

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

State of New Mexico
Energy Minerals and Natural
Resources Department

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

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

Incident ID	nAPP2036441453
District RP	
Facility ID	
Application ID	

Release Notification

Responsible Party

Responsible Party: Spur Energy Partners	OGRID: 328947
Contact Name: Braidy Moulder	Contact Telephone: 281-795-2286
Contact email: bmoulder@spurepllc.com	Incident # (assigned by OCD)
Contact mailing address: 920 Memorial City Way, Suite 1400, Houston TX 77024	

Location of Release Source

Latitude 32.8155785 Longitude -103.9952316
(NAD 83 in decimal degrees to 5 decimal places)

Site Name: McIntyre B SWD	Site Type: Tank Battery
Date Release Discovered: May 11, 2020	API# 30-015-29561

Unit Letter	Section	Township	Range	County
O	20	17S	30E	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) 3	Volume Recovered (bbls) 15
☒ Produced Water	Volume Released (bbls) 6	Volume Recovered (bbls) 26
	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: A hole was discovered in the recently installed Fire Tube.

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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?
If YES, was immediate notice given to the OCD? By whom? To whom? When and by what means (phone, email, etc)?	

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

☒ The source of the release has been stopped. ☒ The impacted area has been secured to protect human health and the environment. ☒ Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices. ☒ All free liquids and recoverable materials have been removed and managed appropriately.	
If all the actions described above have <u>not</u> been undertaken, explain why:	
Per 19.15.29.8 B. (4) NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please attach a narrative of actions to date. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see 19.15.29.11(A)(5)(a) NMAC), please attach all information needed for closure evaluation.	
I hereby certify that the information given above is true and complete to the best of my knowledge and understand that pursuant to OCD rules and regulations all operators are required to report and/or file certain release notifications and perform corrective actions for releases which may endanger public health or the environment. The acceptance of a C-141 report by the OCD does not relieve the operator of liability should their operations have failed to adequately investigate and remediate contamination that pose a threat to groundwater, surface water, human health or the environment. In addition, OCD acceptance of a C-141 report does not relieve the operator of responsibility for compliance with any other federal, state, or local laws and/or regulations.	
Printed Name: <u>Joseph Guesnier</u>	Title: <u>Staff Scientist</u>
Signature: 	Date: <u>7/5/2021</u>
email: <u>JRGuesnier@Terracon.com</u>	Telephone: <u>(806) 544-9276</u>
<u>OCD Only</u>	
Received by: _____	Date: _____

State of New Mexico
Oil Conservation Division

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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>80</u> (ft bgs)
Did this release impact groundwater or surface water?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	☐ Yes ☒ No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	☐ Yes ☒ No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	☐ Yes ☒ No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	☐ Yes ☒ No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	☐ Yes ☒ No
Are the lateral extents of the release within 300 feet of a wetland?	☐ Yes ☒ No
Are the lateral extents of the release overlying a subsurface mine?	☐ Yes ☒ No
Are the lateral extents of the release overlying an unstable area such as karst geology?	☐ Yes ☒ No
Are the lateral extents of the release within a 100-year floodplain?	☐ Yes ☒ No
Did the release impact areas not on an exploration, development, production, or storage site?	☐ Yes ☒ No

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

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

- ☒ Scaled site map showing impacted area, surface features, subsurface features, delineation points, and monitoring wells.
- ☒ Field data
- ☒ Data table of soil contaminant concentration data
- ☒ Depth to water determination
- ☒ Determination of water sources and significant watercourses within ½-mile of the lateral extents of the release
- ☐ Boring or excavation logs
- ☒ Photographs including date and GIS information
- ☒ Topographic/Aerial maps
- ☒ Laboratory data including chain of custody

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

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Oil Conservation Division

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

Printed Name: Joseph Guzman Title: Staff Scientist
Signature: [Signature] Date: 7-5-2021
email: JGuzman@Tetracon.com Telephone: 806 544 9276

OCD Only

Received by: _____ Date: _____

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Remediation Plan

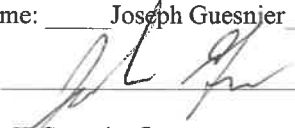
Remediation Plan Checklist: *Each of the following items must be included in the plan.*

- ☒ 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: Joseph Guesnier Title: Staff Scientist
Signature:  Date: 7/5/2021
email: JRGuesnier@Terracon.com Telephone: (806) 544-9276

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

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District RP	
Facility ID	
Application ID	

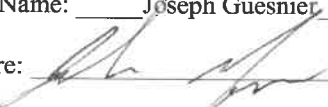
Closure

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

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

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

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

Printed Name: Joseph Guesnier Title: Staff Scientist
Signature:  Date: 7/5/2021
email: JRGuesnier@Terracon.com Telephone: (806) 544-9276

OCD Only

Received by: Chad Hensley Date: 07/22/2021

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

Closure Approved by:  Date: 07/22/2021
Printed Name: Chad Hensley Title: Environmental Specialist Advanced

Closure Report

General Site Information:

McIntyre B SWD Release
NMOCD Reference No. NAPP2036441453

Site Contact:

Braidy Moulder, Spur Energy Partners
920 Memorial City Way, Suite 1000, Houston, Texas 77024
(713) 264-2517

Depth to Ground Water

Approximately 80 feet below grade surface

Distance to Nearest Surface Water

Flat Lake (Northeast Eddy County), approximately 11.47 miles to the northwest

Driving Directions Heading west on Hwy 82 (Lovington Highway), Travel 0.60 miles past
Hagerman Cutoff Rd.

Turn south and then back east for 0.13 miles before turning south again, continue for 0.17 miles
and you will arrive at the site.

Legal Description

Unit O, Section 20, T17S, R30E, Eddy County, New Mexico

May 24, 2021

Terracon Project No. AR207572

Prepared for:

Spur Energy Partners
Houston, Texas

Prepared by:

Terracon Consultants, Inc.
Lubbock, Texas
TBPG Firm No. 50058

Offices Nationwide
Employee-Owned

Established in 1965
terracon.com

Terracon

Geotechnical ■ Environmental ■ Construction Materials ■ Facilities

May 24, 2021



Spur Energy Partners LLC
920 Memorial City Way, Suite 1000
Houston, Texas 77024

Attn: Mr. Braidy Moulder
P: 713-264-2517
E: bmoulder@spurepllc.com

RE: **Closure Report**
McIntyre B SWD Release
Unit O, Section 20, T17S, R30E, Eddy County, New Mexico
Terracon Project No. AR207572

Dear Mr. Moulder,

Terracon Consultants, Inc. (Terracon) is pleased to submit our Closure Report for the site referenced above. The Closure Report was developed in accordance with the New Mexico Oil Conservation Division (NMOCD) regulations concerning clean-up actions required for releases of crude oil and produced water. The Closure Report presents a description of the release incident and OCD notification, site characteristics, potential receptors, and remedial actions required for the site. Terracon developed the Closure Report in general accordance with our Master Service Agreement dated April 29, 2019.

Terracon appreciates this opportunity to provide environmental services to Spur Energy Partners LLC (Spur). Should you have any questions or require additional information, please do not hesitate to contact our office.

Sincerely,
Terracon Consultants, Inc.

Joseph Guesnier
Staff Scientist
Lubbock

Erin Loyd, P.G.
Principal
Office Manager – Lubbock



Terracon Consultants, Inc 5847 50th St. Lubbock, Texas 79424
P (806) 300 0140 F (806) 797 0947 terracon.com

Geotechnical



Environmental



Construction Materials



Facilities



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APPENDIX A – FIGURES

- Figure 1 – Topographic Map
- Figure 2 – Site Map
- Figure 3 – Contamination Concentration Map
- Figure 4 – Remediation Concentration Map
- Figure 5 – NMOSE POD Location Map
- Figure 6 – Cave Karst Public UCP

APPENDIX B – TABLES & PROCEDURES

- Exhibit 1 – Soil Sampling Procedures
- Table 1 – Closure Criteria for Soils Impacted by a Release
- Table 2 – Soil Sample Analytical Results

APPENDIX C – PHOTOGRAPHIC LOG

APPENDIX D – ANALYTICAL REPORT AND CHAIN OF CUSTODY

APPENDIX E – TERRACON STANDARD OF CARE, LIMITATION, AND RELIANCE

ii

**Closure Report
McIntyre B SWD Release
Unit O Section 20, Township 17 South, Range 32 East
Eddy County, New Mexico
NMOCD Reference No. NAPP2036441453
Terracon Project No. AR207572
May 24, 2021**

1.0 SITE DESCRIPTION

The site is an approximate 2.75-acre tract of land within the Unit O Section 20, Township 17 South, Range 30 East, Eddy County, New Mexico (hereinafter, the site). The site consists primarily of a tank battery on undeveloped lands surrounded by oil wells. A Topographic Map illustrating the site location is included in Figure 1 and a Site Map is included as Figure 2 in Appendix A.

2.0 SCOPE OF SERVICES

Terracon's scope of services for this project was to investigate the magnitude and extent of the documented release, remediation, and restoration and develop a Closure Report in accordance with the NMOCD requirements that detail site closure activities to be completed. This Closure Report addresses the November 30, 2020 release of approximately 50 barrels (bbls) of produced water originating from a hole discovered in a newly installed fire tube at the tank battery site owned by Spur.

3.0 INTRODUCTION AND NOTIFICATION

As previously stated, release of produced water occurred on November 30, 2020, at the McIntyre B SWD Release site in Eddy County, New Mexico. A brief summary of associated information is provided below.

Required Information	Site and Release information	
Responsible party Local contact	The facility is operated by Spur Energy Partners LLC	
	Contact: Mr. Braidy Moulder	P: (281) 795-2286 E: bmoulder@spurepllc.com
NMOCD Notification	Notice of the release was provided to the NMOCD District 1 Hobbs Office by Jerry Mathews (Spur) on November 30, 2020.	

Responsive ■ Resourceful ■ Reliable

Release Investigation and Remedial Action Plan

McIntyre B SWD ■ Eddy County, New Mexico

May 24, 2021 ■ Terracon Project No. AR207572



Facility description	The facility is the McIntyre B SWD site in Eddy County, New Mexico. It is an approximate 2.75 - acre tank battery site located within Unit O, Section 20, Township 17 South, Range 30 East,	
Required Information	Site and Release information	
Site Location	N.M.P.M., in Loco Hills, New Mexico. The site contains a tank battery.	
Time of incident	November 30, 2020, discovered at 12:00 p.m.	
Discharge event	A hole was discovered in a newly installed Fire tube at a tank battery owned by Spur resulting in a 50 bbls release. The entirety of the release stayed within the containment berm. The release is illustrated in Figure 4 of Appendix A.	
Type of discharge	The documented fluids release occurred at the surface and appears to be surficial to depth.	
Quantity of spilled material	Total Fluids: 50 bbls	Produced Water: 30 bbls Crude Oil: 20 bbls
Site characteristics	Relatively flat with drainage following the native ground surface; very gently sloping to the South.	
Immediate corrective actions	Valves were isolated to shut off the flow, and Terracon Remediation Construction Services (RCS) scraped up and stockpiled affected materials proximate to the release origin.	

4.0 INITIAL RESPONSE ACTIONS

4.1 Source Elimination and Site Security

Initial source elimination was accomplished by the Spur foreman through isolating valves to shut off flow. Terracon's remediation construction services (RCS) group secured the site and performed containment and site stabilization activities. RCS consolidated and stockpiled affected soils proximate to the release origin, occupying an area measuring approximately 3,000-square-feet (sf). The soils stockpiled from this affected area totaled an estimated 111.1-cubic yards (cy). Following the consolidation of these materials, RCS fenced off the stockpile to deter inadvertent contact with the materials.

Release Investigation and Remedial Action Plan

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May 24, 2021 ■ Terracon Project No. AR207572

**5.0 GENERAL SITE CHARACTERISTICS**

Remediation Determining Information	Site Ranking Characteristics
Groundwater	<u>POD Number:</u> RA-11914-POD1 <u>Depth to Groundwater:</u> 80 ft. bgs <u>Distance to Well:</u> 0.69 miles to the northeast <u>Date Drilled:</u> March 18, 2013 <u>Groundwater Quality:</u> The well-referenced above, was originally drilled for use as an exploratory well. No further information for well-use was outlined by the NMOSE.
Surface Water	Flat Lake (Northeast Eddy County), approximately 11.47 miles to the south.
Soil Characteristics	Soils at the site are mapped as Berino Series, 0 to 7 percent slopes. This soil has a surface layer of loamy fine sand 0 to 4 inches, fine sandy loam 4 to 8 inches, sandy clay loam 8 to 35 inches, sandy clay loam 35 to 60 inches. Berino series soils are categorized as very deep and well-drained formed in mixed alluvium and the surface has frequently been reworked by the wind.
Karst Characterization	Terracon evaluated data from the NMOCD Public FTP Site, Karst map designations in reference to the site location. The site appears to be within a Low-level Karst risk area. Based on onsite observations within the extent of the release margins, the potential for Karst formations in this specific area is low. The site has a layer of solid competent rock from 60 to 72 inches bgs.
Depth of Remediation	The depth of impacted soil was not greater than 36 inches bgs.

6.0 SOIL REMEDIAL ACTION LEVELS

Crude oil facilities in New Mexico are generally regulated by the NMOCD. Terracon proposes to remediate produced water impacted soil of the McIntyre B SWD Release consistent with the remediation/abatement goals and objectives outlined in the NMOCD *Closure Criteria for Soils Impacted by a Release, June 21, 2018*.

