



April 11, 2022

Vertex Project #: 22E-00197

Spill Closure Report: Gem North Tank Battery
Unit L2, Section 2, Township 20 South, Range 33 East
API: 30-025-29916
County: Lea
Incident ID: nAPP2201956795

Prepared For: BTA Oil Producers, LLC
104 South Pecos Street
Midland, Texas, 79701

New Mexico Oil Conservation Division – District 1 – Hobbs

1625 North French Drive
Hobbs, New Mexico 88240

BTA Oil Producers, LLC (BTA) retained Vertex Resource Services Inc. (Vertex) to conduct a spill assessment and remediation for a produced water release that occurred on January 18, 2022, at Gem North Tank Battery, API 30-025-29916 (hereafter referred to as “Gem”). BTA submitted an initial C-141 Release Notification (Attachment 1) to New Mexico Oil Conservation Division (NMOCD) District 1 on January 19, 2022. Incident ID number nAPP2201956795 was assigned to this incident.

This letter provides a description of the release assessment and remediation activities and demonstrates that closure criteria established in Table I of 19.15.29.12 *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) are being met and all applicable regulations are being followed. This document is intended to serve as a final report to obtain approval from NMOCD for closure of this release, with the understanding that restoration of the release site will be deferred until such time as all oil and gas activities are terminated and the site is reclaimed per 19.15.29.13 NMAC.

Incident Description

On January 18, 2022, a release at BTA’s Gem site occurred when a piping nipple broke on the water transfer pump. The incident resulted in the release of 20 barrels (bbls) of produced water into the containment, outside of the firewall, and onto the access road. After the incident, a hydro-vac was brought on-site and recovered approximately 15 bbls from the release. No produced water was released into waterways.

Site Characterization

The release at Gem occurred on state land at 32.60729° N, 103.63186° W, approximately 21.43 miles northwest of Monument, New Mexico. The legal description for the site is Unit L2, Section 2, Township 20 South, Range 33 East, in Lea County, New Mexico. This location is within the Permian Basin in southeast New Mexico and has historically been used for oil and gas exploration and production, and rangeland.

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BTA Oil Producers, LLC
Gem North Tank Battery, nAPP2201956795

2022 Spill Assessment and Closure
June 2023

Gem is typical of oil and gas explorations and production sites on the western portion of the Permian Basin and is currently used for oil and gas production and storage. The following sections specifically describe the release area inside the containment and near the entrance of the pad (Attachment 2 – Figure 1).

The surrounding landscape is associated with plains and dunes with elevations ranging between 3,000 and 4,400 feet. The climate is semiarid with average annual precipitation ranging between 10 and 15 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be principally black grama with a mixture of grasses, shrubs, and forbs (United States Department of Agriculture, Natural Resources Conservation Service, 2021). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

The Geological Map of New Mexico indicates the surface geology at Gem is comprised primarily of Qep – Eolian and piedmont deposits from the Holocene to middle Pleistocene ages (New Mexico Bureau of Geology and Mineral Resources, 2021). The United States Department of Agriculture Web Soil Survey characterizes the soil at the site as Kermit soils and Duneland and Pyote and Maljamar fine sands. The soil is well to excessively drained with negligible to very low runoff. The karst geology potential for Gem is low (United States Department of the Interior, Bureau of Land Management, 2018).

There is no surface water located at Gem. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is Lake Avalon located approximately 36.4 miles east of the site. A freshwater pond and a freshwater emergent wetland are located approximately 4.1 miles southwest of the release site (United States Fish and Wildlife Service, 2021). At Gem, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

The nearest active well to Gem is a water well (CP-01865-POD1) located approximately 0.26 miles south of the site, providing a depth to groundwater reference (New Mexico Office of the State Engineer, 2021). The New Mexico Office of the State Engineer (NMOSE) report indicates the depth to groundwater for CP-01865-POD1 is zero feet below ground surface (bgs) and is not indicative of the actual depth. In 2020, BTA retained Trinity Oilfield Services (Trinity) to remediate a spill within a half-mile of Gem. Data from Trinity's report shows the NMOSE well had a depth to groundwater of 105 feet bgs. Information pertaining to the depth to groundwater determination is included in Trinity's report in Attachment 3.

Closure Criteria Determination

Using site characterization information, a closure criteria determination worksheet (Attachment 3) was completed to determine if the release was subject to any of the special case scenarios outlined in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Based on the data included in the closure criteria determination worksheet, the release at Gem is not subject to the requirements of Paragraph (4) of Subsection C of 19.15.29.12 NMAC. The nearest groundwater well data is less than 25 years old and located within 0.5 miles of the release site; therefore the depth to groundwater is accurately determined and the closure criteria for the site are determined to be associated with the following constituent concentration limits (Table 1).

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Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
> 100 feet	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

¹Total Dissolved Solids (TDS)

²Total petroleum hydrocarbons (TPH) = gasoline range organics (GRO) + diesel range organics (DRO) + motor oil range organics (MRO)

³Benzene, toluene, ethylbenzene, and xylenes (BTEX)

Remedial Actions

On February 4, 2022, BTA retained Vertex to complete release delineation through field screening procedures, oversight of the remediation fieldwork, and final confirmatory sampling. The initial spill inspection and site characterization activities at Gem were completed by Vertex on February 8, 2022. The Daily Field Report (DFR) and field screening data associated with the visits are included in Attachment 4. The extent of the release was determined to be approximately 6,449 square feet. Initial characterization sample locations are presented on Figure 1 (Attachment 2) and laboratory results are presented in Table 2 (Attachment 6).

On February 28, 2022, prior to excavation activities, Vertex provided 48-hour notification of confirmation sampling to NMOCD (Attachment 5), as required by Subparagraph (a) of Paragraph (1) of Subsection D 19.15.29.12 NMAC. The area with the release boundary that showed exceedance of the selected closure criteria was remediated. The area of the release outside the lease boundary was reclaimed under NMOCD's strictest criteria as required by Subsection A of 19.15.29.13 NMAC. Excavation of impacted soils was conducted between March 1 and 3, 2022, with a Vertex representative on-site to conduct field screening procedures to determine the final vertical and horizontal extents of the excavation area. The final square footage of the spill area was 6,444 square feet. The final total square footage for the excavations was 1,088 square feet. On March 3, 2022, excavation was completed with approximately 108 total yards excavated and hauled to Lea Land Disposal Site New Mexico.

On March 2, 3 and 23, 2022, Vertex collected a total of 47 five-point composite confirmatory samples from the base and sidewalls of each excavation, and surface samples between the excavations. On March 2 and 3, 2022, Vertex collected a total of 41 five-point composite confirmatory samples. On March 23, 2022, Vertex collected an additional six five-point composite samples from the additional excavation of SS22-02 and WES22-07. The depths of the samples ranged from the ground surface to 5 feet bgs. Each composite sample was representative of no more than 200 square feet per the sampling method outlined in Subparagraph (c) of Paragraph (1) of Subsection D 19.15.29.12 NMAC. The composite samples were placed into laboratory-provided containers, preserved on ice, and submitted to a National Environmental Laboratory Accreditation Program-approved laboratory for chemical analysis.

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On March 23, 2022, the excavation was backfilled with approximately 156 total yards of soil. Approximately 96 yards of clean, uncontaminated caliche and 60 yards of clean, uncontaminated topsoil were backfilled from the Smith Ranch.

Laboratory analyses included Method 300.0 for chlorides, Method 8021B for volatile organics, including BTEX, and EPA Method 8015 for TPH, including MRO, DRO and GRO. Confirmatory sample analytical data are summarized in Attachment 6. Laboratory data reports and chain of custody forms are included in Attachment 7.

A GeoExplorer 7000 Series Trimble global positioning system (GPS) unit, or equivalent, was used to map the approximate center of each of the five-point composite samples. The confirmatory sample locations are presented on Figure 2 (Attachment 2). Relevant equipment and prominent features/reference points at the site are mapped as well.

Closure Request

Vertex recommends no additional remediation action to address the release at Gem. Laboratory analyses of confirmation samples collected at Gem show final confirmatory values below NMOCD closure criteria for the areas inside the lease boundary where depth to groundwater is more than 100 feet bgs as presented in Table 1. Analyses of the samples collected outside the lease boundary show final confirmatory values below NMOCD's strictest criteria. There are no anticipated risks to human, ecological, or hydrological receptors at the release site.

The excavation was backfilled with non-waste-containing, uncontaminated, earthen material, sourced locally, and placed to meet the site's existing grade to prevent water ponding and erosion.

Vertex requests that this incident (nAPP2201956795) be closed as all requirements set forth in Subsection E of 19.15.29.12 NMAC have been met. BTA certifies that all information in this report and the attachments is correct., and that they have complied with all applicable closure requirements and conditions specified in Division rules and directives to meet NMOCD requirements to obtain closure on the release at Gem.

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575-988-1472 or cdixon@vertex.ca.

Chance Dixon

6/8/2023

Chance Dixon B.Sc.
PROJECT MANAGER, REPORTING

Date

Dhugal Hanton

6/8/2023

Dhugal Hanton B.Sc., P.Ag., SR/WA, P.Biol.
VP US OPERATIONS, REPORT REVIEW

Date

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BTA Oil Producers, LLC
Gem North Tank Battery, nAPP2201956795

2022 Spill Assessment and Closure
June 2023

Attachments

- Attachment 1. NMOCD C-141 Report
- Attachment 2. Figures
- Attachment 3. Closure Criteria for Soils Impacted by a Release Research Determination Documentation
- Attachment 4. Daily Field Report(s) with Photographs
- Attachment 5. Required 48-Hour Notification of Confirmatory Sampling to Regulatory Agencies
- Attachment 6. Summarized Lab Data Tables
- Attachment 7. Laboratory Data Reports and Chain of Custody Forms

BTA Oil Producers, LLC
Gem North Tank Battery, nAPP2201956795

2022 Spill Assessment and Closure
April 2022

References

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- Natural Resources and Wildlife Oil and Gas Releases.* New Mexico Oil Conservation Division, (2019). Santa Fe, New Mexico.
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Gem North Tank Battery, nAPP2201956795

2022 Spill Assessment and Closure
April 2022

Limitations

This report has been prepared for the sole benefit of BTA Oil Producers, LLC. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division, without the express written consent of Vertex Resource Services Inc. (Vertex) and BTA. Any use of this report by a third party, or any reliance on decisions made based on it, or damages suffered as a result of the use of this report are the sole responsibility of the user.

The information and conclusions contained in this report are based upon work undertaken by trained professional and technical staff in accordance with generally accepted scientific practices current at the time the work was performed. The conclusions and recommendations presented represent the best judgement of Vertex based on the data collected during the assessment. Due to the nature of the assessment and the data available, Vertex cannot warrant against undiscovered environmental liabilities. Conclusions and recommendations presented in this report should not be considered legal advice.

ATTACHMENT 1

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	nAPP2201956795
District RP	
Facility ID	fAPP2201827868
Application ID	

Release Notification

Responsible Party

Responsible Party: BTA Oil Producers, LLC	OGRID: 260297
Contact Name: Bob Hall	Contact Telephone: 432-682-3753
Contact email: bhall@btaoil.com	Incident # (assigned by OCD) nAPP2201956795
Contact mailing address: 104 S. Pecos St., Midland, TX 79701	

Location of Release Source

Latitude: 32.60729 Longitude: -103.63186

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Gem North Tank Battery	Site Type: Tank Battery
Date Release Discovered: 1/18/2022	API# (if applicable) Nearest well: Gem #1 API #30-025-29916

Unit Letter	Section	Township	Range	County
L2	2	20S	33E	Lea

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 20 BBL	Volume Recovered (bbls) 15 BBL
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Failure of piping nipple on water transfer pump sprayed 20 BBL of produced water outside the firewall and on the adjacent pad & lease road. Recovered 15 BBL water with vacuum truck.

(Spill calculation spreadsheet pending measurement of affected area.)

Incident ID	nAPP2201956795
District RP	
Facility ID	fAPP2201827868
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: Kelton Beaird Title: Environmental Manager
 Signature:  Date: 6-13-23
 email: KBeaird@btaoil.com Telephone: 432-312-2203

OCD Only

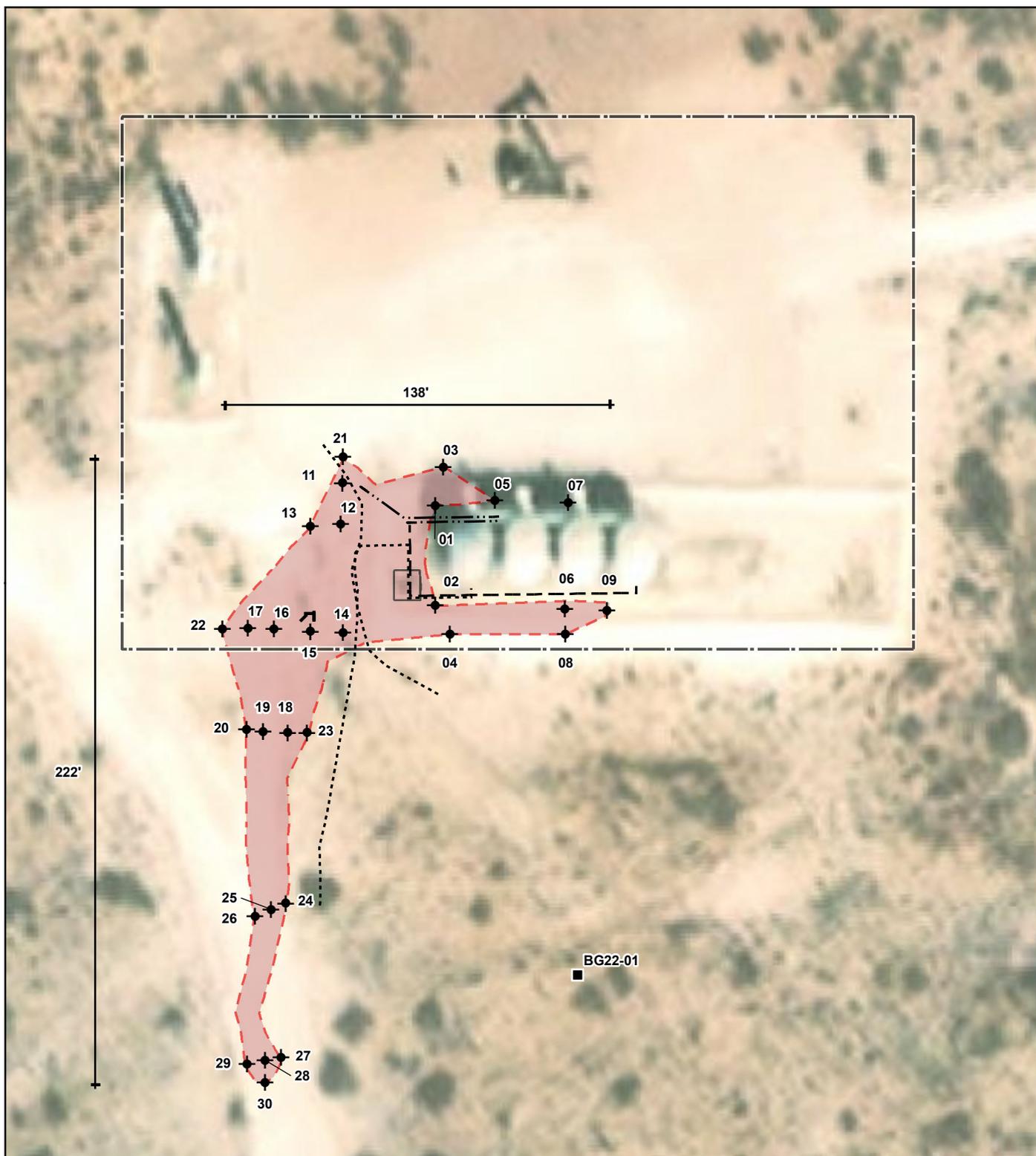
Received by: _____ Date: _____

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

Closure Approved by:  Date: 09/13/2023
 Printed Name: Nelson Velez Title: Environmental Specialist - Adv

ATTACHMENT 2

Document Path: \\vs-s-fs01.corp.internal\shared\vsps04 - Geomatics\1-Projects\ US PROJECTS\BTA Oil Producers LLC\22E-00197\Figure 1b Initial Characterization Sample Locations Gem North Tank Battery.mxd



- Background Sample
- ◆ Borehole (Prefixed by "BH22-")
- ↗ Riser
- Flowline
- Pipeline
- - - Pipeline Inside Containment
- Approximate Lease Boundary
- Total Spill Extent (6,449 sq. ft.)
- Water Transfer Pump



0 10 20 40 ft. Map Center:
 Lat: 32.607233,
 Long: -103.631857
 NAD 1983 UTM Zone 13N
 Date: Apr 11/22



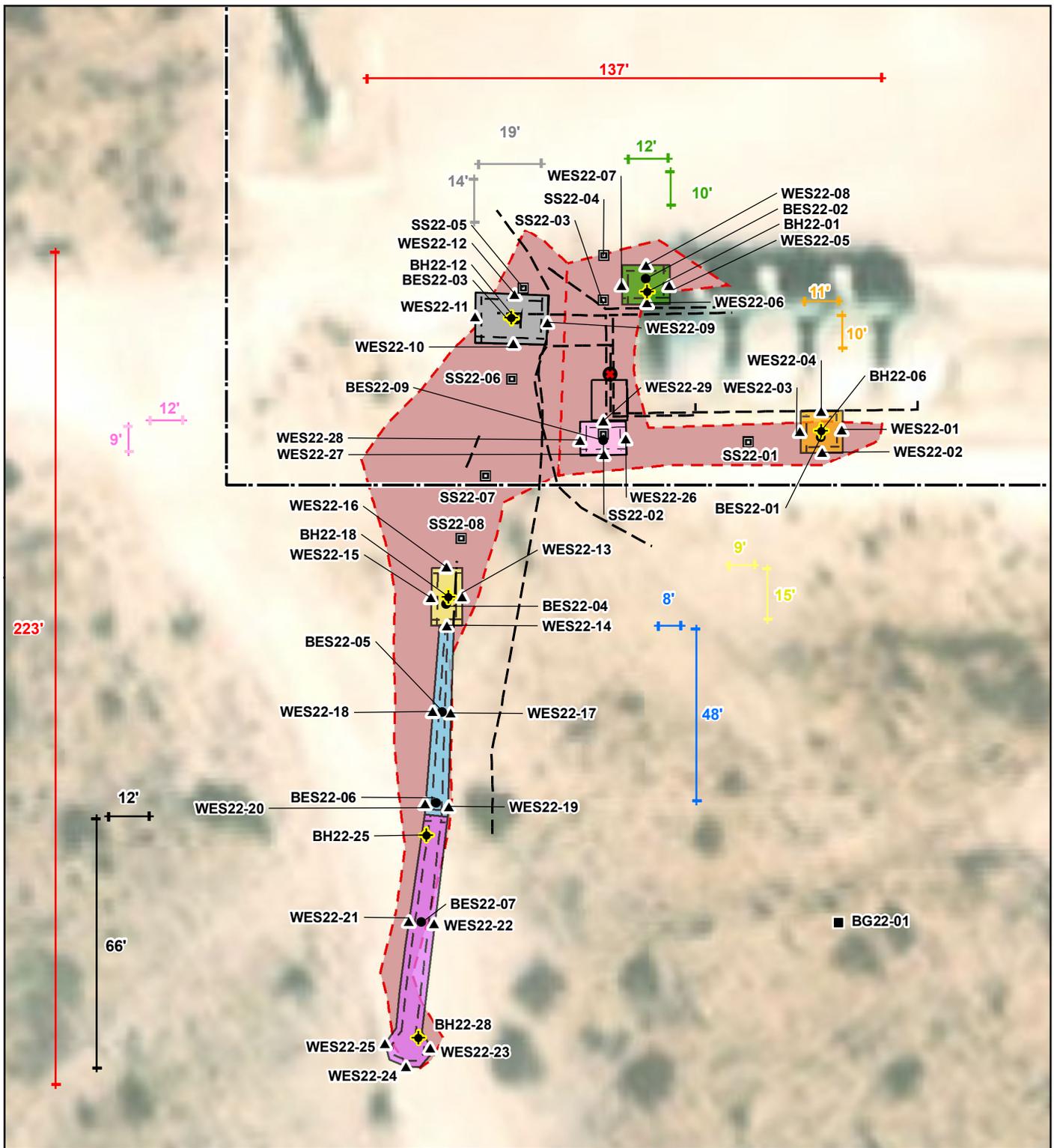
**Initial Characterization Sample Locations
 Gem North Tank Battery**

FIGURE:
1b



Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background Imagery from ESRI, 2020.



- Background Sample (US)
- Base Sample (Excavated)
- Point of Release (US)
- Surface Sample (US)
- ▲ Wall Sample (Excavated)
- - Pipeline (Aboveground)
- ··· Pipeline (Underground)
- ▭ 2 ft. Excavation (246 sq. ft.)
- ▭ 2 ft. Excavation (127 sq. ft.)
- ▭ 2 ft. Excavation (107 sq. ft.)
- ▭ 0.5 ft. Excavation (472 sq. ft.)
- ▭ 1 ft. Excavation (244 sq. ft.)
- ▭ 2 ft. Excavation (122 sq. ft.)
- ▭ 5 ft. Excavation (123 sq. ft.)
- ▭ Infrastructure (Existing)
- ▭ Lease Boundary
- ▭ Spill Area (6,444 sq. ft.)

VERTEX

0 5 10 20 ft.

NAD 1983 UTM Zone 13N
Date: Apr 11/22

Map Center:
Lat: 32.607104,
Long: -103.632063

N

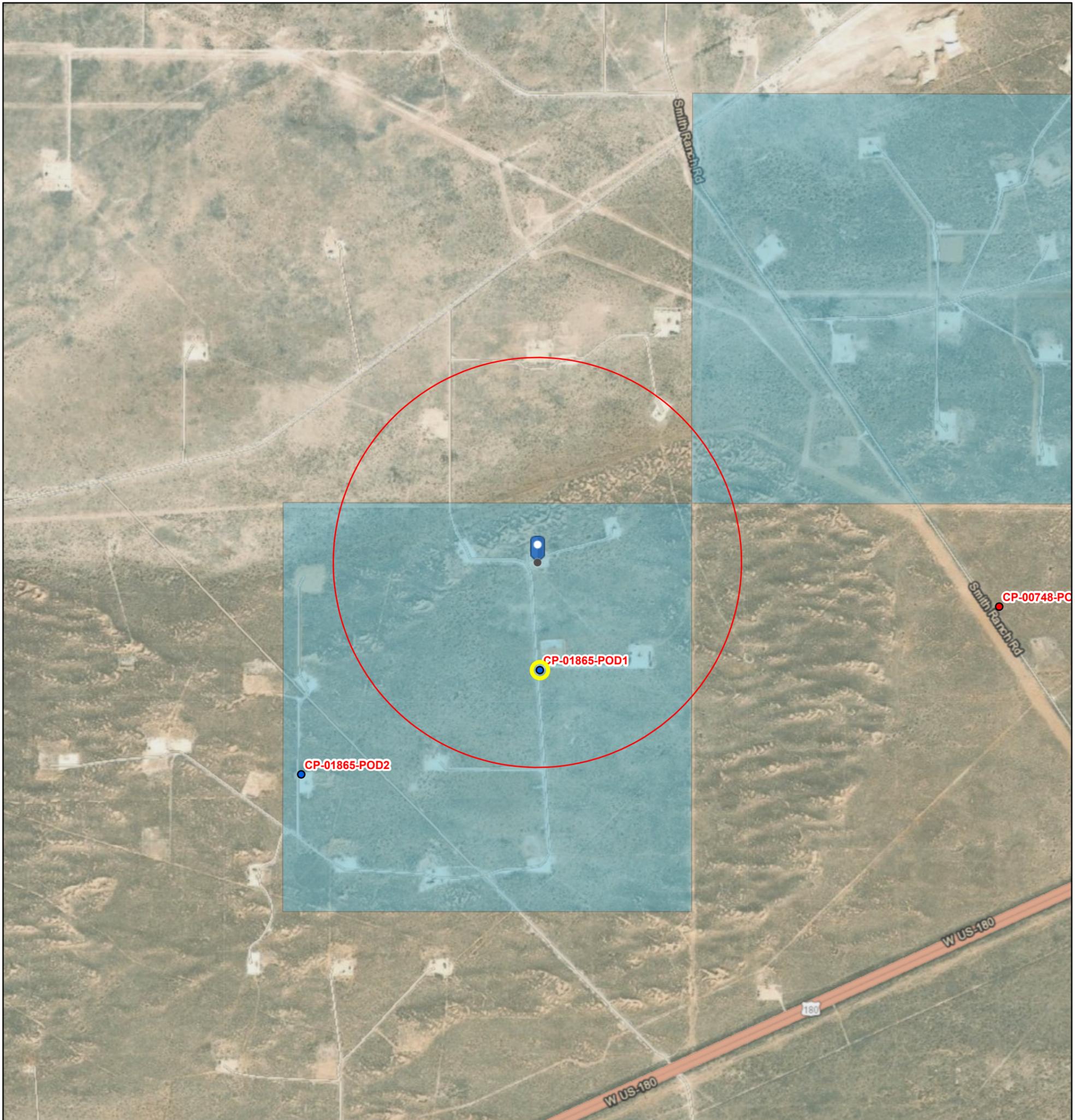
**Confirmatory Sampling Locations
Gem North Tank Battery**

FIGURE:
2

Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes. Note: Aerial imagery from ESRI., 2021.

ATTACHMENT 3

Gem North Tank Battery



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GIS WATERS PODs

- Active
- Plugged

OSE District Boundary

Water Right Regulations

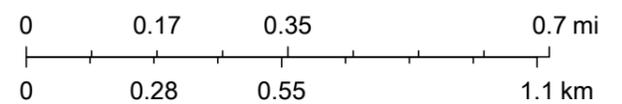
Closure Area

New Mexico State Trust Lands

Both Estates

SiteBoundaries

1:18,056



Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar



New Mexico Office of the State Engineer Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE)				(NAD83 UTM in meters)			
		Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	CP 01865 POD1	4	3	2	02	20S	33E	628390	3608155

Driller License:	1753	Driller Company:	VANGUARD WATER WELLS		
Driller Name:	FRIESSEN, JACOBOIEL.NER				
Drill Start Date:	02/08/2021	Drill Finish Date:	02/08/2021	Plug Date:	
Log File Date:	07/22/2021	PCW Rcv Date:		Source:	
Pump Type:		Pipe Discharge Size:		Estimated Yield:	0 GPM
Casing Size:	2.00	Depth Well:	105 feet	Depth Water:	0 feet

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer Point of Diversion Summary

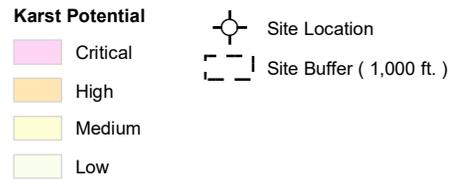
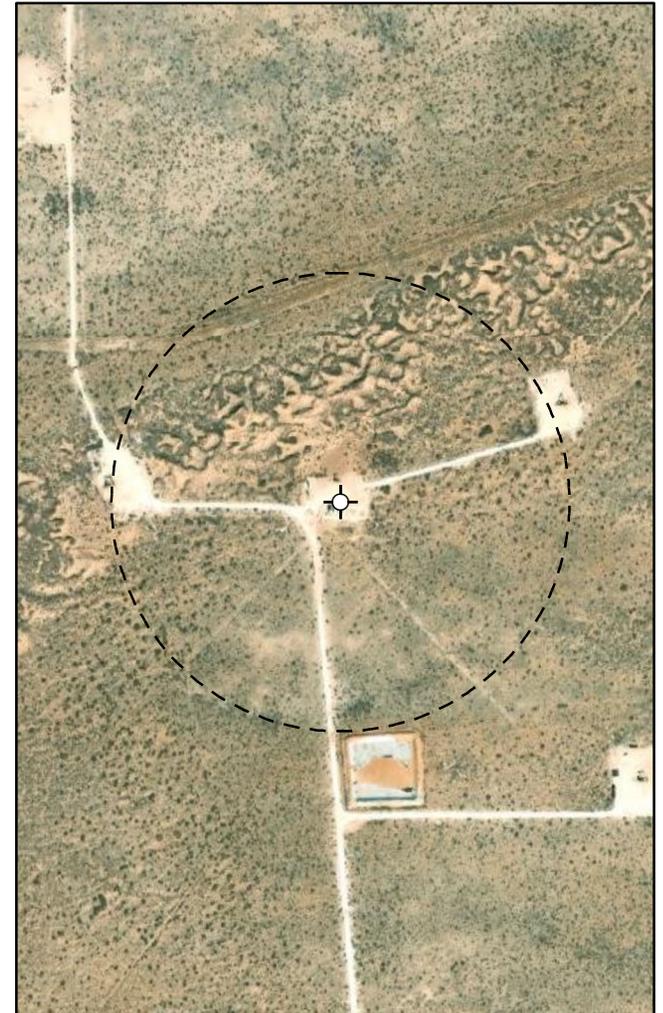
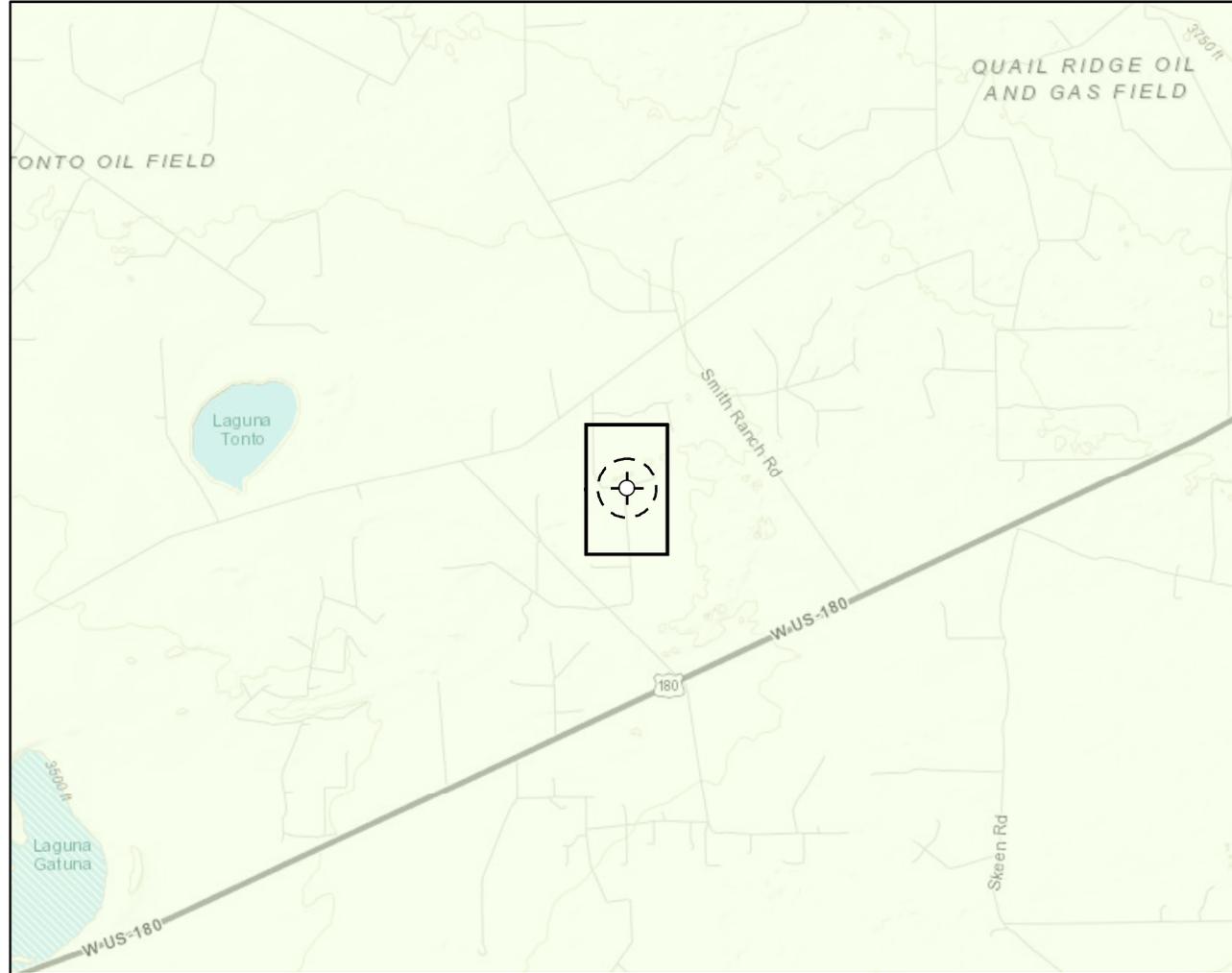
Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE)				(NAD83 UTM in meters)			
		Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	CP 01865 POD2	3	1	3	02	20S	33E	627454	3607733

Driller License:	1753	Driller Company:	VANGUARD WATER WELLS		
Driller Name:	FRIESSEN, JACOBOIELNER				
Drill Start Date:	02/08/2021	Drill Finish Date:	02/08/2021	Plug Date:	
Log File Date:	07/22/2021	PCW Rcv Date:		Source:	
Pump Type:		Pipe Discharge Size:		Estimated Yield:	0 GPM
Casing Size:	2.00	Depth Well:	105 feet	Depth Water:	0 feet

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

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POINT OF DIVERSION SUMMARY



Map Center:
Lat/Long: 32.607290, -103.631860

NAD 1983 UTM Zone 13N
Date: Jan 28/22



**Karst Potential Map
Gem North Tank Battery**

FIGURE:

X



Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, ESRI 2020; Overview Map: ESRI World Topographic

VERSATILITY. EXPERTISE.

