	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.14.2021 15:07	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	126	%	70-130	01.14.2021 15:07		
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.14.2021 15:07		



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59 A**
 Lab Sample Id: 684392-005

Matrix: Soil
 Date Collected: 01.08.2021 15:50

Date Received: 01.12.2021 13:30
 Sample Depth: 50 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	230	9.94	mg/kg	01.12.2021 21:39		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.12.2021 23:52	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.12.2021 23:52	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.12.2021 23:52	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.12.2021 23:52	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.12.2021 23:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	115	%	70-135	01.12.2021 23:52	
o-Terphenyl	84-15-1	107	%	70-135	01.12.2021 23:52	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59 A**
 Lab Sample Id: 684392-005

Matrix: Soil
 Date Collected: 01.08.2021 15:50

Date Received: 01.12.2021 13:30
 Sample Depth: 50 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.14.2021 15:30	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.14.2021 15:30	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.14.2021 15:30	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.14.2021 15:30	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.14.2021 15:30	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.14.2021 15:30	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.14.2021 15:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	01.14.2021 15:30	
4-Bromofluorobenzene	460-00-4	120	%	70-130	01.14.2021 15:30	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59 B**
 Lab Sample Id: 684392-006

Matrix: Soil
 Date Collected: 01.09.2021 08:20

Date Received: 01.12.2021 13:30
 Sample Depth: 63 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	311	9.98	mg/kg	01.12.2021 21:45		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.13.2021 00:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.13.2021 00:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.13.2021 00:12	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.13.2021 00:12	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.13.2021 00:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	01.13.2021 00:12	
o-Terphenyl	84-15-1	108	%	70-135	01.13.2021 00:12	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59 B**
 Lab Sample Id: 684392-006

Matrix: Soil
 Date Collected: 01.09.2021 08:20

Date Received: 01.12.2021 13:30
 Sample Depth: 63 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.14.2021 15:52	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.14.2021 15:52	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.14.2021 15:52	U	1
m,p-Xylenes	179601-23-1	<0.00404	0.00404	mg/kg	01.14.2021 15:52	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.14.2021 15:52	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.14.2021 15:52	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.14.2021 15:52	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	123	%	70-130	01.14.2021 15:52	
1,4-Difluorobenzene	540-36-3	108	%	70-130	01.14.2021 15:52	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59 C**
 Lab Sample Id: 684392-007

Matrix: Soil
 Date Collected: 01.09.2021 09:55

Date Received: 01.12.2021 13:30
 Sample Depth: 70 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	100	9.96	mg/kg	01.12.2021 21:51		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.2	50.2	mg/kg	01.13.2021 00:32	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.2	50.2	mg/kg	01.13.2021 00:32	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.2	50.2	mg/kg	01.13.2021 00:32	U	1
Total GRO-DRO	PHC628	<50.2	50.2	mg/kg	01.13.2021 00:32	U	1
Total TPH	PHC635	<50.2	50.2	mg/kg	01.13.2021 00:32	U	1

Surrogate

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	01.13.2021 00:32	
o-Terphenyl	84-15-1	107	%	70-135	01.13.2021 00:32	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH59 C**
 Lab Sample Id: 684392-007

Matrix: Soil
 Date Collected: 01.09.2021 09:55

Date Received: 01.12.2021 13:30
 Sample Depth: 70 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.14.2021 16:15	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.14.2021 16:15	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.14.2021 16:15	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.14.2021 16:15	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.14.2021 16:15	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.14.2021 16:15	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.14.2021 16:15	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	119	%	70-130	01.14.2021 16:15		
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.14.2021 16:15		



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH60**
Lab Sample Id: 684392-008

Matrix: Soil
Date Collected: 01.09.2021 11:20

Date Received: 01.12.2021 13:30
Sample Depth: 1.5 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	21.3	9.98	mg/kg	01.12.2021 21:57		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.13.2021 00:51	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.13.2021 00:51	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.13.2021 00:51	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.13.2021 00:51	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.13.2021 00:51	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	104	%	70-135	01.13.2021 00:51	
o-Terphenyl	84-15-1	116	%	70-135	01.13.2021 00:51	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH60**
 Lab Sample Id: 684392-008

Matrix: Soil
 Date Collected: 01.09.2021 11:20

Date Received: 01.12.2021 13:30
 Sample Depth: 1.5 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.14.2021 16:37	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.14.2021 16:37	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.14.2021 16:37	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.14.2021 16:37	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.14.2021 16:37	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.14.2021 16:37	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.14.2021 16:37	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	120	%	70-130	01.14.2021 16:37	
1,4-Difluorobenzene	540-36-3	103	%	70-130	01.14.2021 16:37	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH60 A**
 Lab Sample Id: 684392-009

Matrix: Soil
 Date Collected: 01.09.2021 13:00

Date Received: 01.12.2021 13:30
 Sample Depth: 18 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	999	49.6	mg/kg	01.12.2021 22:03		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.13.2021 01:11	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.13.2021 01:11	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.13.2021 01:11	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.13.2021 01:11	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.13.2021 01:11	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	01.13.2021 01:11	
o-Terphenyl	84-15-1	106	%	70-135	01.13.2021 01:11	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH60 A**
 Lab Sample Id: 684392-009

Matrix: Soil
 Date Collected: 01.09.2021 13:00

Date Received: 01.12.2021 13:30
 Sample Depth: 18 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.14.2021 16:59	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.14.2021 16:59	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.14.2021 16:59	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.14.2021 16:59	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.14.2021 16:59	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.14.2021 16:59	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.14.2021 16:59	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	122	%	70-130	01.14.2021 16:59		
1,4-Difluorobenzene	540-36-3	110	%	70-130	01.14.2021 16:59		



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH60 B**
 Lab Sample Id: 684392-010

Matrix: Soil
 Date Collected: 01.09.2021 15:00

Date Received: 01.12.2021 13:30
 Sample Depth: 22 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.12.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147631

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	1130	49.9	mg/kg	01.12.2021 22:09		5

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.12.2021 16:03

% Moisture:
 Basis: Wet Weight

Seq Number: 3147632

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.13.2021 01:31	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.13.2021 01:31	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.13.2021 01:31	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.13.2021 01:31	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.13.2021 01:31	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	112	%	70-135	01.13.2021 01:31	
o-Terphenyl	84-15-1	118	%	70-135	01.13.2021 01:31	



Certificate of Analytical Results 684392

WSP USA, Dallas, TX

PLA 53

Sample Id: **BH60 B**
 Lab Sample Id: 684392-010

Matrix: Soil
 Date Collected: 01.09.2021 15:00

Date Received: 01.12.2021 13:30
 Sample Depth: 22 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 15:23

% Moisture:
 Basis: Wet Weight

Seq Number: 3147860

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.14.2021 17:22	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.14.2021 17:22	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.14.2021 17:22	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.14.2021 17:22	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.14.2021 17:22	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.14.2021 17:22	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.14.2021 17:22	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	01.14.2021 17:22		
1,4-Difluorobenzene	540-36-3	103	%	70-130	01.14.2021 17:22		



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



WSP USA PLA 53

Analytical Method: Chloride by EPA 300

Seq Number: 3147631

MB Sample Id: 7719043-1-BLK

Matrix: Solid

LCS Sample Id: 7719043-1-BKS

Prep Method: E300P

Date Prep: 01.12.2021

LCSD Sample Id: 7719043-1-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	255	102	256	102	90-110	0	20	mg/kg	01.12.2021 19:16	

Analytical Method: Chloride by EPA 300

Seq Number: 3147631

Parent Sample Id: 684371-001

Matrix: Soil

MS Sample Id: 684371-001 S

Prep Method: E300P

Date Prep: 01.12.2021

MSD Sample Id: 684371-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	315	199	525	106	527	106	90-110	0	20	mg/kg	01.12.2021 19:33	

Analytical Method: Chloride by EPA 300

Seq Number: 3147631

Parent Sample Id: 684392-001

Matrix: Soil

MS Sample Id: 684392-001 S

Prep Method: E300P

Date Prep: 01.12.2021

MSD Sample Id: 684392-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	23.6	200	227	102	227	102	90-110	0	20	mg/kg	01.12.2021 20:57	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147632

MB Sample Id: 7719038-1-BLK

Matrix: Solid

LCS Sample Id: 7719038-1-BKS

Prep Method: SW8015P

Date Prep: 01.12.2021

LCSD Sample Id: 7719038-1-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	1020	102	70-135	0	35	mg/kg	01.12.2021 17:33	
Diesel Range Organics (DRO)	<50.0	1000	1060	106	1000	100	70-135	6	35	mg/kg	01.12.2021 17:33	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	82		93		108		70-135	%	01.12.2021 17:33
o-Terphenyl	85		107		93		70-135	%	01.12.2021 17:33

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147632

Matrix: Solid

MB Sample Id: 7719038-1-BLK

Prep Method: SW8015P

Date Prep: 01.12.2021

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.12.2021 17:13	

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

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

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

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



WSP USA

PLA 53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147632

Parent Sample Id: 684140-001

Matrix: Soil

MS Sample Id: 684140-001 S

Prep Method: SW8015P

Date Prep: 01.12.2021

MSD Sample Id: 684140-001 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)	<50.3	1010	1190	118	1190	119	70-135	0	35	mg/kg	01.12.2021 18:34	
Diesel Range Organics (DRO)	<50.3	1010	1100	109	1050	105	70-135	5	35	mg/kg	01.12.2021 18:34	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	105		113		70-135	%	01.12.2021 18:34
o-Terphenyl	114		106		70-135	%	01.12.2021 18:34

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147860

MB Sample Id: 7719047-1-BLK

Matrix: Solid

LCS Sample Id: 7719047-1-BKS

Prep Method: SW5035A

Date Prep: 01.13.2021

LCSD Sample Id: 7719047-1-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	0.0935	94	0.100	100	70-130	7	35	mg/kg	01.14.2021 06:51	
Toluene	<0.00200	0.100	0.0883	88	0.0913	91	70-130	3	35	mg/kg	01.14.2021 06:51	
Ethylbenzene	<0.00200	0.100	0.0914	91	0.0953	95	71-129	4	35	mg/kg	01.14.2021 06:51	
m,p-Xylenes	<0.00400	0.200	0.182	91	0.191	96	70-135	5	35	mg/kg	01.14.2021 06:51	
o-Xylene	<0.00200	0.100	0.0936	94	0.0965	97	71-133	3	35	mg/kg	01.14.2021 06:51	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		100		101		70-130	%	01.14.2021 06:51
4-Bromofluorobenzene	111		110		113		70-130	%	01.14.2021 06:51

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147860

Parent Sample Id: 684371-001

Matrix: Soil

MS Sample Id: 684371-001 S

Prep Method: SW5035A

Date Prep: 01.13.2021

MSD Sample Id: 684371-001 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	0.0976	98	0.0954	94	70-130	2	35	mg/kg	01.14.2021 07:36	
Toluene	<0.00200	0.100	0.0923	92	0.0879	87	70-130	5	35	mg/kg	01.14.2021 07:36	
Ethylbenzene	<0.00200	0.100	0.0947	95	0.0891	88	71-129	6	35	mg/kg	01.14.2021 07:36	
m,p-Xylenes	<0.00401	0.200	0.195	98	0.181	90	70-135	7	35	mg/kg	01.14.2021 07:36	
o-Xylene	<0.00200	0.100	0.0973	97	0.0913	90	71-133	6	35	mg/kg	01.14.2021 07:36	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	101		99		70-130	%	01.14.2021 07:36
4-Bromofluorobenzene	108		106		70-130	%	01.14.2021 07:36

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

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

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

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



Chain of Custody

Work Order No:

1084392

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
 Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Page 1 of 1

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littlell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	bbell@ltenv.com

Program: ☐ UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ Superfund ☐ State of Project:	
Reporting Level: ☐ I ☐ II ☐ III ☐ IV	Deliverables: ☐ EDD ☐ ADAPT ☐ Other:

Project Name:	PLA53	Turn Around	☒
Project Number:	TE017348187	Routine	☒
P.O. Number:	268-5169	Rush:	
Sampler's Name:	Benjamin Bell	Due Date:	

SAMPLE RECEIPT	Temp Blank:	☒ Yes ☐ No	Wet Ice:	☒ Yes ☐ No
	Temperature (°C):	14.2	Thermometer ID	T-100-007
	Received Intact:	☒ Yes ☐ No	Correction Factor:	-0.2
	Cooler Custody Seals:	☒ Yes ☐ No	Total Containers:	10
	Sample Custody Seals:	☒ Yes ☐ No		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EPA 8015)	BTEX (EPA 8021)	Chloride (EPA 300.0)	ANALYSIS REQUEST										Work Order Notes	
BH58	S	1/8/24	0900	26'	1	X	X	X												
BH58A			1020	40'																
BH58B			1300	47'																
BH59			1410	48'																
BH59A			1530	50'																
BH59B		1/9/28	0820	63'																
BH59C			0955	70'																
BH60			1120	1.5'																
BH60A			1300	18'																
BH60B			1500	22'																

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		1-17-24 1330			

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: LT Environmental, Inc.

Date/ Time Received: 01.12.2021 01.30.00 PM

Work Order #: 684392

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)?	1.2
#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

Samples received in bulk containers.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 01.12.2021

Checklist reviewed by:



Jessica Kramer

Date: 01.13.2021

Certificate of Analysis Summary 684466



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.13.2021 08:20

Report Date: 01.15.2021 14:06

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	684466-001	684466-002	684466-003	684466-004	684466-005	684466-006
	<i>Field Id:</i>	BH61	BH61 A	BH61 B	BH62	BH62 A	BH62 B
	<i>Depth:</i>	25- ft	54- ft	57- ft	19- ft	45- ft	47- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.11.2021 09:00	01.11.2021 10:05	01.11.2021 10:10	01.11.2021 15:30	01.11.2021 16:10	01.11.2021 16:20
BTEX by EPA 8021B	<i>Extracted:</i>	01.14.2021 17:00	01.14.2021 17:00	01.14.2021 17:00	01.14.2021 17:00	01.14.2021 17:00	01.14.2021 17:00
	<i>Analyzed:</i>	01.15.2021 02:36	01.15.2021 02:58	01.15.2021 03:21	01.15.2021 03:43	01.15.2021 04:06	01.15.2021 04:28
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Toluene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Ethylbenzene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
m,p-Xylenes		<0.00398 0.00398	<0.00399 0.00399	<0.00399 0.00399	<0.00398 0.00398	<0.00397 0.00397	<0.00398 0.00398
o-Xylene		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Total Xylenes		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Total BTEX		<0.00199 0.00199	<0.00200 0.00200	<0.00200 0.00200	<0.00199 0.00199	<0.00198 0.00198	<0.00199 0.00199
Chloride by EPA 300	<i>Extracted:</i>	01.13.2021 16:00	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30
	<i>Analyzed:</i>	01.13.2021 20:43	01.13.2021 21:19	01.13.2021 21:37	01.13.2021 21:43	01.13.2021 21:49	01.13.2021 21:55
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		197 9.98	82.2 10.0	46.9 9.90	221 9.92	158 9.94	22.3 10.1
TPH by SW8015 Mod	<i>Extracted:</i>	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:00
	<i>Analyzed:</i>	01.14.2021 02:15	01.14.2021 02:35	01.14.2021 02:55	01.14.2021 03:15	01.14.2021 03:36	01.14.2021 03:56
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<50.0 50.0	<50.0 50.0	<50.3 50.3	<49.9 49.9	<50.1 50.1	<49.8 49.8
Diesel Range Organics (DRO)		<50.0 50.0	<50.0 50.0	<50.3 50.3	<49.9 49.9	<50.1 50.1	<49.8 49.8
Motor Oil Range Hydrocarbons (MRO)		<50.0 50.0	<50.0 50.0	<50.3 50.3	<49.9 49.9	<50.1 50.1	<49.8 49.8
Total GRO-DRO		<50.0 50.0	<50.0 50.0	<50.3 50.3	<49.9 49.9	<50.1 50.1	<49.8 49.8
Total TPH		<50.0 50.0	<50.0 50.0	<50.3 50.3	<49.9 49.9	<50.1 50.1	<49.8 49.8