Release Investigation and Remedial Action Plan

McIntyre B SWD ■ Eddy County, New Mexico

May 24, 2021 ■ Terracon Project No. AR207572



The guidance document provides direction for initial response actions, site assessment, sampling procedures and provides closure criteria based on the depth to groundwater, distance to private and domestic water sources, and the distance to the nearest surface water body as described in Table 1 of Appendix B.

6.1 Remediation Levels

Soil remediation limits for Chlorides, TPH (GRO+DRO+MRO), GRO+DRO, BTEX (includes benzene, toluene, ethylbenzene, and xylenes), and Benzene are selected based on *Restoration, Reclamation, and Re-vegetation* (19.15.29.13) NMAC – D (Applicable for Soils on a pad or at Depths Greater than 4 ft. Below Grade Surface, and depth to water being between 51 and 100 feet bgs).

Constituent	Remediation Limits
Chloride (Soils on a pad or at Depths Greater than 4 ft. Below Grade Surface)	10,000 mg/kg
TPH (GRO+DRO+MRO)	1,000 mg/kg
BTEX	50 mg/kg
Benzene	2,500 mg/kg

7.0 SOIL SAMPLING PROCEDURES

Soil sampling procedures are detailed as Exhibit 1 in Appendix B.

8.0 RELEASE INVESTIGATION DATA EVALUATION

During Terracon's December 13, 2020 release investigation activities, a total of 10 soil samples were collected from the site and analyzed for BTEX, chloride, and/or TPH. All 10 soil samples were collected from within the release margins. During a second investigation on January 26, 2021, a total of two soil samples were also collected from the site and analyzed for BTEX, chloride, and/or TPH. Both soil samples were collected from within the release margins.

8.1 Release Margins Data Evaluation

Benzene was detected above applicable laboratory SDLs in 5 of the 12 soil samples analyzed within the release margins. Benzene concentrations ranged from 0.00946 mg/kg in soil sample

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McIntyre B SWD ■ Eddy County, New Mexico

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HA-4 (0 ft bgs to 0.5 ft bgs) to 0.256 mg/kg in soil sample HA-3 (0 to 0.5 ft bgs). The samples collected within the release margins did not exhibit Benzene concentrations above NMOCD RAL for benzene of 10 mg/kg, as summarized in Table 2.

Total BTEX was detected above applicable laboratory SDLs in 8 of the 12 soil samples analyzed within the release margins. Total BTEX concentrations ranged from 0.02167 mg/kg in soil sample HA-4 (0.5 ft bgs to 1 ft bgs) to 11.08 mg/kg in soil sample HA-2 (0 to 0.5 ft bgs). Total BTEX concentrations did not exceed the applicable NMOCD RAL for Total BTEX of 50 mg/kg, as summarized in Table 2.

Total TPH was detected above applicable laboratory SDLs in 8 of the 12 soil samples analyzed within the release margins. Total TPH concentrations ranged from 52.60 mg/kg in soil sample HA-4 (0.5 ft bgs to 1 ft bgs) to 3,359 mg/kg in soil sample HA-1 (0 to 0.5 ft bgs.) A total of seven soil samples exceeded the applicable NMOCD RAL of 10,000 mg/kg for Total TPH, as summarized in Table 2.

Chlorides were detected above applicable laboratory SDLs in each of the 12 soil samples analyzed within the release margins. The Chloride concentrations ranged from 744 mg/kg in soil sample HA-2 (1.5 ft bgs to 2 ft bgs) to 11,700 mg/kg in soil sample HA-2 (0 to 0.5 ft bgs). The samples analyzed within the release margins did exhibit chloride concentrations above the applicable NMOCD RAL for chloride of 10,000 mg/kg (Applicable for Soils at Depths Greater than 4 ft. Below Grade Surface and on pads) in two of the 12 soil samples, as summarized in Table 2.

8.2 Release Investigation Data Summary

Based on the review of the above release investigation analytical results, the areas within the release margins exhibited chloride concentrations in multiple locations above NMOCD RALs. Based on these exceedances above NMOCD RALs, remedial response actions were implemented at the site. Soil remediation activities are discussed in Section 9 of this report.

8.3 Confirmation Margins Data Evaluation

During Terracon's confirmation sampling on April 6, 2021, composite soil samples were collected from the sidewalls and floor of the open excavation, following the removal of impacted soils. A total of 8 soil samples were collected from the excavation and were analyzed for BTEX, chloride, and TPH.

8.3.1 Confirmation Assessment Data Evaluation

Benzene was detected above the applicable laboratory SDL in 1 of the 8 confirmation soil samples collected within the remediated margins. The benzene concentrations in soil sample WS-2 (1.5 ft

Release Investigation and Remedial Action Plan

McIntyre B SWD ■ Eddy County, New Mexico

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bgs to 2 ft bgs) consisted of 0.00298 mg/kg. The benzene concentration did not exceed the applicable NMOCD RAL for benzene of 10 mg/kg, as summarized in Table 2.

Total BTEX was detected above the applicable laboratory SDL in 1 of the 8 confirmation soil samples within the remediation area. The detected BTEX concentration of 0.00298 mg/kg was reported in soil sample WS-2 (1.5 ft bgs to 2 ft bgs). The detected Total BTEX concentrations did not exceed the applicable NMOCD RAL for BTEX of 50 mg/kg, as summarized in Table 2.

Total TPH was detected above applicable laboratory SDLs in 7 of the 8 confirmation soil samples analyzed within the remediated margins. Total TPH concentrations ranged from 54.2 mg/kg in soil sample WS-1 (1.5 ft bgs to 2 ft bgs) to 586 mg/kg in soil sample FS-1 (2.5 ft bgs to 3 ft bgs). The detected Total TPH concentrations did not exceed the applicable NMOCD RAL of 1,000 mg/kg for Total TPH, as summarized in Table 2.

Chloride was detected above applicable laboratory SDLs in all 8 of the soil samples analyzed within the remediated margins. The chloride concentrations ranged from 942 mg/kg in soil sample WS-1 (1.5 ft bgs to 2 ft bgs) to 6,410 mg/kg in soil sample FS-3 (2.5 ft bgs to 3 ft bgs). The samples analyzed within the release margins did not exhibit chloride concentrations above the applicable NMOCD RAL for chloride of 20,000 mg/kg, as summarized in Table 2.

8.3.2 Confirmation Data Summary

Based on the review of the above confirmation analytical results, the areas within and surrounding the remediation do not exhibit concentrations above the NMOCD RAL for benzene, Total BTEX, chloride, and Total TPH. Based on the analytical results being below NMOCD RALs, Terracon recommends the cessation of remedial activities at the site closure of response actions to be implemented at the site. Terracon recommends beginning the restoration of the above-mentioned site and disposing of the stockpiled material.

9.0 SOIL REMEDIATION

Impacted soil will be remediated and managed according to the criteria described below which will remove contaminants to protect the environment.

9.1 Impacted Soils

Soils exceeding the designated NMOCD RALs described in Section 6 will be remediated as follows:

- Highly impacted soils within the release margins, illustrated in Figure 4 of Appendix A, were excavated to a maximum depth of 3 feet bgs, or upon refusal due to

Release Investigation and Remedial Action Plan

McIntyre B SWD ■ Eddy County, New Mexico

May 24, 2021 ■ Terracon Project No. AR207572



encountering a restrictive barrier, or field evidence demonstrated that impacted materials have been sufficiently mitigated, whichever occurs first.

- Following excavation, vertical and horizontal verification samples were collected from the base and walls of the excavation to confirm the remaining levels of soil contaminants are below the desired NMOCD RALs.

9.2 Soil Management

The impacted soil was removed and disposed of at a NMOCD approved facility. Excavated soils will be transported by truck (20 cubic yard capacity) and disposed of at the Lea Land disposal facility located in Hobbs, New Mexico.

10.0 TERMINATION OF REMEDIAL ACTIONS, FINAL CLOSURE AND REPORTING**10.1 Termination of Remedial Action**

Remediation of soils at the site was terminated when contaminated soil had been removed from the site and disposed of at an authorized facility. Sufficient contaminated soil was removed so that residual contaminant concentrations are below the soil remediation action levels.

If soil action levels cannot practicably be attained, an evaluation of risk will be performed and provided to NMOCD for approval showing that the remaining contaminants will not pose a threat to present or foreseeable beneficial use of the property.

10.2 Final Closure

Upon termination of remedial actions, the area of the release was closed by backfilling the excavated area with caliche pad material and, contouring and compacting to surrounding topography.

10.3 Final Report

Upon completion of remedial activities, a final report documenting the cleanup activities has been provided to NMOCD for review and approval.