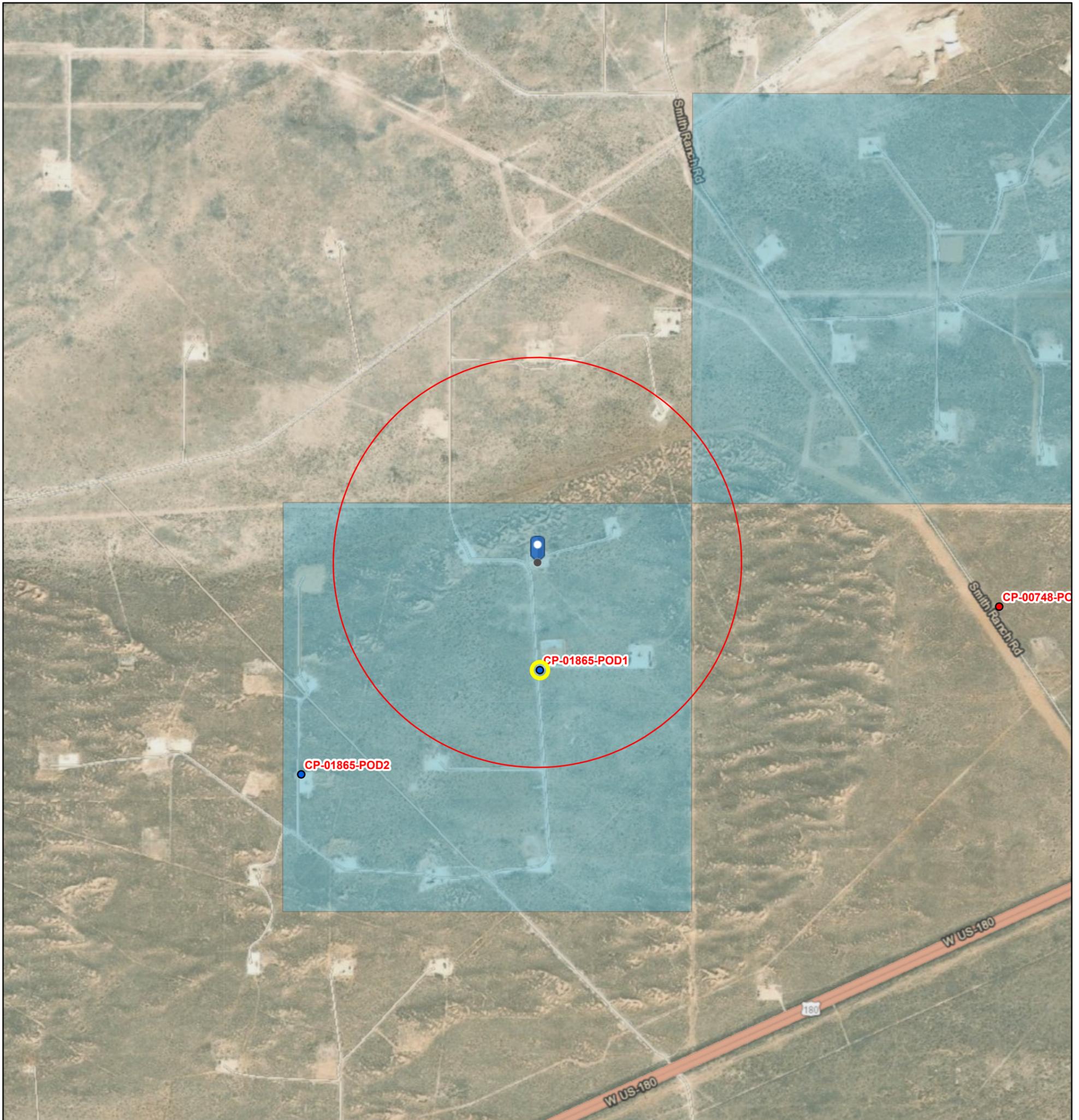
Closure Criteria Worksheet			
Site Name: Gem North Tank Battery			
Spill Coordinates:		X: 32.60729	Y: -103.63186
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	105	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	192,065	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11,780	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	8,679	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or	8,505	feet
	ii) Within 1000 feet of any fresh water well or spring	8,505	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	21,804	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	500	year
11	Soil Type	KM, PU	
12	Ecological Classification	Sandhills and Loamy sand	
13	Geology	Qep	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

Column1
Critical
High
Medium
Low

Column1
Yes
No

<50'
51-100'
>100'

Gem North Tank Battery



1/27/2022, 3:30:32 PM

GIS WATERS PODs

- Active
- Plugged

OSE District Boundary

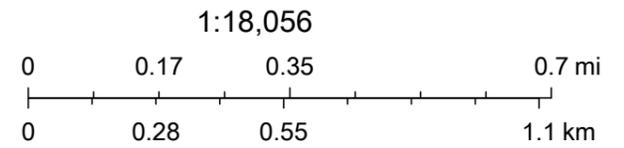
Water Right Regulations

Closure Area

New Mexico State Trust Lands

Both Estates

SiteBoundaries



Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar



New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE) (quarters are smallest to largest)				(NAD83 UTM in meters)			
		Q64	Q16	Q4	Sec	Tws	Rng	X	Y
NA	CP 01865 POD1	4	3	2	02	20S	33E	628390	3608155
Driller License: 1753		Driller Company: VANGUARD WATER WELLS							
Driller Name: FRIESSEN, JACOBOIELNER									
Drill Start Date: 02/08/2021		Drill Finish Date: 02/08/2021		Plug Date:					
Log File Date: 07/22/2021		PCW Rcv Date:		Source:					
Pump Type:		Pipe Discharge Size:		Estimated Yield: 0 GPM					
Casing Size: 2.00		Depth Well: 105 feet		Depth Water: 0 feet					

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

1/27/22 3:49 PM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE)				(NAD83 UTM in meters)	
		(quarters are smallest to largest)				X	Y
		Q64	Q16	Q4	Sec	Tws	Rng
NA	CP 01865 POD2	3	1	3	02	20S	33E
						627454	3607733

Driller License: 1753	Driller Company: VANGUARD WATER WELLS	
Driller Name: FRIESSEN, JACOBOIELNER		
Drill Start Date: 02/08/2021	Drill Finish Date: 02/08/2021	Plug Date:
Log File Date: 07/22/2021	PCW Rcv Date:	Source:
Pump Type:	Pipe Discharge Size:	Estimated Yield: 0 GPM
Casing Size: 2.00	Depth Well: 105 feet	Depth Water: 0 feet

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

1/27/22 3:28 PM

POINT OF DIVERSION SUMMARY



TRINITY
OILFIELD SERVICES

P.O. Box 2587 • Hobbs, NM 88241 • Phone: (575)397-4961 • john@trinityoilfieldservices.com

CLOSURE REQUEST

**BTA Oil Producers LLC Gem 11 H Battery
Unit Letter H, Section 2, Township 20 South, Range 33 East
Latitude 32.60362 North, Longitude -103.62711 West
NMOCD Incident Number nRM2035044372
Lea County, New Mexico**

Prepared for:

**BTA Oil Producers, LLC
104 South Pecos Street
Midland, TX 79701**

Prepared by:

**Trinity Oilfield Services and Rentals, LLC
P.O. Box 2587
Hobbs, New Mexico 88241**

April 2021



**John P. Farrell P.G.
Project Manager**



Trinity Oilfield Services and Rentals, LLC

Site Remediation Summary and Closure Request

Company: BTA Oil Producers, LLC **Address:** 104 South Pecos St., Midland, TX 79701 **Telephone:** (575) 390-2828

Site Name: Gem # 11 Tank Battery **NMOCD Reference Number:** nRM2035044372

Unit Letter: "H" (SE/NE) **Section:** 2 **Township:** 20S **Range:** 33E **County:** Lea

GPS Coordinates: 32.60362 N -103.62711 W **Depth to Groundwater:** >105 ft

Distance to Surface Water Body: ___ <200' ___ 200' - 1,000' X > 1000'

Wellhead Protection Area: <1000' from Water Source or < 200' from Domestic Water Source? __Y X N

Soil Remediation Levels (mg/kg):

On a pad where depth to groundwater > 100': **Benzene:** 10 **BTEX:** 50 **TPH:** 2,500

GRO+DRO: 1000 **Chloride:** 20,000

Date/Time of Release: 11/25/2020 **Type of Release:** Produced Water **NMOCD Ranking Score:** 0

Approximate Volume of Releases: Please See Below

Enclosures:

Figure 1: Site Location Map

Figure 2: Depth to Groundwater Trend Map

Figure 3: Well Protection Area Map

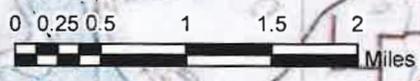
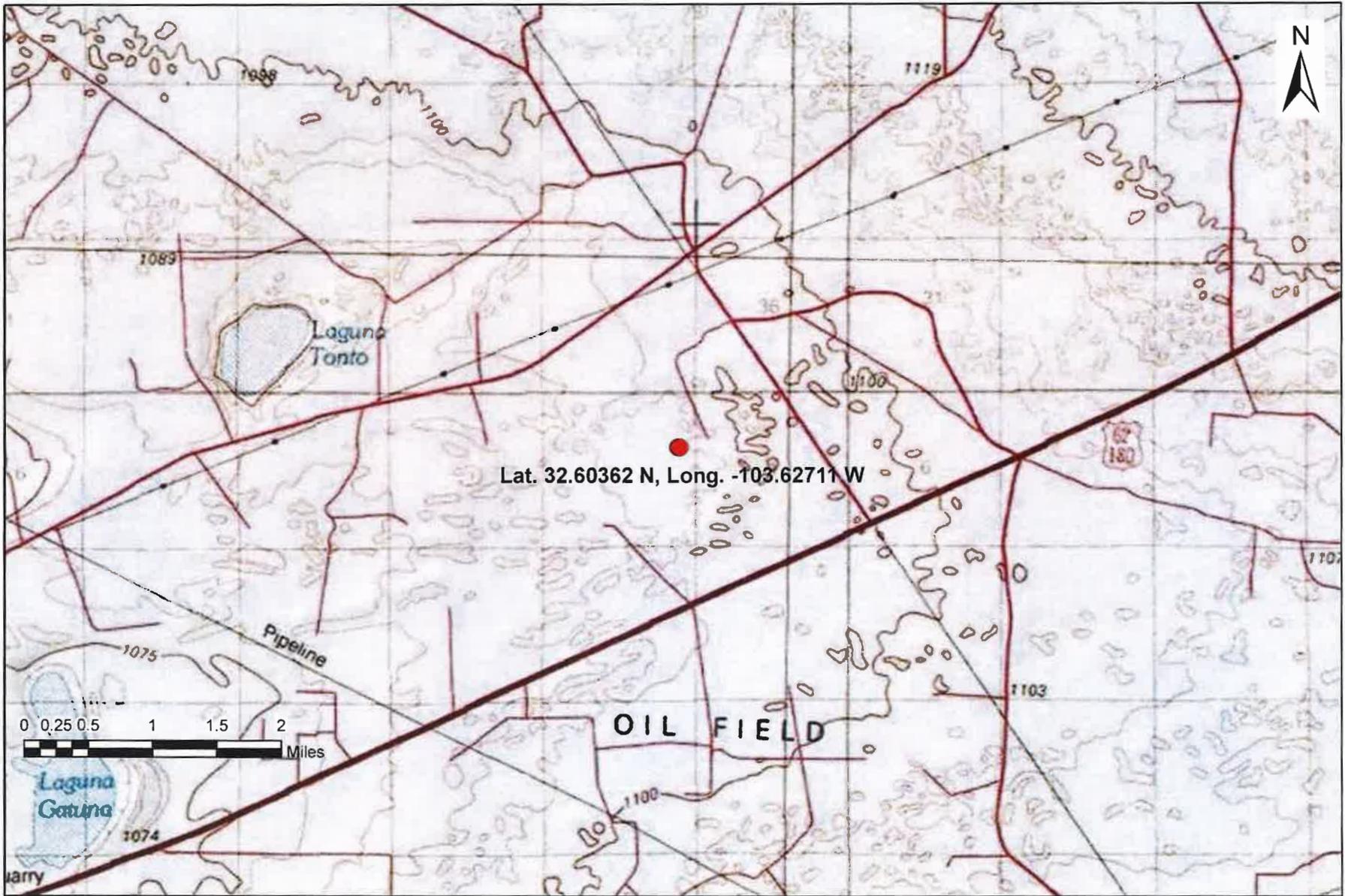
Figure 4: Borehole Location Map

Figure 5: Sample Location Map

Appendix A: Permits

Appendix B: Borehole Log

FIGURES



Legend

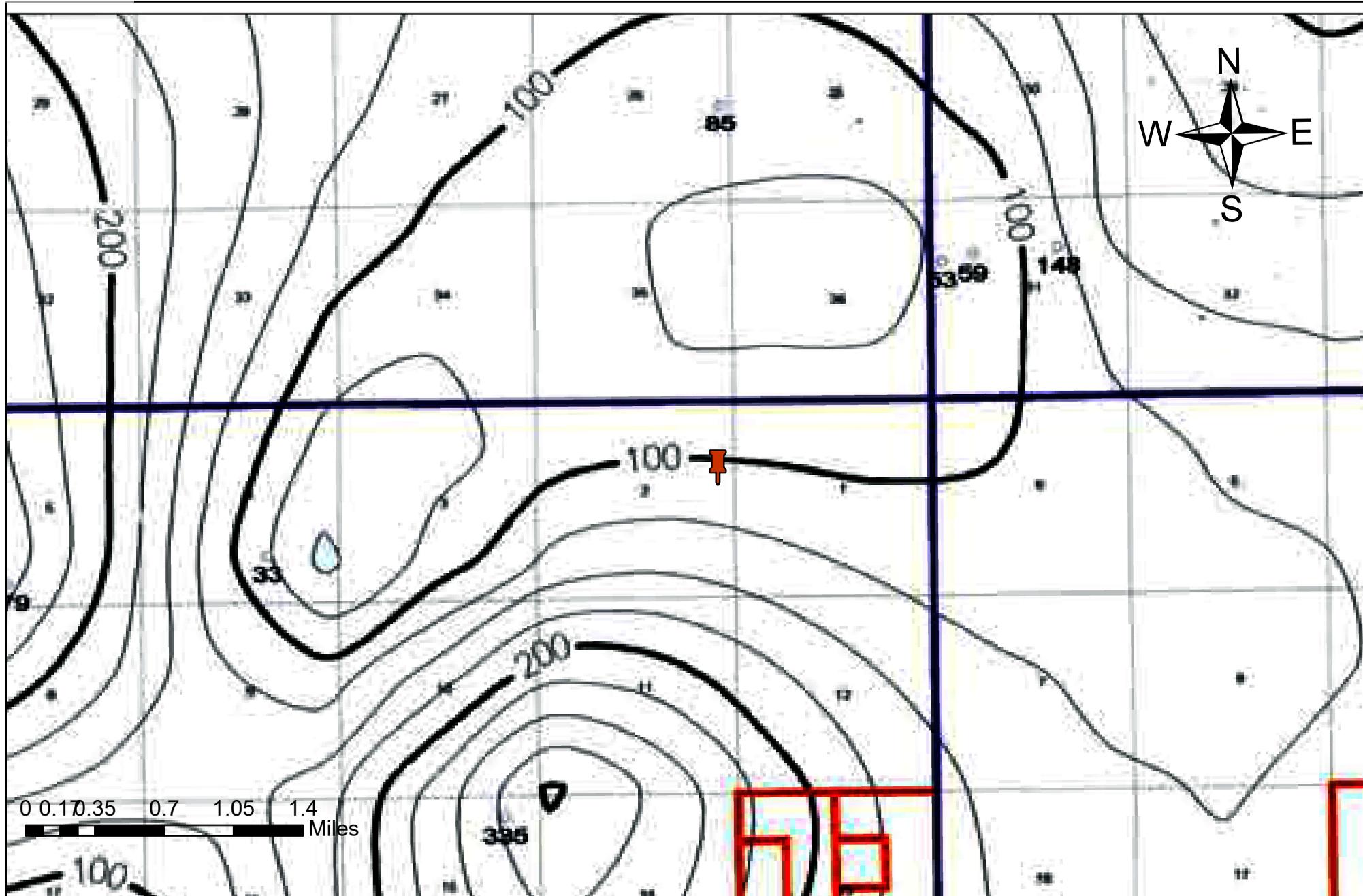
	Gem 11H Site Location
---	-----------------------

Figure 1
 Site Location Map
 BTA Gem 11H Battery
 BTA Oil Producers Inc.
 Lea County, New Mexico
 EMNRD Incident ID nRM2035044372



Trinity Oilfield Services & Rentals, LLC
 P.O. Box 2587
 Hobbs, NM 88241

Drawn By: JPF	Checked By: JEH
April 22, 2021	Scale: 1" = 1mi



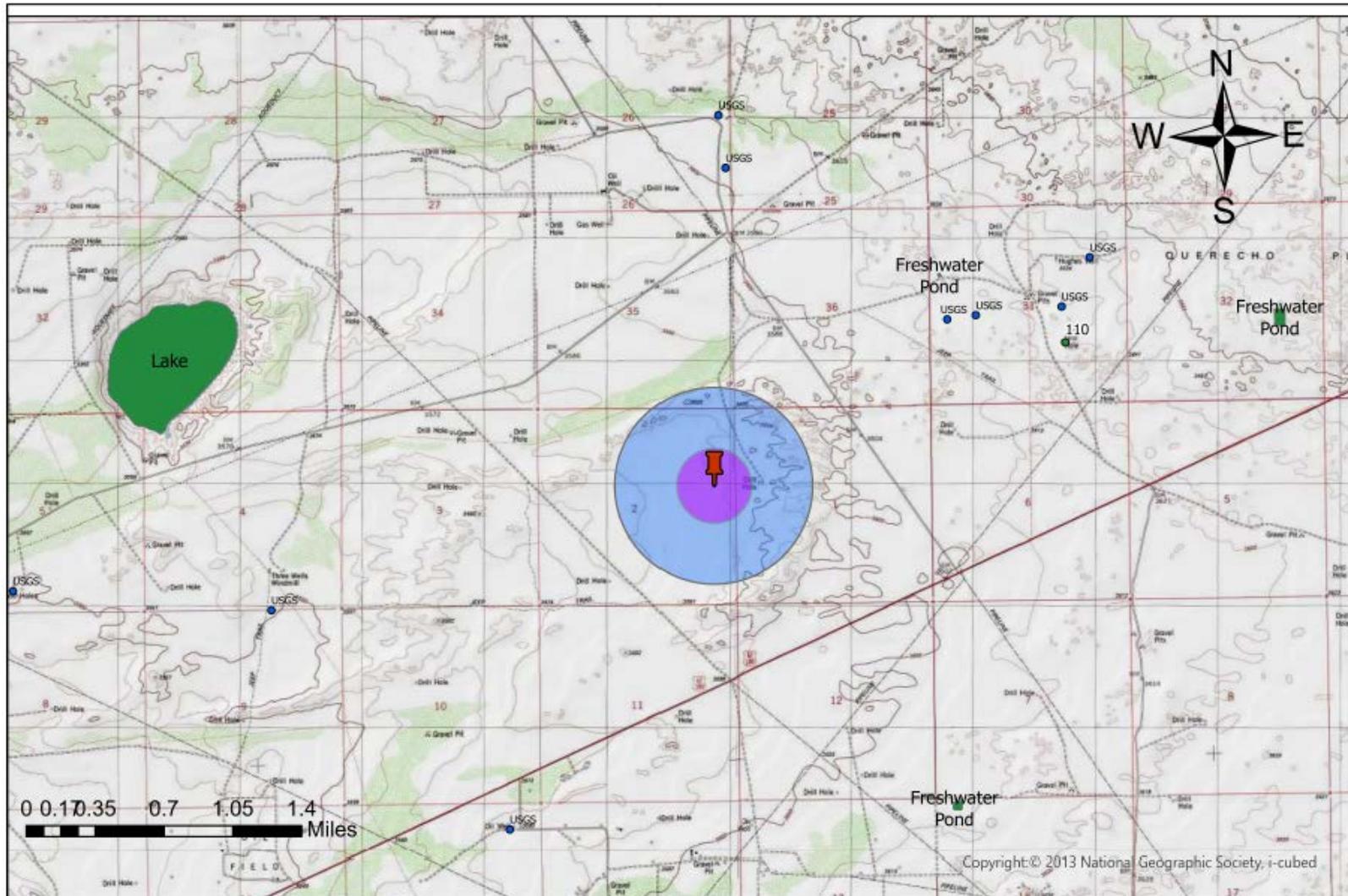
Legend:
 BTA Gem 11-H

Figure 1
 Depth to Groundwater Trend Map
 BTA Gem 11H Battery
 BTA Oil Producers Inc.
 Lea County, New Mexico
 EMNRD Incident ID nRM2035044372



Trinity Oilfield Services & Rentals, LLC
 P.O. Box 2587
 Hobbs, NM 88241

Drawn By: JPF	Checked By: JEH
April 21, 2021	Scale: 1" = 0.66mi



Legend:

	BTA Gem 11-H		USGS Site Number
	1000ft Buffer		NMOSE Water Table Depth
	1/2 Mile Buffer		NM_Riparian
			NM_Wetlands

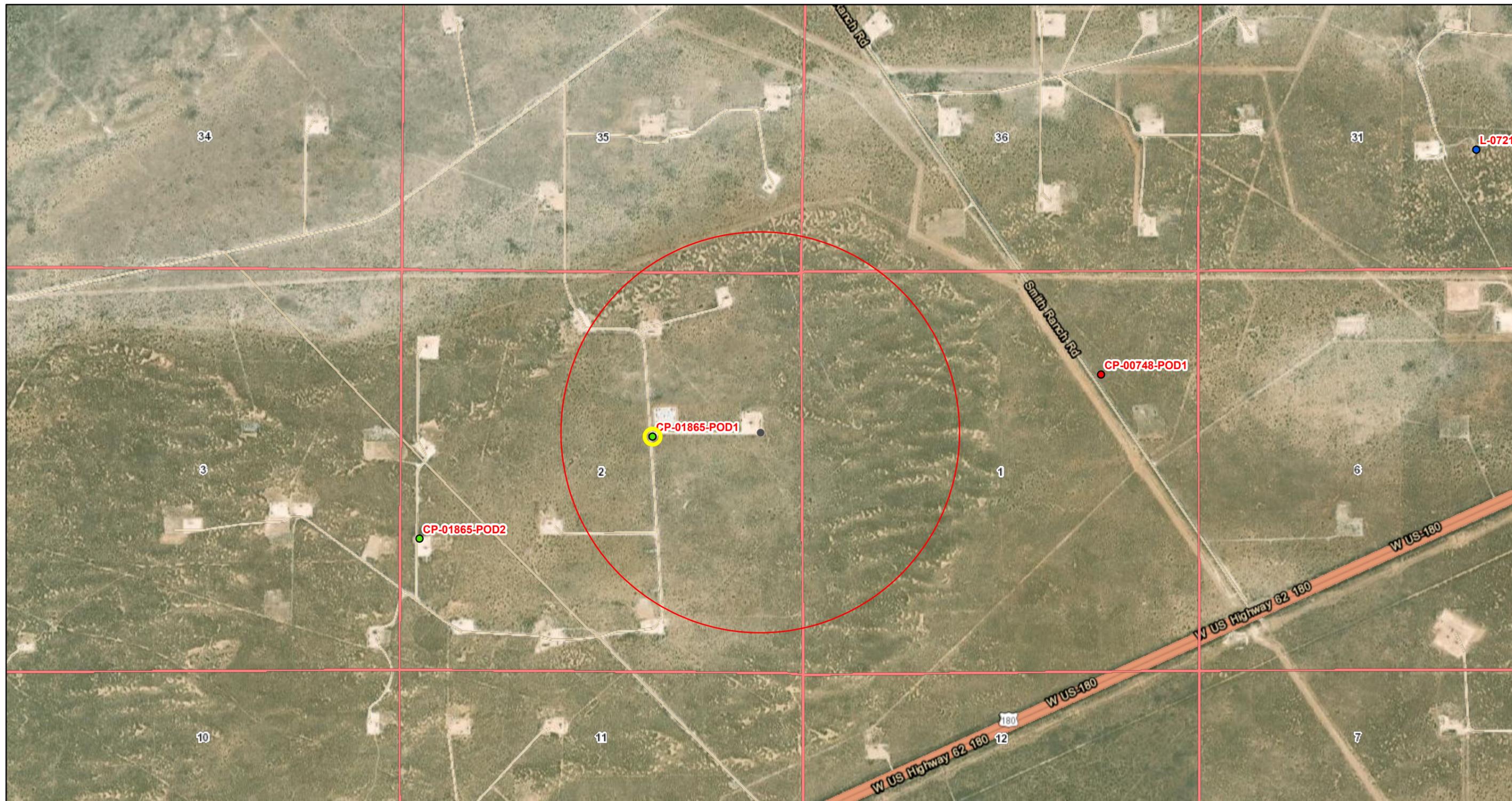
Figure 3
Wellhead Protection Map
BTA Gem 11H Battery
BTA Oil Producers Inc.
Lea County, New Mexico
EMNRD Incident ID nRM2035044372



Trinity Oilfield Services & Rentals, LLC
 P.O. Box 2587
 Hobbs, NM 88241

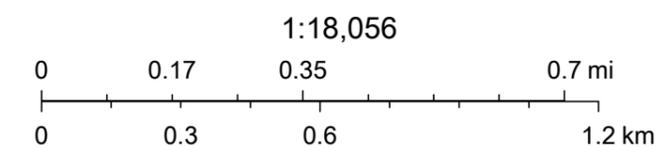
Drawn By: JPF	Checked By: JEH
April 21, 2021	Scale: 1" = 0.66mi

Gem 11-1H | Half Mile Buffer



4/5/2021, 1:46:57 PM

- GIS WATERS PODs
 - Plugged
 - Active
 - Pending
- ▭ SiteBoundaries
 - ▭ OSE District Boundary
 - ▭ Sections



USDA FSA, GeoEye, Maxar, Esri, HERE, iPC, OSE SLO, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC



Legend

- BTA Gem 11-H Battery
- △ Borehole Location



**APPENDIX
A PERMITS**

John R. D Antonio, Jr., P.E.
State Engineer



Roswell Office
1900 WEST SECOND STREET
ROSWELL, NM 88201

**STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER**

Trn Nbr: 686912
File Nbr: CP 01865

Feb. 04, 2021

JOHN FARRELL
607 EAST JEMEZ STREET
HOBBS, NM 88240

Greetings:

Your approved copy of the above numbered permit to drill a well for non-consumptive purposes is enclosed. You must obtain an additional permit if you intend to use the water. It is your responsibility to provide the contracted well driller with a copy of the permit that must be made available during well drilling activities.

Carefully review the attached conditions of approval for all specific permit requirements.

- * If use of this well is temporary in nature and the well will be plugged at the end of the well usage, the OSE must initially approve of the plugging. If plugging approval is not conditioned in this permit, the applicant must submit a Plugging Plan of Operations for approval prior to the well being plugged. The Plugging Record must be properly completed and submitted to the OSE within 30 days of the well plugging.
- * If the final intended purpose and condition requires a well ID tag and meter installation, the applicant must immediately send a completed meter report form to this office.
- * The well record and log must be submitted within 30 days of the completion of the well or if the attempt was a dry hole.
- * This permit expires and will be cancelled if no well is drilled and/or a well log is not received by the date set forth in the conditions of approval.

Appropriate forms can be downloaded from the OSE website www.ose.state.nm.us.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrew Dennis".