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 684466



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.13.2021 08:20

Report Date: 01.15.2021 14:06

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	684466-007	684466-008	684466-009	684466-010	684466-011	684466-012
	<i>Field Id:</i>	BH63	BH63 A	BH63 B	BH64	BH64 A	BH64 B
	<i>Depth:</i>	16- ft	40- ft	45- ft	17- ft	37- ft	43- ft
	<i>Matrix:</i>	SOIL	SOIL	SOIL	SOIL	SOIL	SOIL
	<i>Sampled:</i>	01.12.2021 09:05	01.12.2021 10:30	01.12.2021 10:45	01.12.2021 13:30	01.12.2021 14:00	01.12.2021 14:20
BTEX by EPA 8021B	<i>Extracted:</i>	01.14.2021 17:00	01.14.2021 17:00	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:00
	<i>Analyzed:</i>	01.15.2021 04:51	01.15.2021 05:13	01.13.2021 21:05	01.13.2021 21:27	01.13.2021 21:50	01.13.2021 22:12
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Benzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198
Toluene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198
Ethylbenzene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198
m,p-Xylenes		<0.00399 0.00399	<0.00401 0.00401	<0.00399 0.00399	<0.00401 0.00401	<0.00403 0.00403	<0.00397 0.00397
o-Xylene		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198
Total Xylenes		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198
Total BTEX		<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00200 0.00200	<0.00202 0.00202	<0.00198 0.00198
Chloride by EPA 300	<i>Extracted:</i>	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30	01.13.2021 16:30
	<i>Analyzed:</i>	01.13.2021 22:13	01.13.2021 22:19	01.13.2021 22:25	01.13.2021 22:31	01.13.2021 22:37	01.13.2021 22:43
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Chloride		46.2 10.1	127 9.98	65.6 10.1	852 9.90	32.6 9.98	38.2 9.96
TPH by SW8015 Mod	<i>Extracted:</i>	01.13.2021 17:00	01.13.2021 17:00	01.13.2021 17:42	01.13.2021 17:42	01.13.2021 17:42	01.13.2021 17:42
	<i>Analyzed:</i>	01.14.2021 04:16	01.14.2021 04:36	01.13.2021 21:12	01.13.2021 22:13	01.13.2021 22:33	01.13.2021 22:53
	<i>Units/RL:</i>	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL	mg/kg RL
Gasoline Range Hydrocarbons (GRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.9 49.9
Diesel Range Organics (DRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.9 49.9
Motor Oil Range Hydrocarbons (MRO)		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.9 49.9
Total GRO-DRO		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.9 49.9
Total TPH		<49.9 49.9	<50.0 50.0	<49.9 49.9	<50.0 50.0	<50.1 50.1	<49.9 49.9

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 684466



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.13.2021 08:20

Report Date: 01.15.2021 14:06

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	684466-013					
	Field Id:	BH64 C					
	Depth:	50- ft					
	Matrix:	SOIL					
	Sampled:	01.12.2021 14:50					
BTEX by EPA 8021B	Extracted:	01.13.2021 17:00					
	Analyzed:	01.13.2021 22:35					
	Units/RL:	mg/kg RL					
Benzene		<0.00196 0.00196					
Toluene		<0.00196 0.00196					
Ethylbenzene		<0.00196 0.00196					
m,p-Xylenes		<0.00392 0.00392					
o-Xylene		<0.00196 0.00196					
Total Xylenes		<0.00196 0.00196					
Total BTEX		<0.00196 0.00196					
Chloride by EPA 300	Extracted:	01.13.2021 16:30					
	Analyzed:	01.13.2021 23:00					
	Units/RL:	mg/kg RL					
Chloride		27.7 10.0					
TPH by SW8015 Mod	Extracted:	01.13.2021 17:42					
	Analyzed:	01.13.2021 23:14					
	Units/RL:	mg/kg RL					
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8					
Diesel Range Organics (DRO)		<49.8 49.8					
Motor Oil Range Hydrocarbons (MRO)		<49.8 49.8					
Total GRO-DRO		<49.8 49.8					
Total TPH		<49.8 49.8					

BRL - Below Reporting Limit

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



Analytical Report 684466

for

WSP USA

Project Manager: Dan Moir

PCA 53

TE012918187

01.15.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.15.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **684466**

PCA 53

Project Address:

Dan Moir:

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) 684466. 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. 684466 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads "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

**Sample Cross Reference 684466****WSP USA, Dallas, TX**

PCA 53

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH61	S	01.11.2021 09:00	25 ft	684466-001
BH61 A	S	01.11.2021 10:05	54 ft	684466-002
BH61 B	S	01.11.2021 10:10	57 ft	684466-003
BH62	S	01.11.2021 15:30	19 ft	684466-004
BH62 A	S	01.11.2021 16:10	45 ft	684466-005
BH62 B	S	01.11.2021 16:20	47 ft	684466-006
BH63	S	01.12.2021 09:05	16 ft	684466-007
BH63 A	S	01.12.2021 10:30	40 ft	684466-008
BH63 B	S	01.12.2021 10:45	45 ft	684466-009
BH64	S	01.12.2021 13:30	17 ft	684466-010
BH64 A	S	01.12.2021 14:00	37 ft	684466-011
BH64 B	S	01.12.2021 14:20	43 ft	684466-012
BH64 C	S	01.12.2021 14:50	50 ft	684466-013



CASE NARRATIVE

Client Name: WSP USA

Project Name: PCA 53

Project ID: TE012918187
Work Order Number(s): 684466

Report Date: 01.15.2021
Date Received: 01.13.2021

Sample receipt non conformances and comments:

None

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61**
 Lab Sample Id: 684466-001

Matrix: Soil
 Date Collected: 01.11.2021 09:00

Date Received: 01.13.2021 08:20
 Sample Depth: 25 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147747

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	197	9.98	mg/kg	01.13.2021 20:43		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.14.2021 02:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.14.2021 02:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.14.2021 02:15	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.14.2021 02:15	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.14.2021 02:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	101	%	70-135	01.14.2021 02:15	
o-Terphenyl	84-15-1	116	%	70-135	01.14.2021 02:15	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61**
 Lab Sample Id: 684466-001

Matrix: Soil
 Date Collected: 01.11.2021 09:00

Date Received: 01.13.2021 08:20
 Sample Depth: 25 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.15.2021 02:36	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.15.2021 02:36	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.15.2021 02:36	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.15.2021 02:36	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.15.2021 02:36	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.15.2021 02:36	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.15.2021 02:36	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.15.2021 02:36		
4-Bromofluorobenzene	460-00-4	118	%	70-130	01.15.2021 02:36		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61 A**
 Lab Sample Id: 684466-002

Matrix: Soil
 Date Collected: 01.11.2021 10:05

Date Received: 01.13.2021 08:20
 Sample Depth: 54 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	82.2	10.0	mg/kg	01.13.2021 21:19		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.14.2021 02:35	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.14.2021 02:35	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.14.2021 02:35	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.14.2021 02:35	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.14.2021 02:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	106	%	70-135	01.14.2021 02:35	
o-Terphenyl	84-15-1	118	%	70-135	01.14.2021 02:35	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61 A**
 Lab Sample Id: 684466-002

Matrix: Soil
 Date Collected: 01.11.2021 10:05

Date Received: 01.13.2021 08:20
 Sample Depth: 54 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.15.2021 02:58	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.15.2021 02:58	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.15.2021 02:58	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.15.2021 02:58	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.15.2021 02:58	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.15.2021 02:58	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.15.2021 02:58	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.15.2021 02:58	
4-Bromofluorobenzene	460-00-4	122	%	70-130	01.15.2021 02:58	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61 B**
 Lab Sample Id: 684466-003

Matrix: Soil
 Date Collected: 01.11.2021 10:10

Date Received: 01.13.2021 08:20
 Sample Depth: 57 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.9	9.90	mg/kg	01.13.2021 21:37		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.3	50.3	mg/kg	01.14.2021 02:55	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.3	50.3	mg/kg	01.14.2021 02:55	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.3	50.3	mg/kg	01.14.2021 02:55	U	1
Total GRO-DRO	PHC628	<50.3	50.3	mg/kg	01.14.2021 02:55	U	1
Total TPH	PHC635	<50.3	50.3	mg/kg	01.14.2021 02:55	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	113	%	70-135	01.14.2021 02:55	
o-Terphenyl	84-15-1	101	%	70-135	01.14.2021 02:55	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61 B**
 Lab Sample Id: 684466-003

Matrix: Soil
 Date Collected: 01.11.2021 10:10

Date Received: 01.13.2021 08:20
 Sample Depth: 57 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.15.2021 03:21	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.15.2021 03:21	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.15.2021 03:21	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.15.2021 03:21	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.15.2021 03:21	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.15.2021 03:21	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.15.2021 03:21	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	01.15.2021 03:21		
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.15.2021 03:21		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH62**
Lab Sample Id: 684466-004

Matrix: Soil
Date Collected: 01.11.2021 15:30

Date Received: 01.13.2021 08:20
Sample Depth: 19 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	221	9.92	mg/kg	01.13.2021 21:43		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.14.2021 03:15	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.14.2021 03:15	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.14.2021 03:15	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.14.2021 03:15	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.14.2021 03:15	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	126	%	70-135	01.14.2021 03:15	
o-Terphenyl	84-15-1	107	%	70-135	01.14.2021 03:15	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH62**
 Lab Sample Id: 684466-004

Matrix: Soil
 Date Collected: 01.11.2021 15:30

Date Received: 01.13.2021 08:20
 Sample Depth: 19 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.15.2021 03:43	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.15.2021 03:43	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.15.2021 03:43	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.15.2021 03:43	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.15.2021 03:43	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.15.2021 03:43	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.15.2021 03:43	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1,4-Difluorobenzene	540-36-3	100	%	70-130	01.15.2021 03:43		
4-Bromofluorobenzene	460-00-4	116	%	70-130	01.15.2021 03:43		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH62 A**
 Lab Sample Id: 684466-005

Matrix: Soil
 Date Collected: 01.11.2021 16:10

Date Received: 01.13.2021 08:20
 Sample Depth: 45 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	158	9.94	mg/kg	01.13.2021 21:49		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.14.2021 03:36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.14.2021 03:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.14.2021 03:36	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.14.2021 03:36	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.14.2021 03:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	116	%	70-135	01.14.2021 03:36	
o-Terphenyl	84-15-1	122	%	70-135	01.14.2021 03:36	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH62 A**
 Lab Sample Id: 684466-005

Matrix: Soil
 Date Collected: 01.11.2021 16:10

Date Received: 01.13.2021 08:20
 Sample Depth: 45 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.15.2021 04:06	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.15.2021 04:06	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.15.2021 04:06	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	01.15.2021 04:06	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.15.2021 04:06	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.15.2021 04:06	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.15.2021 04:06	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
4-Bromofluorobenzene	460-00-4	127	%	70-130	01.15.2021 04:06	
1,4-Difluorobenzene	540-36-3	108	%	70-130	01.15.2021 04:06	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH62 B**
 Lab Sample Id: 684466-006

Matrix: Soil
 Date Collected: 01.11.2021 16:20

Date Received: 01.13.2021 08:20
 Sample Depth: 47 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	22.3	10.1	mg/kg	01.14.2021 10:09		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.14.2021 03:56	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.14.2021 03:56	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.14.2021 03:56	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	01.14.2021 03:56	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.14.2021 03:56	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	105	%	70-135	01.14.2021 03:56	
o-Terphenyl	84-15-1	116	%	70-135	01.14.2021 03:56	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH62 B**
 Lab Sample Id: 684466-006

Matrix: Soil
 Date Collected: 01.11.2021 16:20

Date Received: 01.13.2021 08:20
 Sample Depth: 47 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00199	0.00199	mg/kg	01.15.2021 04:28	U	1
Toluene	108-88-3	<0.00199	0.00199	mg/kg	01.15.2021 04:28	U	1
Ethylbenzene	100-41-4	<0.00199	0.00199	mg/kg	01.15.2021 04:28	U	1
m,p-Xylenes	179601-23-1	<0.00398	0.00398	mg/kg	01.15.2021 04:28	U	1
o-Xylene	95-47-6	<0.00199	0.00199	mg/kg	01.15.2021 04:28	U	1
Total Xylenes	1330-20-7	<0.00199	0.00199	mg/kg	01.15.2021 04:28	U	1
Total BTEX		<0.00199	0.00199	mg/kg	01.15.2021 04:28	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.15.2021 04:28	
4-Bromofluorobenzene	460-00-4	127	%	70-130	01.15.2021 04:28	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63**
 Lab Sample Id: 684466-007

Matrix: Soil
 Date Collected: 01.12.2021 09:05

Date Received: 01.13.2021 08:20
 Sample Depth: 16 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	46.2	10.1	mg/kg	01.13.2021 22:13		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.14.2021 04:16	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.14.2021 04:16	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.14.2021 04:16	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.14.2021 04:16	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.14.2021 04:16	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	117	%	70-135	01.14.2021 04:16	
o-Terphenyl	84-15-1	98	%	70-135	01.14.2021 04:16	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63**
 Lab Sample Id: 684466-007

Matrix: Soil
 Date Collected: 01.12.2021 09:05

Date Received: 01.13.2021 08:20
 Sample Depth: 16 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.15.2021 04:51	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.15.2021 04:51	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.15.2021 04:51	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.15.2021 04:51	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.15.2021 04:51	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.15.2021 04:51	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.15.2021 04:51	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	127	%	70-130	01.15.2021 04:51		
1,4-Difluorobenzene	540-36-3	105	%	70-130	01.15.2021 04:51		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63 A**
 Lab Sample Id: 684466-008

Matrix: Soil
 Date Collected: 01.12.2021 10:30

Date Received: 01.13.2021 08:20
 Sample Depth: 40 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	127	9.98	mg/kg	01.13.2021 22:19		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147802

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.14.2021 04:36	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.14.2021 04:36	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.14.2021 04:36	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.14.2021 04:36	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.14.2021 04:36	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	124	%	70-135	01.14.2021 04:36	
o-Terphenyl	84-15-1	113	%	70-135	01.14.2021 04:36	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63 A**
 Lab Sample Id: 684466-008

Matrix: Soil
 Date Collected: 01.12.2021 10:30

Date Received: 01.13.2021 08:20
 Sample Depth: 40 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.14.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147923

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.15.2021 05:13	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.15.2021 05:13	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.15.2021 05:13	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.15.2021 05:13	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.15.2021 05:13	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.15.2021 05:13	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.15.2021 05:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	107	%	70-130	01.15.2021 05:13	
4-Bromofluorobenzene	460-00-4	127	%	70-130	01.15.2021 05:13	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63 B**
 Lab Sample Id: 684466-009

Matrix: Soil
 Date Collected: 01.12.2021 10:45

Date Received: 01.13.2021 08:20
 Sample Depth: 45 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	65.6	10.1	mg/kg	01.13.2021 22:25		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:42

% Moisture:
 Basis: Wet Weight

Seq Number: 3147803

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.13.2021 21:12	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.13.2021 21:12	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.13.2021 21:12	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.13.2021 21:12	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.13.2021 21:12	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	99	%	70-135	01.13.2021 21:12	
o-Terphenyl	84-15-1	106	%	70-135	01.13.2021 21:12	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63 B**
 Lab Sample Id: 684466-009

Matrix: Soil
 Date Collected: 01.12.2021 10:45

Date Received: 01.13.2021 08:20
 Sample Depth: 45 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147761

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.13.2021 21:05	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.13.2021 21:05	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.13.2021 21:05	U	1
m,p-Xylenes	179601-23-1	<0.00399	0.00399	mg/kg	01.13.2021 21:05	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.13.2021 21:05	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.13.2021 21:05	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.13.2021 21:05	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	103	%	70-130	01.13.2021 21:05	
4-Bromofluorobenzene	460-00-4	113	%	70-130	01.13.2021 21:05	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64**
 Lab Sample Id: 684466-010

Matrix: Soil
 Date Collected: 01.12.2021 13:30

Date Received: 01.13.2021 08:20
 Sample Depth: 17 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	852	9.90	mg/kg	01.13.2021 22:31		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:42