APPENDIX A – FIGURES

Figure 1 – Topographic Map

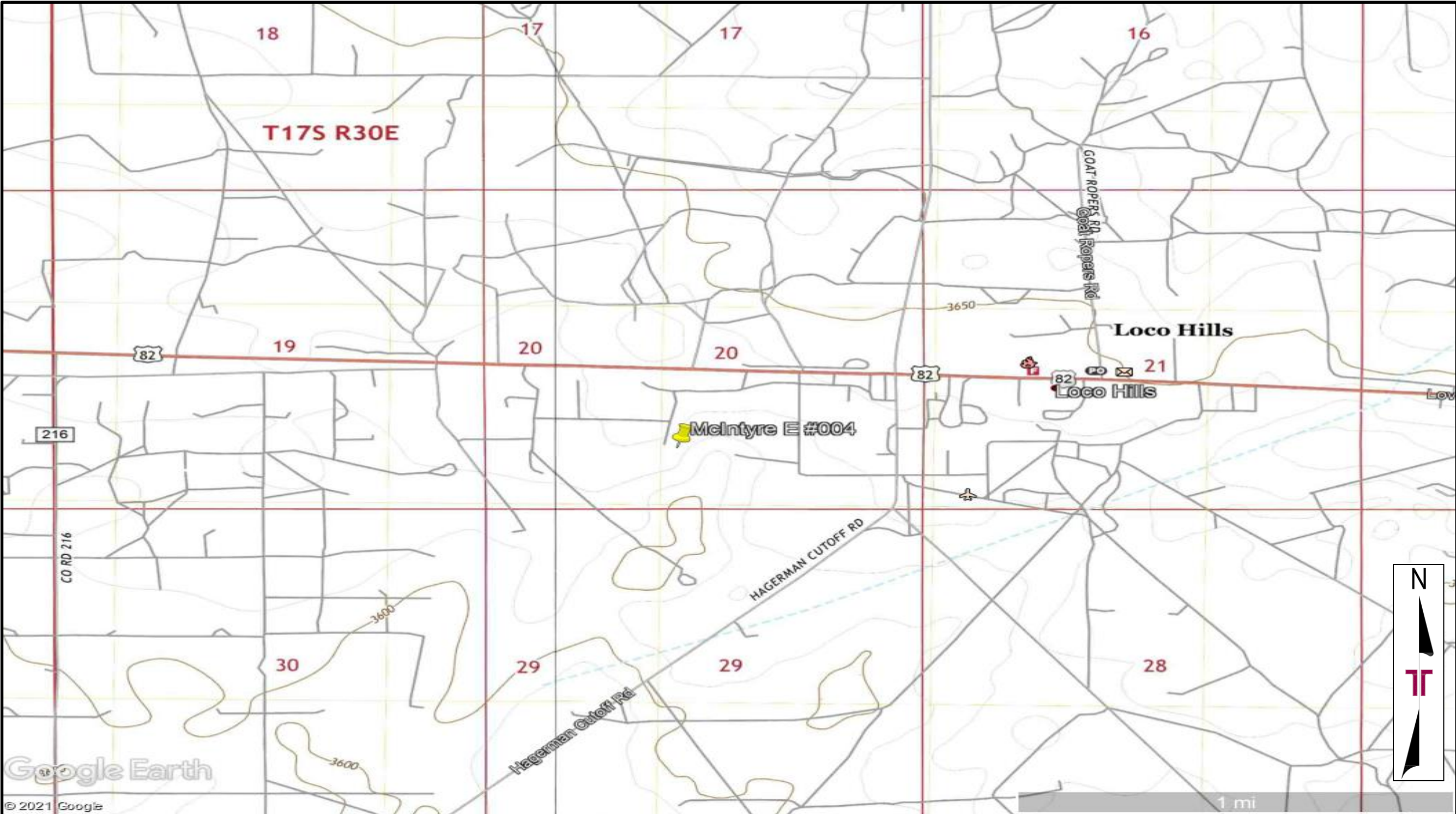
Figure 2 – Site Map

Figure 3 – Chloride Concentration Map

Figure 4 – Remediation Concentration Map

Figure 5 – NMOSE POD Location Map

Figure 6 – Cave Karst Public UCP

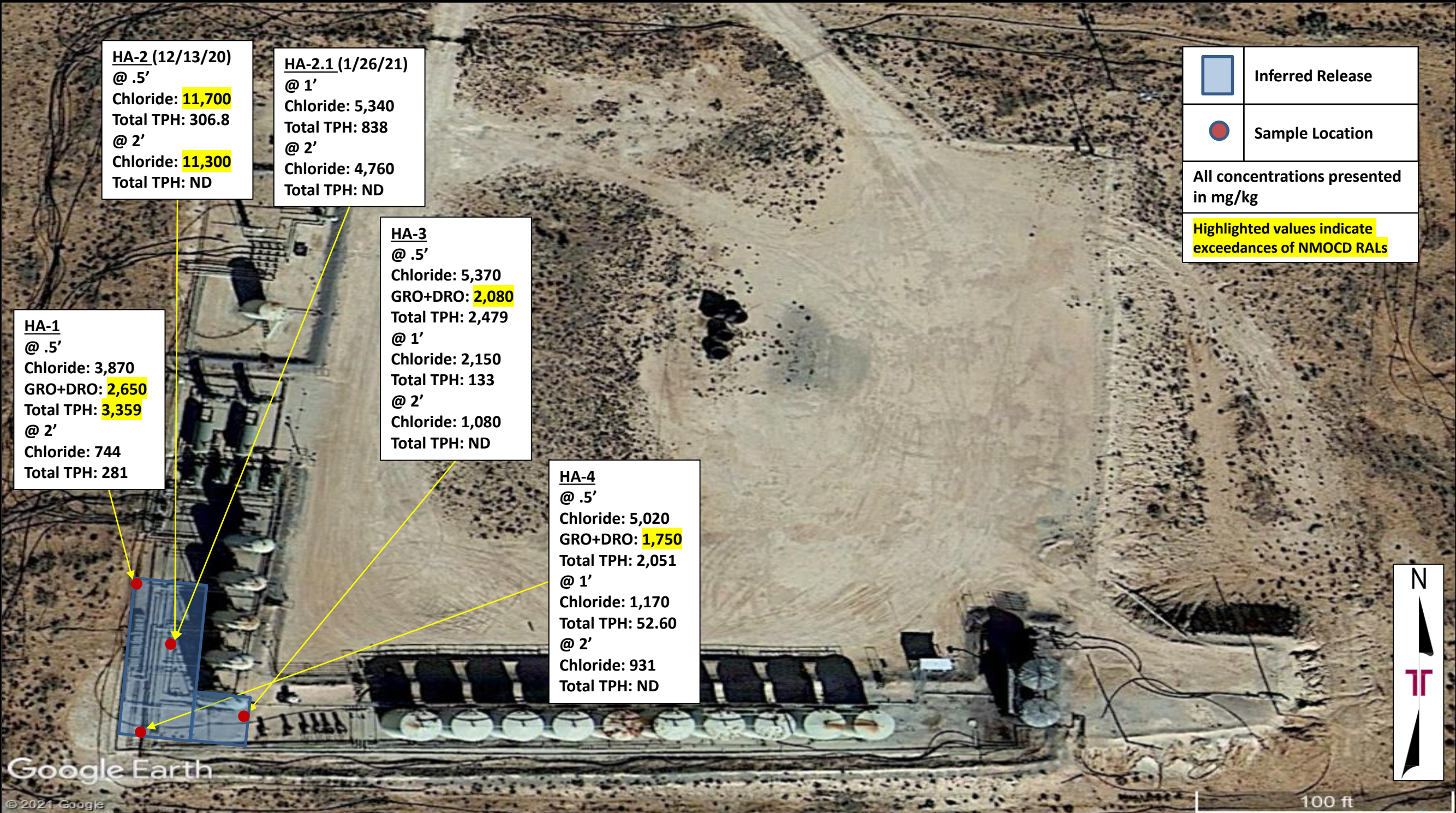


Project No. AR207572		Figure 1 – Topographic Map McIntyre B SWD 32.8155785°, -103.9952316° Eddy County, New Mexico	
Scale:	As Shown		
Source:	Google Earth		
Image Date:	01/08/2020		
Terracon Consulting Engineers & Scientists 5827 50th St. Suite 1 PH. (806) 300-0104 Lubbock, Texas 79424 FAX. (806) 797 0947			



Project No. AR207572		Figure 2 – Site Map	
Scale: As Shown		McIntyre B SWD	
Source: Google Earth		32.8155785°, -103.9952316°	
Image Date: 12/21/2019		Eddy County, New Mexico	

Terracon Consulting Engineers & Scientists	
5827 50 th St. Suite 1 PH. (806) 300-0104	Lubbock, Texas 79424 FAX. (806) 797 0947



Project No.	AR207572
Scale:	As Shown
Source:	Google Earth
Image Date:	12/21/2019



Consulting Engineers & Scientists

5827 50th St. Suite 1
PH. (806) 300-0104

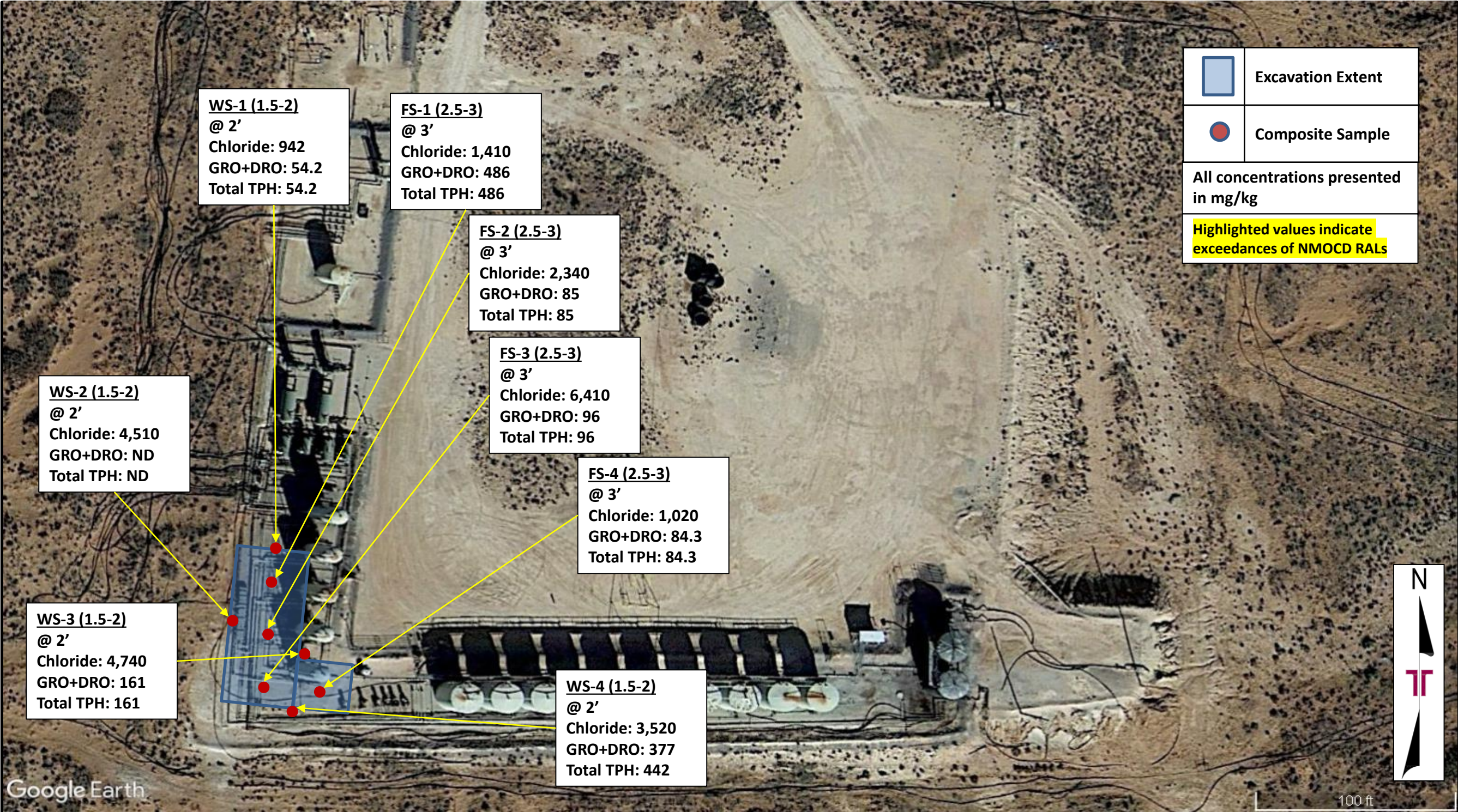
Lubbock, Texas 79424
FAX. (806) 797 0947

Figure 3 – Chloride Concentration Map

McIntyre E #004

32.8155785°, -103.9952316°

Eddy County, New Mexico



Project No.	AR207572	 5827 50 th St. Suite 1 PH. (806) 300-0104	Lubbock, Texas 79424 FAX. (806) 797 0947	Figure 4 – Remediation Concentration Map	
Scale:	As Shown			McIntyre B SWD	
Source:	Google Earth			32.8155785°, -103.9952316°	
Image Date:	12/21/2019			Eddy County, New Mexico	



Site Location

NMOSE POD
Location

Project No.	AR207572
Scale:	1" : 600 ft
Source:	Google Earth
Date:	6/3/2021

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Consulting Engineers & Scientists

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PH. (806) 300-0140 FAX. (806) 797-0947

Figure 5 – NMOSE POD Location Map

McIntyre B SWD Release
32.8155785°, -103.9952316°
Eddy County, New Mexico



- Low Karst
- Medium Karst
- High Karst



Project No.	AR207572
Scale:	3" : 2 mi
Source:	Google Earth
Date:	6/3/2021

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PH. (806) 300-0140 FAX. (806) 797-0947

Figure 6 – Karst Location Map

McIntyre B SWD Release
32.8155785°, -103.9952316°
Eddy County, New Mexico

APPENDIX B – TABLES & PROCEDURES

Exhibit 1 – Soil Sampling Procedures

Table 1 – Closure Criteria for Soils Impacted by a Release

Table 2 – Soil Sample Analytical Results

EXHIBIT 1**SOIL SAMPLING PROCEDURES**Soil Sampling Procedures

Soil sampling for laboratory analysis was conducted according to NMOCD-approved industry standards or other NMOCD-approved procedures. Accepted NMOCD soil sampling procedures and laboratory analytical methods are as follows:

- Collect samples in clean, air-tight glass jars supplied by the laboratory which will conduct the analysis or from a reliable laboratory equipment supplier.
- Label the samples with a unique code for each sample.
- Cool and store samples with cold packs or on ice.
- Promptly ship the sample to the lab for analysis following chain of custody procedures.
- All samples must be analyzed within the holding times for the laboratory analytical method specified by EPA.

Analytical Methods

All soil samples must be analyzed using EPA methods, or by other NMOCD-approved methods and must be analyzed within the holding time specified by the method. Below are laboratory analytical methods the selected laboratory will use for analysis of soil samples analyzed for petroleum-related constituents.

- Chloride – EPA Method 300.0
- Total Petroleum Hydrocarbons - TPH (GRO+DRO+MRO) – EPA Method 8015M
- Benzene, toluene, ethylbenzene and total xylenes (BTEX) – EPA Method 8021B
- Benzene – EPA Method 8021B

Table 1			
Closure Criteria for Soils Impacted by a Release			
Minimum depth below any point within the horizontal boundary of the release to ground water less than 10,000 mg/L TDS	Constituent	Method*	Limit**
≤50 feet	Chloride***	EPA 300.0 or SM4500 Cl B	600 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015 M	100 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
51 feet-100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	10,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015 M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015 M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg
>100 feet	Chloride***	EPA 300.0 or SM4500 Cl B	20,000 mg/kg
	TPH (GRO+DRO+MRO)	EPA SW-846 Method 8015 M	2,500 mg/kg
	GRO+DRO	EPA SW-846 Method 8015 M	1,000 mg/kg
	BTEX	EPA SW-846 Method 8021B or 8260B	50 mg/kg
	Benzene	EPA SW-846 Method 8021B or 8260B	10 mg/kg

**Numerical limits or natural background level, whichever is greater

***This applies to releases of produced water or other fluids, which may contain chloride

TABLE 2 SOIL SAMPLE ANALYTICAL RESULTS - BTEX ¹ , Chloride ² , and TPH ³ McIntyre B SWD Terracon Project No. AR207572									
Sample I.D.	Sample Depth (bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)			
						GRO	DRO	ORO	TOTAL
Release Margin Samples									
HA-1 (0-0.5)	0 - 0.5'	Grab	12/13/20	Benzene - 0.221	3,870	128	2,650	581	3,359
				Toluene - 2.54					
				Ethylbenzene - 1.17					
				Total Xylenes - 1.79					
				Total BTEX - 5.721					
HA-1 (1.5-2)	1.5-2'	Grab	12/13/20	Benzene - <0.00198	744	<49.9	207	74.0	281.0
				Toluene - <0.00198					
				Ethylbenzene - <0.00198					
				Total Xylenes - <0.00198					
				Total BTEX - <0.00198					
HA-2 (0-0.5)	0 - 0.5'	Grab	12/13/20	Benzene - 0.105	11,700	88.8	218	<49.9	306.8
				Toluene - 2.18					
				Ethylbenzene - 3.84					
				Total Xylenes - 4.95					
				Total BTEX - 11.08					
HA-2 (1.5-2)	1.5 - 2'	Grab	12/13/20	Benzene - <0.00201	11,300	<50.0	<50.0	<50.0	<50.0
				Toluene - 0.00725					
				Ethylbenzene - 0.00397					
				Total Xylenes - 0.01357					
				Total BTEX - 0.02479					
HA-3 (0-0.5)	0-0.5'	Grab	12/13/20	Benzene - 0.256	5,370	131	2,080	268	2,479
				Toluene - 2.55					
				Ethylbenzene - 2.38					
				Total Xylenes - 2.758					
				Total BTEX - 7.944					
HA-3 (0.5-1)	0.5-1'	Grab	12/13/20	Benzene - 0.0233	2,150	<50.0	133	<50.0	133
				Toluene - 0.0906					
				Ethylbenzene - 0.0337					
				Total Xylenes - 0.1113					
				Total BTEX - 0.2589					
HA-3 (1.5-2)	1.5-2'	Grab	12/13/20	Benzene - <0.00190	1,080	<49.9	<49.9	<49.9	<49.9
				Toluene - 0.0036					
				Ethylbenzene - <0.00190					
				Total Xylenes - 0.00834					
				Total BTEX - 0.01194					
HA-4 (0-0.5)	0-0.5'	Grab	12/13/20	Benzene - 0.00946	5,020	<50.0	1,750	301	2,051
				Toluene - 0.00755					
				Ethylbenzene - 0.00234					
				Total Xylenes - 0.00232					
				Total BTEX - 0.02167					
HA-4 (0.5-1)	0.5-1'	Grab	12/13/20	Benzene - <0.00199	1,170	<49.9	52.6	<49.9	52.60
				Toluene - <0.00199					
				Ethylbenzene - <0.00199					
				Total Xylenes - <0.001990					
				Total BTEX - <0.001990					
HA-4 (1.5-2)	1.5-2'	Grab	12/13/20	Benzene - <0.00201	931	<50.0	<50.0	<50.0	<50.0
				Toluene - <0.00201					
				Ethylbenzene - <0.00201					
				Total Xylenes - <0.00201					
				Total BTEX - <0.00201					
Additional Samples									
HA-2.1(0.5-1)	0.5-1'	Grab	01/26/21	Benzene - <0.00202	5,340	<49.8	756	81.7	838
				Toluene - <0.00202					
				Ethylbenzene - <0.00202					
				Total Xylenes - <0.00202					
				Total BTEX - <0.00202					
HA-2.1(1.5-2)	1.5-5'	Grab	01/26/21	Benzene - <0.00202	4,760	<50.0	<50.0	<50.0	<50.0
				Toluene - 0.00955					
				Ethylbenzene - <0.00202					
				Total Xylenes - <0.00202					
				Total BTEX - 0.00955					
NMOCD Remediation and Delineation Standards ⁵ (Applicable for Soils on pad or at Depths Greater than 4 ft. Below Grade Surface)				Benzene - 10 Toluene - N/A Ethylbenzene - N/A Total Xylenes - N/A Total BTEX - 50	10,000	1,000	N/A	2,500	