Andrew Dennis
(575) 622-6521

Enclosure

explore

File No **CP-1865**

NEW MEXICO OFFICE OF THE STATE ENGINEER



WR-07 APPLICATION FOR PERMIT TO DRILL

A WELL WITH NO WATER RIGHT

(check applicable box)

For fees see State Engineer website <http://www.ose.state.nm.us/>

Purpose <input type="checkbox"/> Exploratory Well (Pump test) <input type="checkbox"/> Monitoring Well	<input type="checkbox"/> Pollution Control And/Or Recovery <input type="checkbox"/> Construction Site/Public Works Dewatering <input type="checkbox"/> Mine Dewatering	<input type="checkbox"/> Ground Source Heat Pump <input checked="" type="checkbox"/> Other(Describe) SOIL BORING TO PROVE THE ABSENCE OF GROUNDWATER @ TD OF BORING
A separate permit will be required to apply water to beneficial use regardless if use is consumptive or nonconsumptive		
<input checked="" type="checkbox"/> Temporary Request - Requested Start Date JAN 21, 2021		Requested End Date FEB 21, 2021
Plugging Plan of Operations Submitted? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		

1. APPLICANT(S)

Name BTA OIL PRODUCERS, LLC	Name JOHN P FARRELL PG
Contact or Agent: <input type="checkbox"/> check here if Agent BOB HALL ENV. MGR	Contact or Agent: <input checked="" type="checkbox"/> check here if Agent
Mailing Address 104 S. PECOS ST	Mailing Address 607 E JEMEZ ST
City MIDLAND	City HOBBS
State TX Zip Code 79701	State NM Zip Code 88240
Phone 432 312 2203 <input type="checkbox"/> Home <input checked="" type="checkbox"/> Cell Phone (Work) 432 682 3753	Phone <input type="checkbox"/> Home <input checked="" type="checkbox"/> Cell Phone (Work): 575 942 1645
E-mail (optional): Bhall@btaoil.com	E-mail (optional): john@trinityoilfieldservices.com

0507 06/12/2021 09:21

FOR OSE INTERNAL USE Application for Permit. Form WR-07, Rev 11/17/16

File No CP-1865PODS-1-2	Trn. No: 686912	Receipt No.: 2-42931
Trans Description (optional): EXPL (Boreholes)		
Sub-Basin: C.P	PCW/LOG Due Date: 2/4/22	

4. SPECIFIC REQUIREMENTS: The applicant must include the following, as applicable to each well type. Please check the appropriate boxes; to indicate the information has been included and/or attached to this application

<p>Exploratory: <input type="checkbox"/> Include a description of any proposed pump test, if applicable</p>	<p>Pollution Control and/or Recovery: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following: <input type="checkbox"/> A description of the need for the pollution control or recovery operation. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The annual diversion amount. <input type="checkbox"/> The annual consumptive use amount. <input type="checkbox"/> The maximum amount of water to be diverted and injected for the duration of the operation. <input type="checkbox"/> The method and place of discharge. <input type="checkbox"/> The method of measurement of water produced and discharged. <input type="checkbox"/> The source of water to be injected. <input type="checkbox"/> The method of measurement of water injected. <input type="checkbox"/> The characteristics of the aquifer. <input type="checkbox"/> The method of determining the resulting annual consumptive use of water and depletion from any related stream system. <input type="checkbox"/> Proof of any permit required from the New Mexico Environment Department. <input type="checkbox"/> An access agreement if the applicant is not the owner of the land on which the pollution plume control or recovery well is to be located.</p>	<p>Construction De-Watering: <input type="checkbox"/> Include a description of the proposed dewatering operation, <input type="checkbox"/> The estimated duration of the operation, <input type="checkbox"/> The maximum amount of water to be diverted, <input type="checkbox"/> A description of the need for the dewatering operation, and, <input type="checkbox"/> A description of how the diverted water will be disposed of.</p>	<p>Mine De-Watering: <input type="checkbox"/> Include a plan for pollution control/recovery, that includes the following <input type="checkbox"/> A description of the need for mine dewatering. <input type="checkbox"/> The estimated maximum period of time for completion of the operation. <input type="checkbox"/> The source(s) of the water to be diverted <input type="checkbox"/> The geohydrologic characteristics of the aquifer(s). <input type="checkbox"/> The maximum amount of water to be diverted per annum. <input type="checkbox"/> The maximum amount of water to be diverted for the duration of the operation. <input type="checkbox"/> The quality of the water. <input type="checkbox"/> The method of measurement of water diverted. <input type="checkbox"/> The recharge of water to the aquifer. <input type="checkbox"/> Description of the estimated area of hydrologic effect of the project. <input type="checkbox"/> The method and place of discharge. <input type="checkbox"/> An estimation of the effects on surface water rights and underground water rights from the mine dewatering project. <input type="checkbox"/> A description of the methods employed to estimate effects on surface water rights and underground water rights. <input type="checkbox"/> Information on existing wells, rivers, springs, and wetlands within the area of hydrologic effect.</p>
<p>Monitoring: <input type="checkbox"/> Include the reason for the monitoring well, and, <input type="checkbox"/> The duration of the planned monitoring.</p>		<p>Ground Source Heat Pump: <input type="checkbox"/> Include a description of the geothermal heat exchange project, <input type="checkbox"/> The number of boreholes for the completed project and required depths. <input type="checkbox"/> The time frame for constructing the geothermal heat exchange project, and, <input type="checkbox"/> The duration of the project. <input type="checkbox"/> Preliminary surveys, design data, and additional information shall be included to provide all essential facts relating to the request.</p>	

ACKNOWLEDGEMENT

I, We (name of applicant(s)), JOHN P FARRELL P.G
 Print Name(s)

affirm that the foregoing statements are true to the best of (my, our) knowledge and belief

[Signature]
 Applicant Signature

[Signature]
 Applicant Signature

ACTION OF THE STATE ENGINEER

This application is
 approved partially approved denied

provided it is not exercised to the detriment of any others having existing rights, and is not contrary to the conservation of water in New Mexico nor detrimental to the public welfare and further subject to the attached conditions of approval.

Witness my hand and seal this 4th day of February 20 21, for the State Engineer

John R. D'Antonio Jr., P.E., State Engineer

By: [Signature]
 Signature
 Title: Water Resources Manager I
 Print

Juan Hernandez
 Print



FOR OSE INTERNAL USE

Application for Permit, Form WR-07

File No. <u>CP-1865</u>	Tm No.: <u>686912</u>
-------------------------	-----------------------

BORINGS

2. WELL(S) Describe the well(s) applicable to this application

Location Required: Coordinate location must be reported in NM State Plane (NAD 83), UTM (NAD 83), or Latitude/Longitude (Lat/Long - WGS84).
 District II (Roswell) and District VII (Cimarron) customers, provide a PLSS location in addition to above.

- NM State Plane (NAD83) (Feet) UTM (NAD83) (Meters)
 NM West Zone Zone 12N
 NM East Zone Zone 13N
 NM Central Zone
- Lat/Long (WGS84) (to the nearest 1/10" of second)

Well Number (if known):	X or Easting or Longitude:	Y or Northing or Latitude:	Provide if known: - Public Land Survey System (PLSS) (Quarters or Halves, Section, Township, Range) OR - Hydrographic Survey Map & Tract; OR - Lot, Block & Subdivision; OR - Land Grant Name
CP-1865-POD1 BH-1	-103°37'54.3"	32°36'12.5"	SE 1/4 OF SW 1/4 OF NE 1/4
CP-1865-POD2 BH-2	-103°38'30.4"	32°35'59.2"	SECTION 2, T 20 S R 33 E SW 1/4 OF NW 1/4 OF SW 1/4

NOTE: If more well locations need to be described, complete form WR-08 (Attachment 1 - POD Descriptions)
 Additional well descriptions are attached: Yes No If yes, how many _____

Other description relating well to common landmarks, streets, or other:
 LEA COUNTY ROAD 55

Well is on land owned by: STATE OF NEW MEXICO

Well Information: NOTE: if more than one (1) well needs to be described, provide attachment. Attached? Yes No
 If yes, how many _____

Approximate depth of well (feet) 105 Outside diameter of well casing (inches) 2 3/8
 Driller Name: KANDY KANE ENTERPRISES Driller License Number: 1698

3. ADDITIONAL STATEMENTS OR EXPLANATIONS

EACH BORING LOCATION IS A SOIL BORING (NOT A WELL OR AN ATTEMPT AT A WELL) TO THE DEPTH OF APPROXIMATELY 105 FT THE INTENTION OF THE BORINGS IS TO PROVE THERE IS NO WATER AT TOTAL DEPTH OF THE WELL

FOR USE INTERNAL USE Application for Permit, Form WR-07
 File No: CP-1865-PODs 1-2 Trn No: 686712
 Page 2 of 3



NEW MEXICO OFFICE OF THE STATE ENGINEER



ATTACHMENT to WD-08 Plan of Plugging
MULTIPLE MONITORING WELL DESCRIPTIONS

This Attachment is to be completed if more than one monitoring well is to be plugged using the same method

Location (Required) **BTA OIL PRODUCERS, LLC**

NM State Plane (NAD83) Feet
 NM West Zone
 NM Central Zone
 NM East Zone

UTM (NAD83) (Meters)
 Zone 13N
 Zone 12N

Lat/Long (WGS84) (1/10" of second)

OTHER (if available only for more than one description - see application form for details)
 PLSS (quarters section, township, range)
 Hydrographic Survey, Map & Tract
 Lot, Block & Subdivision
 Grant

CSE POD Number	Other Well ID	X or Longitude (ddmmss)	Y or Latitude (ddmmss)	Other Location Info (PLSS)	Casing ID (inches)	Depth to Water (ft bgs)	Total well Depth (ft bgs)	Grout Volume	Surface Casing (Y or N)
	BH-1	-103° 37' 54" W	32° 36' 12" N	Sec 2 SW of NE	2"		105'		N
	BH-2	-103° 38' 30" W	32° 35' 59" N	Sec 2 T20S R30E SW of NW of SW	2"		105'		N

FOR OSE INTERNAL USE Multiple Monitoring POD Descriptions, Form wr-08m (Rev 7/31/19)

File Number: **CP-1865-POD_s 1-2** Trm Number: **686912**

Trans Description (optional): **EXPL (Boreholes)**

OSE DJT JAN 21 2021 PM 2:13

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

SPECIFIC CONDITIONS OF APPROVAL

- 17-1A Depth of the well shall not exceed the thickness of the valley fill.
- 17-4 No water shall be appropriated and beneficially used under this permit.
- 17-6 The well authorized by this permit shall be plugged completely using the following method per Rules and Regulations Governing Well Driller Licensing, Construction, Repair and Plugging of Wells; Subsection C of 19.27.4.30 NMAC unless an alternative plugging method is proposed by the well owner and approved by the State Engineer upon completion of the permitted use. All pumping appurtenance shall be removed from the well prior to plugging. To plug a well, the entire well shall be filled from the bottom upwards to ground surface using a tremie pipe. The bottom of the tremie shall remain submerged in the sealant throughout the entire sealing process; other placement methods may be acceptable and approved by the state engineer. The well shall be plugged with an office of the state engineer approved sealant for use in the plugging of non-artesian wells. The well driller shall cut the casing off at least four (4) feet below ground surface and fill the open hole with at least two vertical feet of approved sealant. The driller must fill or cover any open annulus with sealant. Once the sealant has cured, the well driller or well owner may cover the seal with soil. A Plugging Report for said well shall be filed with the Office of the State Engineer in a District Office within 30 days of completion of the plugging.
- 17-7 The Permittee shall utilize the highest and best technology available to ensure conservation of water to the maximum extent practical.

Trn Desc: CP 01865 [BOREHOLES]

File Number: CP 01865

Trn Number: 686912

NEW MEXICO STATE ENGINEER OFFICE
PERMIT TO EXPLORE

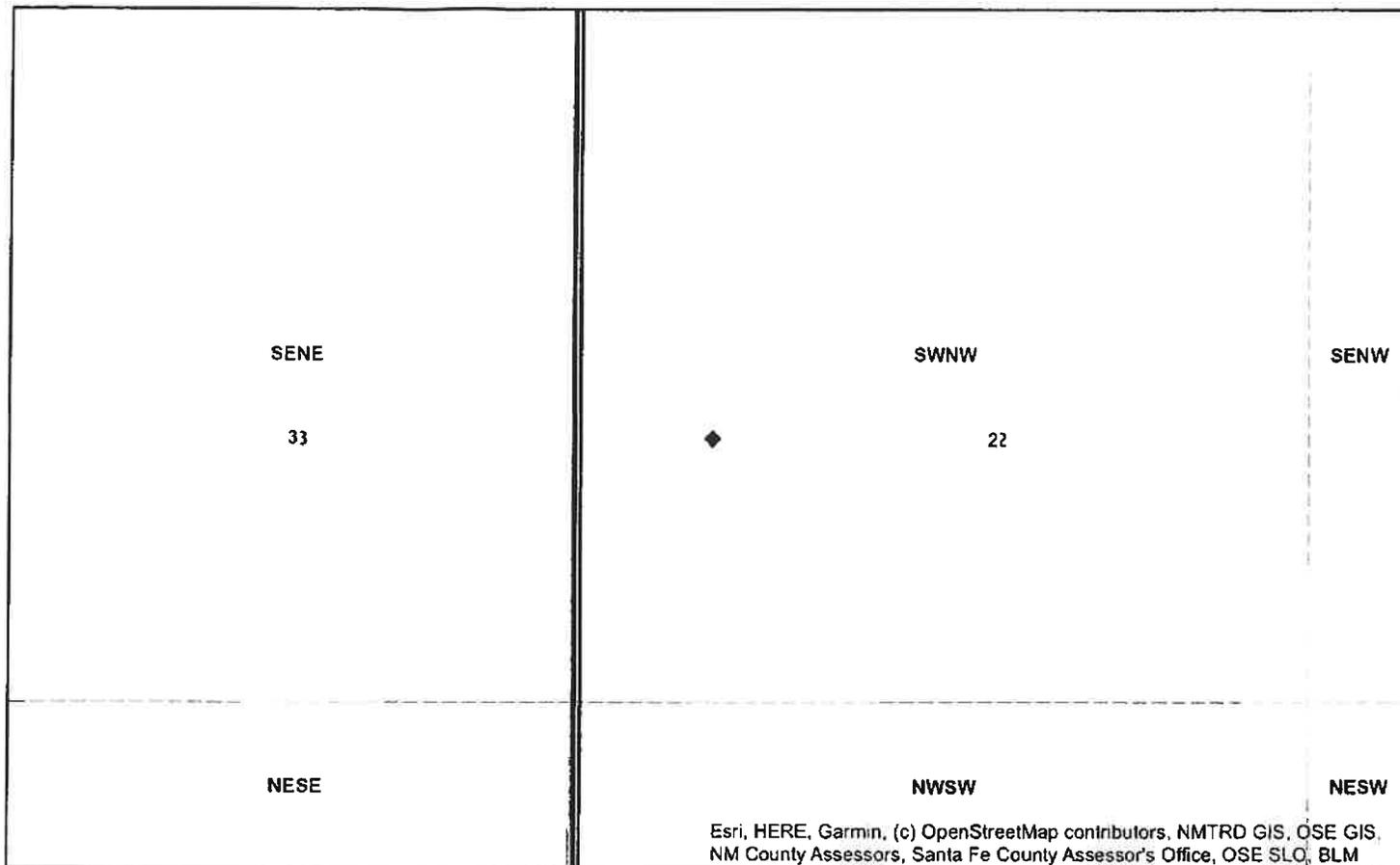
SPECIFIC CONDITIONS OF APPROVAL (Continued)

- 17-B The well shall be drilled by a driller licensed in the State of New Mexico in accordance with 72-12-12 NMSA 1978. A licensed driller shall not be required for the construction of a well driven without the use of a drill rig, provided that the casing shall not exceed two and three-eighths (2 3/8) inches outside diameter.
- 17-C The well driller must file the well record with the State Engineer and the applicant within 30 days after the well is drilled or driven. It is the well owner's responsibility to ensure that the well driller files the well record. The well driller may obtain the well record form from any District Office or the Office of the State Engineer website.
- 17-P The well shall be constructed, maintained, and operated to prevent inter-aquifer exchange of water and to prevent loss of hydraulic head between hydrogeologic zones.
- 17-Q The State Engineer retains jurisdiction over this permit.
- 17-R Pursuant to section 72-8-1 NMSA 1978, the permittee shall allow the State Engineer and OSE representatives entry upon private property for the performance of their respective duties, including access to the ditch or acequia to measure flow and also to the well for meter reading and water level measurement.
- LOG The Point of Diversion CP 01865 POD1 must be completed and the Well Log filed on or before 02/04/2022.
- LOG The Point of Diversion CP 01865 POD2 must be completed and the Well Log filed on or before 02/04/2022.

Trn Desc: CP 01865 [BOREHOLES]

File Number: CP 01865

Trn Number: 686912

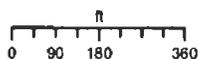


Esri, HERE, Garmin, (c) OpenStreetMap contributors, NMTD GIS, OSE GIS, NM County Assessors, Santa Fe County Assessor's Office, OSE SLO, BLM

Coordinates
UTM - NAD 83 (m) - Zone 13
 Easting 627449.880
 Northing 3608142.691
State Plane - NAD 83 (f) - Zone E
 Easting 754300.522
 Northing 583964.516
Degrees Minutes Seconds
 Latitude 32 : 36 : 12.500000
 Longitude -103 : 38 : 30.400000
 Location pulled from Coordinate Search

NEW MEXICO OFFICE
 OF THE
 STATE ENGINEER

1:4,514



A. Dennis 2/4/2021



Nothing is intended to be construed as a warranty or guarantee by the State Engineer or the Office of the State Engineer. The State Engineer and the Office of the State Engineer are not responsible for any errors or omissions in this document. The State Engineer and the Office of the State Engineer are not responsible for any damages or losses resulting from the use of this document. The State Engineer and the Office of the State Engineer are not responsible for any actions taken based on the information contained in this document.

Spatial Information
 County: Lea
 Groundwater Basin: Capitan
 Abstract Area:CP
 Land Grant:
 Not in Land Grant
 Restrictions:
 NA
PLSS Description
 NWSWSWNW Qtr of Sec 02 of 020S 033E
 Derived from CADNSDI- Qtr Sec. locations are calculated and are only approximations

Parcel Information
 UPC/DocNum:
 Parcel Owner:
 Address:null null null null null null
 Legal:

POD Information
 Owner: BTA Oil Producers LLC
 File Number:
 POD Status: NoData
 Permit Status: NoData
 Permit Use: NoData
 Purpose: Soil Boring

- Coord Search Location
- WRAB Abstract Project Areas
- Lea County Parcels 2020
- Hydro Survey Boundary
- <all other values>
- None
- All
- Partial
- Hydro Survey Footprints
- Sections
- BLM Land Grant
- PLSSTownship
- PLSSFirstDiv...
- PLSSSecond...



Stephanie Garcia Richard
COMMISSIONER

State of New Mexico
Commissioner of Public Lands

COMMISSIONER'S
OFFICE
Phone (505) 827-5760
Fax (505) 827-5766
www.nmstatelands.org

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

February 1, 2021

BTA Oil Producers, LLC
104 S. Pecos St.
Midland, TX 79701

Attn: Bob Hall: Bhall@btaoil.com

05E OF FEB 3 2021 PM 11:24

RE: Rule 12 Water Exploration / 30-Day Soil Boring Permit # **WE-0795**

We are in receipt of your application fee (\$ 100.00 per Application) requesting a TEMPORARY BORING PERMIT for Water exploration. The effective date of this authorization is for a period of not to exceed 30 days, commencing on **February 1, 2021 and ending on March 2, 2021**. This Authorization (Right of Entry) letter is for the sole purpose of **exploring depth to groundwater** through 2 test boreholes in the following location: (Please see attached map)

Township	Range	Section	Subdivision	County	Acres
<u>20S</u>	<u>33E</u>	<u>02</u>	<u>SE-SW-NE,</u> <u>SW-NW-SW</u>	<u>Lea</u>	<u>2.0</u>

CONDITIONS OF USE

- A. The issuance of this Exploration Authorization does not guarantee a Water Easement will be issued for this property being explored, nor does it indicate a preference for a future water easement issuance to the holder of the authorization by the Commissioner of Public Lands.
- B. No refund of Permit application fees will occur after Permit approval letter is mailed.
- C. Authorized party shall notify the State Land Office District Resource Manager by telephone at least one business day prior to commencing any exploration activities.
- D. No blading or widening of any two-track dirt roads that provides access to the Property is permitted under this Authorization, except as necessary for the ingress and egress of required vehicles.
- E. No mining or removal of material for purposes other than testing is allowed under this Authorization. No sale of any material extracted from the Property is allowed under this Authorization.
- F. Authorized party shall observe all federal, state and local laws and regulations applicable to the Property.
- G. Authorized party shall take all reasonable precautions to prevent and suppress forest, brush and grass fires and prevent pollution of waters on or in the vicinity of the Property.
- H. Authorized party shall not block or disrupt roads or trails commonly in use.
- I. This Authorization is subject to any and all easements and rights-of-way previously granted and now in force and affect.
- J. Authorized party shall be responsible for repair and restitution for damage to any property improvements as a result of activities related to this exploration.
- K. **Authorized party shall conduct exploration activities only if a state-permitted archaeologist as per the Cultural Properties Act, §18-6-5(O) is present on the permitted site.** Authorized party shall abide by the decisions of the permitted Archaeologist regarding prevention of damage to cultural property sites. **An archaeological report is to be submitted to State Land Office Cultural Resources Specialist within fifteen**

(15) days of the expiration date of this Authorization. (An archeologist is not required to be present as long as there are no new surface disturbing activities being performed).

SURFACE RECLAMATION AND RESTORATION

- A. All test holes must be plugged as soon as testing is completed.
- B. Drilling, excavation and other surface disturbing activities shall be restricted to areas deemed to have no archaeological significance.
- C. Access to the Property shall be over existing roads. Reclamation of all roads shall conform to the requirements of State Land Office Rule 20. No upgrading of the existing roads shall be done, except as necessary for the ingress and egress of required vehicles.
- D. All topsoil from the areas to be disturbed shall be stockpiled for use in reclamation.
- E. Upon completion of the use and operations permitted by this Authorization, all disturbed sites shall be re-contoured to approximate the original contours.
- F. All material removed by excavation shall be replaced into the test holes, with the exception of an adequate sample, on or before the expiration date of this Authorization.
- G. The natural environmental conditions that exist contemporaneously with this grant shall be preserved and protected. All applicable environmental laws and regulations shall be complied with and such reclamation or corrective actions as may be necessary to conduct EXPLORATORY WELL BORING consistent with safe and sound environmental management principles and practices shall be taken in order to protect the Property from any pollution, erosion or other environmental degradation and to avoid diminishing the value of the Property for any future use.

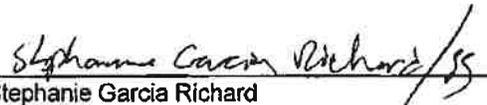
INDEMNITY

Authorized party shall save, hold harmless, indemnify and defend the State of New Mexico, the Commissioner and Commissioner's employees, agents and contractors, in both their official and individual capacities, from any and all liability, claims, losses, damages, or expenses of any character or nature whatsoever, including but not limited to attorney's fees, court costs, loss of land value or use, third party claims, penalties, or removal, remedial or restoration costs arising out of, or alleged to arise out of:

- A. The operations or presence on the Property, or on adjacent or proximate state trust lands, including those used to access the Property for the purposes of this Authorization, of Authorized party or authorized party's employees, agents, contractors or invitees;
- B. The activities of third parties on the Property, or on adjacent or proximate state trust lands, including those used to access the Property or other adjacent or proximate state trust lands, whether with or without Authorized party's knowledge or consent;
- C. Any Hazardous Materials located in, under, upon or otherwise affecting the Property or adjacent or proximate state trust lands, regardless of their point of origin or date of contamination.

If you have any questions or concerns please contact Jack Yates, Oil, Gas, and Minerals Deputy Commissioner at 505-827-5750, or Faith Crosby, Water Resources Section Manager at (505) 827-5849.

Respectfully,



 Stephanie Garcia Richard
 Commissioner of Public Lands
 SS/fc

Date 2/2/2021

OSE DTW FEB 2 2021 PM 4:42

cc: Mark Naranjo, DRM Supervisor



Stephanie Garcia
Richard
COMMISSIONER

State of New Mexico
Commissioner of Public Lands

COMMISSIONER'S
OFFICE
Phone (505) 827-5760
Fax (505) 827-5766
www.nmstatelands.org

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

February 1, 2021

Kenneth Smith Inc.
267 Smith Ranch Road
Hobbs, NM 88240

Re: **Agricultural Lease No: GT-2922**
Water Easement Application No: WE-795

05E DTI FEB 2 2021 PM4:42

Dear Mr. McDonald,

This letter is to inform you that BTA Oil Producers has submitted an application for temporary exploration to establish local ground water levels on existing oil and gas lease pads located on State Trust Lands in the following two areas:

Sully
SW4NE4 and NW4SE4 of Section 02 Township 20 South, Range 33 East

If you have questions you may contact our Water Bureau manager Faith Crosby at (505) 827-5849 or fcrosby@slo.state.nm.us.

Respectfully,

Stephanie Garcia Richard
Commissioner of Public Land

SS/fc

Dennis, Andrew, OSE

From: Bob Hall <BHall@btaoil.com>
Sent: Thursday, January 21, 2021 1:51 PM
To: Dennis, Andrew, OSE
Cc: John Farrell
Subject: [EXT] Signature authority for two well permits

Hi Andrew,

It is OK for John Farrell with Trinity Oilfield Services to sign the documents on behalf of BTA Oil Producers, LLC for the two well permits brought into your office today.

Please feel free to contact me if you have any questions or concerns.

Thanks,
Bob Hall.

Bob Hall
BTA Oil Producers, LLC
104 S. Pecos Street
Midland, TX 79701

bhall@btaoil.com
(432) 682-3753 (office)
(432) 312-2203 (cell)



OSE OIT JAN 21 2021 PK3:48



STATE OF NEW MEXICO
OFFICE OF THE STATE ENGINEER
District 2 Office, Roswell, NM

John R. D'Antonio Jr., P.E.
State Engineer

1900 West Second Street
Roswell, New Mexico 88201
(575) 622-6521
FAX: (575) 623-8559

February 3, 2021

Trinity Oil Field Services
c/o John P. Farrell, PG
607 E. Jemez St.
Hobbs, NM 88240

RE: *Well Plugging Plan of Operations for CP-1865-POD1 and CP-1865-POD2*

Greetings:

Enclosed is your copy of Well Plugging Plan of Operations for the above referenced project, which has been approved subject to the attached Specific Conditions of Approval. The following conditions of approval have been developed to ensure compliance with the Rules and Regulations Governing Well Driller Licensing; Construction, Repair and Plugging of Wells 19.27.4 NMAC adopted June 13, 2017, by the State Engineer.

Aggrievial of this permit, or any of the conditions of approval therein, suspends the permit. No plugging operations shall occur while a permit is aggrieved.

Sincerely,



Christopher Angel, PG
Water Resources Professional II
Water Resource Allocation Program

encl



WELL PLUGGING PLAN OF OPERATIONS

NOTE: A Well Plugging Plan of Operations shall be filed with and accepted by the Office of the State Engineer prior to plugging. This form may be used to plug a single well, or if you are plugging multiple monitoring wells on the same site using the same plugging methodology.

Alert! Your well may be eligible to participate in the Aquifer Mapping Program (AMP)-NM Bureau of Geology geoinfo.nmt.edu/resources/water/cgim/ if within an area of interest and meets the minimum construction requirements, such as there is still water in your well, and the well construction reflected in a well record and log is not compromised. Contact AMP at 575-835-5038 or -6951, or by email ambg-waterlevels@nmt.edu, prior to completing this prior form. Showing proof to the OSE that your well was accepted in this program, may delay the plugging of your well until a later date.

I. FILING FEE: There is no filing fee for this form.

II. GENERAL / WELL OWNERSHIP: Check here if proposing one plan for multiple monitoring wells on the same site and attaching WD-08m

Existing Office of the State Engineer POD Number (Well Number) for well to be plugged: CP-1865-PODS 1-2
Name of well owner: BTA OIL PRODUCERS, LLC
Mailing address: 104 S PECOS ST County: MIDLAND
City: MIDLAND State: TX Zip code: 79701
Phone number: 432 312 2203 (cell) E-mail: Bhall@btaoil.com
432 682 3753

III. WELL DRILLER INFORMATION:

Well Driller contracted to provide plugging services: Kandy Kane ENT
New Mexico Well Driller License No.: 1648 Expiration Date: July 31 2022

IV. WELL INFORMATION: Check here if this plan describes method for plugging multiple monitoring wells on the same site and attach supplemental form WD-08m and skip to #2 in this section.

Note: A copy of the existing Well Record for the well(s) to be plugged should be attached to this plan.

1) GPS Well Location: Latitude: 32° deg. 36' min. 12.5" sec. BH-1
Longitude: 103° deg. 37' min. 54.3" sec. NAD83 WGS 84
2) Reason(s) for plugging well(s):
POD1: SE SW NE Section 2, T.20S, R.33E
POD2: SW NW SW

PURPOSE OF BORING IS TO PROVE ABSENCE OF GROUNDWATER @ 105' BORING WILL BE LEFT OPEN FOR 24 HRS. A MEASUREMENT WILL BE TAKEN AFTER 24 HRS AND REPORTED TO NMOED. THE BORING WILL THEN BE PLUGGED

- 3) Was well used for any type of monitoring program? NO If yes, please use section VII of this form to detail what hydrogeologic parameters were monitored. If the well was used to monitor contaminated or poor quality water, authorization from the New Mexico Environment Department may be required prior to plugging.
- 4) Does the well tap brackish, saline, or otherwise poor quality water? _____ If yes, provide additional detail, including analytical results and/or laboratory report(s): _____
- 5) Static water level: _____ feet below land surface / feet above land surface (circle one)
- 6) Depth of the well: 105 feet

* Per conversation with John P. Farrell, PG 2/3/21

POD1: 20.33.2.234
POD2: 20.33.2.313

- 7) Inside diameter of innermost casing: 2 inches.
- 8) Casing material: PVC
- 9) The well was constructed with:
 - an open-hole production interval, state the open interval: _____
 - a well screen or perforated pipe, state the screened interval(s): Screen at 100'-105'
- 10) What annular interval surrounding the artesian casing of this well is cement-grouted? NA
- 11) Was the well built with surface casing? No If yes, is the annulus surrounding the surface casing grouted or otherwise sealed? _____ If yes, please describe: _____
- 12) Has all pumping equipment and associated piping been removed from the well? Yes If not, describe remaining equipment and intentions to remove prior to plugging in Section VII of this form.

V. DESCRIPTION OF PLANNED WELL PLUGGING: If plugging method differs between multiple wells on same site, a separate form must be completed for each method.

Note: If this plan proposes to plug an artesian well in a way other than with cement grout, placed bottom to top with a tremie pipe, a detailed diagram of the well showing proposed final plugged configuration shall be attached, as well as any additional technical information, such as geophysical logs, that are necessary to adequately describe the proposal. Attach a copy of any signed OSE variance to this plugging plan.

Also, if this planned plugging plan requires a variance to 19.27.4 NMAC, attach a detailed variance request signed by the applicant.

- 1) Describe the method by which cement grout shall be placed in the well, or describe requested plugging methodology proposed for the well:

If water is encountered we will use cement grout placed from bottom to top with tremie pipe. If hole is dry we will use drill cuttings to backfill for 20' below surface then we will use cement grout from 20' to surface of Bentonite chips hydrated from 20' to surface.
- 2) Will well head be cut-off below land surface after plugging? Yes

VI. PLUGGING AND SEALING MATERIALS:

Note: The plugging of a well that taps poor quality water may require the use of a specialty cement or specialty sealant. Attach a copy of the batch mix recipe from the cement company and/or product description for specialty cement mixes or any sealant that deviates from the list of OSE approved sealants.

- 1) For plugging intervals that employ cement grout, complete and attach Table A.
- 2) For plugging intervals that will employ approved non-cement based sealant(s), complete and attach Table B.
- 3) Theoretical volume of grout required to plug the well to land surface: 130 gallons
- 4) Type of Cement proposed: NEAT CEMENT SLURRY * Type I/II
- 5) Proposed cement grout mix: 6.0 gallons of water per 94 pound sack of Portland cement.
- 6) Will the grout be: _____ batch-mixed and delivered to the site
 mixed on site

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7) Grout additives requested, and percent by dry weight relative to cement:
NONE

8) Additional notes and calculations:
NONE

VII. ADDITIONAL INFORMATION: List additional information below, or on separate sheet(s)
NONE

VIII. SIGNATURE:

I, JOHN FARRELL P.G. say that I have carefully read the foregoing Well Plugging Plan of Operations and any attachments, which are a part hereof; that I am familiar with the rules and regulations of the State Engineer pertaining to the plugging of wells and will comply with them, and that each and all of the statements in the Well Plugging Plan of Operations and attachments are true to the best of my knowledge and belief.