% Moisture:
 Basis: Wet Weight

Seq Number: 3147803

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.13.2021 22:13	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.13.2021 22:13	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.13.2021 22:13	U	1
Total GRO-DRO	PHC628	<50.0	50.0	mg/kg	01.13.2021 22:13	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.13.2021 22:13	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	114	%	70-135	01.13.2021 22:13	
o-Terphenyl	84-15-1	102	%	70-135	01.13.2021 22:13	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64**
 Lab Sample Id: 684466-010

Matrix: Soil
 Date Collected: 01.12.2021 13:30

Date Received: 01.13.2021 08:20
 Sample Depth: 17 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147761

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00200	0.00200	mg/kg	01.13.2021 21:27	U	1
Toluene	108-88-3	<0.00200	0.00200	mg/kg	01.13.2021 21:27	U	1
Ethylbenzene	100-41-4	<0.00200	0.00200	mg/kg	01.13.2021 21:27	U	1
m,p-Xylenes	179601-23-1	<0.00401	0.00401	mg/kg	01.13.2021 21:27	U	1
o-Xylene	95-47-6	<0.00200	0.00200	mg/kg	01.13.2021 21:27	U	1
Total Xylenes	1330-20-7	<0.00200	0.00200	mg/kg	01.13.2021 21:27	U	1
Total BTEX		<0.00200	0.00200	mg/kg	01.13.2021 21:27	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	118	%	70-130	01.13.2021 21:27		
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.13.2021 21:27		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64 A**
 Lab Sample Id: 684466-011

Matrix: Soil
 Date Collected: 01.12.2021 14:00

Date Received: 01.13.2021 08:20
 Sample Depth: 37 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	32.6	9.98	mg/kg	01.13.2021 22:37		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:42

% Moisture:
 Basis: Wet Weight

Seq Number: 3147803

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.1	50.1	mg/kg	01.13.2021 22:33	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.1	50.1	mg/kg	01.13.2021 22:33	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.1	50.1	mg/kg	01.13.2021 22:33	U	1
Total GRO-DRO	PHC628	<50.1	50.1	mg/kg	01.13.2021 22:33	U	1
Total TPH	PHC635	<50.1	50.1	mg/kg	01.13.2021 22:33	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	121	%	70-135	01.13.2021 22:33	
o-Terphenyl	84-15-1	104	%	70-135	01.13.2021 22:33	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64 A**
 Lab Sample Id: 684466-011

Matrix: Soil
 Date Collected: 01.12.2021 14:00

Date Received: 01.13.2021 08:20
 Sample Depth: 37 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147761

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.13.2021 21:50	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.13.2021 21:50	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.13.2021 21:50	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.13.2021 21:50	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.13.2021 21:50	U	1
Total Xylenes	1330-20-7	<0.00202	0.00202	mg/kg	01.13.2021 21:50	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.13.2021 21:50	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	01.13.2021 21:50		
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.13.2021 21:50		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64 B**
 Lab Sample Id: 684466-012

Matrix: Soil
 Date Collected: 01.12.2021 14:20

Date Received: 01.13.2021 08:20
 Sample Depth: 43 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	38.2	9.96	mg/kg	01.13.2021 22:43		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:42

% Moisture:
 Basis: Wet Weight

Seq Number: 3147803

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.9	49.9	mg/kg	01.13.2021 22:53	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.9	49.9	mg/kg	01.13.2021 22:53	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.9	49.9	mg/kg	01.13.2021 22:53	U	1
Total GRO-DRO	PHC628	<49.9	49.9	mg/kg	01.13.2021 22:53	U	1
Total TPH	PHC635	<49.9	49.9	mg/kg	01.13.2021 22:53	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	118	%	70-135	01.13.2021 22:53	
o-Terphenyl	84-15-1	106	%	70-135	01.13.2021 22:53	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64 B**
 Lab Sample Id: 684466-012

Matrix: Soil
 Date Collected: 01.12.2021 14:20

Date Received: 01.13.2021 08:20
 Sample Depth: 43 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147761

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00198	0.00198	mg/kg	01.13.2021 22:12	U	1
Toluene	108-88-3	<0.00198	0.00198	mg/kg	01.13.2021 22:12	U	1
Ethylbenzene	100-41-4	<0.00198	0.00198	mg/kg	01.13.2021 22:12	U	1
m,p-Xylenes	179601-23-1	<0.00397	0.00397	mg/kg	01.13.2021 22:12	U	1
o-Xylene	95-47-6	<0.00198	0.00198	mg/kg	01.13.2021 22:12	U	1
Total Xylenes	1330-20-7	<0.00198	0.00198	mg/kg	01.13.2021 22:12	U	1
Total BTEX		<0.00198	0.00198	mg/kg	01.13.2021 22:12	U	1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
4-Bromofluorobenzene	460-00-4	121	%	70-130	01.13.2021 22:12		
1,4-Difluorobenzene	540-36-3	104	%	70-130	01.13.2021 22:12		



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64 C**
 Lab Sample Id: 684466-013

Matrix: Soil
 Date Collected: 01.12.2021 14:50

Date Received: 01.13.2021 08:20
 Sample Depth: 50 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 16:30

% Moisture:
 Basis: Wet Weight

Seq Number: 3147753

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	27.7	10.0	mg/kg	01.14.2021 10:04		1

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: CAC

Analyst: CAC

Date Prep: 01.13.2021 17:42

% Moisture:
 Basis: Wet Weight

Seq Number: 3147803

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.13.2021 23:14	U	1
Diesel Range Organics (DRO)	C10C28DRO	<49.8	49.8	mg/kg	01.13.2021 23:14	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<49.8	49.8	mg/kg	01.13.2021 23:14	U	1
Total GRO-DRO	PHC628	<49.8	49.8	mg/kg	01.13.2021 23:14	U	1
Total TPH	PHC635	<49.8	49.8	mg/kg	01.13.2021 23:14	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	108	%	70-135	01.13.2021 23:14	
o-Terphenyl	84-15-1	116	%	70-135	01.13.2021 23:14	



Certificate of Analytical Results 684466

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH64 C**
 Lab Sample Id: 684466-013

Matrix: Soil
 Date Collected: 01.12.2021 14:50

Date Received: 01.13.2021 08:20
 Sample Depth: 50 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: MAB

Analyst: MAB

Date Prep: 01.13.2021 17:00

% Moisture:
 Basis: Wet Weight

Seq Number: 3147761

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00196	0.00196	mg/kg	01.13.2021 22:35	U	1
Toluene	108-88-3	<0.00196	0.00196	mg/kg	01.13.2021 22:35	U	1
Ethylbenzene	100-41-4	<0.00196	0.00196	mg/kg	01.13.2021 22:35	U	1
m,p-Xylenes	179601-23-1	<0.00392	0.00392	mg/kg	01.13.2021 22:35	U	1
o-Xylene	95-47-6	<0.00196	0.00196	mg/kg	01.13.2021 22:35	U	1
Total Xylenes	1330-20-7	<0.00196	0.00196	mg/kg	01.13.2021 22:35	U	1
Total BTEX		<0.00196	0.00196	mg/kg	01.13.2021 22:35	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	106	%	70-130	01.13.2021 22:35	
4-Bromofluorobenzene	460-00-4	126	%	70-130	01.13.2021 22:35	



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



WSP USA PCA 53

Analytical Method: Chloride by EPA 300

Seq Number: 3147747

MB Sample Id: 7719117-1-BLK

Matrix: Solid

LCS Sample Id: 7719117-1-BKS

Prep Method: E300P

Date Prep: 01.13.2021

LCSD Sample Id: 7719117-1-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	252	101	253	101	90-110	0	20	mg/kg	01.13.2021 17:50	

Analytical Method: Chloride by EPA 300

Seq Number: 3147753

MB Sample Id: 7719119-1-BLK

Matrix: Solid

LCS Sample Id: 7719119-1-BKS

Prep Method: E300P

Date Prep: 01.13.2021

LCSD Sample Id: 7719119-1-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	252	101	253	101	90-110	0	20	mg/kg	01.13.2021 21:07	

Analytical Method: Chloride by EPA 300

Seq Number: 3147747

Parent Sample Id: 684436-001

Matrix: Soil

MS Sample Id: 684436-001 S

Prep Method: E300P

Date Prep: 01.13.2021

MSD Sample Id: 684436-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.94	199	198	99	195	98	90-110	2	20	mg/kg	01.13.2021 18:08	

Analytical Method: Chloride by EPA 300

Seq Number: 3147747

Parent Sample Id: 684465-004

Matrix: Soil

MS Sample Id: 684465-004 S

Prep Method: E300P

Date Prep: 01.13.2021

MSD Sample Id: 684465-004 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<9.98	200	204	102	205	101	90-110	0	20	mg/kg	01.14.2021 09:51	

Analytical Method: Chloride by EPA 300

Seq Number: 3147753

Parent Sample Id: 684466-002

Matrix: Soil

MS Sample Id: 684466-002 S

Prep Method: E300P

Date Prep: 01.13.2021

MSD Sample Id: 684466-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	82.2	199	284	101	286	102	90-110	1	20	mg/kg	01.13.2021 21:25	

Analytical Method: Chloride by EPA 300

Seq Number: 3147753

Parent Sample Id: 684466-012

Matrix: Soil

MS Sample Id: 684466-012 S

Prep Method: E300P

Date Prep: 01.13.2021

MSD Sample Id: 684466-012 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	38.2	202	236	98	237	98	90-110	0	20	mg/kg	01.13.2021 22:49	

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

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



WSP USA

PCA 53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147802

MB Sample Id: 7719123-1-BLK

Matrix: Solid

LCS Sample Id: 7719123-1-BKS

Prep Method: SW8015P

Date Prep: 01.13.2021

LCSD Sample Id: 7719123-1-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	1150	115	1050	105	70-135	9	35	mg/kg	01.13.2021 20:31	
Diesel Range Organics (DRO)	<50.0	1000	1070	107	1190	119	70-135	11	35	mg/kg	01.13.2021 20:31	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag		LCSD %Rec	LCSD Flag		Limits	Units	Analysis Date	
1-Chlorooctane	92		96			116			70-135	%	01.13.2021 20:31	
o-Terphenyl	88		81			95			70-135	%	01.13.2021 20:31	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147803

MB Sample Id: 7719124-1-BLK

Matrix: Solid

LCS Sample Id: 7719124-1-BKS

Prep Method: SW8015P

Date Prep: 01.13.2021

LCSD Sample Id: 7719124-1-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	1010	101	1110	111	70-135	9	35	mg/kg	01.13.2021 20:31	
Diesel Range Organics (DRO)	<50.0	1000	1030	103	1180	118	70-135	14	35	mg/kg	01.13.2021 20:31	
Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag		LCSD %Rec	LCSD Flag		Limits	Units	Analysis Date	
1-Chlorooctane	125		105			106			70-135	%	01.13.2021 20:31	
o-Terphenyl	112		101			102			70-135	%	01.13.2021 20:31	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147802

Matrix: Solid

MB Sample Id: 7719123-1-BLK

Prep Method: SW8015P

Date Prep: 01.13.2021

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.13.2021 20:11	

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147803

Matrix: Solid

MB Sample Id: 7719124-1-BLK

Prep Method: SW8015P

Date Prep: 01.13.2021

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.13.2021 20:11	

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

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

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

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



WSP USA

PCA 53

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147802

Parent Sample Id: 684465-002

Matrix: Soil

MS Sample Id: 684465-002 S

Prep Method: SW8015P

Date Prep: 01.13.2021

MSD Sample Id: 684465-002 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)	<50.3	1010	1100	109	979	97	70-135	12	35	mg/kg	01.13.2021 21:32	
Diesel Range Organics (DRO)	<50.3	1010	1080	107	998	99	70-135	8	35	mg/kg	01.13.2021 21:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	115		124		70-135	%	01.13.2021 21:32
o-Terphenyl	102		106		70-135	%	01.13.2021 21:32

Analytical Method: TPH by SW8015 Mod

Seq Number: 3147803

Parent Sample Id: 684466-009

Matrix: Soil

MS Sample Id: 684466-009 S

Prep Method: SW8015P

Date Prep: 01.13.2021

MSD Sample Id: 684466-009 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)	<50.3	1010	1210	120	1130	113	70-135	7	35	mg/kg	01.13.2021 21:32	
Diesel Range Organics (DRO)	<50.3	1010	1220	121	1110	111	70-135	9	35	mg/kg	01.13.2021 21:32	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	114		112		70-135	%	01.13.2021 21:32
o-Terphenyl	98		107		70-135	%	01.13.2021 21:32

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147761

MB Sample Id: 7719116-1-BLK

Matrix: Solid

LCS Sample Id: 7719116-1-BKS

Prep Method: SW5035A

Date Prep: 01.13.2021

LCSD Sample Id: 7719116-1-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	0.110	110	0.102	102	70-130	8	35	mg/kg	01.13.2021 19:00	
Toluene	<0.00200	0.100	0.100	100	0.0931	93	70-130	7	35	mg/kg	01.13.2021 19:00	
Ethylbenzene	<0.00200	0.100	0.104	104	0.0949	95	71-129	9	35	mg/kg	01.13.2021 19:00	
m,p-Xylenes	<0.00400	0.200	0.215	108	0.198	99	70-135	8	35	mg/kg	01.13.2021 19:00	
o-Xylene	<0.00200	0.100	0.104	104	0.0984	98	71-133	6	35	mg/kg	01.13.2021 19:00	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	100		106		100		70-130	%	01.13.2021 19:00
4-Bromofluorobenzene	109		116		112		70-130	%	01.13.2021 19:00

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

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

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

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



WSP USA
PCA 53

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147923

Matrix: Solid

Prep Method: SW5035A

Date Prep: 01.14.2021

MB Sample Id: 7719209-1-BLK

LCS Sample Id: 7719209-1-BKS

LCSD Sample Id: 7719209-1-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	0.0978	98	0.0989	99	70-130	1	35	mg/kg	01.14.2021 19:04	
Toluene	<0.00200	0.100	0.0909	91	0.0929	93	70-130	2	35	mg/kg	01.14.2021 19:04	
Ethylbenzene	<0.00200	0.100	0.0956	96	0.0977	98	71-129	2	35	mg/kg	01.14.2021 19:04	
m,p-Xylenes	<0.00400	0.200	0.198	99	0.202	101	70-135	2	35	mg/kg	01.14.2021 19:04	
o-Xylene	<0.00200	0.100	0.0992	99	0.0995	100	71-133	0	35	mg/kg	01.14.2021 19:04	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	102		102		100		70-130	%	01.14.2021 19:04
4-Bromofluorobenzene	118		111		111		70-130	%	01.14.2021 19:04

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147761

Matrix: Soil

Prep Method: SW5035A

Date Prep: 01.13.2021

Parent Sample Id: 684466-009

MS Sample Id: 684466-009 S

MSD Sample Id: 684466-009 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.101	101	0.104	104	70-130	3	35	mg/kg	01.13.2021 19:45	
Toluene	<0.00200	0.0998	0.0896	90	0.0958	96	70-130	7	35	mg/kg	01.13.2021 19:45	
Ethylbenzene	<0.00200	0.0998	0.0898	90	0.0930	93	71-129	4	35	mg/kg	01.13.2021 19:45	
m,p-Xylenes	<0.00399	0.200	0.183	92	0.190	95	70-135	4	35	mg/kg	01.13.2021 19:45	
o-Xylene	<0.00200	0.0998	0.0931	93	0.0949	95	71-133	2	35	mg/kg	01.13.2021 19:45	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		99		70-130	%	01.13.2021 19:45
4-Bromofluorobenzene	114		114		70-130	%	01.13.2021 19:45

Analytical Method: BTEX by EPA 8021B

Seq Number: 3147923

Matrix: Soil

Prep Method: SW5035A

Date Prep: 01.14.2021

Parent Sample Id: 684465-001

MS Sample Id: 684465-001 S

MSD Sample Id: 684465-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	<0.00200	0.0998	0.101	101	0.0976	98	70-130	3	35	mg/kg	01.14.2021 19:49	
Toluene	<0.00200	0.0998	0.0944	95	0.0939	94	70-130	1	35	mg/kg	01.14.2021 19:49	
Ethylbenzene	<0.00200	0.0998	0.0980	98	0.0971	97	71-129	1	35	mg/kg	01.14.2021 19:49	
m,p-Xylenes	<0.00399	0.200	0.204	102	0.200	100	70-135	2	35	mg/kg	01.14.2021 19:49	
o-Xylene	<0.00200	0.0998	0.102	102	0.101	101	71-133	1	35	mg/kg	01.14.2021 19:49	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	103		101		70-130	%	01.14.2021 19:49
4-Bromofluorobenzene	111		111		70-130	%	01.14.2021 19:49

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

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

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

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



Chain of Custody

Work Order No: 1087666

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0330 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) El Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813) 281-1111
Hobbs, NM (575-392-7550)

Page 7 of 7

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432-236-3849	Email:	bbellill@ltenv.com

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Work Order Comments	
Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ Superfund State of Project:	☐ Reporting Level II ☐ Level III ☐ PST/UST ☐ RRP ☐ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other:

ANALYSIS REQUEST						Work Order Notes	
Project Name:		124833		Turn Around			
Project Number:		TE012418187		Routine		☒	
P.O. Number:		ZRR-5169		Rush:			
Sampler's Name:		Benjamin Bellil		Due Date:			
SAMPLE RECEIPT							
Temperature (°C):		1.0 / 0.8		Temp Blank:		Yes No	
Received Intact:		(Yes) No		Thermometer ID		TMM007	
Cooler Custody Seals:		(Yes) No N/A		Correction Factor:		-0.2	
Sample Custody Seals:		Yes (No) N/A		Total Containers:		13	
Number of Containers							
A 8015)							
PA 0=8021)							
(EPA 300.0)							
TAT starts the day received by the Lab if received by 4:00pm.							