1. BTEX = Benzene, toluene, ethylbenzene, total xylenes analyzed by EPA Method 8021B

2. Chloride = Chloride analyzed by EPA Method 300.

3. TPH = Total petroleum hydrocarbons analyzed by EPA Method 8015M (GRO/DRO/ORO)

* = NMOC Remediation and Delineation Standards are proposed in 19.15.29.12 NMOC - N, 8/14/2018

< = Constituent not detected above the indicated laboratory SDL

NA = Not Analyzed

N/A = No Applicable reporting standards

Bold denotes concentrations that exceed the New Mexico Oil Conservation Division (NMOC) Remediation and Delineation Standards.

TABLE 2 SOIL SAMPLE ANALYTICAL RESULTS - BTEX ¹ , Chloride ² , and TPH ³ McIntyre B SWD Terracon Project No. AR207572									
Sample I.D.	Sample Depth (bgs)	Sample Type	Sample Date	BTEX (mg/kg)	Chloride (mg/kg)	TPH (8015M) (mg/kg)			
						GRO	DRO	ORO	TOTAL
Confirmation Samples									
FS-1(2.5-3)	2.5-3'	Grab	04/06/21	Benzene - <0.00199	1,410	486	<50.0	<50.0	486
				Toluene - <0.00199					
				Ethylbenzene - <0.00199					
				Total Xylenes - <0.00398					
				Total BTEX - <0.00199					
FS-2(2.5-3)	2.5-3'	Grab	04/06/21	Benzene - <0.00198	2,340	85.0	<49.8	<49.8	85.0
				Toluene - <0.00198					
				Ethylbenzene - <0.00198					
				Total Xylenes - <0.00396					
				Total BTEX - <0.00198					
FS-3(2.5-3)	2.5-3'	Grab	04/06/21	Benzene - <0.00200	6,410	96.0	<49.9	<49.9	96.0
				Toluene - <0.00200					
				Ethylbenzene - <0.00200					
				Total Xylenes - <0.00399					
				Total BTEX - <0.00200					
FS-4(2.5-3)	2.5-3'	Grab	04/06/21	Benzene - <0.00198	1,020	84.3	<50.0	<50.0	84.3
				Toluene - <0.00198					
				Ethylbenzene - <0.00198					
				Total Xylenes - <0.00396					
				Total BTEX - <0.00198					
WS-1(1.5-2)	1.5-2'	Grab	04/06/21	Benzene - <0.00199	942	54.2	<50.0	<50.0	54.2
				Toluene - <0.00199					
				Ethylbenzene - <0.00199					
				Total Xylenes - <0.00398					
				Total BTEX - <0.00199					
WS-2(1.5-2)	1.5-2'	Grab	04/06/21	Benzene - <0.00200	4,510	<49.9	<49.9	<49.9	<49.9
				Toluene - <0.00200					
				Ethylbenzene - <0.00200					
				Total Xylenes - <0.00400					
				Total BTEX - 0.00298					
WS-3(1.5-2)	1.5-2'	Grab	04/06/21	Benzene - <0.00200	4,740	84.5	76.2	<49.9	161
				Toluene - <0.00200					
				Ethylbenzene - <0.00200					
				Total Xylenes - <0.00399					
				Total BTEX - <0.00200					
WS-4(1.5-2)	1.5-2'	Grab	04/06/21	Benzene - <0.00200	3,520	<50.0	377	65.2	442
				Toluene - <0.00200					
				Ethylbenzene - <0.00200					
				Total Xylenes - 0.00399					
				Total BTEX - <0.00200					
New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards*				Benzene - 10 Toluene - N/A Ethylbenzene - N/A Total Xylenes - N/A Total BTEX - 50	10,000	1,000	N/A	100	
NMOCD Remediation and Delineation Standards ⁵ (Applicable for Soils at Depths Greater than 4 ft. Below Grade Surface)				Benzene - 10 Toluene - N/A Ethylbenzene - N/A Total Xylenes - N/A Total BTEX - 50	10,000	1,000	N/A	2,500	

1. BTEX = Benzene, toluene, ethylbenzene, total xylenes analyzed by EPA Method 8021B

2. Chloride = Chloride analyzed by EPA Method 300.

3. TPH = Total petroleum hydrocarbons analyzed by EPA Method 8015M (GRO/DRO/ORO)

* = NMOCD Remediation and Delineation Standards are proposed in 19.15.29.12 NMAC - N, 8/14/2018

< = Constituent not detected above the indicated laboratory SDL

NA = Not Analyzed

N/A = No Applicable reporting standards

Bold denotes concentrations that exceed the New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards.

APPENDIX C – PHOTOGRAPHIC LOG

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon

PHOTO 1: View of spill and tank battery, facing north. 12-3-2020



PHOTO 2: View of spill and tank battery, facing north. 12-3-2020

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon

PHOTO 3: View of tank battery and excavated area, facing east. 12-3-2020



PHOTO 4: View of tank battery and pipes, facing north. 12-3-2020

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon

PHOTO 5: View of spill and tank battery, facing south. 12-3-2020



PHOTO 6: View of tank battery and connectors, facing north. 12-3-2020

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon

PHOTO 7: View of HA-3, facing northwest. 12-3-2020



PHOTO 8: View of HA-4, facing north. 12-3-2020

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon



PHOTO 9: View of remediated area, facing northwest. 2/3/2021



PHOTO 10: View of remediated area, facing west. 2/3/2021

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon



PHOTO 11: View of connectors and remediated area, facing southwest. 2/3/2021



PHOTO 12: View of tank battery and remediated area, facing east. 2/3/2021

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon



PHOTO 13: View of remediated area, facing north. 2/3/2021



PHOTO 14: View of remediated area, facing south. 2/3/2021

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon



PHOTO 15: View of tank battery and remediated area, facing southeast. 2/3/2021



PHOTO 16: View of tank battery and remediated area, facing east. 2/3/2021

Responsive ■ Resourceful ■ Reliable

McIntyre B SWD ■ Eddy County, New Mexico
May 24, 2021 ■ Terracon Project No. AR207572

Terracon



PHOTO 17: View of tank battery and remediated area, facing northeast



PHOTO 18: View of tank battery and remediated area, facing northwest. 2./3/2021

Responsive ■ Resourceful ■ Reliable

APPENDIX D – ANALYTICAL REPORT AND CHAIN OF CUSTODY



Environment Testing America

ANALYTICAL REPORT

Eurofins Xenco, Lubbock
6701 Aberdeen Ave.
Suite 8
Lubbock, TX 79424
Tel: (806)794-1296

Laboratory Job ID: 820-387-1

Client Project/Site: McIntyre B SWD - AR207572

For:

Terracon Consulting Eng & Scientists
5827 50th St
Suite 1
Lubbock, Texas 79424

Attn: Erin Lloyd

A handwritten signature in black ink that reads "Jessica Kramer".

Authorized for release by:
4/16/2021 7:29:31 PM

Jessica Kramer, Project Manager
(432)704-5440
jessica.kramer@eurofinset.com

LINKS

Review your project
results through

TotalAccess

Have a Question?



Visit us at:

www.eurofinsus.com/Env

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

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

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Laboratory Job ID: 820-387-1

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Analytical test results meet all requirements of the associated regulatory program (e.g., NELAC (TNI), DoD, and ISO 17025) unless otherwise noted under the individual analysis. Data qualifiers are applied to note exceptions. Noncompliant quality control (QC) is further explained in narrative comments. QC data that exceed the upper limits and are associated with non-detect samples are qualified but no further narration is needed since the bias is high and does not change a non-detect result. Regulated compliance samples (e.g. SDWA, NPDES) must comply with the associated agency requirements/permits.

Coliform MCLs

· Based on the EPA primary drinking water standard MCL for total coliforms, a water supply is considered bacteriologically "SAFE" if no coliform bacteria are detected. To be considered "SAFE" your report should indicate "<1 cfu/100mL" or "NEG" for the coliform test. If you report indicates a positive result "POS" or a value greater than or equal to one, then your supply is "UNSAFE FOR DRINKING" contact your local health department.

Warranties, Terms, and Conditions

· Analyses for Field Parameters are performed by EQC field staff. Locations and certifications are identified on the Chain of Custody as follows:

ERF = field staff performs tests under NJ State certification #02015

VL = field staff performs tests under NJ State certification #06005

WG = field staff performs tests under NJ State certification #PA001

H = field staff performs tests under NJ NELAP certification #PA093, PA NELAP certification # 46-

05499

· Test results meet all TNI or other applicable regulatory agency requirements, including holding times and preservation, unless otherwise indicated.

· The report shall not be reproduced, except in full, without the written consent of the laboratory

· All samples are collected as "grab" samples unless otherwise identified.

· Reported results related only to the samples as tested. EQC is not responsible for sample integrity unless sampling has been performed by a member of our staff.

· EQC is not responsible for sampling and/or testing omissions. Note that regulatory authorities may assess substantial fines for testing omissions. Please track your sample collection schedules and results on a regular basis (e.g. weekly, monthly, or quarterly) to ensure compliance.

· Eurofins' online data portal "TotalAccess" will provide you with real-time access to collection dates and testing results. Please contact Client Services for further information.

· The following personnel or their deputies have approved the results of the tests performed by EQC: Nicki Smith (Environmental Chemistry) and Zachary Smith (Water Microbiology).



Jessica Kramer

Project Manager

4/16/2021 7:29:31 PM

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Laboratory Job ID: 820-387-1

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Definitions/Glossary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
*1	LCS/LCSD RPD exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

HPLC/IC

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F1	MS and/or MSD recovery exceeds control limits.
U	Indicates the analyte was analyzed for but not detected.

Glossary

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

Eurofins Xenco, Lubbock

Case Narrative

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Job ID: 820-387-1**Laboratory: Eurofins Xenco, Lubbock****Narrative****Job Narrative
820-387-1****Receipt**

The samples were received on 4/8/2021 2:50 PM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperature of the cooler at receipt time was 0.9°C

GC VOA

Method 8021B: Surrogate recovery for the following sample was outside control limits: FS-1 (820-387-1). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

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

GC Semi VOA

Method 8015MOD_NM: The RPD of the laboratory control sample (LCS) and laboratory control sample duplicate (LCSD) for preparation batch 880-1597 and analytical batch 880-1612 recovered outside control limits for the following analytes: < Diesel Range Organics (Over C10-C28)>.