John Farrell
 Signature of Applicant

1/20/21
 Date

IX. ACTION OF THE STATE ENGINEER:

This Well Plugging Plan of Operations is:

- Approved subject to the attached conditions.
- Not approved for the reasons provided on the attached letter.

Witness my hand and official seal this 3 day of February, 2021



John R. D'Antonio Jr. P.E., New Mexico State Engineer
 By: *Chris Angel*
 Christopher Angel, PG
 Water Resource Professional II

TABLE A - For plugging intervals that employ cement grout. Start with deepest interval

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of grout placement (ft bgl)			
Bottom of proposed interval of grout placement (ft bgl)			
Theoretical volume of grout required per interval (gallons)			
Proposed cement grout mix gallons of water per 94-lb. sack of Portland cement			
Mixed on-site or batch-mixed and delivered?			
Grout additive 1 requested			
Additive 1 percent by dry weight relative to cement			
Grout additive 2 requested			
Additive 2 percent by dry weight relative to cement			

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TABLE B - For plugging intervals that will employ approved non-cement based sealant(s). Start with deepest interval

	Interval 1 – deepest	Interval 2	Interval 3 – most shallow
			Note: if the well is non-artesian and breaches only one aquifer, use only this column.
Top of proposed interval of sealant placement (ft bgl)			
Bottom of proposed sealant of grout placement (ft bgl)			
Theoretical volume of sealant required per interval (gallons)			
Proposed abandonment sealant (manufacturer and trade name)			

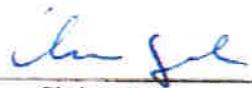
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Specific Conditions of Approval for CP-1865-POD1 & CP-1865-POD2

- i) The approved sealant is Portland Type I/II neat cement provided that a water demand of 6.0 gallons per 94-lb sack is not exceeded and no cement additives are to be used without consent of an authorized representative of the NMOSE.
 - a) Grout shall be tremied from the bottom up.
- 2) If groundwater is **not** encountered the borehole can be filled with drill cuttings up to 20 feet below ground surface. From 20 feet below ground surface to ground surface the borehole will be filled with either bentonite chips or Type I/II neat Portland Cement.
 - a) If bentonite chips are used, then the bentonite shall be hydrated with 5 gallons of water per 50-pound sack.
 - b) If cement is used, then the mixture shall be the approved sealant in Item 1 above.
- 3) A completed Plugging Record form shall be submitted no later than 30 days after completion of the plugging.
- 4) Before any attempts are made to plug this well, the O.S.E. District II Office shall be notified 48 hours in advance of the anticipated schedule for plugging, so that an O.S.E. representative has the opportunity to witness the procedures, if deemed necessary.
- 5) Any deviation from this plan **must** obtain an approved variance from this office prior to implementation.
- 6) Aggrievial of this permit, or any of the conditions of approval therein, suspends the permit. No plugging operations shall occur while a permit is aggrieved.

Witness my hand and seal this 3rd day of February A.D., 2021

John R. D'Antonio Jr., P.E., State Engineer

By: 

 Christopher Angel, PG
 Water Resources Professional II



OFFICE OF THE STATE ENGINEER/INTERSTATE STREAM COMMISSION – ROSWELL OFFICE

OFFICIAL RECEIPT NUMBER: 2-42931 DATE: January 21, 21 FILE NO.: New #
 TOTAL: \$10 RECEIVED: From DOLLARS CHECK NO.: 3114 CASH: _____
 PAYOR: Kandy Kame Enterprises ADDRESS: 5123 Cody Lane CITY: Lovington STATE: NM
 ZIP: 88260 RECEIVED BY: [Signature]

INSTRUCTIONS: Indicate the number of actions to the left of the appropriate type of filing. Complete the receipt information. **Original** to payor; **pink** copy to Program Support/ASD; and **yellow** copy for Water Rights. If a mistake is made, void the original and all copies and submit to Program Support/ASD as part of your daily deposit.

A. Ground Water Filing Fees

- ___ 1. Change of Ownership of Water Right \$ 2.00
- ___ 2. Application to Appropriate or Supplement Domestic 72-12-1 Well \$ 125.00
- ___ 3. Application to Repair or Deepen 72-12-1 Well \$ 75.00
- ___ 4. Application for Replacement 72-12-1 Well \$ 75.00
- ___ 5. Application to Change Purpose of Use 72-12-1 Well \$ 75.00
- ___ 6. Application for Stock Well/Temp. Use \$ 5.00

- ___ 7. Application to Appropriate Irrigation, Municipal, or Commercial Use \$ 25.00
- ___ 8. Declaration of Water Right \$ 1.00
- ___ 9. Application for Additional Point of Diversion Non 72-12-1 Per Well \$ 25.00
- ___ 10. Application to Change Place or Purpose of Use Non 72-12-1 Well \$ 25.00
- ___ 11. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Ground Water \$ 50.00
- ___ 12. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Ground Water \$ 50.00
- ___ 13. Application to Change Point of Diversion of Non 72-12-1 Well \$ 25.00
- ___ 14. Application to Repair or Deepen Non 72-12-1 Well \$ 5.00

- ___ 15. Application for Test, Expl. Observ. Well \$ 5.00
- ___ 16. Application for Extension of Time \$ 25.00
- ___ 17. Proof of Application to Beneficial Use \$ 25.00
- ___ 18. Notice of Intent to Appropriate \$ 25.00

B. Surface Water Filing Fees

- ___ 1. Change of Ownership of a Water Right \$ 5.00
- ___ 2. Declaration of Water Right \$ 10.00
- ___ 3. Amended Declaration \$ 25.00
- ___ 4. Application to Change Point of Diversion and Place and/or Purpose of Use from Surface Water to Surface Water \$ 200.00
- ___ 5. Application to Change Point of Diversion and Place and/or Purpose of Use from Ground Water to Surface Water \$ 200.00
- ___ 6. Application to Change Point of Diversion \$ 100.00
- ___ 7. Application to Change Place and/or Purpose of Use \$ 100.00
- ___ 8. Application to Appropriate \$ 25.00
- ___ 9. Notice of Intent to Appropriate \$ 25.00
- ___ 10. Application for Extension of Time \$ 50.00
- ___ 11. Supplemental Well to a Surface Right \$ 100.00
- ___ 12. Return Flow Credit \$ 100.00
- ___ 13. Proof of Completion of Works \$ 25.00
- ___ 14. Proof of Application of Water to Beneficial Use \$ 25.00
- ___ 15. Water Development Plan \$ 100.00
- ___ 16. Declaration of Livestock Water Impoundment \$ 10.00
- ___ 17. Application for Livestock Water Impoundment \$ 10.00

C. Well Driller Fees

- ___ 1. Application for Well Driller's License \$ 50.00
- ___ 2. Application for Renewal of Well Driller's License \$ 50.00
- ___ 3. Application to Amend Well Driller's License \$ 50.00

D. Reproduction of Documents

- ___ @ 0.25¢ \$ _____
- ___ Map(s) \$ _____

E. Certification

___ \$ _____

F. Other

___ \$ _____

G. Comments:

* Walkin

All fees are non-refundable.



Stephanie Garcia Richard
COMMISSIONER

State of New Mexico
Commissioner of Public Lands

COMMISSIONER'S
OFFICE
Phone (505) 827-5760
Fax (505) 827-5766
www.nmstatelands.org

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

February 1, 2021

BTA Oil Producers, LLC
104 S. Pecos St.
Midland, TX 79701

Attn: Bob Hall: Bhall@btaoil.com

RE: Rule 12 Water Exploration / 30-Day Soil Boring Permit # **WE-0795**

We are in receipt of your application fee (\$ 100.00 per Application) requesting a TEMPORARY BORING PERMIT for Water exploration. The effective date of this authorization is for a period of not to exceed 30 days, commencing on February 1, 2021 and ending on March 2, 2021. This Authorization (Right of Entry) letter is for the sole purpose of **exploring depth to groundwater** through 2 test boreholes in the following location: (Please see attached map)

Township	Range	Section	Subdivision	County	Acres
<u>20S</u>	<u>33E</u>	<u>02</u>	<u>SE-SW-NE,</u> <u>SW-NW-SW</u>	<u>Lea</u>	<u>2.0</u>

CONDITIONS OF USE

- A. The issuance of this Exploration Authorization does not guarantee a Water Easement will be issued for this property being explored, nor does it indicate a preference for a future water easement issuance to the holder of the authorization by the Commissioner of Public Lands.
- B. No refund of Permit application fees will occur after Permit approval letter is mailed.
- C. Authorized party shall notify the State Land Office District Resource Manager by telephone at least one business day prior to commencing any exploration activities.
- D. No blading or widening of any two-track dirt roads that provides access to the Property is permitted under this Authorization, except as necessary for the ingress and egress of required vehicles.
- E. No mining or removal of material for purposes other than testing is allowed under this Authorization. No sale of any material extracted from the Property is allowed under this Authorization.
- F. Authorized party shall observe all federal, state and local laws and regulations applicable to the Property.
- G. Authorized party shall take all reasonable precautions to prevent and suppress forest, brush and grass fires and prevent pollution of waters on or in the vicinity of the Property.
- H. Authorized party shall not block or disrupt roads or trails commonly in use.
- I. This Authorization is subject to any and all easements and rights-of-way previously granted and now in force and affect.
- J. Authorized party shall be responsible for repair and restitution for damage to any property improvements as a result of activities related to this exploration.
- K. **Authorized party shall conduct exploration activities only if a state-permitted archaeologist as per the Cultural Properties Act, §18-6-5(O) is present on the permitted site.** Authorized party shall abide by the decisions of the permitted Archaeologist regarding prevention of damage to cultural property sites. **An archaeological report is to be submitted to State Land Office Cultural Resources Specialist within fifteen**

(15) days of the expiration date of this Authorization. (An archeologist is not required to be present as long as there are no new surface disturbing activities being performed).

SURFACE RECLAMATION AND RESTORATION

- A. All test holes must be plugged as soon as testing is completed.
- B. Drilling, excavation and other surface disturbing activities shall be restricted to areas deemed to have no archaeological significance.
- C. Access to the Property shall be over existing roads. Reclamation of all roads shall conform to the requirements of State Land Office Rule 20. No upgrading of the existing roads shall be done, except as necessary for the ingress and egress of required vehicles.
- D. All topsoil from the areas to be disturbed shall be stockpiled for use in reclamation.
- E. Upon completion of the use and operations permitted by this Authorization, all disturbed sites shall be re-contoured to approximate the original contours.
- F. All material removed by excavation shall be replaced into the test holes, with the exception of an adequate sample, on or before the expiration date of this Authorization.
- G. The natural environmental conditions that exist contemporaneously with this grant shall be preserved and protected. All applicable environmental laws and regulations shall be complied with and such reclamation or corrective actions as may be necessary to conduct EXPLORATORY WELL BORING consistent with safe and sound environmental management principles and practices shall be taken in order to protect the Property from any pollution, erosion or other environmental degradation and to avoid diminishing the value of the Property for any future use.

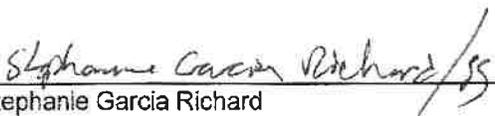
INDEMNITY

Authorized party shall save, hold harmless, indemnify and defend the State of New Mexico, the Commissioner and Commissioner's employees, agents and contractors, in both their official and individual capacities, from any and all liability, claims, losses, damages, or expenses of any character or nature whatsoever, including but not limited to attorney's fees, court costs, loss of land value or use, third party claims, penalties, or removal, remedial or restoration costs arising out of, or alleged to arise out of:

- A. The operations or presence on the Property, or on adjacent or proximate state trust lands, including those used to access the Property for the purposes of this Authorization, of Authorized party or authorized party's employees, agents, contractors or invitees;
- B. The activities of third parties on the Property, or on adjacent or proximate state trust lands, including those used to access the Property or other adjacent or proximate state trust lands, whether with or without Authorized party's knowledge or consent;
- C. Any Hazardous Materials located in, under, upon or otherwise affecting the Property or adjacent or proximate state trust lands, regardless of their point of origin or date of contamination.

If you have any questions or concerns please contact Jack Yates, Oil, Gas, and Minerals Deputy Commissioner at 505-827-5750, or Faith Crosby, Water Resources Section Manager at (505) 827-5849.

Respectfully,


 Stephanie Garcia Richard
 Commissioner of Public Lands
 SS/fc

Date 2/2/2021

cc: Mark Naranjo, DRM Supervisor



Stephanie Garcia
Richard
COMMISSIONER

State of New Mexico
Commissioner of Public Lands

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

COMMISSIONER'S
OFFICE
Phone (505) 827-5760
Fax (505) 827-5766
www.nmstatelands.org

February 1, 2021

Kenneth Smith Inc.
267 Smith Ranch Road
Hobbs, NM 88240

Re: **Agricultural Lease No: GT-2922**
Water Easement Application No: WE-795

Dear Mr. McDonald,

This letter is to inform you that BTA Oil Producers has submitted an application for temporary exploration to establish local ground water levels on existing oil and gas lease pads located on State Trust Lands in the following two areas:

SW4NE4 and NW4SE4 of Section 02 Township 20 South, Range 33 East

If you have questions you may contact our Water Bureau manager Faith Crosby at (505) 827-5849 or fcrosby@slo.state.nm.us.

Respectfully,

Handwritten signature of Stephanie Garcia Richard in cursive script.

Stephanie Garcia Richard
Commissioner of Public Land

SS/fc



Stephanie Garcia Richard
COMMISSIONER

State of New Mexico
Commissioner of Public Lands

COMMISSIONER'S
OFFICE

Phone (505) 827-5760
Fax (505) 827-5766
www.nmstatelands.org

310 OLD SANTA FE TRAIL
P.O. BOX 1148
SANTA FE, NEW MEXICO 87504-1148

February 1, 2021

BTA Oil Producers, LLC
104 S. Pecos St.
Midland, TX 79701

Attn: Bob Hall: Bhall@btaoil.com

RE: Rule 12 Water Exploration / 30-Day Soil Boring Permit # **WE-0795**

We are in receipt of your application fee (\$ 100.00 per Application) requesting a TEMPORARY BORING PERMIT for Water exploration. The effective date of this authorization is for a period of not to exceed 30 days, commencing on February 1, 2021 and ending on March 2, 2021. This Authorization (Right of Entry) letter is for the sole purpose of exploring depth to groundwater through 2 test boreholes in the following location: (Please see attached map)

Township	Range	Section	Subdivision	County	Acres
<u>20S</u>	<u>33E</u>	<u>02</u>	<u>SE-SW-NE,</u> <u>NW SE</u>	<u>Lea</u>	<u>2.0</u>

CONDITIONS OF USE

- A. The issuance of this Exploration Authorization does not guarantee a Water Easement will be issued for this property being explored, nor does it indicate a preference for a future water easement issuance to the holder of the authorization by the Commissioner of Public Lands.
- B. No refund of Permit application fees will occur after Permit approval letter is mailed.
- C. Authorized party shall notify the State Land Office District Resource Manager by telephone at least one business day prior to commencing any exploration activities.
- D. No blading or widening of any two-track dirt roads that provides access to the Property is permitted under this Authorization, except as necessary for the ingress and egress of required vehicles.
- E. No mining or removal of material for purposes other than testing is allowed under this Authorization. No sale of any material extracted from the Property is allowed under this Authorization.
- F. Authorized party shall observe all federal, state and local laws and regulations applicable to the Property.
- G. Authorized party shall take all reasonable precautions to prevent and suppress forest, brush and grass fires and prevent pollution of waters on or in the vicinity of the Property.
- H. Authorized party shall not block or disrupt roads or trails commonly in use.
- I. This Authorization is subject to any and all easements and rights-of-way previously granted and now in force and affect.
- J. Authorized party shall be responsible for repair and restitution for damage to any property improvements as a result of activities related to this exploration.
- K. **Authorized party shall conduct exploration activities only if a state-permitted archaeologist as per the Cultural Properties Act, §18-6-5(O) is present on the permitted site.** Authorized party shall abide by the decisions of the permitted Archaeologist regarding prevention of damage to cultural property sites. **An archaeological report is to be submitted to State Land Office Cultural Resources Specialist within fifteen**

John Farrell

From: Eck, David <deck@slo.state.nm.us>
Sent: Thursday, March 4, 2021 12:39 PM
To: John Farrell
Cc: Crosby, Faith
Subject: RE: WE-795 soil boring permit closeout

John:

Thank you for the call earlier today – it was a pleasant and informative conversation, and I appreciate the opportunity to answer questions.

At your request, this message is supplied to indicate to you that no further actions are required on your part concerning the captioned soil boring permit.

Thank you for your awareness of our concerns about cultural resources, and your conscious and deliberate decision to confine your activities to existing disturbed space and existing facilities. We greatly appreciate your due diligence in this regard, and recognize that as a significant contribution to our collective efforts to identify, preserve, and protect the irreplaceable cultural resource assets of the trust.

****Due to the Coronavirus, State Land Office facilities are closed to the public until further notice. Business operations remain open and our staff can be reached at (505) 827-5760 or www.nmstatelands.org/contact.**

David C. Eck
Trust Land Archaeologist
Office of Cultural Resources
505.827.5857
New Mexico State Land Office
310 Old Santa Fe Trail
P.O. Box 1148
Santa Fe, NM 87504-1148
deck@slo.state.nm.us
nmstatelands.org



.....
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From: Crosby, Faith
Sent: Thursday, March 4, 2021 9:08 AM
To: John Farrell <john@trinityoilfieldservices.com>
Cc: Eck, David <deck@slo.state.nm.us>
Subject: RE: [EXTERNAL] RE: WE-795 soil boring permit closeout

John
Standard procedure for a report to be filed. I think this email to the cultural resources office will suffice so I have cc'd Mr. Eck on this email.

Best regards,

Faith Crosby
Water Bureau Manager
Oil, Gas, and Minerals Division
Office 505.827.5849
Fax 505-827-4739



New Mexico State Land Office
310 Old Santa Fe Trail
P.O. Box 1148
Santa Fe, NM 87504-1148
fcrosby@slo.state.nm.us

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From: John Farrell [<mailto:john@trinityoilfieldservices.com>]
Sent: Thursday, March 4, 2021 9:03 AM
To: Crosby, Faith <fcrosby@slo.state.nm.us>
Subject: [EXTERNAL] RE: WE-795 soil boring permit closeout
Importance: High

Good Morning Faith:

There seems to be some confusion on my part here.

It is my understanding that the presence of an Archaeologist is not required at locations where there is no new ground disturbance on State Lands. It actually says that in the Soil Boring Permit WE-0795 issued by the Commissioner of Public Lands to BTA Oil Producers.

BH-01 was drilled on a curve at a wide point in an oilfield lease road on previously disturbed ground and the other (BH-02) was drilled directly on an existing oilfield pad. There was no new ground disturbance at either of these borehole locations. It is most likely that cultural resources were already evaluated on these locations years ago. It is one of the reasons the borings were planned and drilled at the locations where they ultimately were drilled. Please let me know if I misinterpreted the rules. I am checking with the New Mexico State Land Office Cultural Resources Division to find if there are any additional requirements for this specific situation.

So far as what we found, BH-01 was dry at 105 feet. BH-02 had a thin zone of water perched above Triassic or Permian age red bed clay shales @ approximately 58 feet. The saturated zone appeared to be no more than five feet thick. Each boring was plugged and abandoned by a licensed well driller per the requirements issued by the New Mexico Office of the State Engineer.

Best regards,

John Farrell P.G.

From: Crosby, Faith <fcrosby@slo.state.nm.us>
Sent: Wednesday, March 3, 2021 3:01 PM
To: John Farrell <john@trinityoilfieldservices.com>
Cc: SLO CRO <CRO@slo.state.nm.us>
Subject: WE-795 soil boring permit closeout

Thanks John, this email will suffice for me. I am interested in the findings whenever they can be shared.

An arch report should be submitted within 15 days (see Paragraph K) to the State Land Office Cultural Resources Office with the subject line: Soil boring WE-795; CRO@slo.state.nm.us

Good working with you, best regards,

Faith Crosby
Water Bureau Manager
Oil, Gas, and Minerals Division
Office 505.827.5849
Fax 505-827-4739



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310 Old Santa Fe Trail
P.O. Box 1148
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From: John Farrell [<mailto:john@trinityoilfieldservices.com>]
Sent: Wednesday, March 3, 2021 2:25 PM
To: Crosby, Faith <fcrosby@slo.state.nm.us>
Subject: RE: [EXTERNAL] Application and Check for Right of Entry on to State Lands

Hi Faith:

We have completed our Drilling and Plugging task on State Lands.

I don't know of any paperwork to fill out stating that the job is complete but please let me know if there is.

Have a great day.

Cordially,

John Farrell P.G.

From: Crosby, Faith <fcrosby@slo.state.nm.us>

Sent: Tuesday, February 2, 2021 2:00 PM

To: John Farrell <john@trinityoilfieldservices.com>

Cc: 'Bob Hall' <BHall@btaoil.com>; dan@trinityoilfieldservices.com; 'Clay Tipton' <clay@trinityoilfieldservices.com>; Naranjo, Mark <MNaranjo@slo.state.nm.us>

Subject: RE: [EXTERNAL] Application and Check for Right of Entry on to State Lands

Bob and John

Attached is a scan of the approved permit. Hard copy in the mail today. Thank you John for letting me know the check is in the mail. Good luck on your efforts. Call if you have any questions.

Best regards,

Faith Crosby
Water Bureau Manager
Oil, Gas, and Minerals Division
Office 505.827.5849
Fax 505-827-4739



New Mexico State Land Office
310 Old Santa Fe Trail
P.O. Box 1148

Santa Fe, NM 87504-1148
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From: John Farrell [<mailto:john@trinityoilfieldservices.com>]
Sent: Tuesday, February 2, 2021 7:34 AM
To: Crosby, Faith <fcrosby@slo.state.nm.us>
Cc: 'Bob Hall' <BBHall@btaoil.com>; dan@trinityoilfieldservices.com; 'Clay Tipton' <clay@trinityoilfieldservices.com>
Subject: [EXTERNAL] Application and Check for Right of Entry on to State Lands
Importance: High

Good Morning Faith:

I mailed out the form along with a Trinity issued check for \$100.00 yesterday afternoon from the US Postal Service.

According to USPS, you should receive the document with the check by 3:00 PM on Wednesday, February 3, 2021.

Thank you so much for your assistance with the permitting process.

Best Regards,

John Farrell P.G.

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APPENDIX B
BOREHOLE LOG & PLUGGING AFFIDAVIT



BH-01 CP 1865 POD 1 Gem Lease

PROJECT NUMBER CP 1865 POD 1	DRILLING DATE 02/08/2021	COORDINATES 32.603472, -103.63175
PROJECT NAME BTA Gem Lease Depth to Grou	TOTAL DEPTH 105 ft	COORD SYS WTG 84
CLIENT BTA Oil Producers	DIAMETER 5 5/8 inch dia.	COMPLETION Backfilled 3.1.2021
ADDRESS 104 S. Pecos St., Midland, TX 79701	CASING 2 3/8 inch dia. uPVC	SURFACE ELEVATION ~ 3587 ft. MSL
LICENCE NO. NM Drillers License # 1698	SCREEN 2 3/8 inch uPVC Slotted	WELL TOC ~ 3587 ft. MSL

COMMENTS Drilled at easterly turn in road south of frac pond **LOGGED BY** JPF
CHECKED BY DD

Depth (ft)	Graphic Log	Moisture	Material Description	Elevation (ft)	
5			Caliche Road Base at Surface. Interbedded Tan to White Sand and Caliche - Dry	3585	
					3580
10					3575
15					3570
20				Orange Sand, Yellow Sand and Reddish Brown Sandy Clay - Dry	3565
25					3560
30					3555
35					3550
40				Weathered Claystone, Brown, Cemented Gravel, Brownish Black and Yellow Orange Sand - Dry	3545
45					3540
50					3535
55					3530
60				Tan Sand Overlying Hard Gray Siltstone or Hard Shale	3525
65					3520
70					3515
75			3510		
80		Hard Gray Siltstone or Hard Shale	3505		
85			3500		
90			3495		
95			3490		
100		Reddish Brown Claystone or Shale	3485		
105			3480		
			Termination Depth at: 105 ft	3480	

Dry Hole This bore log is intended for proof that depth to groundwater exceeds 101 feet below ground surf: Page 1 of 1



PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: CP-1865 POD 1

DSE DJJ MAR 9 2021 PM 4:23

Well owner: BTA Oil Producers, LLC

Phone No.: 432-312-2203

Mailing address: 104 S Pecos St

City: Midland

State: TX

Zip code: 79701

II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: Taylor Water Well Service
- 2) New Mexico Well Driller License No.: WD-1348 Expiration Date: 4/30/2021
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Clinton E Taylor
- 4) Date well plugging began: 3/1/2021 Date well plugging concluded: 3/1/2021
- 5) GPS Well Location: Latitude: 103 deg, 37 min, 54.3 sec
Longitude: 32 deg, 36 min, 12.5 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 105 ft below ground level (bgl),
by the following manner: 2" pvc pipe that size was in the hole. I pulled it prior to plugging.
- 7) Static water level measured at initiation of plugging: None ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: Yes
- 9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):

10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

Depth (ft bgl)	Plugging Material Used (include any additives used)	Volume of Material Placed (gallons)	Theoretical Volume of Borehole/ Casing (gallons)	Placement Method (tremie pipe, other)	Comments ("casing perforated first", "open annular space also plugged", etc.)
20'	Bentonite Chips	10 Sacks		Dump	Open Hole
105'	Cement Slurry Left Over From POD 2 And Drill Cuttings				

MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

III. SIGNATURE:

I, CE Taylor, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.

Signature of Well Driller

3/7/2021

Date



PLUGGING RECORD



NOTE: A Well Plugging Plan of Operations shall be approved by the State Engineer prior to plugging - 19.27.4 NMAC

I. GENERAL / WELL OWNERSHIP:

State Engineer Well Number: CP-1865 POD 2

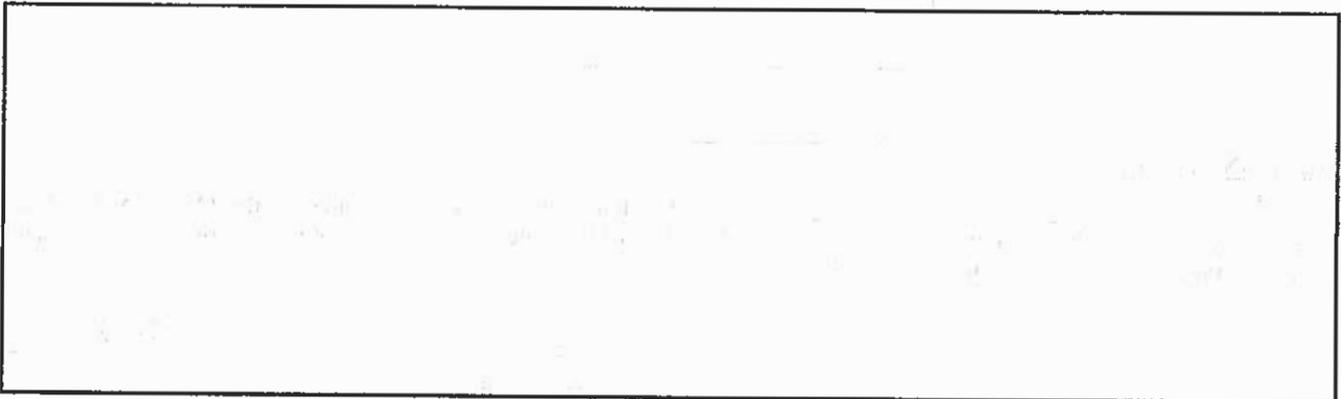
Well owner: BTA Oil Producers, LLC Phone No.: 432-312-2203

Mailing address: 104 S Pecos St

City: Midland State: TX Zip code: 79701

II. WELL PLUGGING INFORMATION:

- 1) Name of well drilling company that plugged well: Taylor Water Well Service DSE DTJ MAR 9 2021 PM 4:23
- 2) New Mexico Well Driller License No.: WD-1348 Expiration Date: 4/30/2021
- 3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): Clinton E Taylor
- 4) Date well plugging began: 3/1/2021 Date well plugging concluded: 3/1/2021
- 5) GPS Well Location: Latitude: 103 deg, 38 min, 54.3 sec
Longitude: 32 deg, 35 min, 59.2 sec, WGS 84
- 6) Depth of well confirmed at initiation of plugging as: 105 ft below ground level (bgl),
by the following manner: 2" pvc pipe that size was in the hole. I pulled it prior to plugging.
- 7) Static water level measured at initiation of plugging: 55 ft bgl
- 8) Date well plugging plan of operations was approved by the State Engineer: Yes
- 9) Were all plugging activities consistent with an approved plugging plan? Yes If not, please describe differences between the approved plugging plan and the well as it was plugged (attach additional pages as needed):



10) Log of Plugging Activities - Label vertical scale with depths, and indicate separate plugging intervals with horizontal lines as necessary to illustrate material or methodology changes. Attach additional pages if necessary.

For each interval plugged, describe within the following columns:

<u>Depth</u> (ft bgl)	<u>Plugging Material Used</u> (include any additives used)	<u>Volume of Material Placed</u> (gallons)	<u>Theoretical Volume of Borehole/ Casing</u> (gallons)	<u>Placement Method</u> (tremie pipe, other)	<u>Comments</u> ("casing perforated first", "open annular space also plugged", etc.)
	Portland Cement - Six Gallons Water Per Sack	Enough to circulate to surface.	160 Gallons	Tremie Pipe	Open Hole. Had 40 sacks of slurry brought out in mixer truck. Dumped in stock tank and pumped through 1 1/4" tremie pipe and circulated to surface. Took left over cement to POD #1 and dumped in hole. Total volume of cement slurry was 384 gallons.

MULTIPLY	BY	AND OBTAIN
cubic feet x	7.4805	= gallons
cubic yards x	201.97	= gallons

III. SIGNATURE:

I, CE Taylor, say that I am familiar with the rules of the Office of the State Engineer pertaining to the plugging of wells and that each and all of the statements in this Plugging Record and attachments are true to the best of my knowledge and belief.



Signature of Well Driller

3/7/2021

Date

ATTACHMENT 4



Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>2/4/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>2/4/2022 10:55 PM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>2/4/2022 8:10 AM</u>
Departed Site	<u>2/4/2022 2:15 PM</u>

Field Notes

- 10:40** Arrived on site to begin delineation.
- 10:42** BH22-01 through BH22-06 are inside the containment around the tanks and the water transfer pump. BH22-01, BH22-02, and BH22-06 are hot on EC at the surface. BH22-01 at 3' and BH22-06 at 2' are hot on PetroFlag.
- 11:06** Stepping out BH22-06 with BH22-07 on the north side of the containment in front of tank 2, BH22-08 on the south berm, and BH22-09 at the east end of the staining.
- 13:04** BH22-08 is hot on chlorides at surface and 2'. BH22-01 and BH22-06 are clean on all field screening at 4'. BH22-07 and BH22-09 are clean on all field screening at surface and 2'. BH22-08 needs to be vertically delineated and stepped out to the south.
- 13:39** BH22-08 is clean on all field screening at 4'. BH22-10 is clean on all field screening at surface and 2'.
- 13:39** The inside of the containment is delineated.
- 15:29** Dalton with BTA was on site today and informed me that the recent release only went north and west of the water transfer pump. Everything to the east would have to be historical.