[illegible]

Total	200.7 / 6010	200.8 / 6020:	8RCRA	13PPM	Texas	11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO2	Na	Sr	Ti	Sn	U	V	Zn
<i>Circle Method(s) and Metal(s) to be analyzed</i>			TCLP / SPLP 6010:		8RCRA	Sb	As	Ba	Be	Cd	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U													
			1631 / 245.1 / 7470 / 7471 :		Hg																													

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		1-13-21 07:00			1/13/21 08:30



Chain of Custody

Work Order No:

684466

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432) 704-5440 EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
 Hobbs, NM (575) 392-7550 Phoenix, AZ (480) 355-0900 Atlanta, GA (770) 449-8800 Tampa, FL (813) 620-2000

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Page 2 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	LT Environmental, Inc., Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	3104 E Green Street
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM 88220
Phone:	432.236.3849	Email:	bbeill@ltenv.com

Program: UST/PST ☐ PRP ☐ Brownfields ☐ RC ☐ Superfund ☐ State of Project: _____ Reporting Level: I ☐ Level II ☐ Level III ☐ UST/UST ☐ RRP ☐ Level IV ☐ Deliverables: EDD ☐ ADAPT ☐ Other: _____	Work Order Comments _____ _____ _____
---	--

Project Name:	PLA53	Turn Around	☒
Project Number:	TE012418187	Routine	☒
P.O. Number:	248-5169	Rush:	
Sampler's Name:	Benjamin Beill	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No
	Temperature (°C):			Thermometer ID		
	Received Intact:	Yes	No	Correction Factor:		
	Cooler Custody Seals:	Yes	No	N/A		
Sample Custody Seals:	Yes	No	N/A	Total Containers:		

Sample Identification					Matrix	Date Sampled	Time Sampled	Depth	Number	TPH (EP	BTEX (E	Chloride	Sample Comments									
BT64A					S	11/12/21	1400	37'	1	X	X	X										
BT64B							1420	43'	1	X	X	X										
BT64C					↓	↓	1450	50'	↓	↓	↓	↓										
11/2/21 1510																						

Total 200.7 / 6010 200.8 / 6020:

8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO2 Na Sr Ti Sn U V Zn
 Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U
 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		11/13/21 08:20			

Certificate of Analysis Summary 685400



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.20.2021 13:08

Report Date: 02.02.2021 09:26

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i> <i>Field Id:</i> <i>Depth:</i> <i>Matrix:</i> <i>Sampled:</i>	685400-001 BH16 WATER 01.20.2021 12:13	685400-002 BH25 WATER 01.20.2021 11:19	685400-003 BH27 WATER 01.20.2021 12:05	685400-004 BH39 WATER 01.20.2021 11:34	685400-005 BH46 WATER 01.20.2021 11:26	685400-006 BH48 WATER 01.20.2021 11:07
Alkalinity by SM2320B SUB: T104704215-20-38	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>		01.21.2021 12:51 01.21.2021 13:39 mg/L RL				01.21.2021 12:51 01.21.2021 13:45 mg/L RL
Alkalinity, Total (as CaCO ₃)			152 4.00				145 4.00
Alkalinity, Bicarbonate (as CaCO ₃)			152 4.00				145 4.00
Alkalinity, Carbonate (as CaCO ₃)			<4.00 4.00				<4.00 4.00
Alkalinity, hydroxide (as CaCO ₃)			<4.00 4.00				<4.00 4.00
Carbon Dioxide by SM 4500-CO₂ D SUB: T104704215-20-38	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>		01.21.2021 13:39 mg/L RL				01.21.2021 13:45 mg/L RL
Carbon Dioxide, (Free)			18.3 K+ 0.370				21.0 K+ 0.370
Cation-Anion Balance Calculation SUB: T104704215-20-38	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>		01.27.2021 15:42 % RL				01.27.2021 15:42 % RL
Cation-Anion Balance			6.40				5.40
Heterotrophic Plate Count by SM9215B SUB: T104704295-19-26	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>		01.27.2021 13:20 cfu/ml RL				01.27.2021 13:20 cfu/ml RL
Heterotrophic Colony Plate Count			983333 10.0				59333 10.0
Inorganic Anions by EPA 300 SUB: T104704215-20-38	<i>Extracted:</i> <i>Analyzed:</i> <i>Units/RL:</i>		01.21.2021 14:20 01.21.2021 18:39 mg/L RL				01.21.2021 14:20 01.21.2021 19:10 mg/L RL
Nitrate as N			3.08 2.00				2.39 2.00
Nitrite as N			12.8 2.00				14.3 2.00
Sulfate			2100 10.0				2600 10.0

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 685400



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.20.2021 13:08

Report Date: 02.02.2021 09:26

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: Field Id: Depth: Matrix: Sampled:	685400-001 BH16 WATER 01.20.2021 12:13	685400-002 BH25 WATER 01.20.2021 11:19	685400-003 BH27 WATER 01.20.2021 12:05	685400-004 BH39 WATER 01.20.2021 11:34	685400-005 BH46 WATER 01.20.2021 11:26	685400-006 BH48 WATER 01.20.2021 11:07
Metals, Total by SW846 6010C SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:		01.22.2021 08:30 01.25.2021 19:20 mg/L RL				01.22.2021 08:30 01.25.2021 19:25 mg/L RL
Calcium			1680 D 10.0				1560 D 10.0
Magnesium			570 D 20.0				622 D 20.0
Potassium			116 0.500				185 0.500
Sodium			5680 D 50.0				6590 D 50.0
SM 9223-IDEXX Colisure SUB: T104704219-20-24	Extracted: Analyzed: Units/RL:	01.21.2021 13:00 01.22.2021 17:00		01.21.2021 13:00 01.22.2021 17:00	01.21.2021 13:00 01.22.2021 17:00	01.21.2021 13:00 01.22.2021 17:00	01.21.2021 13:00 01.22.2021 17:00
Total Coliform		Absent		Absent	Absent	Absent	Absent
E. Coli		Absent		Absent	Absent	Absent	Absent
Select Metals by SW-846 6020A SUB: T104704215-20-38	Extracted: Analyzed: Units/RL:		01.22.2021 08:30 01.22.2021 23:54 mg/L RL				01.22.2021 08:30 01.22.2021 23:57 mg/L RL
Iron			1.77 0.100				11.7 0.100
Manganese			0.0863 0.00200				0.224 0.00200

BRL - Below Reporting Limit

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Certificate of Analysis Summary 685400



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.20.2021 13:08

Report Date: 02.02.2021 09:26

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	685400-007	685400-008	685400-009	685400-010	685400-011	685400-012
	Field Id:	BH53	BH54	BH55	BH56	BH59	BH61
	Depth:						
	Matrix:	WATER	WATER	WATER	WATER	WATER	WATER
	Sampled:	01.20.2021 10:44	01.20.2021 10:26	01.20.2021 10:14	01.20.2021 10:01	01.20.2021 09:45	01.20.2021 09:33
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted:	01.21.2021 12:51	01.21.2021 12:51	01.21.2021 12:51	01.21.2021 12:51	01.21.2021 12:51	01.21.2021 12:51
	Analyzed:	01.21.2021 13:51	01.21.2021 13:56	01.21.2021 14:02	01.21.2021 14:20	01.21.2021 14:27	01.21.2021 14:33
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Alkalinity, Total (as CaCO ₃)		146 4.00	147 4.00	124 4.00	144 4.00	168 4.00	184 4.00
Alkalinity, Bicarbonate (as CaCO ₃)		146 4.00	147 4.00	124 4.00	144 4.00	168 4.00	184 4.00
Alkalinity, Carbonate (as CaCO ₃)		<4.00 4.00	<4.00 4.00	<4.00 4.00	<4.00 4.00	<4.00 4.00	<4.00 4.00
Alkalinity, hydroxide (as CaCO ₃)		<4.00 4.00	<4.00 4.00	<4.00 4.00	<4.00 4.00	<4.00 4.00	<4.00 4.00
Carbon Dioxide by SM 4500-CO₂ D SUB: T104704215-20-38	Extracted:						
	Analyzed:	01.21.2021 13:51	01.21.2021 13:56	01.21.2021 14:02	01.21.2021 14:20	01.21.2021 14:27	01.21.2021 14:33
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Carbon Dioxide, (Free)		12.4 K+ 0.370	18.6 K+ 0.370	15.3 K+ 0.370	14.8 K+ 0.370	10.2 K+ 0.370	14.0 K+ 0.370
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted:						
	Analyzed:	01.27.2021 15:42	01.27.2021 15:42	01.27.2021 15:42	01.27.2021 15:42	01.27.2021 15:42	01.27.2021 15:42
	Units/RL:	% RL	% RL	% RL	% RL	% RL	% RL
Cation-Anion Balance		1.10	1.60	0.200	3.20	0.800	8.30
Heterotrophic Plate Count by SM9215B SUB: T104704295-19-26	Extracted:						
	Analyzed:	01.27.2021 13:20	01.27.2021 13:20	01.27.2021 13:20	01.27.2021 13:20	01.27.2021 13:20	01.27.2021 13:20
	Units/RL:	cfu/ml RL	cfu/ml RL	cfu/ml RL	cfu/ml RL	cfu/ml RL	cfu/ml RL
Heterotrophic Colony Plate Count		126666 10.0	67 10.0	107 10.0	403 10.0	253333 10.0	143333 10.0
Inorganic Anions by EPA 300 SUB: T104704215-20-38	Extracted:	01.21.2021 14:20	01.21.2021 14:20	01.21.2021 14:20	01.21.2021 14:20	01.21.2021 14:20	01.21.2021 14:20
	Analyzed:	01.21.2021 20:11	01.21.2021 20:42	01.21.2021 21:12	01.21.2021 21:43	01.21.2021 22:14	01.21.2021 23:15
	Units/RL:	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Nitrate as N		3.93 2.00	2.04 2.00	<2.00 2.00	<2.00 2.00	3.97 D 0.200	4.46 D 0.200
Nitrite as N		10.7 2.00	20.7 2.00	23.1 2.00	25.8 2.00	<0.200 0.200	<2.00 2.00
Sulfate		2380 10.0	2440 10.0	2410 10.0	2460 10.0	2100 D 10.0	1890 D 10.0

BRL - Below Reporting Limit

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

Certificate of Analysis Summary 685400



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.20.2021 13:08

Report Date: 02.02.2021 09:26

Project Manager: Jessica Kramer

<i>Analysis Requested</i>	<i>Lab Id:</i>	685400-007	685400-008	685400-009	685400-010	685400-011	685400-012
	<i>Field Id:</i>	BH53	BH54	BH55	BH56	BH59	BH61
	<i>Depth:</i>						
	<i>Matrix:</i>	WATER	WATER	WATER	WATER	WATER	WATER
	<i>Sampled:</i>	01.20.2021 10:44	01.20.2021 10:26	01.20.2021 10:14	01.20.2021 10:01	01.20.2021 09:45	01.20.2021 09:33
Metals, Total by SW846 6010C SUB: T104704215-20-38	<i>Extracted:</i>	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30
	<i>Analyzed:</i>	01.25.2021 19:29	01.25.2021 19:33	01.25.2021 19:37	01.25.2021 20:11	01.25.2021 20:15	01.25.2021 20:19
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Calcium		1380 D 10.0	2060 D 10.0	2440 D 10.0	2370 D 10.0	746 D 10.0	1180 D 10.0
Magnesium		495 D 20.0	759 D 20.0	829 D 20.0	864 D 20.0	254 D 20.0	302 D 20.0
Potassium		104 0.500	306 D 25.0	288 D 25.0	270 D 25.0	19.7 0.500	40.5 0.500
Sodium		4630 D 50.0	12300 D 50.0	13000 D 50.0	12200 D 50.0	594 D 25.0	803 D 25.0
SM 9223-IDEXX Colisure SUB: T104704219-20-24	<i>Extracted:</i>		01.21.2021 13:00	01.21.2021 13:00	01.21.2021 13:00	01.21.2021 13:00	01.21.2021 13:00
	<i>Analyzed:</i>		01.22.2021 17:00	01.22.2021 17:00	01.22.2021 17:00	01.22.2021 17:00	01.22.2021 17:00
	<i>Units/RL:</i>						
Total Coliform			Absent	Absent	Absent	Present	Present
E. Coli			Absent	Absent	Absent	Present	Absent
Select Metals by SW-846 6020A SUB: T104704215-20-38	<i>Extracted:</i>	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30	01.22.2021 08:30
	<i>Analyzed:</i>	01.23.2021 00:00	01.23.2021 00:03	01.23.2021 00:05	01.23.2021 00:08	01.23.2021 00:11	01.23.2021 00:14
	<i>Units/RL:</i>	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL	mg/L RL
Iron		6.40 0.100	6.28 0.100	15.9 0.100	5.71 0.100	4.49 0.100	7.29 0.100
Manganese		0.323 0.00200	0.265 0.00200	0.351 0.00200	0.301 0.00200	0.366 0.00200	0.239 0.00200

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

Certificate of Analysis Summary 685400

WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.20.2021 13:08

Report Date: 02.02.2021 09:26

Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	685400-013					
	Field Id:	BH63					
	Depth:						
	Matrix:	WATER					
	Sampled:	01.20.2021 09:19					
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted:	01.21.2021 12:51					
	Analyzed:	01.21.2021 14:38					
	Units/RL:	mg/L RL					
Alkalinity, Total (as CaCO3)		172 4.00					
Alkalinity, Bicarbonate (as CaCO3)		172 4.00					
Alkalinity, Carbonate (as CaCO3)		<4.00 4.00					
Alkalinity, hydroxide (as CaCO3)		<4.00 4.00					
Carbon Dioxide by SM 4500-CO2 D SUB: T104704215-20-38	Extracted:						
	Analyzed:	01.21.2021 14:38					
	Units/RL:	mg/L RL					
Carbon Dioxide, (Free)		13.4 K+ 0.370					
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted:						
	Analyzed:	01.29.2021 18:11					
	Units/RL:	% RL					
Cation-Anion Balance		1.80					
Heterotrophic Plate Count by SM9215B SUB: T104704295-19-26	Extracted:						
	Analyzed:	01.27.2021 13:20					
	Units/RL:	cfu/ml RL					
Heterotrophic Colony Plate Count		283333 10.0					
Inorganic Anions by EPA 300 SUB: T104704215-20-38	Extracted:	01.21.2021 14:20					
	Analyzed:	01.21.2021 23:45					
	Units/RL:	mg/L RL					
Nitrate as N		3.54 D 0.200					
Nitrite as N		2.03 D 2.00					
Sulfate		1960 D 10.0					

BRL - Below Reporting Limit

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Certificate of Analysis Summary 685400