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

HPLC/IC

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

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: FS-1

Lab Sample ID: 820-387-1

Date Collected: 04/06/21 12:00

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 2.5' - 3'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 18:02	1
Toluene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 18:02	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 18:02	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		04/12/21 10:51	04/13/21 18:02	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 18:02	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		04/12/21 10:51	04/13/21 18:02	1
Total BTEX	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 18:02	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	107		70 - 130	04/12/21 10:51	04/13/21 18:02	1
1,4-Difluorobenzene (Surr)	111		70 - 130	04/12/21 10:51	04/13/21 18:02	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	486		50.0		mg/Kg		04/09/21 15:09	04/11/21 01:50	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0		mg/Kg		04/09/21 15:09	04/11/21 01:50	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/11/21 01:50	1
Total TPH	486		50.0		mg/Kg		04/09/21 15:09	04/11/21 01:50	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130	04/09/21 15:09	04/11/21 01:50	1
o-Terphenyl	90		70 - 130	04/09/21 15:09	04/11/21 01:50	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1410	F1	25.2		mg/Kg			04/13/21 10:41	5

Client Sample ID: FS-2

Lab Sample ID: 820-387-2

Date Collected: 04/06/21 12:05

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 2.5' - 3'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 18:23	1
Toluene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 18:23	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 18:23	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		04/12/21 10:51	04/13/21 18:23	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 18:23	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		04/12/21 10:51	04/13/21 18:23	1
Total BTEX	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 18:23	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	04/12/21 10:51	04/13/21 18:23	1
1,4-Difluorobenzene (Surr)	116		70 - 130	04/12/21 10:51	04/13/21 18:23	1

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: FS-2

Lab Sample ID: 820-387-2

Date Collected: 04/06/21 12:05

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 2.5' - 3'

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	85.0		49.8		mg/Kg		04/09/21 15:09	04/11/21 02:11	1
Diesel Range Organics (Over C10-C28)	<49.8	U *1	49.8		mg/Kg		04/09/21 15:09	04/11/21 02:11	1
Oil Range Organics (Over C28-C36)	<49.8	U	49.8		mg/Kg		04/09/21 15:09	04/11/21 02:11	1
Total TPH	85.0		49.8		mg/Kg		04/09/21 15:09	04/11/21 02:11	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130	04/09/21 15:09	04/11/21 02:11	1
o-Terphenyl	88		70 - 130	04/09/21 15:09	04/11/21 02:11	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	2340		25.3		mg/Kg			04/13/21 10:59	5

Client Sample ID: FS-3

Lab Sample ID: 820-387-3

Date Collected: 04/06/21 12:10

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 2.5' - 3'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 18:43	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 18:43	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 18:43	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		04/12/21 10:51	04/13/21 18:43	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 18:43	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		04/12/21 10:51	04/13/21 18:43	1
Total BTEX	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 18:43	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	102		70 - 130	04/12/21 10:51	04/13/21 18:43	1
1,4-Difluorobenzene (Surr)	115		70 - 130	04/12/21 10:51	04/13/21 18:43	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	96.0		49.9		mg/Kg		04/09/21 15:09	04/11/21 02:33	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		04/09/21 15:09	04/11/21 02:33	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		04/09/21 15:09	04/11/21 02:33	1
Total TPH	96.0		49.9		mg/Kg		04/09/21 15:09	04/11/21 02:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	89		70 - 130	04/09/21 15:09	04/11/21 02:33	1
o-Terphenyl	89		70 - 130	04/09/21 15:09	04/11/21 02:33	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	6410		50.2		mg/Kg			04/13/21 11:06	10

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: FS-4

Lab Sample ID: 820-387-4

Date Collected: 04/06/21 12:15

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 2.5' - 3'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 19:04	1
Toluene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 19:04	1
Ethylbenzene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 19:04	1
m-Xylene & p-Xylene	<0.00396	U	0.00396		mg/Kg		04/12/21 10:51	04/13/21 19:04	1
o-Xylene	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 19:04	1
Xylenes, Total	<0.00396	U	0.00396		mg/Kg		04/12/21 10:51	04/13/21 19:04	1
Total BTEX	<0.00198	U	0.00198		mg/Kg		04/12/21 10:51	04/13/21 19:04	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	04/12/21 10:51	04/13/21 19:04	1
1,4-Difluorobenzene (Surr)	115		70 - 130	04/12/21 10:51	04/13/21 19:04	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	84.3		50.0		mg/Kg		04/09/21 15:09	04/11/21 03:15	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0		mg/Kg		04/09/21 15:09	04/11/21 03:15	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/11/21 03:15	1
Total TPH	84.3		50.0		mg/Kg		04/09/21 15:09	04/11/21 03:15	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	88		70 - 130	04/09/21 15:09	04/11/21 03:15	1
o-Terphenyl	89		70 - 130	04/09/21 15:09	04/11/21 03:15	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	1020		4.97		mg/Kg			04/13/21 11:12	1

Client Sample ID: WS-1

Lab Sample ID: 820-387-5

Date Collected: 04/06/21 12:20

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 1.5' - 2'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 19:25	1
Toluene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 19:25	1
Ethylbenzene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 19:25	1
m-Xylene & p-Xylene	<0.00398	U	0.00398		mg/Kg		04/12/21 10:51	04/13/21 19:25	1
o-Xylene	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 19:25	1
Xylenes, Total	<0.00398	U	0.00398		mg/Kg		04/12/21 10:51	04/13/21 19:25	1
Total BTEX	<0.00199	U	0.00199		mg/Kg		04/12/21 10:51	04/13/21 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	112		70 - 130	04/12/21 10:51	04/13/21 19:25	1
1,4-Difluorobenzene (Surr)	134	S1+	70 - 130	04/12/21 10:51	04/13/21 19:25	1

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: WS-1

Lab Sample ID: 820-387-5

Date Collected: 04/06/21 12:20

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 1.5' - 2'

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	54.2		50.0		mg/Kg		04/09/21 15:09	04/11/21 03:37	1
Diesel Range Organics (Over C10-C28)	<50.0	U *1	50.0		mg/Kg		04/09/21 15:09	04/11/21 03:37	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/11/21 03:37	1
Total TPH	54.2		50.0		mg/Kg		04/09/21 15:09	04/11/21 03:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	94		70 - 130	04/09/21 15:09	04/11/21 03:37	1
o-Terphenyl	88		70 - 130	04/09/21 15:09	04/11/21 03:37	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	942		4.97		mg/Kg			04/13/21 11:18	1

Client Sample ID: WS-2

Lab Sample ID: 820-387-6

Date Collected: 04/06/21 12:25

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 1.5' - 2'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	0.00298		0.00200		mg/Kg		04/12/21 10:51	04/13/21 19:45	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 19:45	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 19:45	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		04/12/21 10:51	04/13/21 19:45	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 19:45	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		04/12/21 10:51	04/13/21 19:45	1
Total BTEX	0.00298		0.00200		mg/Kg		04/12/21 10:51	04/13/21 19:45	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		70 - 130	04/12/21 10:51	04/13/21 19:45	1
1,4-Difluorobenzene (Surr)	117		70 - 130	04/12/21 10:51	04/13/21 19:45	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<49.9	U	49.9		mg/Kg		04/09/21 15:09	04/11/21 03:58	1
Diesel Range Organics (Over C10-C28)	<49.9	U *1	49.9		mg/Kg		04/09/21 15:09	04/11/21 03:58	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		04/09/21 15:09	04/11/21 03:58	1
Total TPH	<49.9	U	49.9		mg/Kg		04/09/21 15:09	04/11/21 03:58	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	83		70 - 130	04/09/21 15:09	04/11/21 03:58	1
o-Terphenyl	81		70 - 130	04/09/21 15:09	04/11/21 03:58	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4510		25.0		mg/Kg			04/13/21 11:36	5

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: WS-3

Lab Sample ID: 820-387-7

Date Collected: 04/06/21 12:30

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 1.5' - v

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:06	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:06	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:06	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		04/12/21 10:51	04/13/21 20:06	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:06	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		04/12/21 10:51	04/13/21 20:06	1
Total BTEX	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:06	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	95		70 - 130	04/12/21 10:51	04/13/21 20:06	1
1,4-Difluorobenzene (Surr)	125		70 - 130	04/12/21 10:51	04/13/21 20:06	1

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	84.5		49.9		mg/Kg		04/09/21 15:09	04/11/21 04:26	1
Diesel Range Organics (Over C10-C28)	76.2	*1	49.9		mg/Kg		04/09/21 15:09	04/11/21 04:26	1
Oil Range Organics (Over C28-C36)	<49.9	U	49.9		mg/Kg		04/09/21 15:09	04/11/21 04:26	1
Total TPH	161		49.9		mg/Kg		04/09/21 15:09	04/11/21 04:26	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	87		70 - 130	04/09/21 15:09	04/11/21 04:26	1
o-Terphenyl	88		70 - 130	04/09/21 15:09	04/11/21 04:26	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	4740		49.9		mg/Kg			04/15/21 23:40	10

Client Sample ID: WS-4

Lab Sample ID: 820-387-8

Date Collected: 04/06/21 12:35

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 1.5' - 2'

Method: 8021B - Volatile Organic Compounds (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:27	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:27	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:27	1
m-Xylene & p-Xylene	<0.00399	U	0.00399		mg/Kg		04/12/21 10:51	04/13/21 20:27	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:27	1
Xylenes, Total	<0.00399	U	0.00399		mg/Kg		04/12/21 10:51	04/13/21 20:27	1
Total BTEX	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 20:27	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	91		70 - 130	04/12/21 10:51	04/13/21 20:27	1
1,4-Difluorobenzene (Surr)	109		70 - 130	04/12/21 10:51	04/13/21 20:27	1

Eurofins Xenco, Lubbock

Client Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: WS-4

Lab Sample ID: 820-387-8

Date Collected: 04/06/21 12:35

Matrix: Solid

Date Received: 04/08/21 14:50

Sample Depth: 1.5' - 2'

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/11/21 04:47	1
Diesel Range Organics (Over C10-C28)	377	*1	50.0		mg/Kg		04/09/21 15:09	04/11/21 04:47	1
Oil Range Organics (Over C28-C36)	65.2		50.0		mg/Kg		04/09/21 15:09	04/11/21 04:47	1
Total TPH	442		50.0		mg/Kg		04/09/21 15:09	04/11/21 04:47	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	91		70 - 130	04/09/21 15:09	04/11/21 04:47	1
o-Terphenyl	93		70 - 130	04/09/21 15:09	04/11/21 04:47	1

Method: 300.0 - Anions, Ion Chromatography - Soluble

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	3520		25.2		mg/Kg			04/15/21 23:55	5

Surrogate Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Method: 8021B - Volatile Organic Compounds (GC)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	BFB1 (70-130)	DFBZ1 (70-130)
820-387-1	FS-1	107	111
820-387-2	FS-2	102	116
820-387-3	FS-3	102	115
820-387-4	FS-4	97	115
820-387-5	WS-1	112	134 S1+
820-387-6	WS-2	97	117
820-387-7	WS-3	95	125
820-387-8	WS-4	91	109
LCS 880-1647/1-A	Lab Control Sample	92	108
LCSD 880-1647/2-A	Lab Control Sample Dup	95	122
MB 880-1647/5-A	Method Blank	110	102
Surrogate Legend			
BFB = 4-Bromofluorobenzene (Surr)			
DFBZ = 1,4-Difluorobenzene (Surr)			

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)	
Lab Sample ID	Client Sample ID	1CO1 (70-130)	OTPH1 (70-130)
820-387-1	FS-1	88	90
820-387-2	FS-2	87	88
820-387-3	FS-3	89	89
820-387-4	FS-4	88	89
820-387-5	WS-1	94	88
820-387-6	WS-2	83	81
820-387-7	WS-3	87	88
820-387-8	WS-4	91	93
LCS 880-1597/2-A	Lab Control Sample	96	90
LCSD 880-1597/3-A	Lab Control Sample Dup	100	93
MB 880-1597/1-A	Method Blank	107	109
Surrogate Legend			
1CO = 1-Chlorooctane			
OTPH = o-Terphenyl			

Eurofins Xenco, Lubbock

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Method: 8021B - Volatile Organic Compounds (GC)

Lab Sample ID: MB 880-1647/5-A

Matrix: Solid

Analysis Batch: 1703

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1647

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 12:30	1
Toluene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 12:30	1
Ethylbenzene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 12:30	1
m-Xylene & p-Xylene	<0.00400	U	0.00400		mg/Kg		04/12/21 10:51	04/13/21 12:30	1
o-Xylene	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 12:30	1
Xylenes, Total	<0.00400	U	0.00400		mg/Kg		04/12/21 10:51	04/13/21 12:30	1
Total BTEX	<0.00200	U	0.00200		mg/Kg		04/12/21 10:51	04/13/21 12:30	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	110		70 - 130	04/12/21 10:51	04/13/21 12:30	1
1,4-Difluorobenzene (Surr)	102		70 - 130	04/12/21 10:51	04/13/21 12:30	1

Lab Sample ID: LCS 880-1647/1-A

Matrix: Solid

Analysis Batch: 1703

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1647

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	0.100	0.08849		mg/Kg		88	70 - 130
Toluene	0.100	0.09231		mg/Kg		92	70 - 130
Ethylbenzene	0.100	0.08971		mg/Kg		90	70 - 130
m-Xylene & p-Xylene	0.200	0.1760		mg/Kg		88	70 - 130
o-Xylene	0.100	0.08845		mg/Kg		88	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	92		70 - 130
1,4-Difluorobenzene (Surr)	108		70 - 130

Lab Sample ID: LCSD 880-1647/2-A

Matrix: Solid

Analysis Batch: 1703

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1647

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	0.100	0.08942		mg/Kg		89	70 - 130	1	35
Toluene	0.100	0.09647		mg/Kg		96	70 - 130	4	35
Ethylbenzene	0.100	0.08565		mg/Kg		86	70 - 130	5	35
m-Xylene & p-Xylene	0.200	0.1766		mg/Kg		88	70 - 130	0	35
o-Xylene	0.100	0.08744		mg/Kg		87	70 - 130	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	95		70 - 130
1,4-Difluorobenzene (Surr)	122		70 - 130

Eurofins Xenco, Lubbock

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

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

Lab Sample ID: MB 880-1597/1-A

Matrix: Solid

Analysis Batch: 1612

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 1597

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (GRO)-C6-C10	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/10/21 21:36	1
Diesel Range Organics (Over C10-C28)	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/10/21 21:36	1
Oil Range Organics (Over C28-C36)	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/10/21 21:36	1
Total TPH	<50.0	U	50.0		mg/Kg		04/09/21 15:09	04/10/21 21:36	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1-Chlorooctane	107		70 - 130	04/09/21 15:09	04/10/21 21:36	1
o-Terphenyl	109		70 - 130	04/09/21 15:09	04/10/21 21:36	1

Lab Sample ID: LCS 880-1597/2-A

Matrix: Solid

Analysis Batch: 1612

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 1597

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Gasoline Range Organics (GRO)-C6-C10	1000	1107		mg/Kg		111	70 - 130
Diesel Range Organics (Over C10-C28)	1000	933.6		mg/Kg		93	70 - 130