Next Steps & Recommendations

- 1 Continue delineation outside of the containment and down the road on Monday.



Daily Site Visit Report

Site Photos

Viewing Direction: East



Descriptive Photo - 1
Viewing Direction: East
Desc: Sample area for BH22-01 and BH22-05
Created: 2/4/2022 10:49:54 AM
Lat:32.607335, Long:-103.631981

Sample area for BH22-01 and BH22-05

Viewing Direction: Northeast



Descriptive Photo - 2
Viewing Direction: Northeast
Desc: Sample area for BH22-03
Created: 2/4/2022 10:44:20 AM
Lat:32.60665, Long:-103.631979

Sample area for BH22-03

Viewing Direction: East



Descriptive Photo - 3
Viewing Direction: East
Desc: Sample area for BH22-02
Created: 2/4/2022 10:46:24 AM
Lat:32.607322, Long:-103.631981

Sample area for BH22-02

Viewing Direction: Southeast

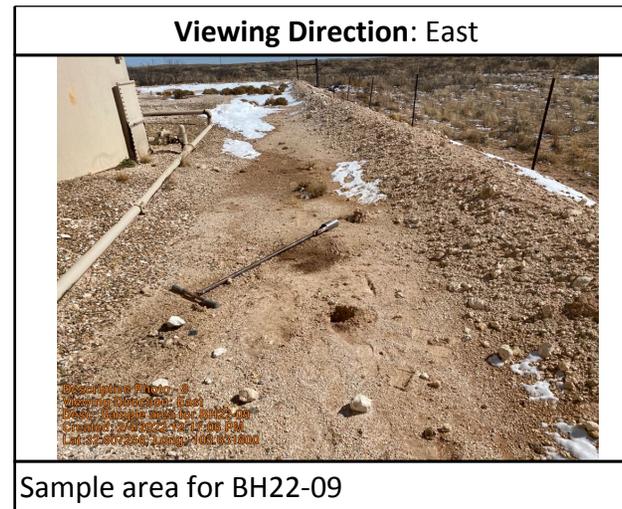
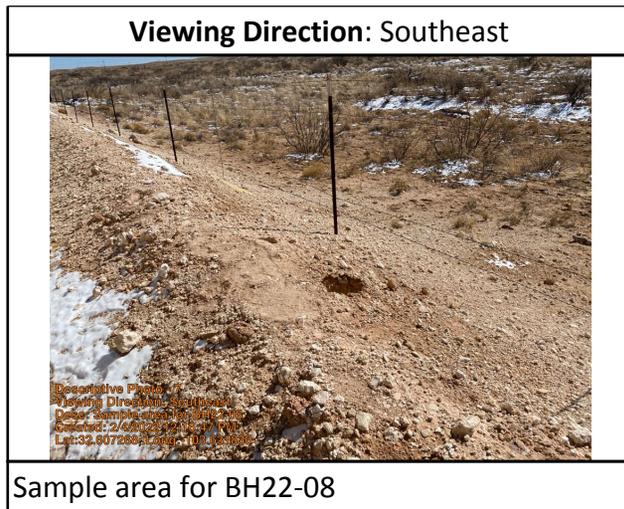
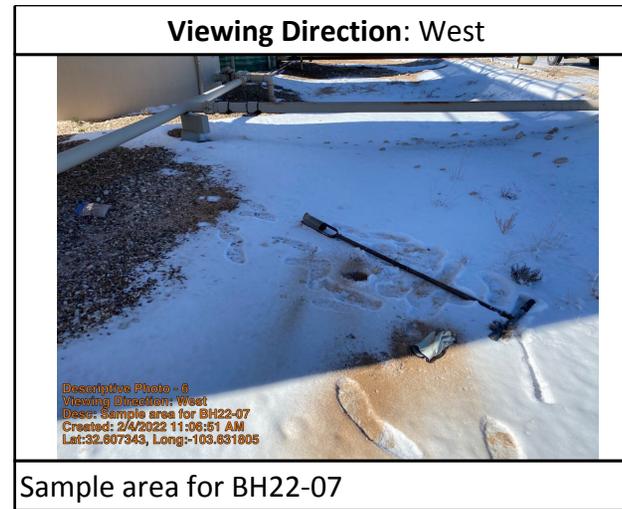
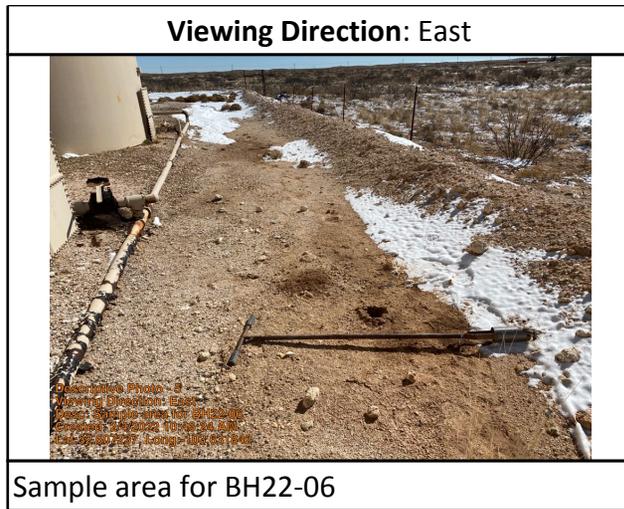


Descriptive Photo - 4
Viewing Direction: Southeast
Desc: Sample area for BH22-04
Created: 2/4/2022 10:46:24 AM
Lat:32.60665, Long:-103.631979

Sample area for BH22-04 on south side of the berm.

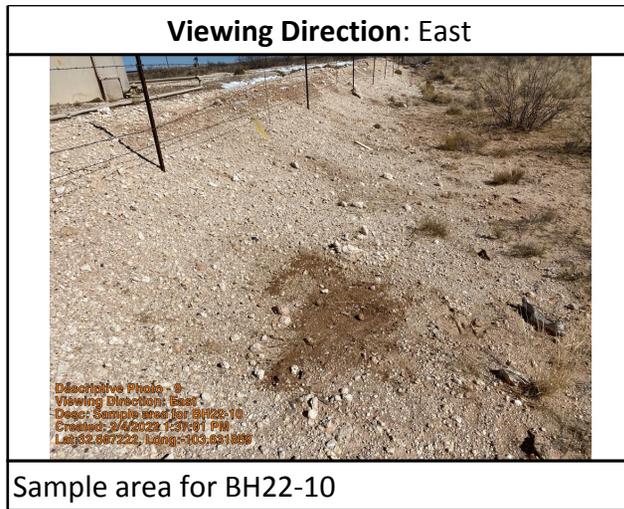


Daily Site Visit Report





Daily Site Visit Report



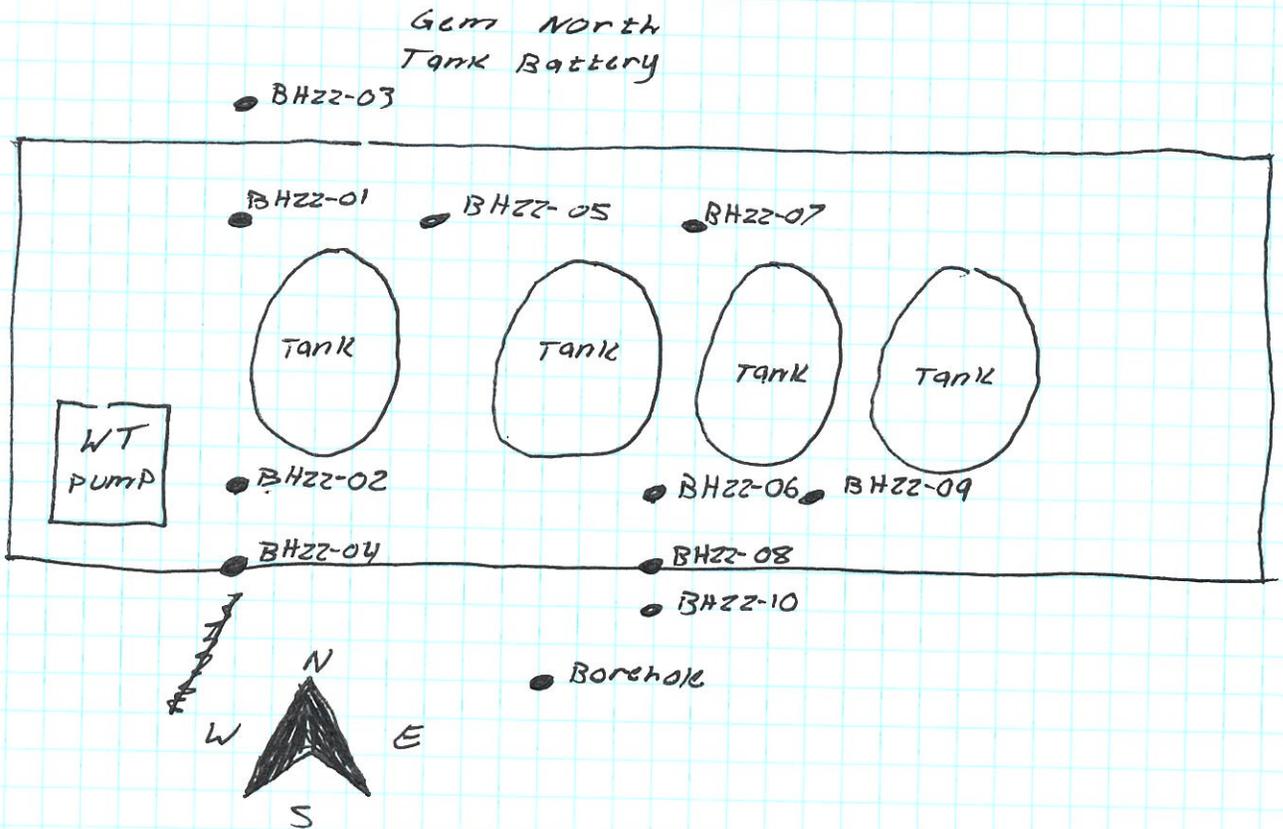
Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 
Signature





Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>2/7/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>2/8/2022 12:52 AM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>2/7/2022 9:00 AM</u>
Departed Site	<u>2/7/2022 4:15 PM</u>

Field Notes

- 10:17** Arrived on site to continue delineation.
- 10:18** Collected BH22-11 through BH22-20 at the surface and 2' outside the west berm and along the road adjacent to the battery.
- 13:26** BH22-11 and BH22-12 are dirty at the surface and 2'. BH22-11 is dirty on chlorides while BH22-12 is dirty on TPH.
- 13:27** BH22-14 through BH22-18 are all dirty at the surface. The only one that is clean at 2' is BH22-17. It is right at the NMOCD criteria for chlorides.
- 14:44** Tried to collect a background sample point at surface, 2', and 4' but hit refusal at 3'
- 15:57** BH22-11 through BH22-12, BH22-14, and BH2216 are vertically delineated down to 4'. BH22-15 still needs to be vertically delineated for TPH and BH22-18 needs to be vertically delineated for chlorides.
- 15:58** Delineation will continue tomorrow with stepping out BH22-11, BH22-14, BH22-17, and BH22-18. Then will work further down the road to the south where staining is.
- 15:58** TPH hits are likely from another historical release.

Next Steps & Recommendations

- 1 Continue delineating tomorrow.



Daily Site Visit Report

Site Photos

Viewing Direction: Southwest



Describe Photo - 1
Viewing Direction: South
Desc: Sample area for BH22-11 through BH22-13
Created: 2/7/2022 10:18:20 AM
Lat:32.802378, Long: -103.832898

Sample area for BH22-11 through BH22-13

Viewing Direction: West



Describe Photo - 2
Viewing Direction: West
Desc: Sample area for BH22-14 through BH22-16
Created: 2/7/2022 10:20:45 AM
Lat:32.807215, Long: -103.832044

Sample area for BH22-14 through BH22-16

Viewing Direction: North



Describe Photo - 3
Viewing Direction: North
Desc: Sample area for BH22-17
Created: 2/7/2022 10:30:38 AM
Lat:32.807207, Long: -103.833178

Sample area for BH22-17

Viewing Direction: West



Describe Photo - 4
Viewing Direction: West
Desc: Sample area for BH22-18 through BH22-20
Created: 2/7/2022 10:31:10 AM
Lat:32.807118, Long: -103.832118

Sample area for BH22-18 through BH22-20



Daily Site Visit Report

Viewing Direction: South



Describe Photo:
Viewing Direction: South
Desc: Sample area for the day
Created: 2/7/2022 4:58:13 PM
Lat:32.807267, Long:-103.882192

Sample area for the day

Viewing Direction: South



Describe Photo:
Viewing Direction: South
Desc: Area still to be delineated
Created: 2/7/2022 4:56:23 PM
Lat:32.807182, Long:-103.882192

Area still to be delineated.

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature: 
Signature



Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>2/8/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>2/8/2022 10:45 PM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>2/8/2022 8:00 AM</u>
Departed Site	<u>2/8/2022 2:00 PM</u>

Field Notes

- 9:42** Arrived on site to continue delineation.
- 9:43** Collected BH22-15 and BH22-18 at 6'. Clean on all field screening. Collected BH22-21 through BH22-23 at surface and 2'. Clean on all field screening.
- 10:47** Continued down south on the road with BH22-24 through BH22-30 at the surface and 2'.
- 12:48** BH22-25 is stepped out to the east and west with BH22-24 and BH22-26. BH22-24 and BH22-26 are clean at the surface and 2'.
- 12:49** BH22-28 is stepped out to the east, west, and south with BH22-27, BH22-29, and BH22-30. All are clean at the surface and 2'.
- 12:50** This completes field screening for the containment and the release down the road.

Next Steps & Recommendations

- 1** Await lab results.



Daily Site Visit Report

Site Photos

Viewing Direction: Southeast



Descriptive Photo - 1
Viewing Direction: Southeast
Desc: Sample area for BH22-21
Created: 2/8/2022 9:43:03 AM
Lat:32.807408, Long:-103.632208

Sample area for BH22-21

Viewing Direction: Northwest



Descriptive Photo - 2
Viewing Direction: Northwest
Desc: Sample area for BH22-22
Created: 2/8/2022 9:44:24 AM
Lat:32.807226, Long:-103.632189

Sample area for BH22-22

Viewing Direction: Northeast



Descriptive Photo - 3
Viewing Direction: Northeast
Desc: Sample area for BH22-23
Created: 2/8/2022 9:45:04 AM
Lat:32.807178, Long:-103.632178

Sample area for BH22-23

Viewing Direction: East



Descriptive Photo - 4
Viewing Direction: East
Desc: Sample area for BH22-24 through BH22-26
Created: 2/8/2022 10:47:59 AM
Lat:32.806938, Long:-103.632211

Sample area for BH22-24 through BH22-26



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature:

A handwritten signature in black ink, appearing to be 'CD' with a stylized flourish.

Signature



Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>3/1/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>3/1/2022 11:26 PM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>3/1/2022 7:45 AM</u>
Departed Site	<u>3/1/2022 3:30 PM</u>

Field Notes

- 14:49** Arrived on site to begin remediation.
- 14:51** Excavated 10x10 area for BH22-06 and collected WES22-01 through WES22-04 and BES22-01. All under >100' dregs criteria for all field screening
- 14:53** Excavated 10x10 area for BH22-01. Collected WES22-05 through WES22-08 and BES22-02. All under >100' dtgw criteria on all field screening
- 14:56** Performed a secondary line sweep in the area for BH22-12. Two pipelines and a riser in the area. Both pipelines were exposed with hand digging before the backhoe excavated it
- 14:59** An electrical wire was discovered while excavating area for BH22-12. Did not cause any significant damage

Next Steps & Recommendations

- 1 Sample excavated area for BH22-12 first thing in the morning and begin confirmation sampling.



Daily Site Visit Report

Site Photos

Viewing Direction: East



Descriptive Photo - 1
Viewing Direction: East
Area: Sample area for WES22-01 through WES22-04 and BES22-01
Created: 3/1/2022 2:51:25 PM
Lat: 33.207248, Long: -105.431848

Sample area for WES22-01 through WES22-04 and BES22-01 south side of tanks inside containment.

Viewing Direction: North



Descriptive Photo - 2
Viewing Direction: North
Area: Sample area for WES22-01 through WES22-04 and BES22-01
Created: 3/1/2022 2:52:55 PM
Lat: 33.207248, Long: -105.431848

Sample area for WES22-01 through WES22-04 and BES22-01



Daily Site Visit Report

Viewing Direction: East



Descriptive Photo - 3
Viewing Direction: East
Desc: Sample area for WES22-05 through WES22-08 and BES22-02 north of the tanks and inside the containment.
Created: 3/1/2022 2:54:45 PM
Lat:32.607318, Long:-103.632003

Sample area for WES22-05 through WES22-08 and BES22-02 north of the tanks and inside the containment.

Viewing Direction: South



Descriptive Photo - 4
Viewing Direction: South
Desc: Sample area for WES22-05 through WES22-08 and BES22-02
Created: 3/1/2022 2:58:17 PM
Lat:32.607336, Long:-103.631960

Sample area for WES22-05 through WES22-08 and BES22-02

Viewing Direction: Northwest



Descriptive Photo - 5
Viewing Direction: Northwest
Desc: Excavation for BH22-12
Created: 3/1/2022 2:57:13 PM
Lat:32.607200, Long:-103.632021

Excavation for BH22-12

Viewing Direction: Southeast

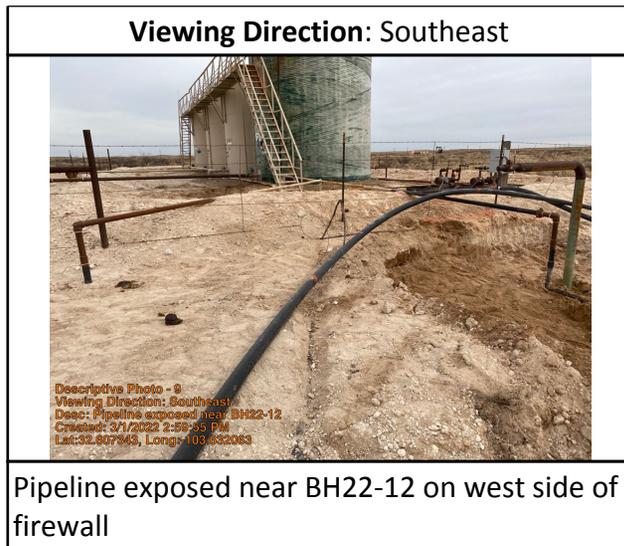
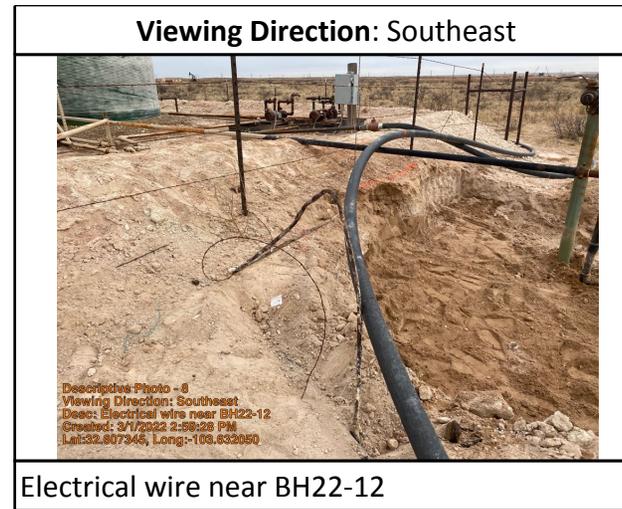


Descriptive Photo - 6
Viewing Direction: Southeast
Desc: Excavation 2' for BH22-12
Created: 3/1/2022 2:57:56 PM
Lat:32.607359, Long:-103.632109

Excavation 2' for BH22-12



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature:

A handwritten signature in black ink, appearing to be 'CD' or similar initials, written above a horizontal line.

Signature



Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>3/2/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>3/2/2022 11:27 PM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>3/2/2022 8:00 AM</u>
Departed Site	<u>3/2/2022 2:55 PM</u>

Field Notes

- 9:01** Arrived on site to continue remediation.
- 9:02** Recollected WES22-01 through WES22-08 and BES22-01 through BES22-02 to send to lab for analysis.
- 13:54** TCB began excavating area for BH22-18 and discovered a pipeline at approximately 4'. A dent was put in it but no puncture. There is nothing coming out of it. One call was put in by TCB prior to this project and this line was not marked.
- 11:22** Collected WES22-09 through WES22-12 and BES22-03 in excavation for BH22-12. All these samples are below criteria on all field screening.
- 13:55** Adrian with DCP has been notified of the pipeline and is on site to check it out. Pipeline appears to be abandoned and all is good.
- 13:12** Collected WES22-13 through WES22-16 and BES22-04 in the area for BH22-18. All are clean to strictest criteria

Next Steps & Recommendations

- 1** Continue confirmation in the morning.



Daily Site Visit Report

Site Photos

Viewing Direction: South



Descriptive Photo - 1
Viewing Direction: South
Event: Pipeline discovered
Created: 3/2/2022 8:03:46 AM
Lat: 32.807142, Long: 103.832199

Pipeline discovered

Viewing Direction: Northeast



Descriptive Photo - 2
Viewing Direction: Northeast
Event: Area where pipeline was discovered
Created: 3/2/2022 8:04:15 AM
Lat: 32.807142, Long: 103.832199

Area where pipeline was discovered

Viewing Direction: South



Descriptive Photo - 3
Viewing Direction: South
Event: Pipeline discovered looks to be the same one that rises up by the battery
Created: 3/2/2022 9:03:15 AM
Lat: 32.807144, Long: 103.832056

Pipeline discovered looks to be the same one that rises up by the battery.

Viewing Direction: Southwest



Descriptive Photo - 4
Viewing Direction: Southwest
Event: Sample area for WES22-09 through WES22-12 and BES22-03
Created: 3/2/2022 9:19:09 AM
Lat: 32.807142, Long: 103.832199

Sample area for WES22-09 through WES22-12 and BES22-03



Daily Site Visit Report

Viewing Direction: East



Descriptive Photo - 6
Viewing Direction: East
Date: Sample area for WES22-09 through WES22-12 and BES22-03
Created: 3/2/2022 9:19:50 AM
Lat: 32.807286, Long: 103.832137

Sample area for WES22-09 through WES22-12 and BES22-03

Viewing Direction: East



Descriptive Photo - 6
Viewing Direction: East
Date: Dent on the pipeline
Created: 3/2/2022 10:48:00 AM
Lat: 32.807185, Long: 103.832137

Dent on the pipeline

Viewing Direction: Northeast



Descriptive Photo - 7
Viewing Direction: Northeast
Date: Sample area for WES22-13 through WES22-16 and BES22-04
Created: 3/2/2022 4:51:37 PM
Lat: 32.807090, Long: 103.832147

Sample area for WES22-13 through WES22-16 and BES22-04

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature:

A handwritten signature in black ink, appearing to be 'CD' or similar initials, written above a horizontal line.

Signature



Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>3/18/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>3/18/2022 9:39 PM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>3/18/2022 7:45 AM</u>
Departed Site	<u>3/18/2022 2:44 PM</u>

Field Notes

- 8:39** Arrived on site to backfill excavations.
- 10:07** One belly dump hauling in clean material. 20 yards of caliche brought in so far
- 13:35** 80 yards of caliches hauled in. 60 yards of topsoil hauled in.

Next Steps & Recommendations

- 1 Finish closure report and submit to Bob Hall



Daily Site Visit Report

Site Photos

Viewing Direction: West



Descriptive Photo - 1
Viewing Direction: West
Desc: Backfilled area for BH22-06
Created: 3/18/2022 11:54:57 AM
Lat:32.807270, Long:-103.831733

Backfilled area for BH22-06

Viewing Direction: South



Descriptive Photo - 2
Viewing Direction: South
Desc: Backfilled area for BH22-01
Created: 3/18/2022 1:13:48 PM
Lat:32.807385, Long:-103.831905

Backfilled area for BH22-01

Viewing Direction: Southeast



Descriptive Photo - 3
Viewing Direction: Southeast
Desc: Road excavation backfilled
Created: 3/18/2022 1:14:59 PM
Lat:32.807010, Long:-103.832233

Road excavation backfilled.

Viewing Direction: Northeast

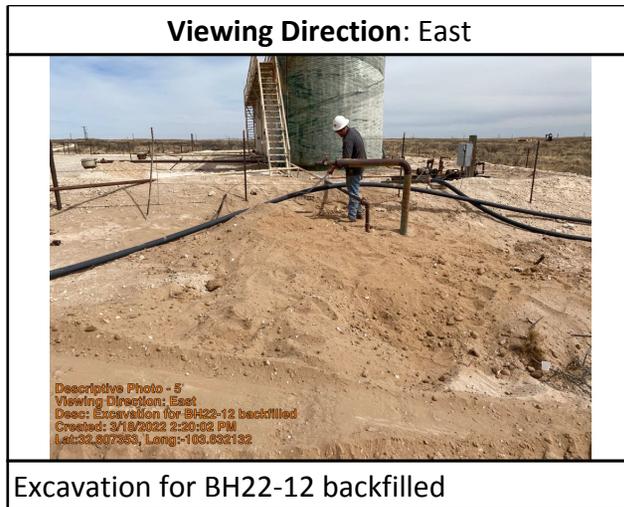


Descriptive Photo - 4
Viewing Direction: Northeast
Desc: 5' AO excavation for BH22-18 where pipeline was exposed is backfill
Created: 3/18/2022 1:15:48 PM
Lat:32.807069, Long:-103.832252

5' excavation for BH22-18 where pipeline was exposed is backfilled



Daily Site Visit Report



Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature:

A handwritten signature consisting of the letters 'C' and 'D' in a simple, blocky font.

Signature



Daily Site Visit Report

Client:	<u>BTA Oil Producers LLC</u>	Inspection Date:	<u>3/23/2022</u>
Site Location Name:	<u>Gem North Tank Battery</u>	Report Run Date:	<u>3/23/2022 10:12 PM</u>
Client Contact Name:	<u>Bob Hall</u>	API #:	<u></u>
Client Contact Phone #:	<u>432-312-2203</u>		
Unique Project ID	<u></u>	Project Owner:	<u></u>
Project Reference #	<u></u>	Project Manager:	<u></u>

Summary of Times

Arrived at Site	<u>3/23/2022 8:25 AM</u>
Departed Site	<u>3/23/2022 2:00 PM</u>

Field Notes

- 11:50** Arrived on site to excavate SS22-02 and WES22-07 that came back over criteria from lab analysis.
- 11:51** Collecting BES22-09 and WES22-26 through WES22-30 in the excavated areas
- 12:54** Approximately 16 yards of caliche will be used for backfill
- 13:41** BES22-09 and WES22-26 through WES22-30 came back under criteria on all field screening.
- 13:41** Approximately 14 yards of contaminants will be hauled to LeaLand

Next Steps & Recommendations

- 1 Send samples to lab for analysis.



Daily Site Visit Report

Site Photos

Viewing Direction: Southeast



Descriptive Photo - 1
Viewing Direction: Southeast
Desc: Excavation for SS22-02 (BES22-09 and WES22-26 through WES22-29)
Created: 3/23/2022 11:51:44 AM
Lat:32.6072417, Long:-103.631985

Excavation for SS22-02 (BES22-09 and WES22-26 through WES22-29)

Viewing Direction: South



Descriptive Photo - 2
Viewing Direction: South
Desc: Excavation for WES22-07 (WES22-30)
Created: 3/23/2022 1:09:11 PM
Lat:32.6072417, Long:-103.631985

Excavation for WES22-07 (WES22-30)

Viewing Direction: South



Descriptive Photo - 3
Viewing Direction: South
Desc: Excavation backfilled
Created: 3/23/2022 1:51:14 PM
Lat:32.6072417, Long:-103.631985

Excavation backfilled

Viewing Direction: East



Descriptive Photo - 4
Viewing Direction: East
Desc: Excavation backfilled
Created: 3/23/2022 1:52:58 PM
Lat:32.6072417, Long:-103.631985

Excavation backfilled

Daily Site Visit Report



Daily Site Visit Signature

Inspector: Chance Dixon

Signature:

A handwritten signature consisting of the letters 'C' and 'D' in a cursive, looped style.