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Wed 01.20.2021 13:08

Report Date: 02.02.2021 09:26

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 685400-013 Field Id: BH63 Depth: Matrix: WATER Sampled: 01.20.2021 09:19					
Metals, Total by SW846 6010C SUB: T104704215-20-38	Extracted: 01.22.2021 08:30 Analyzed: 01.25.2021 20:23 Units/RL: mg/L RL					
Calcium	1040 D 10.0					
Magnesium	391 D 2.00					
Potassium	42.2 D 2.50					
Sodium	988 D 2.50					
SM 9223-IDEXX Colisure SUB: T104704219-20-24	Extracted: 01.21.2021 13:00 Analyzed: 01.22.2021 17:00 Units/RL:					
Total Coliform	Present					
E. Coli	Absent					
Select Metals by SW-846 6020A SUB: T104704215-20-38	Extracted: 01.22.2021 08:30 Analyzed: 01.23.2021 00:26 Units/RL: mg/L RL					
Iron	65.0 D 2.00					
Manganese	0.829 0.00200					

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Analytical Report 685400

for

WSP USA

Project Manager: Dan Moir

PCA 53

PCA 53 - TE012918187

02.02.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



02.02.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600

Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **685400**

PCA 53

Project Address:

Dan Moir:

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) 685400. 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. 685400 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads "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

**Sample Cross Reference 685400****WSP USA, Dallas, TX**

PCA 53

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH16	W	01.20.2021 12:13		685400-001
BH25	W	01.20.2021 11:19		685400-002
BH27	W	01.20.2021 12:05		685400-003
BH39	W	01.20.2021 11:34		685400-004
BH46	W	01.20.2021 11:26		685400-005
BH48	W	01.20.2021 11:07		685400-006
BH53	W	01.20.2021 10:44		685400-007
BH54	W	01.20.2021 10:26		685400-008
BH55	W	01.20.2021 10:14		685400-009
BH56	W	01.20.2021 10:01		685400-010
BH59	W	01.20.2021 09:45		685400-011
BH61	W	01.20.2021 09:33		685400-012
BH63	W	01.20.2021 09:19		685400-013

**CASE NARRATIVE****Client Name: WSP USA****Project Name: PCA 53**

Project ID: PCA 53 - TE012918187
Work Order Number(s): 685400

Report Date: 02.02.2021
Date Received: 01.20.2021

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None

Analytical non conformances and comments:

Batch: LBA-3149414 Metals, Total by SW846 6010C

Lab Sample ID 685400-013 was randomly selected for Matrix Spike/Matrix Spike Duplicate (MS/MSD). Calcium, Magnesium recovered below QC limits in the Matrix Spike and Matrix Spike Duplicate.

Potassium, Sodium 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: 685400-013.

The Laboratory Control Sample for Magnesium, Calcium, Sodium, Potassium is within laboratory Control Limits, therefore the data was accepted.



Certificate of Analytical Results 685400

WSP USA, Dallas, TX
PCA 53

Sample Id: **BH16**
Lab Sample Id: 685400-001

Matrix: Water
Date Collected: 01.20.2021 12:13

Date Received:01.20.2021 13:08

Analytical Method: SM 9223-IDEXX Colisure
Tech: MIT
Analyst: MIT
Seq Number: 3148739

Prep Method: SM9223P

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH25**
Lab Sample Id: 685400-002

Matrix: Water
Date Collected: 01.20.2021 11:19

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	152	4.00	mg/L	01.21.2021 13:39		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	152	4.00	mg/L	01.21.2021 13:39		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 13:39	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 13:39	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	6.40		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	3.08	2.00	mg/L	01.21.2021 18:39		20
Nitrite as N	14797-65-0	12.8	2.00	mg/L	01.21.2021 18:39		20
Sulfate	14808-79-8	2100	10.0	mg/L	01.21.2021 18:39		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1680	10.0	mg/L	01.25.2021 19:41	D	50
Magnesium	7439-95-4	570	20.0	mg/L	01.25.2021 19:41	D	50
Potassium	7440-09-7	116	0.500	mg/L	01.25.2021 19:20		1
Sodium	7440-23-5	5680	50.0	mg/L	01.26.2021 11:48	D	100



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH25**
Lab Sample Id: 685400-002

Matrix: Water
Date Collected: 01.20.2021 11:19

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	1.77	0.100	mg/L	01.22.2021 23:54		1
Manganese	7439-96-5	0.0863	0.00200	mg/L	01.22.2021 23:54		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	18.3	0.370	mg/L	01.21.2021 13:39	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	983333	10.0	cfu/ml	01.27.2021 13:20	UK	1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX
PCA 53

Sample Id: **BH27**
Lab Sample Id: 685400-003

Matrix: Water
Date Collected: 01.20.2021 12:05

Date Received:01.20.2021 13:08

Analytical Method: SM 9223-IDEXX Colisure
Tech: MIT
Analyst: MIT
Seq Number: 3148739

Prep Method: SM9223P

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1

**Certificate of Analytical Results 685400****WSP USA, Dallas, TX**

PCA 53

Sample Id: **BH39**
Lab Sample Id: 685400-004

Matrix: Water
Date Collected: 01.20.2021 11:34

Date Received: 01.20.2021 13:08

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1

**Certificate of Analytical Results 685400****WSP USA, Dallas, TX**

PCA 53

Sample Id: **BH46**
Lab Sample Id: 685400-005

Matrix: Water
Date Collected: 01.20.2021 11:26

Date Received: 01.20.2021 13:08

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH48**
Lab Sample Id: 685400-006

Matrix: Water
Date Collected: 01.20.2021 11:07

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	145	4.00	mg/L	01.21.2021 13:45		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	145	4.00	mg/L	01.21.2021 13:45		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 13:45	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 13:45	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	5.40		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	2.39	2.00	mg/L	01.21.2021 19:10		20
Nitrite as N	14797-65-0	14.3	2.00	mg/L	01.21.2021 19:10		20
Sulfate	14808-79-8	2600	10.0	mg/L	01.21.2021 19:10		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1560	10.0	mg/L	01.25.2021 19:46	D	50
Magnesium	7439-95-4	622	20.0	mg/L	01.25.2021 19:46	D	50
Potassium	7440-09-7	185	0.500	mg/L	01.25.2021 19:25		1
Sodium	7440-23-5	6590	50.0	mg/L	01.26.2021 11:52	D	100



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH48**
Lab Sample Id: 685400-006

Matrix: Water
Date Collected: 01.20.2021 11:07

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	11.7	0.100	mg/L	01.22.2021 23:57		1
Manganese	7439-96-5	0.224	0.00200	mg/L	01.22.2021 23:57		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	21.0	0.370	mg/L	01.21.2021 13:45	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	59333	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH53**
Lab Sample Id: 685400-007

Matrix: Water
Date Collected: 01.20.2021 10:44

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	146	4.00	mg/L	01.21.2021 13:51		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	146	4.00	mg/L	01.21.2021 13:51		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 13:51	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 13:51	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	1.10		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	3.93	2.00	mg/L	01.21.2021 20:11		20
Nitrite as N	14797-65-0	10.7	2.00	mg/L	01.21.2021 20:11		20
Sulfate	14808-79-8	2380	10.0	mg/L	01.21.2021 20:11		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1380	10.0	mg/L	01.25.2021 19:50	D	50
Magnesium	7439-95-4	495	20.0	mg/L	01.25.2021 19:50	D	50
Potassium	7440-09-7	104	0.500	mg/L	01.25.2021 19:29		1
Sodium	7440-23-5	4630	50.0	mg/L	01.26.2021 11:56	D	100



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH53**
Lab Sample Id: 685400-007

Matrix: Water
Date Collected: 01.20.2021 10:44

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	6.40	0.100	mg/L	01.23.2021 00:00		1
Manganese	7439-96-5	0.323	0.00200	mg/L	01.23.2021 00:00		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	12.4	0.370	mg/L	01.21.2021 13:51	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	126666	10.0	cfu/ml	01.27.2021 13:20	UK	1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH54**
Lab Sample Id: 685400-008

Matrix: Water
Date Collected: 01.20.2021 10:26

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	147	4.00	mg/L	01.21.2021 13:56		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	147	4.00	mg/L	01.21.2021 13:56		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 13:56	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 13:56	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	1.60		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	2.04	2.00	mg/L	01.21.2021 20:42		20
Nitrite as N	14797-65-0	20.7	2.00	mg/L	01.21.2021 20:42		20
Sulfate	14808-79-8	2440	10.0	mg/L	01.21.2021 20:42		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2060	10.0	mg/L	01.25.2021 19:54	D	50
Magnesium	7439-95-4	759	20.0	mg/L	01.25.2021 19:54	D	50
Potassium	7440-09-7	306	25.0	mg/L	01.25.2021 19:54	D	50
Sodium	7440-23-5	12300	50.0	mg/L	01.26.2021 12:00	D	100



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH54**
Lab Sample Id: 685400-008

Matrix: Water
Date Collected: 01.20.2021 10:26

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	6.28	0.100	mg/L	01.23.2021 00:03		1
Manganese	7439-96-5	0.265	0.00200	mg/L	01.23.2021 00:03		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	18.6	0.370	mg/L	01.21.2021 13:56	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	67	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH55**
Lab Sample Id: 685400-009

Matrix: Water
Date Collected: 01.20.2021 10:14

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO₃)	1640192	124	4.00	mg/L	01.21.2021 14:02		1
Alkalinity, Bicarbonate (as CaCO₃)	471-34-1	124	4.00	mg/L	01.21.2021 14:02		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 14:02	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 14:02	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	0.200		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	<2.00	2.00	mg/L	01.21.2021 21:12	U	20
Nitrite as N	14797-65-0	23.1	2.00	mg/L	01.21.2021 21:12		20
Sulfate	14808-79-8	2410	10.0	mg/L	01.21.2021 21:12		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2440	10.0	mg/L	01.25.2021 19:58	D	50
Magnesium	7439-95-4	829	20.0	mg/L	01.25.2021 19:58	D	50
Potassium	7440-09-7	288	25.0	mg/L	01.25.2021 19:58	D	50
Sodium	7440-23-5	13000	50.0	mg/L	01.26.2021 12:05	D	100



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH55**
Lab Sample Id: 685400-009

Matrix: Water
Date Collected: 01.20.2021 10:14

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	15.9	0.100	mg/L	01.23.2021 00:05		1
Manganese	7439-96-5	0.351	0.00200	mg/L	01.23.2021 00:05		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	15.3	0.370	mg/L	01.21.2021 14:02	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	107	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH56**
Lab Sample Id: 685400-010

Matrix: Water
Date Collected: 01.20.2021 10:01

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	144	4.00	mg/L	01.21.2021 14:20		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	144	4.00	mg/L	01.21.2021 14:20		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 14:20	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 14:20	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	3.20		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	<2.00	2.00	mg/L	01.21.2021 21:43	U	20
Nitrite as N	14797-65-0	25.8	2.00	mg/L	01.21.2021 21:43		20
Sulfate	14808-79-8	2460	10.0	mg/L	01.21.2021 21:43		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2370	10.0	mg/L	01.25.2021 20:28	D	50
Magnesium	7439-95-4	864	20.0	mg/L	01.25.2021 20:28	D	50
Potassium	7440-09-7	270	25.0	mg/L	01.25.2021 20:28	D	50
Sodium	7440-23-5	12200	50.0	mg/L	01.26.2021 12:09	D	100



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH56**
Lab Sample Id: 685400-010

Matrix: Water
Date Collected: 01.20.2021 10:01

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	5.71	0.100	mg/L	01.23.2021 00:08		1
Manganese	7439-96-5	0.301	0.00200	mg/L	01.23.2021 00:08		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	14.8	0.370	mg/L	01.21.2021 14:20	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	403	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH59**
Lab Sample Id: 685400-011

Matrix: Water
Date Collected: 01.20.2021 09:45

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	168	4.00	mg/L	01.21.2021 14:27		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	168	4.00	mg/L	01.21.2021 14:27		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 14:27	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 14:27	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	0.800		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	3.97	0.200	mg/L	01.22.2021 07:03	D	2
Nitrite as N	14797-65-0	<0.200	0.200	mg/L	01.22.2021 07:03	UD	2
Sulfate	14808-79-8	2100	10.0	mg/L	01.22.2021 07:18	D	20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	746	10.0	mg/L	01.25.2021 20:32	D	50
Magnesium	7439-95-4	254	20.0	mg/L	01.25.2021 20:32	D	50
Potassium	7440-09-7	19.7	0.500	mg/L	01.25.2021 20:15		1
Sodium	7440-23-5	594	25.0	mg/L	01.26.2021 12:13	D	50



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH59**
Lab Sample Id: 685400-011

Matrix: Water
Date Collected: 01.20.2021 09:45

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	4.49	0.100	mg/L	01.23.2021 00:11		1
Manganese	7439-96-5	0.366	0.00200	mg/L	01.23.2021 00:11		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	10.2	0.370	mg/L	01.21.2021 14:27	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	253333	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148739

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Present			01.22.2021 17:00		1
E. Coli	ECOLIF	Present			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61**
Lab Sample Id: 685400-012

Matrix: Water
Date Collected: 01.20.2021 09:33

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	184	4.00	mg/L	01.21.2021 14:33		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	184	4.00	mg/L	01.21.2021 14:33		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 14:33	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 14:33	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149082

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	8.30		%	01.27.2021 15:42		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	4.46	0.200	mg/L	01.22.2021 07:34	D	2
Nitrite as N	14797-65-0	<2.00	2.00	mg/L	01.22.2021 07:49	UD	20
Sulfate	14808-79-8	1890	10.0	mg/L	01.22.2021 07:49	D	20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1180	10.0	mg/L	01.25.2021 20:36	D	50
Magnesium	7439-95-4	302	20.0	mg/L	01.25.2021 20:36	D	50
Potassium	7440-09-7	40.5	0.500	mg/L	01.25.2021 20:19		1
Sodium	7440-23-5	803	25.0	mg/L	01.26.2021 12:17	D	50



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH61**
Lab Sample Id: 685400-012

Matrix: Water
Date Collected: 01.20.2021 09:33

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	7.29	0.100	mg/L	01.23.2021 00:14		1
Manganese	7439-96-5	0.239	0.00200	mg/L	01.23.2021 00:14		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	14.0	0.370	mg/L	01.21.2021 14:33	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	143333	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148741

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Present			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63**
Lab Sample Id: 685400-013

Matrix: Water
Date Collected: 01.20.2021 09:19

Date Received: 01.20.2021 13:08

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.21.2021 12:51

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148517

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	172	4.00	mg/L	01.21.2021 14:38		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	172	4.00	mg/L	01.21.2021 14:38		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.21.2021 14:38	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.21.2021 14:38	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149432

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	1.80		%	01.29.2021 18:11		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.21.2021 14:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148544

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	3.54	0.200	mg/L	01.22.2021 08:04	D	2
Nitrite as N	14797-65-0	2.03	2.00	mg/L	01.22.2021 08:20	D	20
Sulfate	14808-79-8	1960	10.0	mg/L	01.22.2021 08:20	D	20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148927

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	1040	10.0	mg/L	01.29.2021 16:50	D	50
Magnesium	7439-95-4	391	2.00	mg/L	01.29.2021 16:37	D	5
Potassium	7440-09-7	42.2	2.50	mg/L	01.29.2021 16:37	D	5
Sodium	7440-23-5	988	2.50	mg/L	01.29.2021 16:37	D	5



Certificate of Analytical Results 685400

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH63**
Lab Sample Id: 685400-013

Matrix: Water
Date Collected: 01.20.2021 09:19

Date Received: 01.20.2021 13:08

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.22.2021 08:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148756

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	65.0	2.00	mg/L	01.26.2021 02:28	D	20
Manganese	7439-96-5	0.829	0.00200	mg/L	01.23.2021 00:26		1

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149089

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	13.4	0.370	mg/L	01.21.2021 14:38	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	283333	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.21.2021 13:00

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148741

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Present			01.22.2021 17:00		1
E. Coli	ECOLIF	Absent			01.22.2021 17:00		1