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1-Chlorooctane	96		70 - 130
o-Terphenyl	90		70 - 130

Lab Sample ID: LCSD 880-1597/3-A

Matrix: Solid

Analysis Batch: 1612

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 1597

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (GRO)-C6-C10	1000	1249		mg/Kg		125	70 - 130	12	20
Diesel Range Organics (Over C10-C28)	1000	1172	*1	mg/Kg		117	70 - 130	23	20

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1-Chlorooctane	100		70 - 130
o-Terphenyl	93		70 - 130

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: MB 880-1591/1-A

Matrix: Solid

Analysis Batch: 1690

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			04/13/21 10:23	1

Eurofins Xenco, Lubbock

QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Method: 300.0 - Anions, Ion Chromatography (Continued)

Lab Sample ID: LCS 880-1591/2-A

Matrix: Solid

Analysis Batch: 1690

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	250.1		mg/Kg		100	90 - 110

Lab Sample ID: LCSD 880-1591/3-A

Matrix: Solid

Analysis Batch: 1690

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	236.6		mg/Kg		95	90 - 110	6	20

Lab Sample ID: 820-387-1 MS

Matrix: Solid

Analysis Batch: 1690

Client Sample ID: FS-1

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	1410	F1	1260	2470	F1	mg/Kg		84	90 - 110

Lab Sample ID: 820-387-1 MSD

Matrix: Solid

Analysis Batch: 1690

Client Sample ID: FS-1

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	1410	F1	1260	2513	F1	mg/Kg		88	90 - 110	2	20

Lab Sample ID: MB 880-1724/1-A

Matrix: Solid

Analysis Batch: 1852

Client Sample ID: Method Blank

Prep Type: Soluble

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Chloride	<5.00	U	5.00		mg/Kg			04/15/21 23:25	1

Lab Sample ID: LCS 880-1724/2-A

Matrix: Solid

Analysis Batch: 1852

Client Sample ID: Lab Control Sample

Prep Type: Soluble

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	250	254.5		mg/Kg		102	90 - 110

Lab Sample ID: LCSD 880-1724/3-A

Matrix: Solid

Analysis Batch: 1852

Client Sample ID: Lab Control Sample Dup

Prep Type: Soluble

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Chloride	250	253.6		mg/Kg		101	90 - 110	0	20

Lab Sample ID: 820-387-7 MS

Matrix: Solid

Analysis Batch: 1852

Client Sample ID: WS-3

Prep Type: Soluble

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Chloride	4740		250	8384	4	mg/Kg		1462	90 - 110

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QC Sample Results

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Method: 300.0 - Anions, Ion Chromatography

Lab Sample ID: 820-387-7 MSD									Client Sample ID: WS-3		
Matrix: Solid									Prep Type: Soluble		
Analysis Batch: 1852											
	Sample	Sample	Spike	MSD	MSD				%Rec.		RPD
Analyte	Result	Qualifier	Added	Result	Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Chloride	4740		250	8382	4	mg/Kg		1461	90 - 110	0	20

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

GC VOA

Prep Batch: 1647

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-1	FS-1	Total/NA	Solid	5035	
820-387-2	FS-2	Total/NA	Solid	5035	
820-387-3	FS-3	Total/NA	Solid	5035	
820-387-4	FS-4	Total/NA	Solid	5035	
820-387-5	WS-1	Total/NA	Solid	5035	
820-387-6	WS-2	Total/NA	Solid	5035	
820-387-7	WS-3	Total/NA	Solid	5035	
820-387-8	WS-4	Total/NA	Solid	5035	
MB 880-1647/5-A	Method Blank	Total/NA	Solid	5035	
LCS 880-1647/1-A	Lab Control Sample	Total/NA	Solid	5035	
LCSD 880-1647/2-A	Lab Control Sample Dup	Total/NA	Solid	5035	

Analysis Batch: 1703

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-1	FS-1	Total/NA	Solid	8021B	1647
820-387-2	FS-2	Total/NA	Solid	8021B	1647
820-387-3	FS-3	Total/NA	Solid	8021B	1647
820-387-4	FS-4	Total/NA	Solid	8021B	1647
820-387-5	WS-1	Total/NA	Solid	8021B	1647
820-387-6	WS-2	Total/NA	Solid	8021B	1647
820-387-7	WS-3	Total/NA	Solid	8021B	1647
820-387-8	WS-4	Total/NA	Solid	8021B	1647
MB 880-1647/5-A	Method Blank	Total/NA	Solid	8021B	1647
LCS 880-1647/1-A	Lab Control Sample	Total/NA	Solid	8021B	1647
LCSD 880-1647/2-A	Lab Control Sample Dup	Total/NA	Solid	8021B	1647

GC Semi VOA

Prep Batch: 1597

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-1	FS-1	Total/NA	Solid	8015NM Prep	
820-387-2	FS-2	Total/NA	Solid	8015NM Prep	
820-387-3	FS-3	Total/NA	Solid	8015NM Prep	
820-387-4	FS-4	Total/NA	Solid	8015NM Prep	
820-387-5	WS-1	Total/NA	Solid	8015NM Prep	
820-387-6	WS-2	Total/NA	Solid	8015NM Prep	
820-387-7	WS-3	Total/NA	Solid	8015NM Prep	
820-387-8	WS-4	Total/NA	Solid	8015NM Prep	
MB 880-1597/1-A	Method Blank	Total/NA	Solid	8015NM Prep	
LCS 880-1597/2-A	Lab Control Sample	Total/NA	Solid	8015NM Prep	
LCSD 880-1597/3-A	Lab Control Sample Dup	Total/NA	Solid	8015NM Prep	

Analysis Batch: 1612

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-1	FS-1	Total/NA	Solid	8015B NM	1597
820-387-2	FS-2	Total/NA	Solid	8015B NM	1597
820-387-3	FS-3	Total/NA	Solid	8015B NM	1597
820-387-4	FS-4	Total/NA	Solid	8015B NM	1597
820-387-5	WS-1	Total/NA	Solid	8015B NM	1597
820-387-6	WS-2	Total/NA	Solid	8015B NM	1597
820-387-7	WS-3	Total/NA	Solid	8015B NM	1597

Eurofins Xenco, Lubbock

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

GC Semi VOA (Continued)

Analysis Batch: 1612 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-8	WS-4	Total/NA	Solid	8015B NM	1597
MB 880-1597/1-A	Method Blank	Total/NA	Solid	8015B NM	1597
LCS 880-1597/2-A	Lab Control Sample	Total/NA	Solid	8015B NM	1597
LCSD 880-1597/3-A	Lab Control Sample Dup	Total/NA	Solid	8015B NM	1597

HPLC/IC

Leach Batch: 1591

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-1	FS-1	Soluble	Solid	DI Leach	
820-387-2	FS-2	Soluble	Solid	DI Leach	
820-387-3	FS-3	Soluble	Solid	DI Leach	
820-387-4	FS-4	Soluble	Solid	DI Leach	
820-387-5	WS-1	Soluble	Solid	DI Leach	
820-387-6	WS-2	Soluble	Solid	DI Leach	
MB 880-1591/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1591/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1591/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
820-387-1 MS	FS-1	Soluble	Solid	DI Leach	
820-387-1 MSD	FS-1	Soluble	Solid	DI Leach	

Analysis Batch: 1690

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-1	FS-1	Soluble	Solid	300.0	1591
820-387-2	FS-2	Soluble	Solid	300.0	1591
820-387-3	FS-3	Soluble	Solid	300.0	1591
820-387-4	FS-4	Soluble	Solid	300.0	1591
820-387-5	WS-1	Soluble	Solid	300.0	1591
820-387-6	WS-2	Soluble	Solid	300.0	1591
MB 880-1591/1-A	Method Blank	Soluble	Solid	300.0	1591
LCS 880-1591/2-A	Lab Control Sample	Soluble	Solid	300.0	1591
LCSD 880-1591/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1591
820-387-1 MS	FS-1	Soluble	Solid	300.0	1591
820-387-1 MSD	FS-1	Soluble	Solid	300.0	1591

Leach Batch: 1724

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-7	WS-3	Soluble	Solid	DI Leach	
820-387-8	WS-4	Soluble	Solid	DI Leach	
MB 880-1724/1-A	Method Blank	Soluble	Solid	DI Leach	
LCS 880-1724/2-A	Lab Control Sample	Soluble	Solid	DI Leach	
LCSD 880-1724/3-A	Lab Control Sample Dup	Soluble	Solid	DI Leach	
820-387-7 MS	WS-3	Soluble	Solid	DI Leach	
820-387-7 MSD	WS-3	Soluble	Solid	DI Leach	

Analysis Batch: 1852

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
820-387-7	WS-3	Soluble	Solid	300.0	1724
820-387-8	WS-4	Soluble	Solid	300.0	1724
MB 880-1724/1-A	Method Blank	Soluble	Solid	300.0	1724
LCS 880-1724/2-A	Lab Control Sample	Soluble	Solid	300.0	1724

Eurofins Xenco, Lubbock

QC Association Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

HPLC/IC (Continued)

Analysis Batch: 1852 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
LCSD 880-1724/3-A	Lab Control Sample Dup	Soluble	Solid	300.0	1724
820-387-7 MS	WS-3	Soluble	Solid	300.0	1724
820-387-7 MSD	WS-3	Soluble	Solid	300.0	1724

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11
- 12
- 13
- 14

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: FS-1

Lab Sample ID: 820-387-1

Date Collected: 04/06/21 12:00

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 18:02	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 01:50	AJ	XM
Soluble	Leach	DI Leach			1591	04/09/21 12:10	SC	XM
Soluble	Analysis	300.0		5	1690	04/13/21 10:41	CH	XM

Client Sample ID: FS-2

Lab Sample ID: 820-387-2

Date Collected: 04/06/21 12:05

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 18:23	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 02:11	AJ	XM
Soluble	Leach	DI Leach			1591	04/09/21 12:10	SC	XM
Soluble	Analysis	300.0		5	1690	04/13/21 10:59	CH	XM

Client Sample ID: FS-3

Lab Sample ID: 820-387-3

Date Collected: 04/06/21 12:10

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 18:43	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 02:33	AJ	XM
Soluble	Leach	DI Leach			1591	04/09/21 12:10	SC	XM
Soluble	Analysis	300.0		10	1690	04/13/21 11:06	CH	XM

Client Sample ID: FS-4

Lab Sample ID: 820-387-4

Date Collected: 04/06/21 12:15

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 19:04	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 03:15	AJ	XM
Soluble	Leach	DI Leach			1591	04/09/21 12:10	SC	XM
Soluble	Analysis	300.0		1	1690	04/13/21 11:12	CH	XM

Eurofins Xenco, Lubbock

Lab Chronicle

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Client Sample ID: WS-1

Lab Sample ID: 820-387-5

Date Collected: 04/06/21 12:20

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 19:25	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 03:37	AJ	XM
Soluble	Leach	DI Leach			1591	04/09/21 12:10	SC	XM
Soluble	Analysis	300.0		1	1690	04/13/21 11:18	CH	XM

Client Sample ID: WS-2

Lab Sample ID: 820-387-6

Date Collected: 04/06/21 12:25

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 19:45	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 03:58	AJ	XM
Soluble	Leach	DI Leach			1591	04/09/21 12:10	SC	XM
Soluble	Analysis	300.0		5	1690	04/13/21 11:36	CH	XM

Client Sample ID: WS-3

Lab Sample ID: 820-387-7

Date Collected: 04/06/21 12:30

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 20:06	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 04:26	AJ	XM
Soluble	Leach	DI Leach			1724	04/13/21 12:26	CH	XM
Soluble	Analysis	300.0		10	1852	04/15/21 23:40	SC	XM

Client Sample ID: WS-4

Lab Sample ID: 820-387-8

Date Collected: 04/06/21 12:35

Matrix: Solid

Date Received: 04/08/21 14:50

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	5035			1647	04/12/21 10:51	KL	XM
Total/NA	Analysis	8021B		1	1703	04/13/21 20:27	KL	XM
Total/NA	Prep	8015NM Prep			1597	04/09/21 15:09	DM	XM
Total/NA	Analysis	8015B NM		1	1612	04/11/21 04:47	AJ	XM
Soluble	Leach	DI Leach			1724	04/13/21 12:26	CH	XM
Soluble	Analysis	300.0		5	1852	04/15/21 23:55	SC	XM

Laboratory References:

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

Eurofins Xenco, Lubbock

Accreditation/Certification Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Laboratory: Eurofins Xenco, Midland

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

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

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

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

Method Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

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

Protocol References:

ASTM = ASTM International

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

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

Laboratory References:

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

Sample Summary

Client: Terracon Consulting Eng & Scientists
Project/Site: McIntyre B SWD - AR207572

Job ID: 820-387-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received	Depth
820-387-1	FS-1	Solid	04/06/21 12:00	04/08/21 14:50	2.5' - 3'
820-387-2	FS-2	Solid	04/06/21 12:05	04/08/21 14:50	2.5' - 3'
820-387-3	FS-3	Solid	04/06/21 12:10	04/08/21 14:50	2.5' - 3'
820-387-4	FS-4	Solid	04/06/21 12:15	04/08/21 14:50	2.5' - 3'
820-387-5	WS-1	Solid	04/06/21 12:20	04/08/21 14:50	1.5' - 2'
820-387-6	WS-2	Solid	04/06/21 12:25	04/08/21 14:50	1.5' - 2'
820-387-7	WS-3	Solid	04/06/21 12:30	04/08/21 14:50	1.5' - v
820-387-8	WS-4	Solid	04/06/21 12:35	04/08/21 14:50	1.5' - 2'