Signature



Daily Soil Sampling

Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 2/4/22)

Sampling											
		Field Screening								Data Collection	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis	Photo Taken	Marked on Sketch	Refusal Depth (ft)
BH22-01	0.0	0		6.40	16.2	9346		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-01	2.0	0		0.55	16.2	903		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-01	3.0	0	387	0.36	16.6	611		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-01	4.0	0	21	0.30	16.2	542		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-02	0.0	1	56	6.88	16.1	10043		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-02	2.0	0	48	0.39	16.2	672		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-03	0.0	0	79	0.30	16	551		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-03	2.0	0	62	0.27	16.3	495		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-04	0.0	0	27	0.08	16.4	216		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

Daily Soil Sampling



BH22-04	2.0	0	41	0.04	16.3	163	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-05	0.0	0	24	0.07	16	219	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-05	2.0	0	90	0.08	16.9	194	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-06	0.0	0		0.72	16.1	1153	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-06	2.0	0	640	0.15	16.9	295	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-06	4.0	0	81	0.23	16.1	445	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-07	0.0	0	5	0.08	16.2	225	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-07	2.0	0	8	0.05	16.1	186	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-08	0.0	0	75	0.94	16.8	1440	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-08	2.0	0	64	1.36	16.4	2063	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-08	4.0	0	37	0.34	16.5	587	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-09	0.0	0	55	0.34	16.5	587	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓



Daily Soil Sampling

BH22-09	2.0	0	56	0.33	16.4	577	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-10	0.0	0	58	0.18	16.9	339	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-10	2.0	0	20	0.10	17.1	215	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓

Daily Soil Sampling



Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 2/7/22)

Sampling											
		Field Screening								Data Collection	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis	Photo Taken	Marked on Sketch	Refusal Depth (ft)
BG22-01	0.0	0		0.03	16.6	135		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BG22-01	2.0	0		0.04	16.3	163		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BG22-01	3.0	0		0.03	16.6	135		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-11	0.0	0	69	4.93	16.8	7199		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-11	2.0	0	96	0.65	16.8	1021		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-11	4.0	0	18	0.04	16	176		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-12	0.0	0	941	1.50	16.6	2257		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-12	2.0	0	848	0.28	17	479		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-12	4.0	0	31	0.27	16.2	499		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

Daily Soil Sampling



BH22-13	0.0	0	18	0.21	16.9	382	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-13	2.0	0	17	0.20	16.7	376	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-14	0.0	0	762	0.13	16.5	284	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-14	2.0	0	799	0.20	16.7	376	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-14	4.0	0	21	0.44	19.6	597	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-15	0.0	0	212	6.35	17.4	9222	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-15	2.0	0	503	0.52	16.6	842	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-15	4.0	0	560	0.45	19.5	616	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-16	0.0	0	284	1.12	16.3	1721	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-16	2.0	0	141	0.37	16.8	617	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-16	4.0	0	40	0.43	18.3	639	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-17	0.0	0	252	0.56	17.3	870	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓

Daily Soil Sampling



BH22-17	2.0	0	91	0.40	16.9	656	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-18	0.0	0	1241	0.28	19.3	379	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-18	2.0	0	248	0.37	17	609	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-18	4.0	0	58	0.65	19.2	917	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-19	0.0	0	33	0.18	16.8	343	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-19	2.0	0	32	0.21	17.1	373	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-20	0.0	0	31	0.07	16.2	210	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-20	2.0	0	28	0.09	16	248	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓

Daily Soil Sampling



Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 2/8/22)

Sampling											
		Field Screening								Data Collection	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis	Photo Taken	Marked on Sketch	Refusal Depth (ft)
BH22-15	6.0	0	39	0.35	16	623		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-18	5.0	0	21	0.35	16.2	614		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-21	0.0	0	43	0.26	16.1	489		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-21	2.0	0	57	0.08	16	233		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-22	0.0	0	41	0.37	16.1	648		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-22	2.0	0	18	0.37	16	652		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-23	0.0	0	60	0.04	16.1	171		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-23	2.0	0	30	0.03	16.2	152		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BH22-24	0.0	0	79	0.05	19.9	21		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

Daily Soil Sampling



BH22-24	2.0	0	36	0.20	19.9	238	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-25	0.0	0	59	3.75	20.2	5348	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-25	2.0	0	23	0.43	20.2	557	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-26	0.0	0	62	0.37	20.1	474	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-26	2.0	0	12	0.28	20	349	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-27	0.0	0	87	0.45	20.2	585	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-27	2.0	0	50	0.24	17.3	408	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-28	0.0	0	70	0.20	18.5	298	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-28	2.0	0	25	0.15	20.2	152	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-29	0.0	0	36	0.07	19.1	85	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-29	2.0	0	29	0.13	19.6	150	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
BH22-30	0.0	0	42	0.28	20.1	344	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓

Daily Soil Sampling



BH22-30	2.0	0	41	0.20	20.2	225		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
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Daily Soil Sampling



Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 3/1/22)

Sampling											
		Field Screening						Lab Analysis	Data Collection		
		Hydrocarbon		Chloride					Photo Taken	Marked on Sketch	Refusal Depth (ft)
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)				
BES22-01	2.0	1	1679	0.07	18	132		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BES22-02	2.0	1	79	1.17	17.5	1742		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-01	1.0	1	751	0.75	18	1114		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-02	1.0	1	1149	0.94	18.3	1375		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-03	1.0	1	420	0.26	18	406		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-04	1.0	1	977	0.10	18	176		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-05	1.0	1	1347	2.26	19.3	3237		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-06	1.0	1	52	0.82	17.8	1223		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-07	1.0	1	1149	0.75	18	1114		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

Daily Soil Sampling



WES22-08	1.0	1	230	0.64	18	955		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
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Daily Soil Sampling



Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 3/2/22)

Sampling											
		Field Screening								Data Collection	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis	Photo Taken	Marked on Sketch	Refusal Depth (ft)
BES22-03	2.0	0	1289	1.26	21.2	1711		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BES22-04	5.0	0	33	0.29	23	233		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-09	1.0	0	24	0.15	20.8	126		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-10	1.0	0	20	0.22	20.1	258		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-11	1.0	0	239	0.53	22	623		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-12	1.0	0	32	0.50	20.7	636		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-13	2.0	0	62	0.21	22.3	148		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-14	2.0	0	59	0.08	22	0		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-16	2.0	0	48	0.11	19.6	121		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

Daily Soil Sampling



Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 3/3/22)

Sampling											
		Field Screening								Data Collection	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis	Photo Taken	Marked on Sketch	Refusal Depth (ft)
BES22-05	1.0	0	40	0.28	20.7	318		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BES22-06	0.5	0	53	0.06	21.7	0		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BES22-07	0.5	0	71	0.12	20.4	101		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
BES22-08	0.5	0	42	0.15	21.3	105		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
SS22-01	0.0	5	298	1.95	22.5	2651		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
SS22-02	0.0	6	564	1.23	21.9	1638		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
SS22-03	0.0	9	490	0.89	22.3	1130		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
SS22-04	0.0	4	1020	0.94	22.4	1197		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
SS22-05	0.0	3	269	0.73	22.6	886		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

Daily Soil Sampling



SS22-06	0.0	3	626	0.89	22.7	1112	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
SS22-07	0.0	0	20	0.10	22.9	0	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-17	0.5	0	81	0.17	20.9	151	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-18	0.5	0	29	0.19	21	176	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-19	0.5	0	74	0.20	21.2	181	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-20	0.5	0	15	0.09	21.1	27	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-21	0.5	0	9	0.10	20.8	54	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-22	0.5	0	18	0.10	22.7	0	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-23	0.5	0	22	0.16	21	132	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-24	0.5	0	33	0.27	21	291	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓
WES22-25	0.5	0	38	0.24	21.2	239	BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)	✓

Daily Soil Sampling



Client: Client: BTA Oil Producers LLC

Location: Site: Gem North Tank Battery

Date: (SD: 3/23/22)

Sampling											
		Field Screening								Data Collection	
		Hydrocarbon		Chloride							
Sample ID	Depth (ft)	VOC (PID)	TPH (ppm)	EC Reading (mS/cm)	Temp (°C)	EC Chloride (ppm)	Chloride Titration (ppm)	Lab Analysis	Photo Taken	Marked on Sketch	Refusal Depth (ft)
BES22-09	2.0	0	340	1.26	18.1	1845		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-26	1.0	0	542	1.03	18	1518		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-27	1.0	0	138	1.10	17.9	1623		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-28	1.0	0	221	1.41	17.8	2075		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-29	1.0	0	251	1.20	18	1763		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	
WES22-30	1.0	0	139	0.71	18.2	1047		BTEX (EPA SW-846 Method 8021B/8260B), Chloride (EPA 300.0), TPH (EPA SW-846 Method 8015M)		✓	

ATTACHMENT 5



Dhugal Hanton <vertexresourcegroupusa@gmail.com>

nAPP2201956795 Gem North Tank Battery 48 HR Notification

1 message

Dhugal Hanton <vertexresourcegroupusa@gmail.com>
To: EMNRD-OCD-District1spills <emnrd-ocd-district1spills@state.nm.us>
Cc: dwilliams@vertex.ca, BHall@btaoil.com

Mon, Feb 28, 2022 at 7:19 AM

Good morning,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled confirmatory sampling to be conducted at Gem North Tank Battery for the following release:

nAPP2201956795

DOR: January 18, 2022

On Wednesday, March 2, 2022, at approximately 8:30 a.m., Chance Dixon will be on site to conduct confirmatory sampling and will be continuous until March 4, 2022.. He can be reached at 575-988-1472. If you need directions to the site or have any concerns regarding this notification, please do not hesitate to contact him.

This will be completed on behalf of BTA Oil Producers.

Thank you,

Chance Dixon

Environmental Technician

Vertex Resource Services Inc.
3101 Boyd Drive,
Carlsbad, NM 88220



Dhugal Hanton <vertexresourcegroupusa@gmail.com>

dwilliams@vertex.ca, BHall @btaoil.com

3 messages

Dhugal Hanton <vertexresourcegroupusa@gmail.com>
To: EMNRD-OCD-District1spills <emnrd-ocd-district1spills@state.nm.us>

Mon, Mar 21, 2022 at 9:32 AM

Good morning,

Please accept this email as 48-hr notification that Vertex Resource Services has scheduled confirmatory sampling to be conducted at Gem North Tank Battery for the following release:
nAPP2201956795
DOR: January 18, 2022

On Wednesday, March 23, 2022, at approximately 9:30 a.m., Chance Dixon will be on site to conduct confirmatory sampling. He can be reached at 575-988-1472. If you need directions to the site or have any concerns regarding this notification, please do not hesitate to contact him.

This will be completed on behalf of BTA Oil Producers.

Thank you,

Chance Dixon

Environmental Technician

Vertex Resource Services Inc.
3101 Boyd Drive,
Carlsbad, NM 88220

C 575.988.1472

Hamlet, Robert, EMNRD <Robert.Hamlet@state.nm.us> Mon, Mar 21, 2022 at 10:05 AM
To: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Cc: "Bratcher, Mike, EMNRD" <mike.bratcher@state.nm.us>, "Hensley, Chad, EMNRD" <Chad.Hensley@state.nm.us>, "Velez, Nelson, EMNRD" <Nelson.Velez@state.nm.us>, "Nobui, Jennifer, EMNRD" <Jennifer.Nobui@state.nm.us>

Chance,

Thank you for the notification. Please include a copy of this and all notifications in the remedial and/or closure reports to ensure the notifications are documented in the project file.

Robert Hamlet • Environmental Specialist - Advanced

Environmental Bureau

EMNRD - Oil Conservation Division

811 S. First Street | Artesia, NM 88210

575.909.0302 | robert.hamlet@state.nm.us

<http://www.emnrd.state.nm.us/OCD/>



From: Dhugal Hanton <vertexresourcegroupusa@gmail.com>
Sent: Monday, March 21, 2022 9:33 AM
To: EMNRD-OCD-District1spills <EMNRD-OCD-District1spills@state.nm.us>
Subject: [EXTERNAL] dwilliams@vertex.ca, BHall @btaoil.com

CAUTION: This email originated outside of our organization. Exercise caution prior to clicking on links or opening attachments.

[Quoted text hidden]

Dhugal Hanton <vertexresourcegroupusa@gmail.com> Mon, Mar 21, 2022 at 12:41 PM
To: "Hamlet, Robert, EMNRD" <Robert.Hamlet@state.nm.us>
Cc: "Bratcher, Mike, EMNRD" <mike.bratcher@state.nm.us>, "Hensley, Chad, EMNRD" <Chad.Hensley@state.nm.us>, "Velez, Nelson, EMNRD" <Nelson.Velez@state.nm.us>, "Nobui, Jennifer, EMNRD" <Jennifer.Nobui@state.nm.us>

Will do, thank you.

[Quoted text hidden]

ATTACHMENT 6

Client Name: BTA Oil Producers
 Site Name: Gem North Tank Battery
 NM OCD Tracking #: nAPP2201956795
 Project #: 22E-00197
 Lab Report(sX): 2202388, 2202480

Table 2. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					Chloride Concentration
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BG22-01	0	2/7/2022	0	-	135	ND	ND	ND	24	ND	24	24	ND
BG22-01	2	2/7/2022	0	-	163	ND	ND	ND	42	ND	42	42	ND
BG22-01	3	2/7/2022	0	-	135	ND	ND	ND	25	ND	25	25	ND
BH22-01	0	2/4/2022	0	-	9,346	ND	ND	ND	2000	2500	2000	4500	9700
BH22-01	2	2/4/2022	0	-	903	-	-	-	-	-	-	-	-
BH22-01	3	2/4/2022	0	387	611	-	-	-	-	-	-	-	-
BH22-01	4	2/4/2022	0	21	542	ND	ND	ND	ND	ND	ND	ND	ND
BH22-02	0	2/4/2022	1	56	10,043	ND	ND	ND	1000	1400	1000	2400	10000
BH22-02	2	2/4/2022	0	48	672	ND	ND	ND	ND	ND	ND	ND	ND
BH22-03	0	2/4/2022	0	79	551	ND	ND	ND	ND	ND	ND	ND	230
BH22-03	2	2/4/2022	0	62	495	ND	ND	ND	330	500	330	830	240
BH22-04	0	2/4/2022	0	27	216	ND	ND	ND	ND	ND	ND	ND	ND
BH22-04	2	2/4/2022	0	41	163	ND	ND	ND	ND	ND	ND	ND	ND
BH22-05	0	2/4/2022	0	24	219	ND	ND	ND	ND	ND	ND	ND	ND
BH22-05	2	2/4/2022	0	90	194	ND	ND	ND	24	ND	24	24	ND
BH22-06	0	2/4/2022	0	-	1,153	ND	ND	ND	2100	2600	2100	4700	1300
BH22-06	2	2/4/2022	0	640	295	-	-	-	-	-	-	-	-
BH22-06	4	2/4/2022	0	81	445	ND	ND	ND	ND	ND	ND	ND	ND
BH22-07	0	2/4/2022	0	5	225	ND	ND	ND	ND	ND	ND	ND	ND
BH22-07	2	2/4/2022	0	8	186	ND	ND	ND	ND	ND	ND	ND	ND
BH22-08	0	2/4/2022	0	75	1,440	ND	ND	ND	ND	ND	ND	ND	2000
BH22-08	2	2/4/2022	0	64	2,063	-	-	-	-	-	-	-	-
BH22-08	4	2/4/2022	0	37	587	ND	ND	ND	ND	ND	ND	ND	ND
BH22-09	0	2/4/2022	0	55	587	ND	ND	ND	ND	ND	ND	ND	ND
BH22-09	2	2/4/2022	0	56	577	ND	ND	ND	ND	ND	ND	ND	ND
BH22-10	0	2/4/2022	0	58	339	ND	ND	ND	ND	ND	ND	ND	ND
BH22-10	2	2/4/2022	0	20	215	ND	ND	ND	ND	ND	ND	ND	ND
BH22-11	0	2/7/2022	0	69	7,199	ND	ND	ND	ND	ND	ND	ND	8600
BH22-11	2	2/7/2022	0	96	1,021	-	-	-	-	-	-	-	-
BH22-11	4	2/7/2022	0	18	176	ND	ND	ND	ND	ND	ND	ND	ND
BH22-12	0	2/7/2022	0	941	2,257	ND	ND	ND	18000	10000	18000	28000	3300
BH22-12	2	2/7/2022	0	848	479	-	-	-	-	-	-	-	-
BH22-12	4	2/7/2022	0	31	499	ND	ND	ND	ND	ND	ND	ND	260
BH22-13	0	2/7/2022	0	18	382	ND	ND	ND	ND	ND	ND	ND	170
BH22-13	2	2/7/2022	0	17	376	ND	ND	ND	ND	ND	ND	ND	120
BH22-14	0	2/7/2022	0	762	284	ND	ND	ND	49	150	49	199	130
BH22-14	2	2/7/2022	0	799	376	-	-	-	-	-	-	-	-
BH22-14	4	2/7/2022	0	21	597	ND	ND	ND	ND	ND	ND	ND	470
BH22-15	0	2/7/2022	0	212	9,222	ND	ND	ND	ND	ND	ND	ND	12000
BH22-15	2	2/7/2022	0	503	842								
BH22-15	4	2/7/2022	0	560	616	ND	ND	ND	ND	ND	ND	ND	520
BH22-15	6	2/8/2022	0	39	623	ND	ND	ND	10	ND	10	10	ND
BH22-16	0	2/7/2022	0	284	1,721	ND	ND	ND	110	220	110	330	2100
BH22-16	2	2/7/2022	0	141	617	-	-	-	-	-	-	-	-
BH22-16	4	2/7/2022	0	40	639	-	-	-	-	-	-	-	-
BH22-17	0	2/7/2022	0	252	870	ND	ND	ND	12	ND	12	12	590
BH22-17	2	2/7/2022	0	91	656	ND	ND	ND	11	ND	10	10	400
BH22-18	0	2/7/2022	0	1,241	379	ND	ND	ND	180	380	180	560	460
BH22-18	2	2/7/2022	0	248	609	-	-	-	-	-	-	-	-
BH22-18	4	2/7/2022	0	58	917	ND	ND	ND	22	ND	22	22	870
BH22-18	5	2/8/2022	0	21	614	ND	ND	ND	9.9	ND	9.9	9.9	790



BH22-19	0	2/7/2022	0	33	343	ND	ND	ND	21	ND	21	21	120
BH22-19	2	2/7/2022	0	32	373	ND	ND	ND	23	ND	23	23	180
BH22-20	0	2/7/2022	0	31	210	ND	ND	ND	23	ND	23	23	ND
BH22-20	2	2/7/2022	0	28	248	ND	ND	ND	42	ND	42	42	ND
BH22-21	0	2/8/2022	0	43	489	ND	ND	ND	11	ND	11	11	ND
BH22-21	2	2/8/2022	0	57	233	ND	62						
BH22-22	0	2/8/2022	0	41	648	ND							
BH22-22	2	2/8/2022	0	18	652	ND	ND	ND	11	ND	11	11	390
BH22-23	0	2/8/2022	0	60	171	ND	ND	ND	12	ND	12	12	ND
BH22-23	2	2/8/2022	0	30	152	ND	ND	ND	12	ND	12	12	64
BH22-24	0	2/8/2022	0	79	21	ND	ND	ND	10	ND	10	10	ND
BH22-24	2	2/8/2022	0	36	238	ND	ND	ND	12	ND	12	12	150
BH22-25	0	2/8/2022	0	59	5,348	ND	ND	ND	12	ND	12	12	6400
BH22-25	2	2/8/2022	0	23	557	ND	ND	ND	10	ND	10	10	420
BH22-26	0	2/8/2022	0	62	474	ND	ND	ND	11	ND	11	11	ND
BH22-26	2	2/8/2022	0	12	349	ND	ND	ND	13	ND	13	13	310
BH22-27	0	2/8/2022	0	87	585	ND	ND	ND	12	ND	12	12	ND
BH22-27	2	2/8/2022	0	50	408	ND	ND	ND	12	ND	12	12	200
BH22-28	0	2/8/2022	0	70	298	ND	ND	ND	11	ND	11	11	6300
BH22-28	2	2/8/2022	0	25	152	ND	ND	ND	13	ND	13	13	180
BH22-29	0	2/8/2022	0	36	85	ND							
BH22-29	2	2/8/2022	0	29	150	ND	98						
BH22-30	0	2/8/2022	0	42	344	ND	300						
BH22-30	2	2/8/2022	0	41	225	ND	440						

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NM OCD Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NM OCD Reclamation Criteria (off-pad)



Client Name: BTA Oil Producers
 Site Name: Gem North Tank Battery
 NM OCD Tracking #: nAPP2201956795
 Project #: 22E-00197
 Lab Report(sX): 2203287

Table 2. Confirmatory Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					Chloride Concentration
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BES22-01	2	3/1/2022	1	1,679	132	ND	ND	ND	150	280	150	430	ND
BES22-02	2	3/1/2022	1	79	1,742	ND	ND	ND	ND	ND	ND	ND	1700
BES22-03	2	3/2/2022	0	1,289	1,711	ND	ND	ND	110	120	110	230	180
BES22-04	5	3/2/2022	0	33	233	ND	ND	ND	ND	ND	ND	ND	74
BES22-05	1	3/3/2022	0	40	318	ND	ND	ND	ND	ND	ND	ND	ND
BES22-06	0.5	3/3/2022	0	53	0	ND	ND	ND	ND	ND	ND	ND	ND
BES22-07	0.5	3/3/2022	0	71	101	ND	ND	ND	ND	ND	ND	ND	ND
BES22-08	0.5	3/3/2022	0	42	105	ND	ND	ND	ND	ND	ND	ND	ND
BES22-09	2	3/23/2022	0	340	1,845	ND	ND	ND	35	67	35	102	2100
WES22-01	1	3/1/2022	1	751	1,114	ND	ND	ND	300	470	300	770	1100
WES22-02	1	3/1/2022	1	1,149	1,375	ND	ND	ND	58	78	58	136	1500
WES22-03	1	3/1/2022	1	420	406	ND	ND	ND	310	710	310	1020	350
WES22-04	1	3/1/2022	1	977	176	ND	ND	ND	350	490	350	840	270
WES22-05	1	3/1/2022	1	1,347	3,237	ND	ND	ND	130	190	130	320	610
WES22-06	1	3/1/2022	1	52	1,223	ND	ND	ND	10	ND	10	10	1100
WES22-07	1	3/1/2022	1	1,149	1,114	ND	ND	ND	1100	1200	1100	2300	2300
WES22-08	1	3/1/2022	1	230	955	ND	ND	ND	110	140	110	250	1100
WES22-09	1	3/2/2022	0	24	126	ND	ND	ND	ND	ND	ND	ND	220
WES22-10	1	3/2/2022	0	20	258	ND	ND	ND	ND	ND	ND	ND	210
WES22-11	1	3/2/2022	0	239	623	ND	ND	ND	17	ND	17	17	640
WES22-12	1	3/2/2022	0	32	636	ND	ND	ND	ND	ND	ND	ND	630
WES22-13	2	3/2/2022	0	62	148	ND	ND	ND	ND	ND	ND	ND	180
WES22-14	2	3/2/2022	0	59	0	ND	ND	ND	ND	ND	ND	ND	ND
WES22-15	2	3/2/2022	0	27	402	ND	ND	ND	ND	ND	ND	ND	140
WES22-16	2	3/2/2022	0	48	121	ND	ND	ND	ND	ND	ND	ND	ND
WES22-17	0.5	3/3/2022	0	81	151	ND	ND	ND	ND	ND	ND	ND	ND
WES22-18	0.5	3/3/2022	0	29	176	ND	ND	ND	ND	ND	ND	ND	ND
WES22-19	0.5	3/3/2022	0	74	181	ND	ND	ND	ND	ND	ND	ND	ND
WES22-20	0.5	3/3/2022	0	15	27	ND	ND	ND	ND	ND	ND	ND	ND
WES22-21	0.5	3/3/2022	0	9	54	ND	ND	ND	ND	ND	ND	ND	ND
WES22-22	0.5	3/3/2022	0	18	0	ND	ND	ND	ND	ND	ND	ND	ND
WES22-23	0.5	3/3/2022	0	22	132	ND	ND	ND	ND	ND	ND	ND	ND
WES22-24	0.5	3/3/2022	0	33	291	ND	ND	ND	ND	ND	ND	ND	ND
WES22-25	0.5	3/3/2022	0	38	239	ND	ND	ND	ND	ND	ND	ND	ND
WES22-26	1	3/23/2022	0	542	1,518	ND	ND	ND	360	720	360	1080	1300
WES22-27	1	3/23/2022	0	138	1,623	ND	ND	ND	100	260	100	360	8200
WES22-28	1	3/23/2022	0	221	2,075	ND	ND	ND	35	89	35	124	1600
WES22-29	1	3/23/2022	0	251	1,763	ND	ND	ND	140	310	140	450	1000
WES22-30	1	3/23/2022	0	139	1,047	ND	ND	ND	120	280	120	400	1100
SS22-01	0	3/3/2022	5	298	2,651	ND	ND	ND	62	150	62	212	1600
SS22-02	0	3/3/2022	6	564	1,638	ND	ND	ND	980	1900	980	2880	2200
SS22-03	0	3/3/2022	9	490	1,130	ND	ND	ND	240	500	240	740	2100
SS22-04	0	3/3/2022	4	1,020	1,197	ND	ND	ND	110	160	110	270	1700
SS22-05	0	3/3/2022	3	269	886	ND	ND	ND	370	540	370	610	1100
SS22-06	0	3/3/2022	3	626	1,112	ND	ND	ND	ND	ND	ND	ND	ND
SS22-07	0	3/3/2022	0	20	0	ND	ND	ND	ND	ND	ND	ND	ND
SS22-08	0	3/3/2022	0	11	0	ND	ND	ND	ND	ND	ND	ND	ND

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NM OCD Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NM OCD Reclamation Criteria (off-pad)



ATTACHMENT 7

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-11 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:00:00 AM

Lab ID: 2202388-001

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/14/2022 9:12:51 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/14/2022 9:12:51 PM
Surr: DNOP	103	51.1-141		%Rec	1	2/14/2022 9:12:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 9:29:35 AM
Surr: BFB	113	70-130		%Rec	1	2/11/2022 9:29:35 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/11/2022 9:29:35 AM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 9:29:35 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 9:29:35 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/11/2022 9:29:35 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/11/2022 9:29:35 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	8600	300		mg/Kg	100	2/15/2022 4:35:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-11 4'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 1:30:00 PM

Lab ID: 2202388-002

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	2/14/2022 9:36:46 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/14/2022 9:36:46 PM
Surr: DNOP	111	51.1-141		%Rec	1	2/14/2022 9:36:46 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 9:53:04 AM
Surr: BFB	116	70-130		%Rec	1	2/11/2022 9:53:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/11/2022 9:53:04 AM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 9:53:04 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 9:53:04 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/11/2022 9:53:04 AM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	2/11/2022 9:53:04 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/14/2022 7:45:26 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-12 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:10:00 AM

Lab ID: 2202388-003

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	18000	190		mg/Kg	20	2/14/2022 10:00:42 PM
Motor Oil Range Organics (MRO)	10000	960		mg/Kg	20	2/14/2022 10:00:42 PM
Surr: DNOP	0	51.1-141	S	%Rec	20	2/14/2022 10:00:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	23		mg/Kg	5	2/11/2022 10:16:42 AM
Surr: BFB	112	70-130		%Rec	5	2/11/2022 10:16:42 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.11		mg/Kg	5	2/11/2022 10:16:42 AM
Toluene	ND	0.23		mg/Kg	5	2/11/2022 10:16:42 AM
Ethylbenzene	ND	0.23		mg/Kg	5	2/11/2022 10:16:42 AM
Xylenes, Total	ND	0.46		mg/Kg	5	2/11/2022 10:16:42 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	5	2/11/2022 10:16:42 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	3300	150		mg/Kg	50	2/15/2022 4:47:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-12 4'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 1:35:00 PM

Lab ID: 2202388-004

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/14/2022 10:48:27 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/14/2022 10:48:27 PM
Surr: DNOP	115	51.1-141		%Rec	1	2/14/2022 10:48:27 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 10:40:28 AM
Surr: BFB	115	70-130		%Rec	1	2/11/2022 10:40:28 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/11/2022 10:40:28 AM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 10:40:28 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 10:40:28 AM
Xylenes, Total	ND	0.097		mg/Kg	1	2/11/2022 10:40:28 AM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/11/2022 10:40:28 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	260	60		mg/Kg	20	2/14/2022 8:35:05 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-13 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:20:00 AM

Lab ID: 2202388-005

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.7		mg/Kg	1	2/14/2022 11:12:18 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/14/2022 11:12:18 PM
Surr: DNOP	115	51.1-141		%Rec	1	2/14/2022 11:12:18 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 3:49:08 PM
Surr: BFB	115	70-130		%Rec	1	2/11/2022 3:49:08 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/11/2022 3:49:08 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 3:49:08 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 3:49:08 PM
Xylenes, Total	ND	0.091		mg/Kg	1	2/11/2022 3:49:08 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/11/2022 3:49:08 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	170	60		mg/Kg	20	2/14/2022 8:47:30 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-13 2'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:25:00 AM

Lab ID: 2202388-006

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.6		mg/Kg	1	2/14/2022 11:36:13 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	2/14/2022 11:36:13 PM
Surr: DNOP	119	51.1-141		%Rec	1	2/14/2022 11:36:13 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 4:12:56 PM
Surr: BFB	118	70-130		%Rec	1	2/11/2022 4:12:56 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/11/2022 4:12:56 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 4:12:56 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 4:12:56 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/11/2022 4:12:56 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	2/11/2022 4:12:56 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	120	60		mg/Kg	20	2/14/2022 8:59:55 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-14 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:30:00 AM

Lab ID: 2202388-007

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	49	9.0		mg/Kg	1	2/15/2022 12:00:04 AM
Motor Oil Range Organics (MRO)	150	45		mg/Kg	1	2/15/2022 12:00:04 AM
Surr: DNOP	136	51.1-141		%Rec	1	2/15/2022 12:00:04 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 4:36:45 PM
Surr: BFB	114	70-130		%Rec	1	2/11/2022 4:36:45 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/11/2022 4:36:45 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 4:36:45 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 4:36:45 PM
Xylenes, Total	ND	0.093		mg/Kg	1	2/11/2022 4:36:45 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/11/2022 4:36:45 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	130	60		mg/Kg	20	2/14/2022 9:12:19 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-14 4'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 1:45:00 PM

Lab ID: 2202388-008

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	2/15/2022 12:23:58 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/15/2022 12:23:58 AM
Surr: DNOP	120	51.1-141		%Rec	1	2/15/2022 12:23:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 5:00:29 PM
Surr: BFB	117	70-130		%Rec	1	2/11/2022 5:00:29 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/11/2022 5:00:29 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 5:00:29 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 5:00:29 PM
Xylenes, Total	ND	0.096		mg/Kg	1	2/11/2022 5:00:29 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	2/11/2022 5:00:29 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	470	60		mg/Kg	20	2/14/2022 9:24:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-15 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:40:00 AM

Lab ID: 2202388-009

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	2/15/2022 12:47:50 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	2/15/2022 12:47:50 AM
Surr: DNOP	125	51.1-141		%Rec	1	2/15/2022 12:47:50 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	23		mg/Kg	5	2/11/2022 5:24:23 PM
Surr: BFB	116	70-130		%Rec	5	2/11/2022 5:24:23 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.11		mg/Kg	5	2/11/2022 5:24:23 PM
Toluene	ND	0.23		mg/Kg	5	2/11/2022 5:24:23 PM
Ethylbenzene	ND	0.23		mg/Kg	5	2/11/2022 5:24:23 PM
Xylenes, Total	ND	0.46		mg/Kg	5	2/11/2022 5:24:23 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	5	2/11/2022 5:24:23 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	12000	600		mg/Kg	200	2/15/2022 4:59:54 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-16 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 9:50:00 AM

Lab ID: 2202388-010

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	110	8.7		mg/Kg	1	2/15/2022 1:11:42 AM
Motor Oil Range Organics (MRO)	220	43		mg/Kg	1	2/15/2022 1:11:42 AM
Surr: DNOP	126	51.1-141		%Rec	1	2/15/2022 1:11:42 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 6:12:22 PM
Surr: BFB	123	70-130		%Rec	1	2/11/2022 6:12:22 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/11/2022 6:12:22 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 6:12:22 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 6:12:22 PM
Xylenes, Total	ND	0.092		mg/Kg	1	2/11/2022 6:12:22 PM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/11/2022 6:12:22 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	2100	60		mg/Kg	20	2/14/2022 9:49:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-16 4'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 1:55:00 PM

Lab ID: 2202388-011

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	2/15/2022 1:59:18 AM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	2/15/2022 1:59:18 AM
Surr: DNOP	127	51.1-141		%Rec	1	2/15/2022 1:59:18 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/11/2022 6:36:25 PM
Surr: BFB	119	70-130		%Rec	1	2/11/2022 6:36:25 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/11/2022 6:36:25 PM
Toluene	ND	0.050		mg/Kg	1	2/11/2022 6:36:25 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/11/2022 6:36:25 PM
Xylenes, Total	ND	0.099		mg/Kg	1	2/11/2022 6:36:25 PM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/11/2022 6:36:25 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	520	60		mg/Kg	20	2/14/2022 10:01:58 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-17 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:00:00 AM

Lab ID: 2202388-012

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	9.7		mg/Kg	1	2/15/2022 2:22:56 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/15/2022 2:22:56 AM
Surr: DNOP	111	51.1-141		%Rec	1	2/15/2022 2:22:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 7:00:27 PM
Surr: BFB	118	70-130		%Rec	1	2/11/2022 7:00:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/11/2022 7:00:27 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 7:00:27 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 7:00:27 PM
Xylenes, Total	ND	0.092		mg/Kg	1	2/11/2022 7:00:27 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	2/11/2022 7:00:27 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	590	60		mg/Kg	20	2/14/2022 10:14:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 8:30:00 AM

Lab ID: 2202388-013

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	2000	450		mg/Kg	50	2/15/2022 2:46:29 AM
Motor Oil Range Organics (MRO)	2500	2200		mg/Kg	50	2/15/2022 2:46:29 AM
Surr: DNOP	0	51.1-141	S	%Rec	50	2/15/2022 2:46:29 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	2/11/2022 7:24:27 PM
Surr: BFB	117	70-130		%Rec	5	2/11/2022 7:24:27 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	2/11/2022 7:24:27 PM
Toluene	ND	0.25		mg/Kg	5	2/11/2022 7:24:27 PM
Ethylbenzene	ND	0.25		mg/Kg	5	2/11/2022 7:24:27 PM
Xylenes, Total	ND	0.50		mg/Kg	5	2/11/2022 7:24:27 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	5	2/11/2022 7:24:27 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	9700	600		mg/Kg	200	2/15/2022 5:12:15 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-01 4'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 11:00:00 AM