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



WSP USA PCA 53

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148517

MB Sample Id: 7719703-1-BLK

Matrix: Water

LCS Sample Id: 7719703-1-BKS

Prep Method: SM2320P

Date Prep: 01.21.2021

LCSD Sample Id: 7719703-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (as CaCO ₃)	<4.00	250	263	105	266	106	85-115	1	20	mg/L	01.21.2021 13:14	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148517

Matrix: Water

MB Sample Id: 7719703-1-BLK

Prep Method: SM2320P

Date Prep: 01.21.2021

Parameter	MB Result	Units	Analysis Date	Flag
Alkalinity, Bicarbonate (as CaCO ₃)	<4.00	mg/L	01.21.2021 13:06	
Alkalinity, Carbonate (as CaCO ₃)	<4.00	mg/L	01.21.2021 13:06	
Alkalinity, hydroxide (as CaCO ₃)	<4.00	mg/L	01.21.2021 13:06	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148517

Matrix: Water

Parent Sample Id: 685148-001

MD Sample Id: 685148-001 D

Prep Method: SM2320P

Date Prep: 01.21.2021

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (as CaCO ₃)	216	214	1	20	mg/L	01.21.2021 13:33	
Alkalinity, Bicarbonate (as CaCO ₃)	216	214	1	20	mg/L	01.21.2021 13:33	
Alkalinity, Carbonate (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.21.2021 13:33	
Alkalinity, hydroxide (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.21.2021 13:33	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148517

Matrix: Water

Parent Sample Id: 685433-001

MD Sample Id: 685433-001 D

Prep Method: SM2320P

Date Prep: 01.21.2021

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (as CaCO ₃)	348	347	0	20	mg/L	01.21.2021 14:53	
Alkalinity, Bicarbonate (as CaCO ₃)	348	347	0	20	mg/L	01.21.2021 14:53	
Alkalinity, Carbonate (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.21.2021 14:53	
Alkalinity, hydroxide (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.21.2021 14:53	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3148544

Matrix: Water

MB Sample Id: 7719686-1-BLK

LCS Sample Id: 7719686-1-BKS

Prep Method: E300P

Date Prep: 01.21.2021

LCSD Sample Id: 7719686-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrate as N	<0.100	10.0	10.8	108	10.7	107	90-110	1	20	mg/L	01.21.2021 07:07	
Nitrite as N	<0.100	10.0	9.94	99	9.96	100	90-110	0	20	mg/L	01.21.2021 07:07	
Sulfate	<0.500	10.0	10.6	106	10.7	107	90-110	1	20	mg/L	01.21.2021 07:07	

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

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

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

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



WSP USA PCA 53

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3148544

Matrix: Water

Prep Method: E300P

Date Prep: 01.21.2021

Parent Sample Id: 685394-001

MS Sample Id: 685394-001 S

MSD Sample Id: 685394-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrate as N	0.971	10.0	11.3	103	11.3	103	90-110	0	20	mg/L	01.21.2021 14:49	
Nitrite as N	<0.100	10.0	9.64	96	9.66	97	90-110	0	20	mg/L	01.21.2021 14:49	
Sulfate	113	10.0	122	90	122	90	90-110	0	20	mg/L	01.21.2021 14:49	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3148544

Matrix: Water

Prep Method: E300P

Date Prep: 01.21.2021

Parent Sample Id: 685394-002

MS Sample Id: 685394-002 S

MSD Sample Id: 685394-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrate as N	0.278	10.0	10.9	106	10.9	106	90-110	0	20	mg/L	01.21.2021 15:35	
Nitrite as N	<0.100	10.0	9.75	98	9.79	98	90-110	0	20	mg/L	01.21.2021 15:35	
Sulfate	30.6	10.0	40.6	100	40.9	103	90-110	1	20	mg/L	01.21.2021 15:35	

Analytical Method: Metals, Total by SW846 6010C

Seq Number: 3148927

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.22.2021

MB Sample Id: 7719765-1-BLK

LCS Sample Id: 7719765-1-BKS

LCSD Sample Id: 7719765-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	24.9	100	24.7	99	75-125	1	20	mg/L	01.25.2021 18:38	
Magnesium	<0.400	25.0	24.9	100	24.8	99	75-125	0	20	mg/L	01.25.2021 18:38	
Potassium	<0.500	10.0	9.98	100	9.89	99	75-125	1	20	mg/L	01.25.2021 18:38	

Analytical Method: Metals, Total by SW846 6010C

Seq Number: 3149414

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.29.2021

MB Sample Id: 7720353-1-BLK

LCS Sample Id: 7720353-1-BKS

LCSD Sample Id: 7720353-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	25.4	102	25.6	102	75-125	1	20	mg/L	01.29.2021 16:29	
Magnesium	<0.400	25.0	25.1	100	25.3	101	75-125	1	20	mg/L	01.29.2021 16:29	
Potassium	<0.500	10.0	10.2	102	10.3	103	75-125	1	20	mg/L	01.29.2021 16:29	
Sodium	<0.500	25.0	24.7	99	24.9	100	75-125	1	20	mg/L	01.29.2021 16:29	

Analytical Method: Metals, Total by SW846 6010C

Seq Number: 3148927

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.22.2021

Parent Sample Id: 685192-001

MS Sample Id: 685192-001 S

MSD Sample Id: 685192-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	372	25.0	396	96	397	100	75-125	0	20	mg/L	01.25.2021 18:51	
Magnesium	109	25.0	136	108	136	108	75-125	0	20	mg/L	01.25.2021 18:51	
Potassium	209	10.0	218	90	218	90	75-125	0	20	mg/L	01.25.2021 18:51	

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

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

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

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



WSP USA PCA 53

Analytical Method: Metals, Total by SW846 6010C

Seq Number: 3149414

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.29.2021

Parent Sample Id: 685400-013

REMS Sample Id: 685400-013 S

REMSD Sample Id: 685400-013 SD

Parameter	Parent Result	Spike Amount	REMS Result	REMS %Rec	REMSD Result	REMSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1510	25.0	1050	0	1040	0	75-125	1	20	mg/L	01.29.2021 16:41	X
Magnesium	598	25.0	412	0	408	0	75-125	1	20	mg/L	01.29.2021 16:41	X
Potassium	38.9	10.0	54.0	151	53.2	143	75-125	1	20	mg/L	01.29.2021 16:41	X
Sodium	830	25.0	1000	680	992	648	75-125	1	20	mg/L	01.29.2021 16:41	X

Analytical Method: Select Metals by SW-846 6020A

Seq Number: 3148756

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.22.2021

MB Sample Id: 7719766-1-BLK

LCS Sample Id: 7719766-1-BKS

LCSD Sample Id: 7719766-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Iron	<0.100	0.500	0.488	98	0.480	96	80-120	2	20	mg/L	01.22.2021 23:23	
Manganese	<0.00200	0.100	0.0993	99	0.0973	97	80-120	2	20	mg/L	01.22.2021 23:23	

Analytical Method: Select Metals by SW-846 6020A

Seq Number: 3148756

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.22.2021

Parent Sample Id: 685288-002

MS Sample Id: 685288-002 S

MSD Sample Id: 685288-002 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Iron	0.0651	0.500	0.564	100	0.561	99	75-125	1	20	mg/L	01.22.2021 23:31	
Manganese	3.25	0.100	3.40	150	3.38	130	75-125	1	20	mg/L	01.22.2021 23:31	X

Analytical Method: Heterotrophic Plate Count by SM9215B

Seq Number: 3149626

Matrix: Water

MB Sample Id: 3149626-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Heterotrophic Colony Plate Count	<10.0	cfu/ml	01.27.2021 13:20	

Analytical Method: Heterotrophic Plate Count by SM9215B

Seq Number: 3149626

Matrix: Water

Parent Sample Id: 685400-002

MD Sample Id: 685400-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Heterotrophic Colony Plate Count	926667	926667	0	30	cfu/ml	01.27.2021 13:20	

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

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

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

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



WSP USA
PCA 53

Analytical Method: SM 9223-IDEXX Colisure

Seq Number: 3148739

Matrix: Water

Prep Method: SM9223P

Date Prep: 01.21.2021

MB Sample Id: 7719750-1-BLK

Parameter

Total Coliform
E. Coli

**MB
Result**

Absent
Absent

Units

**Analysis
Date**

Flag

01.22.2021 17:00
01.22.2021 17:00

Analytical Method: SM 9223-IDEXX Colisure

Seq Number: 3148741

Matrix: Water

Prep Method: SM9223P

Date Prep: 01.21.2021

MB Sample Id: 7719751-1-BLK

Parameter

Total Coliform
E. Coli

**MB
Result**

Absent
Absent

Units

**Analysis
Date**

Flag

01.22.2021 17:00
01.22.2021 17:00

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

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

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

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



Chain of Custody

Work Order No: 685400

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915) 585-3443 Lubbock, TX (806) 794-1296
Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Page 1 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	WSP, USA, Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 704-5178	Email:	Travis.Casey@wsp.com, Elliott.Lee@wsp.com, Dan.Moir@wsp.com

Work Order Comments	
Program: UST/PST	☐ PRP ☐ Brownfields ☐ RC ☐ Superfund
State of Project:	NM
Reporting Level:	☐ Level II ☐ Level III ☐ ST/UST ☐ RP ☐ Level IV
Deliverables:	EDD ☐ ADAPT ☐ Other:

Project Name:	PCA 53	Turn Around	
Project Number:	TE012918187	Routine	☒
P.O. Number:	2RP-5169	Rush:	
Sampler's Name:	Travis Casey/Elliott Lee	Due Date:	

SAMPLE RECEIPT	Temp Blank:	Yes	No	Wet Ice:	Yes	No	
Temperature (°C):	1.8/1.6	Thermometer ID					
Received In tact:	Yes	No	Correction Factor:			-0.7	
Cooler Custody Seals:	Yes	No	N/A	Total Containers:			58
Sample Custody Seals:	Yes	No	N/A				

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth
BH16	W	1/20/2021	12:13	N/A
BH25	W	1/20/2021	11:19	N/A
BH27	W	1/20/2021	12:05	N/A
BH37	W	4/20/2021	N/A	N/A
BH39	W	1/20/2021	11:34	N/A
BH46	W	1/20/2021	11:26	N/A
BH48	W	1/20/2021	11:07	N/A
BH53	W	1/20/2021	10:44	N/A
BH54	W	1/20/2021	10:26	N/A
BH55	W	1/20/2021	10:14	N/A

ANALYSIS REQUEST													Work Order Notes	
Number of Containers														
E. Coli														
Cloiform														
H ₂ O Chem. (see Attachment)														
TAT starts the day received by the lab, if received by 4:30pm														
Sample Comments														

Total 200.7 / 6010 200.8 / 6020: 8RCRA 13PPM Texas 11 Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SiO₂ Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U 1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
		1-20-21 1308			



Chain of Custody

Work Order No: 1685400

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

www.xenco.com Page 2 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Littrell
Company Name:	WSP, USA, Permian office	Company Name:	XTO Energy
Address:	3300 North A St. Bldg 1, Unit 222	Address:	3104 E Greene St.
City, State ZIP:	Midland, TX 79705	City, State ZIP:	Carlsbad, NM
Phone:	(432) 704-5178	Email:	Travis.Casey@wsp.com, Elliot.Lee@wsp.com, Dan.Moir@wsp.com

Project Name:	PCA 53	Turn Around	☐ Routine ☐ Rush
Project Number:	TE012918187	Rush:	
P.O. Number:	2RP-5169	Due Date:	
Sampler's Name:	Travis Casey/Elliott Lee		

Project Name:	PCA 53	Turn Around	☐ Routine ☐ Rush
Project Number:	TE012918187	Rush:	
P.O. Number:	2RP-5169	Due Date:	
Sampler's Name:	Travis Casey/Elliott Lee		

Temp Blank:	Yes	No	Wet Ice:	Yes	No
Temperature (°C):			Thermometer ID		
Received Intact:	Yes	No	Correction Factor:		
Cooler Custody Seals:	Yes	No	Total Containers:		
Sample Custody Seals:	Yes	No			

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth	Number of Containers	E. Coli	Cloiform	H ₂ O Chem. (see Attachment)	ANALYSIS REQUEST	Work Order Notes
BH56	W	1/20/2021	10:01	N/A	4	X	X	X		Discrete
BH59	W	1/20/2021	09:45	N/A	4	X	X	X		Discrete
BH61	W	1/20/2021	09:33	N/A	4	X	X	X		Discrete
BH63	W	1/20/2021	09:19	N/A	4	X	X	X		Discrete

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM	Texas 11	Al	Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Fe	Pb	Mg	Mn	Mo	Ni	K	Se	Ag	SiO ₂	Na	Sr	Ti	Sn	U	V	Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010: 8RCRA		Sb	As	Ba	Be	B	Cd	Ca	Cr	Co	Cu	Pb	Mn	Mo	Ni	Se	Ag	Ti	U										

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	1/20/21 1308			

Inter-Office Shipment

IOS Number : **76762**

Date/Time: 01.20.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Lubbock**

Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685400-001	W	BH16	01.20.2021 12:13	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 18:13	JKR		
685400-002	W	BH25	01.20.2021 11:19	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 11:19	JKR		
685400-003	W	BH27	01.20.2021 12:05	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 18:05	JKR		
685400-004	W	BH39	01.20.2021 11:34	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 17:34	JKR		
685400-005	W	BH46	01.20.2021 11:26	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 17:26	JKR		
685400-006	W	BH48	01.20.2021 11:07	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 11:07	JKR		
685400-006	W	BH48	01.20.2021 11:07	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 17:07	JKR		
685400-007	W	BH53	01.20.2021 10:44	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:44	JKR		
685400-008	W	BH54	01.20.2021 10:26	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:26	JKR		
685400-008	W	BH54	01.20.2021 10:26	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 16:26	JKR		
685400-009	W	BH55	01.20.2021 10:14	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 16:14	JKR		
685400-009	W	BH55	01.20.2021 10:14	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:14	JKR		
685400-010	W	BH56	01.20.2021 10:01	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:01	JKR		
685400-010	W	BH56	01.20.2021 10:01	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 16:01	JKR		
685400-011	W	BH59	01.20.2021 09:45	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 15:45	JKR		
685400-011	W	BH59	01.20.2021 09:45	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 09:45	JKR		
685400-012	W	BH61	01.20.2021 09:33	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 15:33	JKR		
685400-012	W	BH61	01.20.2021 09:33	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 09:33	JKR		
685400-013	W	BH63	01.20.2021 09:19	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 09:19	JKR		
685400-013	W	BH63	01.20.2021 09:19	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 15:19	JKR		

Inter-Office Shipment

IOS Number : 76762

Date/Time: 01.20.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

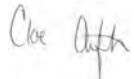
Lab# To: **Lubbock**

Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 01.20.2021

Received By: _____

Date Received: _____

Cooler Temperature: _____

Inter-Office Shipment

IOS Number : **76763**

Date/Time: 01.20.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Houston**

Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685400-002	W	BH25	01.20.2021 11:19	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-002	W	BH25	01.20.2021 11:19	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 11:19	JKR	NO2N NO3N SO4	
685400-002	W	BH25	01.20.2021 11:19	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-002	W	BH25	01.20.2021 11:19	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 11:19	JKR		
685400-002	W	BH25	01.20.2021 11:19	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-002	W	BH25	01.20.2021 11:19	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-006	W	BH48	01.20.2021 11:07	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-006	W	BH48	01.20.2021 11:07	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 11:07	JKR	NO2N NO3N SO4	
685400-006	W	BH48	01.20.2021 11:07	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-006	W	BH48	01.20.2021 11:07	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-006	W	BH48	01.20.2021 11:07	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 11:07	JKR		
685400-006	W	BH48	01.20.2021 11:07	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-007	W	BH53	01.20.2021 10:44	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-007	W	BH53	01.20.2021 10:44	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-007	W	BH53	01.20.2021 10:44	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 10:44	JKR		
685400-007	W	BH53	01.20.2021 10:44	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-007	W	BH53	01.20.2021 10:44	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-007	W	BH53	01.20.2021 10:44	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 10:44	JKR	NO2N NO3N SO4	
685400-008	W	BH54	01.20.2021 10:26	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 10:26	JKR	NO2N NO3N SO4	
685400-008	W	BH54	01.20.2021 10:26	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-008	W	BH54	01.20.2021 10:26	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-008	W	BH54	01.20.2021 10:26	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-008	W	BH54	01.20.2021 10:26	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 10:26	JKR		
685400-008	W	BH54	01.20.2021 10:26	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-009	W	BH55	01.20.2021 10:14	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	