Eurofins Xenco, Lubbock

Terracon						Office Location		Laboratory:		Xenco 6701 Aberdeen Lubbock, Texas 79424		Chain of Custody	
Project Manager		Sample Number		Project Name		McIntyre B SWD		Identifying Marks of Sample(s)		No. Type of Containers		ANALYSIS REQUESTED	
Matrix	Date	Time	Comp	Grab									
S	4/6/2021	12:00	X		FS-1	Start Depth	End Depth	2 Oz Glass	4 Oz Glass	5035 Kit	40 ml VOA	Chloride (EPA Method 800)	TPH (TCCEQ Method TX1005)
S	4/6/2021	12:05	X		FS-2	2.5'	3'	X	X			BTEX (EPA Method 8021B)	
S	4/6/2021	12:10	X		FS-3	2.5'	3'	X	X				
S	4/6/2021	12:15	X		FS-4	2.5'	3'	X	X				
S	4/6/2021	12:20	X		WS-1	1.5'	2'	X	X				
S	4/6/2021	12:25	X		WS-2	1.5'	2'	X	X				
S	4/6/2021	12:30	X		WS-3	1.5'	2'	X	X				
S	4/6/2021	12:35	X		WS-4	1.5'	2'	X	X				

Lab Sample ID

Page 1 of 1

Loc: 820
387
820-387 Chain of Custody

TURNAROUND TIME

Signature: [Signature] Date: 4/8/21 Time: 1435

Signature: [Signature] Date: 4/8/21 Time: 1435

Signature: [Signature] Date: 4/8/21 Time: 1435

W. Water A. Air Bag S. Solid E. Chemical

VOL. 42 ml/L 100 ml Glass vial each PSC - Plastic or other

W. Water A. Air Bag S. Solid E. Chemical

VOL. 42 ml/L 100 ml Glass vial each PSC - Plastic or other

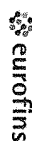
bryant.mcbrayer@terracon.com
erin.loyd@terracon.com
jamespie@terracon.com

e-mail results to:

Lubbock Office ■ 5827 50th Street, Suite 1 ■ Lubbock, Texas 79424 ■ 806-300-0140

Responsive ■ Resourceful ■ Reliable

Chain of Custody Record



Environment Testing America

Client Information (Sub Contract Lab)				Sampler	Lab PM:	COC No.:
Client Contact: _____				Kramer, Jessica	Center Trading Inc(s)	820-461 1
Shipping/Receiving Phone: _____				Jessica.Kramer@eurofinsllc.com	State of Origin: Texas	Page 1 of 1
Company Eurofins Xenco				Accreditations Required (See note). NEAP - Texas		
Address: 1211 W Florida Ave.				Job #: 820-387-1		
City: Midland				Analysis Requested		
State Zip: TX, 79701						
Phone: 432-704-5440(Tel)						
Email: _____						
Project Name: McIntyre B SWD AR207572						
Site: SSO#:						
Sample Identification - Client ID (Lab ID)				Field Filtered Sample (Yes or No)		Total Number of containers
Sample Date	Sample Time	Sample Type (C=Comp, G=grab)	Matrix (W=water, S=solid, O=oils/sludge, A=air)	Perform MS/MSD (Yes or No)		
FS-1 (820-387-1)	4/6/21	Central	Solid	X	X	1
FS-2 (820-387-2)	4/6/21	Central	Solid	X	X	1
FS-3 (820-387-3)	4/6/21	Central	Solid	X	X	1
FS-4 (820-387-4)	4/6/21	Central	Solid	X	X	1
WS-1 (820-387-5)	4/6/21	Central	Solid	X	X	1
WS-2 (820-387-6)	4/6/21	Central	Solid	X	X	1
WS-3 (820-387-7)	4/6/21	Central	Solid	X	X	1
WS-4 (820-387-8)	4/6/21	Central	Solid	X	X	1
Note: Since laboratory accreditations are subject to change, Eurofins Xenco LLC places the ownership of method, analyte & accreditation compliance upon our subcontract laboratories. This sample shipment is forwarded under chain-of-custody. If the laboratory does not currently maintain accreditation in the State of Origin listed above for analysis/test/matrix being analyzed, the samples must be shipped back to the Eurofins Xenco LLC laboratory or other instructions will be provided. Any changes to accreditation status should be brought to Eurofins Xenco LLC attention immediately. If all requested accreditations are current to date, return the signed Chain of Custody attesting to said compliance to Eurofins Xenco LLC.						
Possible Hazard Identification						
Unconfirmed						
Deliverable Requested: I, II III IV Other (Specify) _____				Primary Deliverable Rank: 2		
Empty Kit Relinquished by: _____				Date: _____	Time: _____	
Relinquished by: <i>Jessica Kramer</i>				Date/TIME: 4/8/21 1700	Company: EHS	Received by: <i>[Signature]</i>
Relinquished by: _____				Date/TIME: _____	Company: _____	Received by: _____
Relinquished by: _____				Date/TIME: _____	Company: _____	Received by: _____
Cooler Temperature(s) °C and Other Remarks: _____				Special Instructions/QC Requirements: _____		
☐ Return To Client ☐ Disposal By Lab ☐ Archive For _____ Months Sample Disposal (A fee may be assessed if samples are retained longer than 1 month)				Method of Shipment: _____		
Date/TIME: 4-8-21 1030AM				Company: _____		
Date/TIME: _____				Company: _____		
Date/TIME: _____				Company: _____		

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-387-1

Login Number: 387

List Number: 1

Creator: Lee, Randell

List Source: Eurofins Lubbock

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

Login Sample Receipt Checklist

Client: Terracon Consulting Eng & Scientists

Job Number: 820-387-1

Login Number: 387

List Number: 2

Creator: Copeland, Tatiana

List Source: Eurofins Midland

List Creation: 04/09/21 10:55 AM

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

Certificate of Analysis Summary 686208

Terracon-Lubbock, Lubbock, TX

Project Name: McIntyre SWD

Project Id: AR207572
 Contact: Joseph Guesnier
 Project Location:

Date Received in Lab: Wed 01.27.2021 09:54
 Report Date: 01.29.2021 16:16
 Project Manager: Jessica Kramer

Analysis Requested	Lab Id:	686208-001	686208-002				
	Field Id:	HA-2.1 (0.5-1)	HA-2.1 (1.5-2)				
	Depth:	0.5-1 ft	1.5-2 ft				
	Matrix:	SOIL	SOIL				
	Sampled:	01.26.2021 12:00	01.26.2021 12:10				
BTEX by EPA 8021B SUB: T104704400-20-21	Extracted:	01.28.2021 12:00	01.28.2021 12:00				
	Analyzed:	01.28.2021 17:44	01.28.2021 18:05				
	Units/RL:	mg/kg RL	mg/kg RL				
Benzene		<0.00202 0.00202	<0.00202 0.00202				
Toluene		<0.00202 0.00202	0.00955 0.00202				
Ethylbenzene		<0.00202 0.00202	<0.00202 0.00202				
m,p-Xylenes		<0.00403 0.00403	<0.00403 0.00403				
o-Xylene		<0.00202 0.00202	<0.00202 0.00202				
Xylenes, Total		<0.00202 0.00202	<0.00202 0.00202				
Total BTEX		<0.00202 0.00202	0.00955 0.00202				
Chloride by EPA 300 SUB: T104704400-20-21	Extracted:	01.28.2021 15:10	01.28.2021 15:10				
	Analyzed:	01.29.2021 08:36	01.29.2021 08:41				
	Units/RL:	mg/kg RL	mg/kg RL				
Chloride		5340 49.6	4760 50.2				
TPH by SW8015 Mod SUB: T104704400-20-21	Extracted:	01.28.2021 12:00	01.28.2021 12:00				
	Analyzed:	01.28.2021 20:09	01.28.2021 20:30				
	Units/RL:	mg/kg RL	mg/kg RL				
Gasoline Range Hydrocarbons (GRO)		<49.8 49.8	<50.0 50.0				
Diesel Range Organics (DRO)		756 49.8	<50.0 50.0				
Motor Oil Range Hydrocarbons (MRO)		81.7 49.8	<50.0 50.0				
Total TPH		838 49.8	<50.0 50.0				

BRL - Below Reporting Limit

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



Analytical Report 686208

for

Terracon-Lubbock

Project Manager: Joseph Guesnier

McIntyre SWD

AR207572

01.29.2021

Collected By: Client



6701 Aberdeen, Suite 9 Lubbock, TX 79424

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: TNi02385): Texas (T104704534-20-8)
Xenco-Tampa: Florida (E87429), North Carolina (483)



01.29.2021

Project Manager: **Joseph Guesnier**

Terracon-Lubbock

5827 50th st, Suite 1

Lubbock, TX 79424

Reference: Eurofins Xenco, LLC Report No(s): **686208**

McIntyre SWD

Project Address:

Joseph Guesnier:

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) 686208. 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. 686208 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 686208

Terracon-Lubbock, Lubbock, TX

McIntyre SWD

Sample Id	Matrix	Date Collected	Sample Depth	Lab Sample Id
HA-2.1 (0.5-1)	S	01.26.2021 12:00	0.5 - 1 ft	686208-001
HA-2.1 (1.5-2)	S	01.26.2021 12:10	1.5 - 2 ft	686208-002



CASE NARRATIVE

Client Name: Terracon-Lubbock

Project Name: McIntyre SWD

Project ID: AR207572
Work Order Number(s): 686208

Report Date: 01.29.2021
Date Received: 01.27.2021

Sample receipt non conformances and comments:

Sample receipt non conformances and comments per sample:

None



Certificate of Analytical Results 686208

Terracon-Lubbock, Lubbock, TX

McIntyre SWD

Sample Id: **HA-2.1 (0.5-1)**

Matrix: Soil

Date Received: 01.27.2021 09:54

Lab Sample Id: 686208-001

Date Collected: 01.26.2021 12:00

Sample Depth: 0.5 - 1 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 01.28.2021 15:10

% Moisture:

Basis: Wet Weight

Seq Number: 3149324

SUB: T104704400-20-21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	5340	49.6	mg/kg	01.29.2021 08:36		10

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 01.28.2021 12:00

% Moisture:

Basis: Wet Weight

Seq Number: 3149379

SUB: T104704400-20-21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<49.8	49.8	mg/kg	01.28.2021 20:09	U	1
Diesel Range Organics (DRO)	C10C28DRO	756	49.8	mg/kg	01.28.2021 20:09		1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	81.7	49.8	mg/kg	01.28.2021 20:09		1
Total TPH	PHC635	838	49.8	mg/kg	01.28.2021 20:09		1
Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag	
1-Chlorooctane	111-85-3	114	%	70-130	01.28.2021 20:09		
o-Terphenyl	84-15-1	121	%	70-130	01.28.2021 20:09		



Certificate of Analytical Results 686208

Terracon-Lubbock, Lubbock, TX

McIntyre SWD

Sample Id: **HA-2.1 (0.5-1)**

Matrix: Soil

Date Received: 01.27.2021 09:54

Lab Sample Id: 686208-001

Date Collected: 01.26.2021 12:00

Sample Depth: 0.5 - 1 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 01.28.2021 12:00

% Moisture:

Seq Number: 3149291

Basis: Wet Weight

SUB: T104704400-20-21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.28.2021 17:44	U	1
Toluene	108-88-3	<0.00202	0.00202	mg/kg	01.28.2021 17:44	U	1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.28.2021 17:44	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.28.2021 17:44	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.28.2021 17:44	U	1
Xylenes, Total	1330-20-7	<0.00202	0.00202	mg/kg	01.28.2021 17:44	U	1
Total BTEX		<0.00202	0.00202	mg/kg	01.28.2021 17:44	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	96	%	70-130	01.28.2021 17:44	
4-Bromofluorobenzene	460-00-4	105	%	70-130	01.28.2021 17:44	



Certificate of Analytical Results 686208

Terracon-Lubbock, Lubbock, TX

McIntyre SWD

Sample Id: **HA-2.1 (1.5-2)**

Matrix: Soil

Date Received: 01.27.2021 09:54

Lab Sample Id: 686208-002

Date Collected: 01.26.2021 12:10

Sample Depth: 1.5 - 2 ft

Analytical Method: Chloride by EPA 300

Prep Method: E300P

Tech: CHE

Analyst: CHE

Date Prep: 01.28.2021 15:10

% Moisture:

Basis: Wet Weight

Seq Number: 3149324

SUB: T104704400-20-21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Chloride	16887-00-6	4760	50.2	mg/kg	01.29.2021 08:41		10

Analytical Method: TPH by SW8015 Mod

Prep Method: SW8015P

Tech: DVM

Analyst: ARM

Date Prep: 01.28.2021 12:00

% Moisture:

Basis: Wet Weight

Seq Number: 3149379

SUB: T104704400-20-21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Gasoline Range Hydrocarbons (GRO)	PHC610	<50.0	50.0	mg/kg	01.28.2021 20:30	U	1
Diesel Range Organics (DRO)	C10C28DRO	<50.0	50.0	mg/kg	01.28.2021 20:30	U	1
Motor Oil Range Hydrocarbons (MRO)	PHCG2835	<50.0	50.0	mg/kg	01.28.2021 20:30	U	1
Total TPH	PHC635	<50.0	50.0	mg/kg	01.28.2021 20:30	U	1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1-Chlorooctane	111-85-3	109	%	70-130	01.28.2021 20:30	
o-Terphenyl	84-15-1	112	%	70-130	01.28.2021 20:30	