Lab ID: 2202388-014

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	2/15/2022 3:09:59 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/15/2022 3:09:59 AM
Surr: DNOP	127	51.1-141		%Rec	1	2/15/2022 3:09:59 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 8:36:30 PM
Surr: BFB	119	70-130		%Rec	1	2/11/2022 8:36:30 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/11/2022 8:36:30 PM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 8:36:30 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 8:36:30 PM
Xylenes, Total	ND	0.094		mg/Kg	1	2/11/2022 8:36:30 PM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/11/2022 8:36:30 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/14/2022 11:04:02 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 8:40:00 AM

Lab ID: 2202388-015

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	1000	200		mg/Kg	20	2/15/2022 3:33:28 AM
Motor Oil Range Organics (MRO)	1400	980		mg/Kg	20	2/15/2022 3:33:28 AM
Surr: DNOP	0	51.1-141	S	%Rec	20	2/15/2022 3:33:28 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	25		mg/Kg	5	2/11/2022 10:59:44 PM
Surr: BFB	117	70-130		%Rec	5	2/11/2022 10:59:44 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	2/11/2022 10:59:44 PM
Toluene	ND	0.25		mg/Kg	5	2/11/2022 10:59:44 PM
Ethylbenzene	ND	0.25		mg/Kg	5	2/11/2022 10:59:44 PM
Xylenes, Total	ND	0.50		mg/Kg	5	2/11/2022 10:59:44 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	5	2/11/2022 10:59:44 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	10000	590		mg/Kg	200	2/15/2022 5:49:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-02 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 8:45:00 AM

Lab ID: 2202388-016

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	2/15/2022 3:56:56 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/15/2022 3:56:56 AM
Surr: DNOP	126	51.1-141		%Rec	1	2/15/2022 3:56:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/12/2022 12:11:03 AM
Surr: BFB	120	70-130		%Rec	1	2/12/2022 12:11:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/12/2022 12:11:03 AM
Toluene	ND	0.047		mg/Kg	1	2/12/2022 12:11:03 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/12/2022 12:11:03 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/12/2022 12:11:03 AM
Surr: 4-Bromofluorobenzene	113	70-130		%Rec	1	2/12/2022 12:11:03 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	2/14/2022 11:28:51 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:15:00 AM

Lab ID: 2202388-017

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	2/15/2022 4:20:25 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/15/2022 4:20:25 AM
Surr: DNOP	103	51.1-141		%Rec	1	2/15/2022 4:20:25 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2022 12:34:43 AM
Surr: BFB	115	70-130		%Rec	1	2/12/2022 12:34:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 12:34:43 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2022 12:34:43 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2022 12:34:43 AM
Xylenes, Total	ND	0.10		mg/Kg	1	2/12/2022 12:34:43 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/12/2022 12:34:43 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	230	60		mg/Kg	20	2/14/2022 11:41:17 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-03 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:20:00 AM

Lab ID: 2202388-018

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	330	48		mg/Kg	5	2/16/2022 9:57:59 AM
Motor Oil Range Organics (MRO)	500	240		mg/Kg	5	2/16/2022 9:57:59 AM
Surr: DNOP	117	51.1-141		%Rec	5	2/16/2022 9:57:59 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/12/2022 12:58:24 AM
Surr: BFB	114	70-130		%Rec	1	2/12/2022 12:58:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/12/2022 12:58:24 AM
Toluene	ND	0.046		mg/Kg	1	2/12/2022 12:58:24 AM
Ethylbenzene	ND	0.046		mg/Kg	1	2/12/2022 12:58:24 AM
Xylenes, Total	ND	0.093		mg/Kg	1	2/12/2022 12:58:24 AM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	2/12/2022 12:58:24 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	240	60		mg/Kg	20	2/14/2022 10:34:52 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:25:00 AM

Lab ID: 2202388-019

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	2/15/2022 5:07:18 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/15/2022 5:07:18 AM
Surr: DNOP	117	51.1-141		%Rec	1	2/15/2022 5:07:18 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/12/2022 1:22:00 AM
Surr: BFB	120	70-130		%Rec	1	2/12/2022 1:22:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/12/2022 1:22:00 AM
Toluene	ND	0.047		mg/Kg	1	2/12/2022 1:22:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/12/2022 1:22:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/12/2022 1:22:00 AM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/12/2022 1:22:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/14/2022 11:11:53 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-04 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:30:00 AM

Lab ID: 2202388-020

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/15/2022 5:30:56 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/15/2022 5:30:56 AM
Surr: DNOP	117	51.1-141		%Rec	1	2/15/2022 5:30:56 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/12/2022 1:45:34 AM
Surr: BFB	116	70-130		%Rec	1	2/12/2022 1:45:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/12/2022 1:45:34 AM
Toluene	ND	0.048		mg/Kg	1	2/12/2022 1:45:34 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/12/2022 1:45:34 AM
Xylenes, Total	ND	0.097		mg/Kg	1	2/12/2022 1:45:34 AM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	2/12/2022 1:45:34 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/14/2022 11:48:54 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:35:00 AM

Lab ID: 2202388-021

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	2/15/2022 5:54:41 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/15/2022 5:54:41 AM
Surr: DNOP	115	51.1-141		%Rec	1	2/15/2022 5:54:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 2:09:10 AM
Surr: BFB	115	70-130		%Rec	1	2/12/2022 2:09:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/12/2022 2:09:10 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 2:09:10 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 2:09:10 AM
Xylenes, Total	ND	0.097		mg/Kg	1	2/12/2022 2:09:10 AM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	2/12/2022 2:09:10 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 12:01:15 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:40:00 AM

Lab ID: 2202388-022

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	2100	200		mg/Kg	20	2/15/2022 6:18:26 AM
Motor Oil Range Organics (MRO)	2600	990		mg/Kg	20	2/15/2022 6:18:26 AM
Surr: DNOP	0	51.1-141	S	%Rec	20	2/15/2022 6:18:26 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 2:32:48 AM
Surr: BFB	111	70-130		%Rec	1	2/12/2022 2:32:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 2:32:48 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 2:32:48 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 2:32:48 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/12/2022 2:32:48 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/12/2022 2:32:48 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	1300	60		mg/Kg	20	2/15/2022 12:38:17 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-06 4'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:45:00 AM

Lab ID: 2202388-023

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/15/2022 6:42:07 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/15/2022 6:42:07 AM
Surr: DNOP	120	51.1-141		%Rec	1	2/15/2022 6:42:07 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2022 2:56:16 AM
Surr: BFB	112	70-130		%Rec	1	2/12/2022 2:56:16 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 2:56:16 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2022 2:56:16 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2022 2:56:16 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/12/2022 2:56:16 AM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	2/12/2022 2:56:16 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 12:50:38 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 11:05:00 AM

Lab ID: 2202388-024

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/15/2022 7:05:47 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/15/2022 7:05:47 AM
Surr: DNOP	115	51.1-141		%Rec	1	2/15/2022 7:05:47 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 3:19:44 AM
Surr: BFB	118	70-130		%Rec	1	2/12/2022 3:19:44 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 3:19:44 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 3:19:44 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 3:19:44 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/12/2022 3:19:44 AM
Surr: 4-Bromofluorobenzene	112	70-130		%Rec	1	2/12/2022 3:19:44 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 1:02:57 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-07 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 11:15:00 AM

Lab ID: 2202388-025

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.0		mg/Kg	1	2/15/2022 7:29:29 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/15/2022 7:29:29 AM
Surr: DNOP	109	51.1-141		%Rec	1	2/15/2022 7:29:29 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 4:29:56 AM
Surr: BFB	113	70-130		%Rec	1	2/12/2022 4:29:56 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 4:29:56 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 4:29:56 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 4:29:56 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/12/2022 4:29:56 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/12/2022 4:29:56 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 1:15:18 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 11:20:00 AM

Lab ID: 2202388-026

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/15/2022 7:53:15 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/15/2022 7:53:15 AM
Surr: DNOP	108	51.1-141		%Rec	1	2/15/2022 7:53:15 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2022 4:53:21 AM
Surr: BFB	111	70-130		%Rec	1	2/12/2022 4:53:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 4:53:21 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2022 4:53:21 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2022 4:53:21 AM
Xylenes, Total	ND	0.10		mg/Kg	1	2/12/2022 4:53:21 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/12/2022 4:53:21 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	2000	60		mg/Kg	20	2/15/2022 1:27:39 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-08 4'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 1:00:00 PM

Lab ID: 2202388-027

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/15/2022 8:17:08 AM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/15/2022 8:17:08 AM
Surr: DNOP	116	51.1-141		%Rec	1	2/15/2022 8:17:08 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/12/2022 5:16:39 AM
Surr: BFB	111	70-130		%Rec	1	2/12/2022 5:16:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/12/2022 5:16:39 AM
Toluene	ND	0.047		mg/Kg	1	2/12/2022 5:16:39 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/12/2022 5:16:39 AM
Xylenes, Total	ND	0.095		mg/Kg	1	2/12/2022 5:16:39 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/12/2022 5:16:39 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 1:39:59 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-09 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 11:30:00 AM

Lab ID: 2202388-028

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/15/2022 8:40:55 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/15/2022 8:40:55 AM
Surr: DNOP	119	51.1-141		%Rec	1	2/15/2022 8:40:55 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/12/2022 5:39:57 AM
Surr: BFB	112	70-130		%Rec	1	2/12/2022 5:39:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/12/2022 5:39:57 AM
Toluene	ND	0.047		mg/Kg	1	2/12/2022 5:39:57 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/12/2022 5:39:57 AM
Xylenes, Total	ND	0.094		mg/Kg	1	2/12/2022 5:39:57 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/12/2022 5:39:57 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 1:52:20 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-09 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 11:35:00 AM

Lab ID: 2202388-029

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.9		mg/Kg	1	2/15/2022 9:04:51 AM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/15/2022 9:04:51 AM
Surr: DNOP	120	51.1-141		%Rec	1	2/15/2022 9:04:51 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2022 6:03:13 AM
Surr: BFB	111	70-130		%Rec	1	2/12/2022 6:03:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 6:03:13 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2022 6:03:13 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2022 6:03:13 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/12/2022 6:03:13 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/12/2022 6:03:13 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 2:04:41 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-10 0'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 1:05:00 PM

Lab ID: 2202388-030

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/15/2022 9:28:41 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/15/2022 9:28:41 AM
Surr: DNOP	120	51.1-141		%Rec	1	2/15/2022 9:28:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/12/2022 6:26:33 AM
Surr: BFB	112	70-130		%Rec	1	2/12/2022 6:26:33 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	2/12/2022 6:26:33 AM
Toluene	ND	0.047		mg/Kg	1	2/12/2022 6:26:33 AM
Ethylbenzene	ND	0.047		mg/Kg	1	2/12/2022 6:26:33 AM
Xylenes, Total	ND	0.094		mg/Kg	1	2/12/2022 6:26:33 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/12/2022 6:26:33 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 2:17:02 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-10 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 1:10:00 PM

Lab ID: 2202388-031

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/15/2022 10:16:44 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/15/2022 10:16:44 AM
Surr: DNOP	123	51.1-141		%Rec	1	2/15/2022 10:16:44 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2022 6:49:50 AM
Surr: BFB	110	70-130		%Rec	1	2/12/2022 6:49:50 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 6:49:50 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2022 6:49:50 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2022 6:49:50 AM
Xylenes, Total	ND	0.10		mg/Kg	1	2/12/2022 6:49:50 AM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/12/2022 6:49:50 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 2:29:22 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-17 2'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:05:00 AM

Lab ID: 2202388-032

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	10	9.1	B	mg/Kg	1	2/15/2022 10:40:43 AM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	2/15/2022 10:40:43 AM
Surr: DNOP	122	51.1-141		%Rec	1	2/15/2022 10:40:43 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 7:13:04 AM
Surr: BFB	110	70-130		%Rec	1	2/12/2022 7:13:04 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 7:13:04 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 7:13:04 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 7:13:04 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/12/2022 7:13:04 AM
Surr: 4-Bromofluorobenzene	105	70-130		%Rec	1	2/12/2022 7:13:04 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	400	60		mg/Kg	20	2/15/2022 3:06:24 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-18 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:10:00 AM

Lab ID: 2202388-033

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	180	46		mg/Kg	5	2/15/2022 11:04:40 AM
Motor Oil Range Organics (MRO)	380	230		mg/Kg	5	2/15/2022 11:04:40 AM
Surr: DNOP	109	51.1-141		%Rec	5	2/15/2022 11:04:40 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 7:36:17 AM
Surr: BFB	113	70-130		%Rec	1	2/12/2022 7:36:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/12/2022 7:36:17 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 7:36:17 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 7:36:17 AM
Xylenes, Total	ND	0.098		mg/Kg	1	2/12/2022 7:36:17 AM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/12/2022 7:36:17 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	460	60		mg/Kg	20	2/15/2022 3:18:45 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-18 4'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 2:00:00 PM

Lab ID: 2202388-034

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	22	9.2		mg/Kg	1	2/11/2022 10:58:42 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/11/2022 10:58:42 PM
Surr: DNOP	91.4	51.1-141		%Rec	1	2/11/2022 10:58:42 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/10/2022 12:52:28 PM
Surr: BFB	116	70-130		%Rec	1	2/10/2022 12:52:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/10/2022 12:52:28 PM
Toluene	ND	0.049		mg/Kg	1	2/10/2022 12:52:28 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/10/2022 12:52:28 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/10/2022 12:52:28 PM
Surr: 4-Bromofluorobenzene	107	70-130		%Rec	1	2/10/2022 12:52:28 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	870	59		mg/Kg	20	2/15/2022 3:31:07 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-19 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:20:00 AM

Lab ID: 2202388-035

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	21	8.8		mg/Kg	1	2/11/2022 11:09:21 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	2/11/2022 11:09:21 PM
Surr: DNOP	92.6	51.1-141		%Rec	1	2/11/2022 11:09:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/10/2022 2:03:17 PM
Surr: BFB	118	70-130		%Rec	1	2/10/2022 2:03:17 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/10/2022 2:03:17 PM
Toluene	ND	0.049		mg/Kg	1	2/10/2022 2:03:17 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/10/2022 2:03:17 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/10/2022 2:03:17 PM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/10/2022 2:03:17 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	120	60		mg/Kg	20	2/15/2022 3:43:28 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-19 2'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:25:00 AM

Lab ID: 2202388-036

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	23	9.6		mg/Kg	1	2/11/2022 11:20:05 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 11:20:05 PM
Surr: DNOP	84.6	51.1-141		%Rec	1	2/11/2022 11:20:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/10/2022 3:14:20 PM
Surr: BFB	121	70-130		%Rec	1	2/10/2022 3:14:20 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/10/2022 3:14:20 PM
Toluene	ND	0.048		mg/Kg	1	2/10/2022 3:14:20 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/10/2022 3:14:20 PM
Xylenes, Total	ND	0.096		mg/Kg	1	2/10/2022 3:14:20 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	2/10/2022 3:14:20 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	180	60		mg/Kg	20	2/15/2022 3:55:47 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-20 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:30:00 AM

Lab ID: 2202388-037

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	23	9.6		mg/Kg	1	2/11/2022 11:30:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 11:30:54 PM
Surr: DNOP	94.7	51.1-141		%Rec	1	2/11/2022 11:30:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/10/2022 4:49:19 PM
Surr: BFB	114	70-130		%Rec	1	2/10/2022 4:49:19 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/10/2022 4:49:19 PM
Toluene	ND	0.050		mg/Kg	1	2/10/2022 4:49:19 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/10/2022 4:49:19 PM
Xylenes, Total	ND	0.10		mg/Kg	1	2/10/2022 4:49:19 PM
Surr: 4-Bromofluorobenzene	106	70-130		%Rec	1	2/10/2022 4:49:19 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 4:08:08 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-20 2'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 10:35:00 AM

Lab ID: 2202388-038

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	42	9.5		mg/Kg	1	2/11/2022 11:41:43 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 11:41:43 PM
Surr: DNOP	102	51.1-141		%Rec	1	2/11/2022 11:41:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/10/2022 5:12:58 PM
Surr: BFB	116	70-130		%Rec	1	2/10/2022 5:12:58 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/10/2022 5:12:58 PM
Toluene	ND	0.050		mg/Kg	1	2/10/2022 5:12:58 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/10/2022 5:12:58 PM
Xylenes, Total	ND	0.10		mg/Kg	1	2/10/2022 5:12:58 PM
Surr: 4-Bromofluorobenzene	108	70-130		%Rec	1	2/10/2022 5:12:58 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 10:07:21 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BG22-01 0'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 2:45:00 PM

Lab ID: 2202388-039

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	24	9.6		mg/Kg	1	2/11/2022 11:52:35 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 11:52:35 PM
Surr: DNOP	106	51.1-141		%Rec	1	2/11/2022 11:52:35 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/10/2022 5:36:41 PM
Surr: BFB	115	70-130		%Rec	1	2/10/2022 5:36:41 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/10/2022 5:36:41 PM
Toluene	ND	0.049		mg/Kg	1	2/10/2022 5:36:41 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/10/2022 5:36:41 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/10/2022 5:36:41 PM
Surr: 4-Bromofluorobenzene	109	70-130		%Rec	1	2/10/2022 5:36:41 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	61		mg/Kg	20	2/15/2022 10:44:24 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BG22-01 2'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 2:50:00 PM

Lab ID: 2202388-040

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	42	9.4		mg/Kg	1	2/12/2022 12:03:23 AM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/12/2022 12:03:23 AM
Surr: DNOP	81.0	51.1-141		%Rec	1	2/12/2022 12:03:23 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/10/2022 6:00:31 PM
Surr: BFB	116	70-130		%Rec	1	2/10/2022 6:00:31 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/10/2022 6:00:31 PM
Toluene	ND	0.049		mg/Kg	1	2/10/2022 6:00:31 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/10/2022 6:00:31 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/10/2022 6:00:31 PM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/10/2022 6:00:31 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 10:56:45 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BG22-01 3'

Project: Gem North Tank Battery

Collection Date: 2/7/2022 2:55:00 PM

Lab ID: 2202388-041

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	25	9.9		mg/Kg	1	2/12/2022 12:14:09 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/12/2022 12:14:09 AM
Surr: DNOP	77.8	51.1-141		%Rec	1	2/12/2022 12:14:09 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/10/2022 6:24:28 PM
Surr: BFB	120	70-130		%Rec	1	2/10/2022 6:24:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	2/10/2022 6:24:28 PM
Toluene	ND	0.050		mg/Kg	1	2/10/2022 6:24:28 PM
Ethylbenzene	ND	0.050		mg/Kg	1	2/10/2022 6:24:28 PM
Xylenes, Total	ND	0.10		mg/Kg	1	2/10/2022 6:24:28 PM
Surr: 4-Bromofluorobenzene	111	70-130		%Rec	1	2/10/2022 6:24:28 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 11:09:05 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202388**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-05 2'

Project: Gem North Tank Battery

Collection Date: 2/4/2022 9:40:00 AM

Lab ID: 2202388-042

Matrix: SOIL

Received Date: 2/9/2022 8:21:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	24	9.2		mg/Kg	1	2/12/2022 12:24:58 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/12/2022 12:24:58 AM
Surr: DNOP	83.4	51.1-141		%Rec	1	2/12/2022 12:24:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/10/2022 6:48:16 PM
Surr: BFB	117	70-130		%Rec	1	2/10/2022 6:48:16 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	2/10/2022 6:48:16 PM
Toluene	ND	0.048		mg/Kg	1	2/10/2022 6:48:16 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/10/2022 6:48:16 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/10/2022 6:48:16 PM
Surr: 4-Bromofluorobenzene	110	70-130		%Rec	1	2/10/2022 6:48:16 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 11:21:25 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

February 23, 2022

Dennis Williams
Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Gem North Tank Battery

OrderNo.: 2202480

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 22 sample(s) on 2/10/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read 'Andy Freeman', is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-15 6'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 8:30:00 AM

Lab ID: 2202480-001

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	10	9.7		mg/Kg	1	2/11/2022 11:50:00 AM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 11:50:00 AM
Surr: DNOP	89.5	51.1-141		%Rec	1	2/11/2022 11:50:00 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 11:29:00 AM
Surr: BFB	101	70-130		%Rec	1	2/11/2022 11:29:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 11:29:00 AM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 11:29:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 11:29:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	2/11/2022 11:29:00 AM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	2/11/2022 11:29:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 2:38:55 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-18 5'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 8:35:00 AM

Lab ID: 2202480-002

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	9.9	9.9		mg/Kg	1	2/11/2022 12:00:44 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/11/2022 12:00:44 PM
Surr: DNOP	69.9	51.1-141		%Rec	1	2/11/2022 12:00:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 12:29:00 PM
Surr: BFB	104	70-130		%Rec	1	2/11/2022 12:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 12:29:00 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 12:29:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 12:29:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/11/2022 12:29:00 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/11/2022 12:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	790	60		mg/Kg	20	2/15/2022 2:51:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-21 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 8:40:00 AM

Lab ID: 2202480-003

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	11	9.7		mg/Kg	1	2/11/2022 12:11:31 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 12:11:31 PM
Surr: DNOP	83.0	51.1-141		%Rec	1	2/11/2022 12:11:31 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 1:29:00 PM
Surr: BFB	90.6	70-130		%Rec	1	2/11/2022 1:29:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 1:29:00 PM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 1:29:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 1:29:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	2/11/2022 1:29:00 PM
Surr: 4-Bromofluorobenzene	89.5	70-130		%Rec	1	2/11/2022 1:29:00 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 3:03:37 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-21 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 8:45:00 AM

Lab ID: 2202480-004

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/11/2022 12:22:17 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/11/2022 12:22:17 PM
Surr: DNOP	102	51.1-141		%Rec	1	2/11/2022 12:22:17 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 1:48:00 PM
Surr: BFB	90.7	70-130		%Rec	1	2/11/2022 1:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 1:48:00 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 1:48:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 1:48:00 PM
Xylenes, Total	ND	0.092		mg/Kg	1	2/11/2022 1:48:00 PM
Surr: 4-Bromofluorobenzene	91.0	70-130		%Rec	1	2/11/2022 1:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	62	60		mg/Kg	20	2/15/2022 3:15:58 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-22 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 8:50:00 AM

Lab ID: 2202480-005

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	2/11/2022 12:33:08 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/11/2022 12:33:08 PM
Surr: DNOP	127	51.1-141		%Rec	1	2/11/2022 12:33:08 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2022 2:08:00 PM
Surr: BFB	96.6	70-130		%Rec	1	2/11/2022 2:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 2:08:00 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2022 2:08:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2022 2:08:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/11/2022 2:08:00 PM
Surr: 4-Bromofluorobenzene	95.4	70-130		%Rec	1	2/11/2022 2:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	2/15/2022 3:28:18 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-22 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 8:55:00 AM

Lab ID: 2202480-006

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	11	9.3		mg/Kg	1	2/11/2022 12:43:57 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/11/2022 12:43:57 PM
Surr: DNOP	90.6	51.1-141		%Rec	1	2/11/2022 12:43:57 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2022 2:28:00 PM
Surr: BFB	101	70-130		%Rec	1	2/11/2022 2:28:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	2/11/2022 2:28:00 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2022 2:28:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2022 2:28:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	2/11/2022 2:28:00 PM
Surr: 4-Bromofluorobenzene	99.1	70-130		%Rec	1	2/11/2022 2:28:00 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	390	60		mg/Kg	20	2/15/2022 3:40:38 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-23 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 9:00:00 AM

Lab ID: 2202480-007

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	9.8		mg/Kg	1	2/11/2022 12:54:51 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/11/2022 12:54:51 PM
Surr: DNOP	116	51.1-141		%Rec	1	2/11/2022 12:54:51 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 2:48:00 PM
Surr: BFB	96.7	70-130		%Rec	1	2/11/2022 2:48:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 2:48:00 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 2:48:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 2:48:00 PM
Xylenes, Total	ND	0.091		mg/Kg	1	2/11/2022 2:48:00 PM
Surr: 4-Bromofluorobenzene	96.9	70-130		%Rec	1	2/11/2022 2:48:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	2/15/2022 7:59:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-23 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 9:05:00 AM

Lab ID: 2202480-008

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	10		mg/Kg	1	2/11/2022 1:05:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/11/2022 1:05:52 PM
Surr: DNOP	80.2	51.1-141		%Rec	1	2/11/2022 1:05:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 3:08:00 PM
Surr: BFB	98.6	70-130		%Rec	1	2/11/2022 3:08:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 3:08:00 PM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 3:08:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 3:08:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	2/11/2022 3:08:00 PM
Surr: 4-Bromofluorobenzene	98.3	70-130		%Rec	1	2/11/2022 3:08:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	64	60		mg/Kg	20	2/15/2022 8:36:57 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-24 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 10:30:00 AM

Lab ID: 2202480-009

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	10	9.4		mg/Kg	1	2/11/2022 1:16:52 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/11/2022 1:16:52 PM
Surr: DNOP	85.6	51.1-141		%Rec	1	2/11/2022 1:16:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	2/11/2022 3:27:00 PM
Surr: BFB	102	70-130		%Rec	1	2/11/2022 3:27:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 3:27:00 PM
Toluene	ND	0.046		mg/Kg	1	2/11/2022 3:27:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	2/11/2022 3:27:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	2/11/2022 3:27:00 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/11/2022 3:27:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	2/15/2022 8:49:22 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-24 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 10:35:00 AM

Lab ID: 2202480-010

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	9.9		mg/Kg	1	2/11/2022 1:27:53 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/11/2022 1:27:53 PM
Surr: DNOP	105	51.1-141		%Rec	1	2/11/2022 1:27:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2022 3:47:00 PM
Surr: BFB	100	70-130		%Rec	1	2/11/2022 3:47:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 3:47:00 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2022 3:47:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2022 3:47:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/11/2022 3:47:00 PM
Surr: 4-Bromofluorobenzene	100	70-130		%Rec	1	2/11/2022 3:47:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	150	60		mg/Kg	20	2/15/2022 9:01:46 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-25 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 10:40:00 AM

Lab ID: 2202480-011

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	10		mg/Kg	1	2/11/2022 1:38:52 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/11/2022 1:38:52 PM
Surr: DNOP	125	51.1-141		%Rec	1	2/11/2022 1:38:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 5:06:00 PM
Surr: BFB	95.9	70-130		%Rec	1	2/11/2022 5:06:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 5:06:00 PM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 5:06:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 5:06:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	2/11/2022 5:06:00 PM
Surr: 4-Bromofluorobenzene	89.7	70-130		%Rec	1	2/11/2022 5:06:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	6400	300		mg/Kg	100	2/16/2022 11:49:41 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-25 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 10:45:00 AM

Lab ID: 2202480-012

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	10	9.7		mg/Kg	1	2/11/2022 1:49:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 1:49:54 PM
Surr: DNOP	86.2	51.1-141		%Rec	1	2/11/2022 1:49:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 5:25:00 PM
Surr: BFB	96.4	70-130		%Rec	1	2/11/2022 5:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 5:25:00 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 5:25:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 5:25:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	2/11/2022 5:25:00 PM
Surr: 4-Bromofluorobenzene	96.5	70-130		%Rec	1	2/11/2022 5:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	420	60		mg/Kg	20	2/15/2022 9:51:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-26 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 10:50:00 AM

Lab ID: 2202480-013

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	11	9.4		mg/Kg	1	2/11/2022 2:00:54 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/11/2022 2:00:54 PM
Surr: DNOP	95.7	51.1-141		%Rec	1	2/11/2022 2:00:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2022 5:45:00 PM
Surr: BFB	104	70-130		%Rec	1	2/11/2022 5:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	2/11/2022 5:45:00 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2022 5:45:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2022 5:45:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/11/2022 5:45:00 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/11/2022 5:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	2/15/2022 10:03:48 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-26 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 10:55:00 AM

Lab ID: 2202480-014

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	13	9.8		mg/Kg	1	2/11/2022 2:11:53 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/11/2022 2:11:53 PM
Surr: DNOP	129	51.1-141		%Rec	1	2/11/2022 2:11:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 6:05:00 PM
Surr: BFB	103	70-130		%Rec	1	2/11/2022 6:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 6:05:00 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 6:05:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 6:05:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	2/11/2022 6:05:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	2/11/2022 6:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	310	60		mg/Kg	20	2/15/2022 10:16:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-27 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:00:00 AM

Lab ID: 2202480-015

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	9.4		mg/Kg	1	2/11/2022 2:22:55 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	2/11/2022 2:22:55 PM
Surr: DNOP	90.8	51.1-141		%Rec	1	2/11/2022 2:22:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 6:25:00 PM
Surr: BFB	99.7	70-130		%Rec	1	2/11/2022 6:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 6:25:00 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 6:25:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 6:25:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	2/11/2022 6:25:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	2/11/2022 6:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	59		mg/Kg	20	2/15/2022 10:28:37 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-27 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:05:00 AM

Lab ID: 2202480-016

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	12	9.7		mg/Kg	1	2/11/2022 2:33:54 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 2:33:54 PM
Surr: DNOP	89.6	51.1-141		%Rec	1	2/11/2022 2:33:54 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2022 6:45:00 PM
Surr: BFB	104	70-130		%Rec	1	2/11/2022 6:45:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	2/11/2022 6:45:00 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2022 6:45:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2022 6:45:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/11/2022 6:45:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	2/11/2022 6:45:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	200	61		mg/Kg	20	2/15/2022 10:41:01 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-28 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:10:00 AM

Lab ID: 2202480-017

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	11	9.5		mg/Kg	1	2/11/2022 2:44:52 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	2/11/2022 2:44:52 PM
Surr: DNOP	87.6	51.1-141		%Rec	1	2/11/2022 2:44:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 7:05:00 PM
Surr: BFB	99.7	70-130		%Rec	1	2/11/2022 7:05:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	2/11/2022 7:05:00 PM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 7:05:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 7:05:00 PM
Xylenes, Total	ND	0.094		mg/Kg	1	2/11/2022 7:05:00 PM
Surr: 4-Bromofluorobenzene	104	70-130		%Rec	1	2/11/2022 7:05:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	6300	300		mg/Kg	100	2/16/2022 12:02:06 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-28 2

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:15:00 AM

Lab ID: 2202480-018

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	13	9.9		mg/Kg	1	2/11/2022 2:55:50 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	2/11/2022 2:55:50 PM
Surr: DNOP	90.6	51.1-141		%Rec	1	2/11/2022 2:55:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/11/2022 7:25:00 PM
Surr: BFB	102	70-130		%Rec	1	2/11/2022 7:25:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	2/11/2022 7:25:00 PM
Toluene	ND	0.049		mg/Kg	1	2/11/2022 7:25:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	2/11/2022 7:25:00 PM
Xylenes, Total	ND	0.098		mg/Kg	1	2/11/2022 7:25:00 PM
Surr: 4-Bromofluorobenzene	102	70-130		%Rec	1	2/11/2022 7:25:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	180	60		mg/Kg	20	2/15/2022 11:05:50 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-29 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:20:00 AM