Inter-Office Shipment

IOS Number : **76763**

Date/Time: 01.20.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Houston**

Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685400-009	W	BH55	01.20.2021 10:14	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 10:14	JKR	NO2N NO3N SO4	
685400-009	W	BH55	01.20.2021 10:14	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 10:14	JKR		
685400-009	W	BH55	01.20.2021 10:14	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-009	W	BH55	01.20.2021 10:14	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-009	W	BH55	01.20.2021 10:14	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-010	W	BH56	01.20.2021 10:01	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 10:01	JKR	NO2N NO3N SO4	
685400-010	W	BH56	01.20.2021 10:01	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-010	W	BH56	01.20.2021 10:01	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-010	W	BH56	01.20.2021 10:01	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-010	W	BH56	01.20.2021 10:01	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 10:01	JKR		
685400-010	W	BH56	01.20.2021 10:01	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-011	W	BH59	01.20.2021 09:45	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 09:45	JKR		
685400-011	W	BH59	01.20.2021 09:45	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 09:45	JKR	NO2N NO3N SO4	
685400-011	W	BH59	01.20.2021 09:45	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-011	W	BH59	01.20.2021 09:45	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-011	W	BH59	01.20.2021 09:45	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-011	W	BH59	01.20.2021 09:45	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-012	W	BH61	01.20.2021 09:33	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-012	W	BH61	01.20.2021 09:33	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 09:33	JKR	NO2N NO3N SO4	
685400-012	W	BH61	01.20.2021 09:33	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-012	W	BH61	01.20.2021 09:33	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-012	W	BH61	01.20.2021 09:33	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 09:33	JKR		
685400-012	W	BH61	01.20.2021 09:33	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	
685400-013	W	BH63	01.20.2021 09:19	SM2320B	Alkalinity by SM2320B	01.26.2021	02.03.2021	JKR	ALK ALKB ALKC	
685400-013	W	BH63	01.20.2021 09:19	E300	Inorganic Anions by EPA 300	01.26.2021	01.22.2021 09:19	JKR	NO2N NO3N SO4	

Inter Office Shipment or Sample Comments:

Inter-Office Shipment

IOS Number : **76763**

Date/Time: 01.20.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Houston**

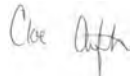
Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

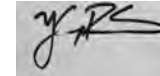
Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685400-013	W	BH63	01.20.2021 09:19	SM1030E	Cation-Anion Balance Calculation	01.26.2021	02.19.2021	JKR	Cation-Anion Balance	
685400-013	W	BH63	01.20.2021 09:19	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.26.2021	01.21.2021 09:19	JKR		
685400-013	W	BH63	01.20.2021 09:19	SW6020_Select	Select Metals by SW-846 6020A	01.26.2021	07.19.2021	JKR	FE MN	
685400-013	W	BH63	01.20.2021 09:19	SW6010C	Metals, Total by SW846 6010C	01.26.2021	07.19.2021	JKR	CA K MG NA	

Inter Office Shipment or Sample Comments:

Relinquished By:



Received By:



Date Relinquished: Cloe Clifton

Date Received:

Yuri Rubio

01.20.2021

Cooler Temperature:

Inter-Office Shipment

IOS Number : **76782**

Date/Time: 01.20.2021

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Lubbock**

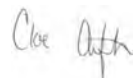
Air Bill No.: 772683582645

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685400-001	W	BH16	01.20.2021 12:13	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 18:13	JKR		
685400-003	W	BH27	01.20.2021 12:05	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 18:05	JKR		
685400-004	W	BH39	01.20.2021 11:34	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 17:34	JKR		
685400-005	W	BH46	01.20.2021 11:26	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 17:26	JKR		
685400-006	W	BH48	01.20.2021 11:07	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 17:07	JKR		
685400-008	W	BH54	01.20.2021 10:26	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 16:26	JKR		
685400-009	W	BH55	01.20.2021 10:14	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 16:14	JKR		
685400-010	W	BH56	01.20.2021 10:01	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 16:01	JKR		
685400-011	W	BH59	01.20.2021 09:45	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 15:45	JKR		
685400-012	W	BH61	01.20.2021 09:33	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 15:33	JKR		
685400-013	W	BH63	01.20.2021 09:19	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.26.2021	01.21.2021 15:19	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 01.20.2021

Received By:



Randall Lee

Date Received: 01.21.2021

Cooler Temperature: 3.1

Inter-Office Shipment

IOS Number : **76783**

Date/Time: 01.20.2021

Created by: Jessica Kramer

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Dallas**

Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685400-002	W	BH25	01.20.2021 11:19	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 11:19	JKR		
685400-006	W	BH48	01.20.2021 11:07	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 11:07	JKR		
685400-007	W	BH53	01.20.2021 10:44	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:44	JKR		
685400-008	W	BH54	01.20.2021 10:26	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:26	JKR		
685400-009	W	BH55	01.20.2021 10:14	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:14	JKR		
685400-010	W	BH56	01.20.2021 10:01	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 10:01	JKR		
685400-011	W	BH59	01.20.2021 09:45	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 09:45	JKR		
685400-012	W	BH61	01.20.2021 09:33	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 09:33	JKR		
685400-013	W	BH63	01.20.2021 09:19	SM9215B	Heterotrophic Plate Count by SM9215B	01.26.2021	01.20.2021 09:19	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 01.20.2021

Received By:



Weston Phillips

Date Received: 01.21.2021

Cooler Temperature: 3.6

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 76763

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sent By: Cloe Clifton

Date Sent: 01.20.2021 02.44 PM

Received By:

Date Received:

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	Yes
#6 *IOS present?	Yes
#7 Any missing/extra samples?	N/A
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Yuri Rubio

Date: _____

Inter Office Report- Sample Receipt Checklist

Sent To: Lubbock

IOS #: 76782

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sent By: Jessica Kramer

Date Sent: 01.20.2021 03.54 PM

Received By: Randall Lee

Date Received: 01.21.2021 11.30 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.07
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	Yes
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Randall Lee

Date: 01.21.2021

Inter Office Report- Sample Receipt Checklist

Sent To: Dallas

IOS #: 76783

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR2

Sent By: Jessica Kramer

Date Sent: 01.20.2021 03.55 PM

Received By: Weston Phillips

Date Received: 01.21.2021 01.15 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	3.6
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	Yes
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	No

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Weston Phillips

Date: 01.21.2021

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 01.20.2021 01.08.00 PM

Work Order #: 685400

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)?	1.6
#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)?	Yes
#18 Water VOC samples have zero headspace?	Yes

Samples received in bulk containers.

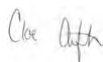
Samples sent to Lubbock, Dallas and Stafford.

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 01.20.2021

Checklist reviewed by:



Jessica Kramer

Date: 01.22.2021

Certificate of Analysis Summary 685582

WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 01.21.2021 13:34

Report Date: 02.02.2021 09:45

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 685582-001 Field Id: BH32 Depth: Matrix: WATER Sampled: 01.21.2021 12:00					
Alkalinity by SM2320B SUB: T104704215-20-38	Extracted: 01.22.2021 12:14 Analyzed: 01.22.2021 13:33 Units/RL: mg/L RL					
Alkalinity, Total (as CaCO3)	200 4.00					
Alkalinity, Bicarbonate (as CaCO3)	200 4.00					
Alkalinity, Carbonate (as CaCO3)	<4.00 4.00					
Alkalinity, hydroxide (as CaCO3)	<4.00 4.00					
Carbon Dioxide by SM 4500-CO2 D SUB: T104704215-20-38	Extracted: Analyzed: 01.22.2021 13:33 Units/RL: mg/L RL					
Carbon Dioxide, (Free)	61.8 K+ 0.370					
Cation-Anion Balance Calculation SUB: T104704215-20-38	Extracted: Analyzed: 01.29.2021 16:06 Units/RL: % RL					
Cation-Anion Balance	4.10					
Heterotrophic Plate Count by SM9215B SUB: T104704295-19-26	Extracted: Analyzed: 01.27.2021 13:20 Units/RL: cfu/ml RL					
Heterotrophic Colony Plate Count	636667 10.0					
Inorganic Anions by EPA 300 SUB: T104704215-20-38	Extracted: 01.22.2021 08:20 Analyzed: 01.22.2021 12:52 Units/RL: mg/L RL					
Nitrate as N	<2.00 2.00					
Nitrite as N	8.19 2.00					
Sulfate	2110 10.0					

BRL - Below Reporting Limit

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



Certificate of Analysis Summary 685582



WSP USA, Dallas, TX

Project Name: PCA 53

Project Id: PCA 53 - TE012918187

Contact: Dan Moir

Project Location:

Date Received in Lab: Thu 01.21.2021 13:34

Report Date: 02.02.2021 09:45

Project Manager: Jessica Kramer

Analysis Requested	Lab Id: 685582-001 Field Id: BH32 Depth: Matrix: WATER Sampled: 01.21.2021 12:00					
Metals, Total by SW846 6010C SUB: T104704215-20-38	Extracted: 01.25.2021 10:30 Analyzed: 01.25.2021 22:43 Units/RL: mg/L RL					
Calcium	2050 D 10.0					
Magnesium	818 D 20.0					
Potassium	262 D 25.0					
Sodium	11000 D 50.0					
SM 9223-IDEXX Colisure SUB: T104704219-20-24	Extracted: 01.22.2021 14:30 Analyzed: 01.23.2021 14:55 Units/RL:					
Total Coliform	Absent					
E. Coli	Absent					
Select Metals by SW-846 6020A SUB: T104704215-20-38	Extracted: 01.25.2021 09:30 Analyzed: 01.25.2021 22:01 Units/RL: mg/L RL					
Iron	1.92 D 0.200					
Manganese	0.216 D 0.00400					

BRL - Below Reporting Limit

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



Analytical Report 685582

for

WSP USA

Project Manager: Dan Moir

PCA 53

PCA 53 - TE012918187

02.02.2021

Collected By: Client

**1089 N Canal Street
Carlsbad, NM 88220**

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

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

Xenco-El Paso (EPA Lab Code: TX00127): Texas (T104704221-20-18)
Xenco-Lubbock (EPA Lab Code: TX00139): Texas (T104704219-20-24)
Xenco-Midland (EPA Lab Code: TX00158): Texas (T104704400-20-21)
Xenco-Carlsbad (LELAP): Louisiana (05092)
Xenco-San Antonio (EPA Lab Code: TN102385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



02.02.2021

Project Manager: **Dan Moir**

WSP USA

2777 N. Stemmons Freeway, Suite 1600
Dallas, TX 75207

Reference: Eurofins Xenco, LLC Report No(s): **685582**

PCA 53

Project Address:

Dan Moir:

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) 685582. 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. 685582 will be filed for 45 days, and after that time they will be properly disposed without further notice, unless otherwise arranged with you. We reserve the right to return to you any unused samples, extracts or solutions related to them if we consider so necessary (e.g., samples identified as hazardous waste, sample sizes exceeding analytical standard practices, controlled substances under regulated protocols, etc).

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

Respectfully,

A handwritten signature in black ink that reads "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



Sample Cross Reference 685582

WSP USA, Dallas, TX

PCA 53

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
BH32	W	01.21.2021 12:00		685582-001



CASE NARRATIVE

Client Name: WSP USA

Project Name: PCA 53

Project ID: PCA 53 - TE012918187
Work Order Number(s): 685582

Report Date: 02.02.2021
Date Received: 01.21.2021

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 685582

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH32**
Lab Sample Id: 685582-001

Matrix: Water
Date Collected: 01.21.2021 12:00

Date Received: 01.21.2021 13:34

Analytical Method: Alkalinity by SM2320B

Prep Method: SM2320P

Tech: ALZ

Analyst: ALZ

Date Prep: 01.22.2021 12:14

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148653

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Alkalinity, Total (as CaCO ₃)	1640192	200	4.00	mg/L	01.22.2021 13:33		1
Alkalinity, Bicarbonate (as CaCO ₃)	471-34-1	200	4.00	mg/L	01.22.2021 13:33		1
Alkalinity, Carbonate (as CaCO ₃)	3812-32-6	<4.00	4.00	mg/L	01.22.2021 13:33	U	1
Alkalinity, hydroxide (as CaCO ₃)	14280-30-9	<4.00	4.00	mg/L	01.22.2021 13:33	U	1

Analytical Method: Cation-Anion Balance Calculation

Tech: ALA

Analyst: ALA

% Moisture:
SUB: T104704215-20-38

Seq Number: 3149390

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Cation-Anion Balance	CATANBAL	4.10		%	01.29.2021 16:06		1

Analytical Method: Inorganic Anions by EPA 300

Prep Method: E300P

Tech: JYM

Analyst: JYM

Date Prep: 01.22.2021 08:20

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148638

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Nitrate as N	14797-55-8	<2.00	2.00	mg/L	01.22.2021 12:52	U	20
Nitrite as N	14797-65-0	8.19	2.00	mg/L	01.22.2021 12:52		20
Sulfate	14808-79-8	2110	10.0	mg/L	01.22.2021 12:52		20

Analytical Method: Metals, Total by SW846 6010C

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.25.2021 10:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148913

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Calcium	7440-70-2	2050	10.0	mg/L	01.25.2021 23:16	D	50
Magnesium	7439-95-4	818	20.0	mg/L	01.25.2021 23:16	D	50
Potassium	7440-09-7	262	25.0	mg/L	01.25.2021 23:16	D	50
Sodium	7440-23-5	11000	50.0	mg/L	01.26.2021 13:35	D	100



Certificate of Analytical Results 685582

WSP USA, Dallas, TX

PCA 53

Sample Id: **BH32**
Lab Sample Id: 685582-001

Matrix: Water
Date Collected: 01.21.2021 12:00

Date Received: 01.21.2021 13:34

Analytical Method: Select Metals by SW-846 6020A

Prep Method: SW3010A

Tech: MLI

Analyst: DEP

Date Prep: 01.25.2021 09:30

% Moisture:
SUB: T104704215-20-38

Seq Number: 3148904

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Iron	7439-89-6	1.92	0.200	mg/L	01.26.2021 16:33	D	2
Manganese	7439-96-5	0.216	0.00400	mg/L	01.26.2021 16:33	D	2

Analytical Method: Carbon Dioxide by SM 4500-CO2 D

Tech: ALZ

Analyst: ALZ

Seq Number: 3149391

% Moisture:
SUB: T104704215-20-38

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Carbon Dioxide, (Free)	124-38-9	61.8	0.370	mg/L	01.22.2021 13:33	K+	1

Analytical Method: Heterotrophic Plate Count by SM9215B

Tech: REW

Analyst: REW

Seq Number: 3149626

% Moisture:
SUB: T104704295-19-26

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Heterotrophic Colony Plate Count	HTPC	636667	10.0	cfu/ml	01.27.2021 13:20	UK	1

Analytical Method: SM 9223-IDEXX Colisure

Prep Method: SM9223P

Tech: MIT

Analyst: MIT

Date Prep: 01.22.2021 14:30

% Moisture:
SUB: T104704219-20-24

Seq Number: 3148745

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Total Coliform	TOTCOLIFORM	Absent			01.23.2021 14:55		1
E. Coli	ECOLIF	Absent			01.23.2021 14:55		1



Flagging Criteria

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

** Surrogate recovered outside laboratory control limit.

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

RL Reporting Limit

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

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

DL Method Detection Limit

NC Non-Calculable

SMP Client Sample **BLK** Method Blank

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

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

+ NELAC certification not offered for this compound.