Certificate of Analytical Results 686208

Terracon-Lubbock, Lubbock, TX

McIntyre SWD

Sample Id: **HA-2.1 (1.5-2)**

Matrix: Soil

Date Received: 01.27.2021 09:54

Lab Sample Id: 686208-002

Date Collected: 01.26.2021 12:10

Sample Depth: 1.5 - 2 ft

Analytical Method: BTEX by EPA 8021B

Prep Method: SW5035A

Tech: KTL

Analyst: KTL

Date Prep: 01.28.2021 12:00

% Moisture:

Basis: Wet Weight

Seq Number: 3149291

SUB: T104704400-20-21

Parameter	Cas Number	Result	RL	Units	Analysis Date	Flag	Dil
Benzene	71-43-2	<0.00202	0.00202	mg/kg	01.28.2021 18:05	U	1
Toluene	108-88-3	0.00955	0.00202	mg/kg	01.28.2021 18:05		1
Ethylbenzene	100-41-4	<0.00202	0.00202	mg/kg	01.28.2021 18:05	U	1
m,p-Xylenes	179601-23-1	<0.00403	0.00403	mg/kg	01.28.2021 18:05	U	1
o-Xylene	95-47-6	<0.00202	0.00202	mg/kg	01.28.2021 18:05	U	1
Xylenes, Total	1330-20-7	<0.00202	0.00202	mg/kg	01.28.2021 18:05	U	1
Total BTEX		0.00955	0.00202	mg/kg	01.28.2021 18:05		1

Surrogate	Cas Number	% Recovery	Units	Limits	Analysis Date	Flag
1,4-Difluorobenzene	540-36-3	94	%	70-130	01.28.2021 18:05	
4-Bromofluorobenzene	460-00-4	116	%	70-130	01.28.2021 18:05	

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



Terracon-Lubbock McIntyre SWD

Analytical Method: Chloride by EPA 300

Seq Number: 3149324

MB Sample Id: 7720245-1-BLK

Matrix: Solid

LCS Sample Id: 7720245-1-BKS

Prep Method: E300P

Date Prep: 01.28.2021

LCSD Sample Id: 7720245-1-BSD

Parameter	MB Result	Spike Amount	LCS Result	LCS %Rec	LCSD Result	LCSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	<5.00	250	255	102	255	102	90-110	0	20	mg/kg	01.28.2021 16:57	

Analytical Method: Chloride by EPA 300

Seq Number: 3149324

Parent Sample Id: 686200-005

Matrix: Soil

MS Sample Id: 686200-005 S

Prep Method: E300P

Date Prep: 01.28.2021

MSD Sample Id: 686200-005 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	619	250	857	95	849	92	90-110	1	20	mg/kg	01.28.2021 18:25	

Analytical Method: Chloride by EPA 300

Seq Number: 3149324

Parent Sample Id: 686305-031

Matrix: Soil

MS Sample Id: 686305-031 S

Prep Method: E300P

Date Prep: 01.28.2021

MSD Sample Id: 686305-031 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Chloride	10.5	248	299	116	282	109	90-110	6	20	mg/kg	01.28.2021 17:13	X

Analytical Method: TPH by SW8015 Mod

Seq Number: 3149379

MB Sample Id: 7720301-1-BLK

Matrix: Solid

LCS Sample Id: 7720301-1-BKS

Prep Method: SW8015P

Date Prep: 01.28.2021

LCSD Sample Id: 7720301-1-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	1110	111	1010	101	70-130	9	20	mg/kg	01.28.2021 12:05	
Diesel Range Organics (DRO)	<50.0	1000	1170	117	1180	118	70-130	1	20	mg/kg	01.28.2021 12:05	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	114		121		119		70-130	%	01.28.2021 12:05
o-Terphenyl	120		121		118		70-130	%	01.28.2021 12:05

Analytical Method: TPH by SW8015 Mod

Seq Number: 3149379

Matrix: Solid

MB Sample Id: 7720301-1-BLK

Prep Method: SW8015P

Date Prep: 01.28.2021

Parameter	MB Result	Units	Analysis Date	Flag
Motor Oil Range Hydrocarbons (MRO)	<50.0	mg/kg	01.28.2021 11:44	

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



Terracon-Lubbock McIntyre SWD

Analytical Method: TPH by SW8015 Mod

Seq Number: 3149379

Parent Sample Id: 686301-001

Matrix: Soil

MS Sample Id: 686301-001 S

Prep Method: SW8015P

Date Prep: 01.28.2021

MSD Sample Id: 686301-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Gasoline Range Hydrocarbons (GRO)	<49.9	997	1010	101	964	96	70-130	5	20	mg/kg	01.28.2021 13:08	
Diesel Range Organics (DRO)	<49.9	997	989	99	991	99	70-130	0	20	mg/kg	01.28.2021 13:08	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1-Chlorooctane	111		111		70-130	%	01.28.2021 13:08
o-Terphenyl	106		106		70-130	%	01.28.2021 13:08

Analytical Method: BTEX by EPA 8021B

Seq Number: 3149291

MB Sample Id: 7720280-1-BLK

Matrix: Solid

LCS Sample Id: 7720280-1-BKS

Prep Method: SW5035A

Date Prep: 01.28.2021

LCSD Sample Id: 7720280-1-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	0.0872	87	0.0876	88	70-130	0	35	mg/kg	01.28.2021 12:41	
Toluene	<0.00200	0.100	0.0846	85	0.0850	85	70-130	0	35	mg/kg	01.28.2021 12:41	
Ethylbenzene	<0.00200	0.100	0.0936	94	0.0947	95	70-130	1	35	mg/kg	01.28.2021 12:41	
m,p-Xylenes	<0.00400	0.200	0.183	92	0.186	93	70-130	2	35	mg/kg	01.28.2021 12:41	
o-Xylene	<0.00200	0.100	0.0912	91	0.0928	93	70-130	2	35	mg/kg	01.28.2021 12:41	

Surrogate	MB %Rec	MB Flag	LCS %Rec	LCS Flag	LCSD %Rec	LCSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	90		101		101		70-130	%	01.28.2021 12:41
4-Bromofluorobenzene	106		96		97		70-130	%	01.28.2021 12:41

Analytical Method: BTEX by EPA 8021B

Seq Number: 3149291

Parent Sample Id: 686200-001

Matrix: Soil

MS Sample Id: 686200-001 S

Prep Method: SW5035A

Date Prep: 01.28.2021

MSD Sample Id: 686200-001 SD

Parameter	Parent Result	Spike Amount	MS Result	MS %Rec	MSD Result	MSD %Rec	Limits	%RPD	RPD Limit	Units	Analysis Date	Flag
Benzene	0.00225	0.0992	0.0633	62	0.0771	75	70-130	20	35	mg/kg	01.28.2021 13:21	X
Toluene	0.00417	0.0992	0.0675	64	0.0759	72	70-130	12	35	mg/kg	01.28.2021 13:21	X
Ethylbenzene	<0.00198	0.0992	0.0717	72	0.0749	75	70-130	4	35	mg/kg	01.28.2021 13:21	
m,p-Xylenes	<0.00397	0.198	0.148	75	0.148	74	70-130	0	35	mg/kg	01.28.2021 13:21	
o-Xylene	<0.00198	0.0992	0.0739	74	0.0743	75	70-130	1	35	mg/kg	01.28.2021 13:21	

Surrogate	MS %Rec	MS Flag	MSD %Rec	MSD Flag	Limits	Units	Analysis Date
1,4-Difluorobenzene	93		102		70-130	%	01.28.2021 13:21
4-Bromofluorobenzene	107		101		70-130	%	01.28.2021 13:21

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

802989

[illegible]

Lubbock Office ■ 5827 50th Street, Suite 1 ■ Lubbock, Texas 79424 ■ 806-300-0140

Responsive ■ Resourceful ■ Reliable

Inter-Office Shipment

IOS Number : **77120**

Date/Time: 01.27.2021 Created by: Michael J Turner
 Lab# From: **Lubbock** Delivery Priority:
 Lab# To: **Midland** Air Bill No.: 772750403344

Please send report to: Jessica Kramer
 Address: 6701 Aberdeen, Suite 9 Lubbock, TX 79424
 E-Mail: jessica.kramer@eurofinset.com

Sample Id	Matrix	Client Sample Id	Sample Collection	Method	Method Name	Lab Due	HT Due	PM	Analytes	Sign
686208-001	S	HA-2.1 (0.5-1)	01.26.2021 12:00	SW8015MOD_NM	TPH by SW8015 Mod	01.29.2021	02.09.2021	JKR	PHCC10C28 PHCC28C3	
686208-001	S	HA-2.1 (0.5-1)	01.26.2021 12:00	SW8021B	BTEX by EPA 8021B	01.29.2021	02.09.2021	JKR	BR4FBZ BZ BZME EBZ	
686208-001	S	HA-2.1 (0.5-1)	01.26.2021 12:00	E300_CL	Chloride by EPA 300	01.29.2021	02.23.2021	JKR	CL	
686208-002	S	HA-2.1 (1.5-2)	01.26.2021 12:10	SW8021B	BTEX by EPA 8021B	01.29.2021	02.09.2021	JKR	BR4FBZ BZ BZME EBZ	
686208-002	S	HA-2.1 (1.5-2)	01.26.2021 12:10	E300_CL	Chloride by EPA 300	01.29.2021	02.23.2021	JKR	CL	
686208-002	S	HA-2.1 (1.5-2)	01.26.2021 12:10	SW8015MOD_NM	TPH by SW8015 Mod	01.29.2021	02.09.2021	JKR	PHCC10C28 PHCC28C3	

Inter Office Shipment or Sample Comments:

Relinquished By:



Michael J Turner

Date Relinquished: 01.27.2021

Received By:



Jessica Kramer

Date Received: 01.28.2021

Cooler Temperature: 0.6



Inter Office Report- Sample Receipt Checklist

Sent To: Midland

IOS #: 77120

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used :

Sent By: Michael J Turner

Date Sent: 01.27.2021 11.24 AM

Received By: Jessica Kramer

Date Received: 01.28.2021 10.50 AM

Sample Receipt Checklist

Comments

#1 *Temperature of cooler(s)?	.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?	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:

Jessica Kramer

Date: 01.28.2021

Eurofins Xenco, LLC

Prelogin/Nonconformance Report- Sample Log-In

Client: Terracon-Lubbock

Date/ Time Received: 01.27.2021 09.54.00 AM

Work Order #: 686208

Acceptable Temperature Range: 0 - 6 degC

Air and Metal samples Acceptable Range: Ambient

Temperature Measuring device used : IR-4

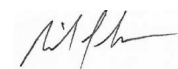
Sample Receipt Checklist	Comments
#1 *Temperature of cooler(s)?	-9.1
#2 *Shipping container in good condition?	Yes
#3 *Samples received on ice?	Yes
#4 *Custody Seals intact on shipping container/ cooler?	N/A
#5 Custody Seals intact on sample bottles?	N/A
#6 *Custody Seals Signed and dated?	N/A
#7 *Chain of Custody present?	Yes
#8 Any missing/extra samples?	No
#9 Chain of Custody signed when relinquished/ received?	Yes
#10 Chain of Custody agrees with sample labels/matrix?	Yes
#11 Container label(s) legible and intact?	Yes
#12 Samples in proper container/ bottle?	Yes
#13 Samples properly preserved?	Yes
#14 Sample container(s) intact?	Yes
#15 Sufficient sample amount for indicated test(s)?	Yes
#16 All samples received within hold time?	Yes
#17 Subcontract of sample(s)?	Yes Xenco Midland
#18 Water VOC samples have zero headspace?	N/A

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

Analyst:

PH Device/Lot#:

Checklist completed by:



Michael J Turner

Date: 01.27.2021

Checklist reviewed by:



Jessica Kramer

Date: 01.28.2021

APPENDIX D – TERRACON STANDARD OF CARE, LIMITATION, AND RELIANCE

Standard of Care

Terracon's services were performed in a manner consistent with generally accepted practices of the profession undertaken in similar studies in the same geographical area during the same time. Terracon makes no warranties, either express or implied, regarding the findings, conclusions, or recommendations. Please note that Terracon does not warrant the work of laboratories, regulatory agencies, or other third parties supplying information used in the preparation of the report. These services were performed in accordance with the scope of work agreed with you, Solaris Water Midstream, as reflected in our proposal (PA4197040).

Additional Scope Limitations

The development of this RAP is based upon information provided by the Client and Terracon's remediation and construction services line. Such information is subject to change over time. Certain indicators of the presence of hazardous substances, petroleum products, or other constituents may have been latent, inaccessible, unobservable, nondetectable, or not present during these services. We cannot represent that the site contains no hazardous substances, toxic materials, petroleum products, or other latent conditions beyond those by information provided by the Client. The data, interpretations, findings, and recommendations are based solely upon reformation executed within the scope of these services.

Reliance

This report has been prepared for the exclusive use of Spur Energy Partners, and any authorization for use or reliance by any other party (except a governmental entity having jurisdiction over the site) is prohibited without the express written authorization of Spur Energy Partners and Terracon. Any unauthorized distribution or reuse is at Spur Energy Partner's sole risk. Notwithstanding the foregoing, reliance by authorized parties will be subject to the terms, conditions, and limitations stated in the proposal and Spur Energy Partners and Terracon's Master Services Agreement. The limitation of liability defined in the terms and conditions is the aggregate limit of Terracon's liability to Spur Energy Partners and all relying parties unless otherwise agreed in writing.

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 35732

CONDITIONS

Operator: Spur Energy Partners LLC 9655 Katy Freeway Houston, TX 77024	OGRID: 328947
	Action Number: 35732
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
chensley	None	7/22/2021