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



WSP USA PCA 53

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148653

MB Sample Id: 7719773-1-BLK

Matrix: Water

LCS Sample Id: 7719773-1-BKS

Prep Method: SM2320P

Date Prep: 01.22.2021

LCSD Sample Id: 7719773-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (as CaCO ₃)	<4.00	250	263	105	266	106	85-115	1	20	mg/L	01.22.2021 12:37	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148653

Matrix: Water

MB Sample Id: 7719773-1-BLK

Prep Method: SM2320P

Date Prep: 01.22.2021

Parameter	MB Result	Units	Analysis Date	Flag
Alkalinity, Bicarbonate (as CaCO ₃)	<4.00	mg/L	01.22.2021 12:29	
Alkalinity, Carbonate (as CaCO ₃)	<4.00	mg/L	01.22.2021 12:29	
Alkalinity, hydroxide (as CaCO ₃)	<4.00	mg/L	01.22.2021 12:29	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148653

Matrix: Water

Parent Sample Id: 685367-001

MD Sample Id: 685367-001 D

Prep Method: SM2320P

Date Prep: 01.22.2021

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (as CaCO ₃)	375	374	0	20	mg/L	01.22.2021 12:59	
Alkalinity, Bicarbonate (as CaCO ₃)	375	374	0	20	mg/L	01.22.2021 12:59	
Alkalinity, Carbonate (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.22.2021 12:59	
Alkalinity, hydroxide (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.22.2021 12:59	

Analytical Method: Alkalinity by SM2320B

Seq Number: 3148653

Matrix: Water

Parent Sample Id: 685390-001

MD Sample Id: 685390-001 D

Prep Method: SM2320P

Date Prep: 01.22.2021

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Alkalinity, Total (as CaCO ₃)	284	284	0	20	mg/L	01.22.2021 14:49	
Alkalinity, Bicarbonate (as CaCO ₃)	284	284	0	20	mg/L	01.22.2021 14:49	
Alkalinity, Carbonate (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.22.2021 14:49	
Alkalinity, hydroxide (as CaCO ₃)	<4.00	<4.00	0	20	mg/L	01.22.2021 14:49	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3148638

Matrix: Water

MB Sample Id: 7719736-1-BLK

LCS Sample Id: 7719736-1-BKS

Prep Method: E300P

Date Prep: 01.22.2021

LCSD Sample Id: 7719736-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrate as N	<0.100	10.0	10.4	104	10.4	104	90-110	0	20	mg/L	01.22.2021 05:57	
Nitrite as N	<0.100	10.0	9.71	97	9.69	97	90-110	0	20	mg/L	01.22.2021 05:57	
Sulfate	<0.500	10.0	10.1	101	10.1	101	90-110	0	20	mg/L	01.22.2021 05:57	

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

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

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

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



WSP USA PCA 53

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3148638

Matrix: Water

Prep Method: E300P

Date Prep: 01.22.2021

Parent Sample Id: 685610-003

MS Sample Id: 685610-003 S

MSD Sample Id: 685610-003 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrate as N	3.45	200	218	107	218	107	90-110	0	20	mg/L	01.22.2021 09:07	
Nitrite as N	1.24	200	202	100	202	100	90-110	0	20	mg/L	01.22.2021 09:07	
Sulfate	1470	200	1690	110	1690	110	90-110	0	20	mg/L	01.22.2021 09:07	

Analytical Method: Inorganic Anions by EPA 300

Seq Number: 3148638

Matrix: Water

Prep Method: SW9056P

Date Prep: 01.22.2021

Parent Sample Id: 685793-007

MS Sample Id: 685793-007 S

MSD Sample Id: 685793-007 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Nitrate as N	1.96	10.0	12.7	107	12.7	107	90-110	0	20	mg/L	01.22.2021 18:35	
Nitrite as N	<0.100	10.0	9.64	96	9.65	97	90-110	0	20	mg/L	01.22.2021 18:35	
Sulfate	46.2	10.0	56.6	104	56.6	104	90-110	0	20	mg/L	01.22.2021 18:35	

Analytical Method: Metals, Total by SW846 6010C

Seq Number: 3148913

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.25.2021

MB Sample Id: 7719923-1-BLK

LCS Sample Id: 7719923-1-BKS

LCSD Sample Id: 7719923-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	<0.200	25.0	23.5	94	23.5	94	75-125	0	20	mg/L	01.25.2021 21:06	
Magnesium	<0.400	25.0	23.5	94	23.6	94	75-125	0	20	mg/L	01.25.2021 21:06	
Potassium	0.123	10.0	9.50	95	9.48	95	75-125	0	20	mg/L	01.25.2021 21:06	

Analytical Method: Metals, Total by SW846 6010C

Seq Number: 3148913

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.25.2021

Parent Sample Id: 685641-001

MS Sample Id: 685641-001 S

MSD Sample Id: 685641-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Calcium	1140	25.0	1110	0	1110	0	75-125	0	20	mg/L	01.25.2021 21:18	X
Magnesium	342	25.0	353	44	352	40	75-125	0	20	mg/L	01.25.2021 21:18	X
Potassium	5.02	10.0	16.0	110	16.0	110	75-125	0	20	mg/L	01.25.2021 21:18	
Sodium	1380	25.0	1330	0	1330	0	75-125	0	20	mg/L	01.25.2021 21:18	X

Analytical Method: Select Metals by SW-846 6020A

Seq Number: 3148904

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.25.2021

MB Sample Id: 7719920-1-BLK

LCS Sample Id: 7719920-1-BKS

LCSD Sample Id: 7719920-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Iron	<0.100	0.500	0.489	98	0.495	99	80-120	1	20	mg/L	01.25.2021 20:41	
Manganese	<0.00200	0.100	0.0969	97	0.0975	98	80-120	1	20	mg/L	01.25.2021 20:41	

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

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

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

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



WSP USA
PCA 53

Analytical Method: Select Metals by SW-846 6020A

Seq Number: 3148904

Matrix: Water

Prep Method: SW3010A

Date Prep: 01.25.2021

Parent Sample Id: 685625-005

MS Sample Id: 685625-005 S

MSD Sample Id: 685625-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Iron	0.169	0.500	0.648	96	0.646	95	75-125	0	20	mg/L	01.25.2021 20:49	
Manganese	0.414	0.100	0.505	91	0.506	92	75-125	0	20	mg/L	01.25.2021 20:49	

Analytical Method: Heterotrophic Plate Count by SM9215B

Seq Number: 3149626

Matrix: Water

MB Sample Id: 3149626-1-BLK

Parameter	MB Result	Units	Analysis Date	Flag
Heterotrophic Colony Plate Count	<10.0	cfu/ml	01.27.2021 13:20	

Analytical Method: Heterotrophic Plate Count by SM9215B

Seq Number: 3149626

Matrix: Water

Parent Sample Id: 685400-002

MD Sample Id: 685400-002 D

Parameter	Parent Result	MD Result	%RPD	RPD Limit	Units	Analysis Date	Flag
Heterotrophic Colony Plate Count	926667	926667	0	30	cfu/ml	01.27.2021 13:20	

Analytical Method: SM 9223-IDEXX Colisure

Seq Number: 3148745

Matrix: Water

MB Sample Id: 7719863-1-BLK

Prep Method: SM9223P

Date Prep: 01.22.2021

Parameter	MB Result	Units	Analysis Date	Flag
Total Coliform	Absent		01.23.2021 14:55	
E. Coli	Absent		01.23.2021 14:55	

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

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

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

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

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
Midland, TX (432-704-5440) El Paso, TX (915) 955-3443 Lubbock, TX (806) 794-1296
Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8900) Tampa, FL (813) 281-1111

185582

Page 1 of 2
www.xenco.comANALYSIS REQUEST

TAT starts the day received by the lab, if received by 4:30pm

Sample Comments

1631 / 2451 / 7470 / 7474 : Hs

1111



Chain of Custody

Work Order No: 1085582

1085582

Houston, TX (281) 240-4200 Dallas, TX (214) 902-0300 San Antonio, TX (210) 509-3334
 Midland, TX (432-704-5440) EL Paso, TX (915)585-3443 Lubbock, TX (806)794-1296

Hobbs, NM (575-392-7550) Phoenix, AZ (480-355-0900) Atlanta, GA (770-449-8800) Tampa, FL (813-620-2000)

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Page 2 of 2

Project Manager:	Dan Moir	Bill to: (if different)	Kyle Little
Company Name:	WSP Permian office	Company Name:	XTO Energy
Address:	3300 North A Street	Address:	
City, State ZIP:	Midland, Tx 79705	City, State ZIP:	
Phone:	(432) 236-3849	Email:	Elliot.Lee@wsp.com Travis.Casey@wsp.com Dan.Moir@wsp.com

Program: ☒ UST/PST ☐ RP ☐ Groundfields ☐ RC ☐ \$perfund	
State of Project:	
Reporting Level: ☐ I ☐ II ☐ III ☐ IV	Deliverables: ☐ EDD ☐ ADAPT ☐ Other:

Project Name:	PCA - 53	Turn Around	
Project Number:	TE012918187	Routine	☒
P.O. Number:	Eddy County	Rush:	
Sampler's Name:	Elliot Lee	Due Date:	

SAMPLE RECEIPT		Temp Blank:	Yes	No	Waiver:	Yes	No
Temperature (°C):		Thermometer ID					
Received Intact:	Yes	No					
Cooler Custody Seals:	Yes	No	N/A		Correction Factor:		
Sample Custody Seals:	Yes	No	N/A		Total Containers:		

Sample Identification	Matrix	Date Sampled	Time Sampled	Depth
BH 32	W	1-21-21	12:00	N/A

ANALYSIS REQUEST		Work Order Notes
Number of Containers	3	
Bicarbonate	X	
Carbonate	X	
Total alkalinity	X	
carbon dioxide	X	
cation-anion balance	X	
Iron	X	
Manganese	X	
Sulfate	X	
Nitrogen-nitrite	X	
Nitrogen-nitrate	X	
Calcium	X	
Magnesium	X	
Potassium	X	
Sodium	X	
Heterotrophic	X	

TAT starts the day received by the lab, if received by 4:30pm
Sample Comments
H ₂ O Chem.

Total 200.7 / 6010	200.8 / 6020:	8RCRA 13PPM Texas 11	Al Sb As Ba Be B Cd Ca Cr Co Cu Fe Pb Mg Mn Mo Ni K Se Ag SIO ₂ Na Sr Ti Sn U V Zn
Circle Method(s) and Metal(s) to be analyzed		TCLP / SPLP 6010: 8RCRA Sb As Ba Be Cd Cr Co Cu Pb Mn Mo Ni Se Ag Ti U	1631 / 245.1 / 7470 / 7471 : Hg

Notice: Signature of this document and relinquishment of samples constitutes a valid purchase order from client company to Xenco, its affiliates and subcontractors. It assigns standard terms and conditions of service. Xenco will be liable only for the cost of samples and shall not assume any responsibility for any losses or expenses incurred by the client if such losses are due to circumstances beyond the control of Xenco. A minimum charge of \$75.00 will be applied to each project and a charge of \$5 for each sample submitted to Xenco, but not analyzed. These terms will be enforced unless previously negotiated.

Relinquished by: (Signature)	Received by: (Signature)	Date/Time	Relinquished by: (Signature)	Received by: (Signature)	Date/Time
<i>[Signature]</i>	<i>[Signature]</i>	1-21-21 1334			

Inter-Office Shipment

IOS Number : **76857**

Date/Time: 01.21.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Lubbock**

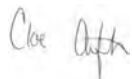
Air Bill No.: 772696429435

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685582-001	W	BH32	01.21.2021 12:00	SM9223B_COLISURE	SM 9223-IDEXX Colisure	01.27.2021	01.22.2021 18:00	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 01.21.2021

Received By:



Michael J Turner

Date Received: 01.22.2021

Cooler Temperature: 2.1

Inter-Office Shipment

IOS Number : **76858**

Date/Time: 01.21.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Houston**

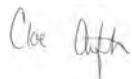
Air Bill No.: 772696216922

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685582-001	W	BH32	01.21.2021 12:00	SW6010C	Metals, Total by SW846 6010C	01.27.2021	07.20.2021	JKR	CA K MG NA	
685582-001	W	BH32	01.21.2021 12:00	SW6020_Select	Select Metals by SW-846 6020A	01.27.2021	07.20.2021	JKR	FE MN	
685582-001	W	BH32	01.21.2021 12:00	E300	Inorganic Anions by EPA 300	01.27.2021	01.23.2021 12:00	JKR	NO2N NO3N SO4	
685582-001	W	BH32	01.21.2021 12:00	SM2320B	Alkalinity by SM2320B	01.27.2021	02.04.2021	JKR	ALK ALKB ALKC	
685582-001	W	BH32	01.21.2021 12:00	SM1030E	Cation-Anion Balance Calculation	01.27.2021	02.20.2021	JKR	Cation-Anion Balance	
685582-001	W	BH32	01.21.2021 12:00	SM4500-CO2	Carbon Dioxide by SM 4500-CO2 D	01.27.2021	01.22.2021 12:00	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 01.21.2021

Received By:



Sandra Torres

Date Received: 01.22.2021

Cooler Temperature: 4.1

Inter-Office Shipment

IOS Number : **76859**

Date/Time: 01.21.2021

Created by: Cloe Clifton

Please send report to: Jessica Kramer

Lab# From: **Carlsbad**

Delivery Priority:

Address: 1089 N Canal Street

Lab# To: **Dallas**

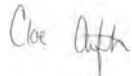
Air Bill No.:

E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
685582-001	W	BH32	01.21.2021 12:00	SM9215B	Heterotrophic Plate Count by SM9215B	01.27.2021	01.21.2021 12:00	JKR		

Inter Office Shipment or Sample Comments:

Relinquished By:



Cloe Clifton

Date Relinquished: 01.21.2021

Received By:



Whitney Capps

Date Received: 01.22.2021

Cooler Temperature: 4.2

Inter Office Report- Sample Receipt Checklist

Sent To: Lubbock

IOS #: 76857

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : ir-4

Sent By: Cloe Clifton

Date Sent: 01.21.2021 02.48 PM

Received By: Michael J Turner

Date Received: 01.22.2021 01.47 PM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	2.07
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	Yes
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

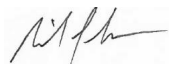
NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Michael J Turner

Date: 01.22.2021

Inter Office Report- Sample Receipt Checklist

Sent To: Houston

IOS #: 76858

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : HOU-272

Sent By: Cloe Clifton

Date Sent: 01.21.2021 02.48 PM

Received By: Sandra Torres

Date Received: 01.22.2021 09.30 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	4.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	Yes
#5 *Custody Seals Signed and dated for Containers/coolers	Yes
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Sandra Torres

Date: 01.22.2021

Inter Office Report- Sample Receipt Checklist

Sent To: Dallas

IOS #: 76859

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR2

Sent By: Cloe Clifton

Date Sent: 01.21.2021 02.48 PM

Received By: Whitney Capps

Date Received: 01.22.2021 09.14 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	4.2
#2 *Shipping container in good condition?	Yes
#3 *Samples received with appropriate temperature?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 *Custody Seals Signed and dated for Containers/coolers	N/A
#6 *IOS present?	Yes
#7 Any missing/extra samples?	No
#8 IOS agrees with sample label(s)/matrix?	Yes
#9 Sample matrix/ properties agree with IOS?	Yes
#10 Samples in proper container/ bottle?	Yes
#11 Samples properly preserved?	Yes
#12 Sample container(s) intact?	Yes
#13 Sufficient sample amount for indicated test(s)?	Yes
#14 All samples received within hold time?	Yes

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

NonConformance:

Corrective Action Taken:

Nonconformance Documentation

Contact: _____ Contacted by : _____ Date: _____

Checklist reviewed by:



Whitney Capps

Date: 01.22.2021

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: WSP USA

Date/ Time Received: 01.21.2021 01.34.00 PM

Work Order #: 685582

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)?	1.4
#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)?	Yes
#18 Water VOC samples have zero headspace?	N/A

Samples received in bulk containers.

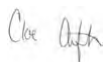
Samples sent to Lubbock, Stafford and Dallas

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Cloe Clifton

Date: 01.21.2021

Checklist reviewed by:



Jessica Kramer

Date: 01.22.2021

District I

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

District II

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

District III

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

District IV

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

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

CONDITIONS

Action 24206

CONDITIONS

Operator: XTO ENERGY, INC 6401 Holiday Hill Road Midland, TX 79707	OGRID: 5380
	Action Number: 24206
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
rhamlet	Thank you for the "Additional Groundwater Assessment Report". Please review "Incident Events" on the NAB1901038306 PCA 53 Incident Details page for additional conditions.	5/31/2022