Lab ID: 2202480-019

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.9		mg/Kg	1	2/15/2022 12:16:52 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/15/2022 12:16:52 PM
Surr: DNOP	101	51.1-141		%Rec	1	2/15/2022 12:16:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	2/11/2022 10:24:00 PM
Surr: BFB	97.0	70-130		%Rec	1	2/11/2022 10:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 10:24:00 PM
Toluene	ND	0.048		mg/Kg	1	2/11/2022 10:24:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	2/11/2022 10:24:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	2/11/2022 10:24:00 PM
Surr: 4-Bromofluorobenzene	98.9	70-130		%Rec	1	2/11/2022 10:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	61		mg/Kg	20	2/16/2022 12:07:53 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-29 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:25:00 AM

Lab ID: 2202480-020

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	2/15/2022 12:41:04 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/15/2022 12:41:04 PM
Surr: DNOP	105	51.1-141		%Rec	1	2/15/2022 12:41:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	2/11/2022 11:24:00 PM
Surr: BFB	97.8	70-130		%Rec	1	2/11/2022 11:24:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/11/2022 11:24:00 PM
Toluene	ND	0.047		mg/Kg	1	2/11/2022 11:24:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	2/11/2022 11:24:00 PM
Xylenes, Total	ND	0.095		mg/Kg	1	2/11/2022 11:24:00 PM
Surr: 4-Bromofluorobenzene	99.5	70-130		%Rec	1	2/11/2022 11:24:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	98	60		mg/Kg	20	2/16/2022 12:45:07 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-30 0'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:30:00 AM

Lab ID: 2202480-021

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	2/16/2022 7:55:41 AM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	2/16/2022 7:55:41 AM
Surr: DNOP	88.1	51.1-141		%Rec	1	2/16/2022 7:55:41 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	2/12/2022 12:24:00 AM
Surr: BFB	94.9	70-130		%Rec	1	2/12/2022 12:24:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	2/12/2022 12:24:00 AM
Toluene	ND	0.049		mg/Kg	1	2/12/2022 12:24:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	2/12/2022 12:24:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	2/12/2022 12:24:00 AM
Surr: 4-Bromofluorobenzene	95.3	70-130		%Rec	1	2/12/2022 12:24:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	300	60		mg/Kg	20	2/16/2022 12:57:32 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2202480**

Date Reported: 2/23/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BH22-30 2'

Project: Gem North Tank Battery

Collection Date: 2/8/2022 11:35:00 AM

Lab ID: 2202480-022

Matrix: SOIL

Received Date: 2/10/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.8		mg/Kg	1	2/16/2022 8:06:21 AM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	2/16/2022 8:06:21 AM
Surr: DNOP	93.7	51.1-141		%Rec	1	2/16/2022 8:06:21 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	2/12/2022 12:43:00 AM
Surr: BFB	94.8	70-130		%Rec	1	2/12/2022 12:43:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	2/12/2022 12:43:00 AM
Toluene	ND	0.050		mg/Kg	1	2/12/2022 12:43:00 AM
Ethylbenzene	ND	0.050		mg/Kg	1	2/12/2022 12:43:00 AM
Xylenes, Total	ND	0.099		mg/Kg	1	2/12/2022 12:43:00 AM
Surr: 4-Bromofluorobenzene	96.8	70-130		%Rec	1	2/12/2022 12:43:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	440	60		mg/Kg	20	2/16/2022 1:09:56 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: MB-65548	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 65548	RunNo: 85855								
Prep Date: 2/15/2022	Analysis Date: 2/15/2022	SeqNo: 3023282	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-65548	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 65548	RunNo: 85855								
Prep Date: 2/15/2022	Analysis Date: 2/15/2022	SeqNo: 3023283	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.1	90	110			

Sample ID: MB-65566	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 65566	RunNo: 85831								
Prep Date: 2/15/2022	Analysis Date: 2/15/2022	SeqNo: 3023504	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-65566	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 65566	RunNo: 85831								
Prep Date: 2/15/2022	Analysis Date: 2/15/2022	SeqNo: 3023505	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.0	90	110			

Sample ID: MB-65573	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 65573	RunNo: 85831								
Prep Date: 2/15/2022	Analysis Date: 2/15/2022	SeqNo: 3023544	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-65573	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 65573	RunNo: 85831								
Prep Date: 2/15/2022	Analysis Date: 2/15/2022	SeqNo: 3023545	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	93.7	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: LCS-65488	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 65488	RunNo: 85761								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3020070	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	51	10	50.00	0	102	68.9	135			
Surr: DNOP	3.5		5.000		70.0	51.1	141			

Sample ID: MB-65488	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 65488	RunNo: 85761								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3020073	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	11		10.00		106	51.1	141			

Sample ID: 2202480-001AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-15 6'	Batch ID: 65488	RunNo: 85761								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021077	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	58	9.7	48.59	10.37	97.7	39.3	155			
Surr: DNOP	4.1		4.859		83.8	51.1	141			

Sample ID: 2202480-001AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-15 6'	Batch ID: 65488	RunNo: 85761								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021078	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	67	10	49.95	10.37	114	39.3	155	14.8	23.4	
Surr: DNOP	5.5		4.995		109	51.1	141	0	0	

Sample ID: MB-65497	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 65497	RunNo: 85809								
Prep Date: 2/11/2022	Analysis Date: 2/14/2022	SeqNo: 3022507	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.4		10.00		94.4	51.1	141			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: LCS-65497	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 65497	RunNo: 85809								
Prep Date: 2/11/2022	Analysis Date: 2/14/2022	SeqNo: 3022508	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	89.3	68.9	135			
Surr: DNOP	3.9		5.000		78.1	51.1	141			

Sample ID: 2202480-020AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-29 2'	Batch ID: 65497	RunNo: 85857								
Prep Date: 2/11/2022	Analysis Date: 2/16/2022	SeqNo: 3023695	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	41	10	49.85	0	83.1	39.3	155			
Surr: DNOP	3.9		4.985		78.5	51.1	141			

Sample ID: 2202480-020AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BH22-29 2'	Batch ID: 65497	RunNo: 85857								
Prep Date: 2/11/2022	Analysis Date: 2/16/2022	SeqNo: 3023696	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	39	9.6	48.08	0	80.6	39.3	155	6.70	23.4	
Surr: DNOP	3.6		4.808		73.9	51.1	141	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: LCS-65478	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021106	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	26	5.0	25.00	0	105	78.6	131			
Surr: BFB	1200		1000		116	70	130			

Sample ID: MB-65478	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021107	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1000		1000		104	70	130			

Sample ID: 2202480-001ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-15 6'	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021109	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	29	4.8	23.95	0	120	70	130			
Surr: BFB	1100		957.9		115	70	130			

Sample ID: 2202480-001AMSD	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-15 6'	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021110	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	28	4.8	24.15	0	115	70	130	3.38	20	
Surr: BFB	1100		966.2		117	70	130	0	0	

Sample ID: lcs-65486	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021130	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	78.6	131			
Surr: BFB	1100		1000		111	70	130			

Sample ID: mb-65486	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021131	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: mb-65486	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021131	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	960		1000		96.4	70	130			

Sample ID: 2202480-019ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-29 0'	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021133	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	24	4.6	23.13	0	106	70	130			
Surr: BFB	990		925.1		107	70	130			

Sample ID: 2202480-019amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BH22-29 0'	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021134	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	4.6	23.02	0	119	70	130	11.5	20	
Surr: BFB	1000		920.8		111	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: MB-65478	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021233	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	1.0		1.000		104	70	130			

Sample ID: 2202480-002ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-18 5'	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021236	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9709	0	118	80	120			
Toluene	1.1	0.049	0.9709	0	115	80	120			
Ethylbenzene	1.1	0.049	0.9709	0	115	80	120			
Xylenes, Total	3.3	0.097	2.913	0	115	80	120			
Surr: 4-Bromofluorobenzene	0.89		0.9709		91.4	70	130			

Sample ID: 2202480-002amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-18 5'	Batch ID: 65478	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021237	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.2	0.024	0.9653	0	123	80	120	3.90	20	S
Toluene	1.1	0.048	0.9653	0	118	80	120	2.19	20	
Ethylbenzene	1.1	0.048	0.9653	0	117	80	120	1.12	20	
Xylenes, Total	3.4	0.097	2.896	0	116	80	120	0.417	20	
Surr: 4-Bromofluorobenzene	0.85		0.9653		88.3	70	130	0	0	

Sample ID: lcs-65486	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021256	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.025	1.000	0	106	80	120			
Toluene	1.0	0.050	1.000	0	105	80	120			
Ethylbenzene	1.0	0.050	1.000	0	101	80	120			
Xylenes, Total	3.1	0.10	3.000	0	103	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		101	70	130			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2202480

23-Feb-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: mb-65486	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021257	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.91		1.000		90.9	70	130			

Sample ID: 2202480-020ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-29 2'	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/11/2022	SeqNo: 3021260	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9579	0	116	80	120			
Toluene	1.1	0.048	0.9579	0	116	80	120			
Ethylbenzene	1.0	0.048	0.9579	0	110	80	120			
Xylenes, Total	3.2	0.096	2.874	0	112	80	120			
Surr: 4-Bromofluorobenzene	0.94		0.9579		98.5	70	130			

Sample ID: 2202480-020amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BH22-29 2'	Batch ID: 65486	RunNo: 85799								
Prep Date: 2/10/2022	Analysis Date: 2/12/2022	SeqNo: 3021261	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	1.1	0.024	0.9488	0	116	80	120	0.895	20	
Toluene	1.1	0.047	0.9488	0	116	80	120	1.08	20	
Ethylbenzene	1.1	0.047	0.9488	0	112	80	120	1.14	20	
Xylenes, Total	3.3	0.095	2.846	0	114	80	120	1.07	20	
Surr: 4-Bromofluorobenzene	0.96		0.9488		101	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2202480 RcptNo: 1

Received By: Cheyenne Cason 2/10/2022 8:00:00 AM
Completed By: Tracy Casarrubias 2/10/2022 9:15:17 AM
Reviewed By: JR 2/10/22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

- 3. Was an attempt made to cool the samples? Yes [checked] No [] NA []
4. Were all samples received at a temperature of >0° C to 6.0° C Yes [checked] No [] NA []
5. Sample(s) in proper container(s)? Yes [checked] No []
6. Sufficient sample volume for indicated test(s)? Yes [checked] No []
7. Are samples (except VOA and ONG) properly preserved? Yes [checked] No []
8. Was preservative added to bottles? Yes [] No [checked] NA []
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes [] No [] NA [checked]
10. Were any sample containers received broken? Yes [] No [checked]
11. Does paperwork match bottle labels? Yes [checked] No []
12. Are matrices correctly identified on Chain of Custody? Yes [checked] No []
13. Is it clear what analyses were requested? Yes [checked] No []
14. Were all holding times able to be met? Yes [checked] No []

of preserved bottles checked for pH: (<2 or >12 unless noted)
Adjusted?
Checked by: KPG 2/10/22

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: Date:
By Whom: Via: [] eMail [] Phone [] Fax [] In Person
Regarding:
Client Instructions:

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Row 1: 1, 2.1, Good, Yes, , ,

Chain-of-Custody Record

Client:

Verily

Mailing Address:

On File

Phone #:

email or Fax#:

QA/QC Package:

Standard Level 4 (Full Validation)

Accreditation: Az Compliance

NELAC Other

EDD (Type)

Turn-Around Time: *S- Day*

Standard

Rush

Project Name:

Gem North Tank Battery

Project #:

22E-00197

Project Manager:

Dennis Williams

Sampler: *Chance Dixon*

On Ice: Yes No

of Coolers: *1*

Cooler Temp (including CF): *2.1-0-2.1* (°C)

Container Type and # Preservative Type HEAL No. *2202480*

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
<i>2/8</i>	<i>8:30</i>	<i>SO17</i>	<i>BH22-15 6'</i>	<i>402</i>	<i>ICE</i>	<i>001</i>
	<i>8:35</i>		<i>BH22-18 5'</i>			<i>002</i>
	<i>8:40</i>		<i>BH22-21 0'</i>			<i>003</i>
	<i>8:45</i>		<i>BH22-21 2'</i>			<i>004</i>
	<i>8:50</i>		<i>BH22-22 0'</i>			<i>005</i>
	<i>8:55</i>		<i>BH22-22 2'</i>			<i>006</i>
	<i>9:00</i>		<i>BH22-23 0'</i>			<i>007</i>
	<i>9:05</i>		<i>BH22-23 2'</i>			<i>008</i>
	<i>10:30</i>		<i>BH22-24 0'</i>			<i>009</i>
	<i>10:35</i>		<i>BH22-24 2'</i>			<i>010</i>
	<i>10:40</i>		<i>BH22-25 0'</i>			<i>011</i>
	<i>10:45</i>		<i>BH22-25 2'</i>			<i>012</i>

Date: *10:45* Time: *10:45*

Received by: *Chance Dixon* Via: *Hand* Date: *2/13/23* Time: *9:50*

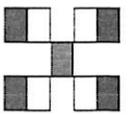
Date: *10:45* Time: *10:45*

Received by: *Chance Dixon* Via: *Hand* Date: *2/13/23* Time: *9:50*

Date: *10:45* Time: *10:45*

Received by: *Chance Dixon* Via: *Hand* Date: *2/13/23* Time: *9:50*

Remarks:
<i>CC: Chance Dixon</i>



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

- BTEX / MTBE / TMB's (8021)
- TPH:8015D(GRO / DRO / MRO)
- 8081 Pesticides/8082 PCB's
- EDB (Method 504.1)
- PAHs by 8310 or 8270SIMS
- RCRA 8 Metals
- Cl, F, Br, NO₃, NO₂, PO₄, SO₄
- 8260 (VOA)
- 8270 (Semi-VOA)
- Total Coliform (Present/Absent)

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Chain-of-Custody Record

Client: Vortex

Mailing Address: On File

Phone #:

email or Fax#:

QA/QC Package:

Standard Level 4 (Full Validation)

Accreditation: Az Compliance

NELAC Other

EDD (Type)

Turn-Around Time: 5-7 Day

Standard Rush

Project Name: Gem North Tank Battery

Project #:

22E-00197

Project Manager:

Dennis Hill, 905

Sampler: Chance Dixon

On Ice: Yes No

of Coolers: 1

Cooler Temp (including CF): 22 21-0 = 2.1 (°C)

Container Type and # 402 Preservative Type Ice HEAL No. 2202480

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
2/8	10:50	SO17	BH22-26 0'	402	Ice	013
	10:55		BH22-26 2'			014
	11:05		BH22-27 0'			015
	11:05		BH22-27 2'			016
	11:10		BH22-28 0'			017
	11:15		BH22-28 2'			018
	11:20		BH22-29 0'			019
	11:25		BH22-29 2'			020
	11:30		BH22-30 0'			021
	11:35		BH22-30 2'			022

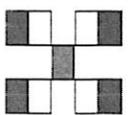
Date: _____ Time: _____ Relinquished by: _____

Date: 4/12/20 Time: 1000 Relinquished by: Chance Dixon

Received by: _____ Via: _____ Date _____ Time _____

Received by: Chance Dixon Via: Car Comm Date 4/12/20 Time 0930

Remarks: CC: Chance Dixon



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4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

- BTEX / MTBE / TMB's (8021)
- TPH:8015D(GRO / DRO / MRO)
- 8081 Pesticides/8082 PCB's
- EDB (Method 504.1)
- PAHs by 8310 or 8270SIMS
- RCRA 8 Metals
- Cl, F, Br, NO₃, NO₂, PO₄, SO₄
- 8260 (VOA)
- 8270 (Semi-VOA)
- Total Coliform (Present/Absent)

If necessary, samples submitted to Hall Environmental may be subcontracted to other accredited laboratories. This serves as notice of this possibility. Any sub-contracted data will be clearly notated on the analytical report.

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-01 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:00:00 AM

Lab ID: 2203287-001

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	300	10		mg/Kg	1	3/8/2022 5:54:28 PM
Motor Oil Range Organics (MRO)	470	50		mg/Kg	1	3/8/2022 5:54:28 PM
Surr: DNOP	87.3	51.1-141		%Rec	1	3/8/2022 5:54:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/7/2022 6:44:00 PM
Surr: BFB	103	70-130		%Rec	1	3/7/2022 6:44:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	3/7/2022 6:44:00 PM
Toluene	ND	0.049		mg/Kg	1	3/7/2022 6:44:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/7/2022 6:44:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/7/2022 6:44:00 PM
Surr: 4-Bromofluorobenzene	87.2	70-130		%Rec	1	3/7/2022 6:44:00 PM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	1100	59		mg/Kg	20	3/10/2022 8:24:08 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-02 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:05:00 AM

Lab ID: 2203287-002

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	58	9.6		mg/Kg	1	3/9/2022 7:15:58 AM
Motor Oil Range Organics (MRO)	78	48		mg/Kg	1	3/9/2022 7:15:58 AM
Surr: DNOP	122	51.1-141		%Rec	1	3/9/2022 7:15:58 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/7/2022 7:04:00 PM
Surr: BFB	102	70-130		%Rec	1	3/7/2022 7:04:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	3/7/2022 7:04:00 PM
Toluene	ND	0.050		mg/Kg	1	3/7/2022 7:04:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/7/2022 7:04:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/7/2022 7:04:00 PM
Surr: 4-Bromofluorobenzene	86.6	70-130		%Rec	1	3/7/2022 7:04:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1500	60		mg/Kg	20	3/10/2022 11:29:16 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-03 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:10:00 AM

Lab ID: 2203287-003

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	310	9.1		mg/Kg	1	3/8/2022 6:35:47 PM
Motor Oil Range Organics (MRO)	710	45		mg/Kg	1	3/8/2022 6:35:47 PM
Surr: DNOP	84.7	51.1-141		%Rec	1	3/8/2022 6:35:47 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/7/2022 7:23:00 PM
Surr: BFB	99.2	70-130		%Rec	1	3/7/2022 7:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	3/7/2022 7:23:00 PM
Toluene	ND	0.050		mg/Kg	1	3/7/2022 7:23:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/7/2022 7:23:00 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/7/2022 7:23:00 PM
Surr: 4-Bromofluorobenzene	86.7	70-130		%Rec	1	3/7/2022 7:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	350	59		mg/Kg	20	3/10/2022 12:31:18 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-04 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:15:00 AM

Lab ID: 2203287-004

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	350	9.9		mg/Kg	1	3/8/2022 7:17:43 PM
Motor Oil Range Organics (MRO)	490	50		mg/Kg	1	3/8/2022 7:17:43 PM
Surr: DNOP	89.5	51.1-141		%Rec	1	3/8/2022 7:17:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/7/2022 7:43:00 PM
Surr: BFB	101	70-130		%Rec	1	3/7/2022 7:43:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/7/2022 7:43:00 PM
Toluene	ND	0.048		mg/Kg	1	3/7/2022 7:43:00 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/7/2022 7:43:00 PM
Xylenes, Total	ND	0.096		mg/Kg	1	3/7/2022 7:43:00 PM
Surr: 4-Bromofluorobenzene	84.4	70-130		%Rec	1	3/7/2022 7:43:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	270	60		mg/Kg	20	3/10/2022 1:08:32 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-01 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:20:00 AM

Lab ID: 2203287-005

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	150	8.3		mg/Kg	1	3/8/2022 7:59:52 PM
Motor Oil Range Organics (MRO)	280	41		mg/Kg	1	3/8/2022 7:59:52 PM
Surr: DNOP	98.7	51.1-141		%Rec	1	3/8/2022 7:59:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/7/2022 8:03:00 PM
Surr: BFB	103	70-130		%Rec	1	3/7/2022 8:03:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	3/7/2022 8:03:00 PM
Toluene	ND	0.049		mg/Kg	1	3/7/2022 8:03:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/7/2022 8:03:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/7/2022 8:03:00 PM
Surr: 4-Bromofluorobenzene	82.6	70-130		%Rec	1	3/7/2022 8:03:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	ND	60		mg/Kg	20	3/10/2022 1:20:56 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-05 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:25:00 AM

Lab ID: 2203287-006

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	130	9.2		mg/Kg	1	3/8/2022 8:42:30 PM
Motor Oil Range Organics (MRO)	190	46		mg/Kg	1	3/8/2022 8:42:30 PM
Surr: DNOP	96.9	51.1-141		%Rec	1	3/8/2022 8:42:30 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/7/2022 8:23:00 PM
Surr: BFB	101	70-130		%Rec	1	3/7/2022 8:23:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	3/7/2022 8:23:00 PM
Toluene	ND	0.047		mg/Kg	1	3/7/2022 8:23:00 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/7/2022 8:23:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	3/7/2022 8:23:00 PM
Surr: 4-Bromofluorobenzene	85.0	70-130		%Rec	1	3/7/2022 8:23:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	610	60		mg/Kg	20	3/10/2022 1:33:20 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-06 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:30:00 AM

Lab ID: 2203287-007

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	10	9.0		mg/Kg	1	3/7/2022 4:26:04 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/7/2022 4:26:04 PM
Surr: DNOP	93.4	51.1-141		%Rec	1	3/7/2022 4:26:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/7/2022 8:42:00 PM
Surr: BFB	98.7	70-130		%Rec	1	3/7/2022 8:42:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.023		mg/Kg	1	3/7/2022 8:42:00 PM
Toluene	ND	0.046		mg/Kg	1	3/7/2022 8:42:00 PM
Ethylbenzene	ND	0.046		mg/Kg	1	3/7/2022 8:42:00 PM
Xylenes, Total	ND	0.093		mg/Kg	1	3/7/2022 8:42:00 PM
Surr: 4-Bromofluorobenzene	84.5	70-130		%Rec	1	3/7/2022 8:42:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1100	60		mg/Kg	20	3/10/2022 1:45:44 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-07 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:35:00 AM

Lab ID: 2203287-008

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	1100	95		mg/Kg	10	3/9/2022 10:07:09 AM
Motor Oil Range Organics (MRO)	1200	480		mg/Kg	10	3/9/2022 10:07:09 AM
Surr: DNOP	0	51.1-141	S	%Rec	10	3/9/2022 10:07:09 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/7/2022 11:20:00 PM
Surr: BFB	97.8	70-130		%Rec	1	3/7/2022 11:20:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/7/2022 11:20:00 PM
Toluene	ND	0.049		mg/Kg	1	3/7/2022 11:20:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/7/2022 11:20:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	3/7/2022 11:20:00 PM
Surr: 4-Bromofluorobenzene	83.9	70-130		%Rec	1	3/7/2022 11:20:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	2300	60	E	mg/Kg	20	3/10/2022 1:58:09 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-08 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:40:00 AM

Lab ID: 2203287-009

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	110	9.2		mg/Kg	1	3/9/2022 12:54:06 PM
Motor Oil Range Organics (MRO)	140	46		mg/Kg	1	3/9/2022 12:54:06 PM
Surr: DNOP	122	51.1-141		%Rec	1	3/9/2022 12:54:06 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/7/2022 11:39:00 PM
Surr: BFB	102	70-130		%Rec	1	3/7/2022 11:39:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/7/2022 11:39:00 PM
Toluene	ND	0.049		mg/Kg	1	3/7/2022 11:39:00 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/7/2022 11:39:00 PM
Xylenes, Total	ND	0.097		mg/Kg	1	3/7/2022 11:39:00 PM
Surr: 4-Bromofluorobenzene	85.4	70-130		%Rec	1	3/7/2022 11:39:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1100	60		mg/Kg	20	3/10/2022 2:10:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-02 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:45:00 AM

Lab ID: 2203287-010

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/8/2022 1:39:28 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/8/2022 1:39:28 PM
Surr: DNOP	99.2	51.1-141		%Rec	1	3/8/2022 1:39:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/7/2022 11:59:00 PM
Surr: BFB	99.9	70-130		%Rec	1	3/7/2022 11:59:00 PM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	3/7/2022 11:59:00 PM
Toluene	ND	0.050		mg/Kg	1	3/7/2022 11:59:00 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/7/2022 11:59:00 PM
Xylenes, Total	ND	0.099		mg/Kg	1	3/7/2022 11:59:00 PM
Surr: 4-Bromofluorobenzene	85.5	70-130		%Rec	1	3/7/2022 11:59:00 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1700	60		mg/Kg	20	3/10/2022 2:22:58 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-09 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:50:00 AM

Lab ID: 2203287-011

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	3/8/2022 1:54:11 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/8/2022 1:54:11 PM
Surr: DNOP	93.4	51.1-141		%Rec	1	3/8/2022 1:54:11 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/8/2022 12:18:00 AM
Surr: BFB	104	70-130		%Rec	1	3/8/2022 12:18:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 12:18:00 AM
Toluene	ND	0.048		mg/Kg	1	3/8/2022 12:18:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/8/2022 12:18:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/8/2022 12:18:00 AM
Surr: 4-Bromofluorobenzene	86.3	70-130		%Rec	1	3/8/2022 12:18:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	220	60		mg/Kg	20	3/10/2022 3:00:11 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-10 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 9:55:00 AM

Lab ID: 2203287-012

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/8/2022 2:08:34 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/8/2022 2:08:34 PM
Surr: DNOP	120	51.1-141		%Rec	1	3/8/2022 2:08:34 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2022 12:38:00 AM
Surr: BFB	97.9	70-130		%Rec	1	3/8/2022 12:38:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 12:38:00 AM
Toluene	ND	0.049		mg/Kg	1	3/8/2022 12:38:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2022 12:38:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2022 12:38:00 AM
Surr: 4-Bromofluorobenzene	85.3	70-130		%Rec	1	3/8/2022 12:38:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	210	60		mg/Kg	20	3/10/2022 3:12:35 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-11 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:00:00 AM

Lab ID: 2203287-013

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	17	9.6		mg/Kg	1	3/8/2022 2:23:02 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/8/2022 2:23:02 PM
Surr: DNOP	114	51.1-141		%Rec	1	3/8/2022 2:23:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/8/2022 12:57:00 AM
Surr: BFB	95.4	70-130		%Rec	1	3/8/2022 12:57:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 12:57:00 AM
Toluene	ND	0.048		mg/Kg	1	3/8/2022 12:57:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/8/2022 12:57:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/8/2022 12:57:00 AM
Surr: 4-Bromofluorobenzene	84.0	70-130		%Rec	1	3/8/2022 12:57:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	640	60		mg/Kg	20	3/10/2022 3:24:59 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-12 1'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:05:00 AM

Lab ID: 2203287-014

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/8/2022 2:37:28 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/8/2022 2:37:28 PM
Surr: DNOP	92.0	51.1-141		%Rec	1	3/8/2022 2:37:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2022 1:17:00 AM
Surr: BFB	107	70-130		%Rec	1	3/8/2022 1:17:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 1:17:00 AM
Toluene	ND	0.049		mg/Kg	1	3/8/2022 1:17:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2022 1:17:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2022 1:17:00 AM
Surr: 4-Bromofluorobenzene	87.8	70-130		%Rec	1	3/8/2022 1:17:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	630	60		mg/Kg	20	3/10/2022 3:37:24 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-03 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:10:00 AM

Lab ID: 2203287-015

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	110	9.4		mg/Kg	1	3/9/2022 9:35:03 AM
Motor Oil Range Organics (MRO)	120	47		mg/Kg	1	3/9/2022 9:35:03 AM
Surr: DNOP	89.8	51.1-141		%Rec	1	3/9/2022 9:35:03 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/8/2022 1:36:00 AM
Surr: BFB	100	70-130		%Rec	1	3/8/2022 1:36:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 1:36:00 AM
Toluene	ND	0.047		mg/Kg	1	3/8/2022 1:36:00 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/8/2022 1:36:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/8/2022 1:36:00 AM
Surr: 4-Bromofluorobenzene	85.0	70-130		%Rec	1	3/8/2022 1:36:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	180	60		mg/Kg	20	3/10/2022 3:49:48 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-13 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:15:00 AM

Lab ID: 2203287-016

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.2		mg/Kg	1	3/8/2022 2:51:37 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/8/2022 2:51:37 PM
Surr: DNOP	85.2	51.1-141		%Rec	1	3/8/2022 2:51:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2022 1:56:00 AM
Surr: BFB	101	70-130		%Rec	1	3/8/2022 1:56:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.025		mg/Kg	1	3/8/2022 1:56:00 AM
Toluene	ND	0.049		mg/Kg	1	3/8/2022 1:56:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2022 1:56:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2022 1:56:00 AM
Surr: 4-Bromofluorobenzene	85.7	70-130		%Rec	1	3/8/2022 1:56:00 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	180	60		mg/Kg	20	3/10/2022 4:02:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-14 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:20:00 AM

Lab ID: 2203287-017

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	9.1		mg/Kg	1	3/8/2022 3:06:10 PM
Motor Oil Range Organics (MRO)	ND	45		mg/Kg	1	3/8/2022 3:06:10 PM
Surr: DNOP	86.5	51.1-141		%Rec	1	3/8/2022 3:06:10 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/8/2022 2:16:00 AM
Surr: BFB	98.7	70-130		%Rec	1	3/8/2022 2:16:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 2:16:00 AM
Toluene	ND	0.049		mg/Kg	1	3/8/2022 2:16:00 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/8/2022 2:16:00 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/8/2022 2:16:00 AM
Surr: 4-Bromofluorobenzene	85.6	70-130		%Rec	1	3/8/2022 2:16:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/10/2022 11:40:44 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-15 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:25:00 AM

Lab ID: 2203287-018

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	3/8/2022 3:20:20 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	3/8/2022 3:20:20 PM
Surr: DNOP	90.1	51.1-141		%Rec	1	3/8/2022 3:20:20 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/8/2022 3:14:00 AM
Surr: BFB	98.9	70-130		%Rec	1	3/8/2022 3:14:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 3:14:00 AM
Toluene	ND	0.048		mg/Kg	1	3/8/2022 3:14:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/8/2022 3:14:00 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/8/2022 3:14:00 AM
Surr: 4-Bromofluorobenzene	85.7	70-130		%Rec	1	3/8/2022 3:14:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	140	60		mg/Kg	20	3/10/2022 11:53:04 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-16 2'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:30:00 AM

Lab ID: 2203287-019

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	3/8/2022 3:34:43 PM
Motor Oil Range Organics (MRO)	ND	42		mg/Kg	1	3/8/2022 3:34:43 PM
Surr: DNOP	92.3	51.1-141		%Rec	1	3/8/2022 3:34:43 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/8/2022 3:34:00 AM
Surr: BFB	99.3	70-130		%Rec	1	3/8/2022 3:34:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 3:34:00 AM
Toluene	ND	0.048		mg/Kg	1	3/8/2022 3:34:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/8/2022 3:34:00 AM
Xylenes, Total	ND	0.095		mg/Kg	1	3/8/2022 3:34:00 AM
Surr: 4-Bromofluorobenzene	84.9	70-130		%Rec	1	3/8/2022 3:34:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/10/2022 12:05:25 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203287**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-04 6'

Project: GEM North Tank Battery

Collection Date: 3/2/2022 10:35:00 AM

Lab ID: 2203287-020

Matrix: SOIL

Received Date: 3/4/2022 8:00:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: SB
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	3/8/2022 3:48:53 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	3/8/2022 3:48:53 PM
Surr: DNOP	73.7	51.1-141		%Rec	1	3/8/2022 3:48:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: RAA
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/8/2022 3:53:00 AM
Surr: BFB	98.1	70-130		%Rec	1	3/8/2022 3:53:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: RAA
Benzene	ND	0.024		mg/Kg	1	3/8/2022 3:53:00 AM
Toluene	ND	0.048		mg/Kg	1	3/8/2022 3:53:00 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/8/2022 3:53:00 AM
Xylenes, Total	ND	0.097		mg/Kg	1	3/8/2022 3:53:00 AM
Surr: 4-Bromofluorobenzene	85.5	70-130		%Rec	1	3/8/2022 3:53:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	74	60		mg/Kg	20	3/10/2022 12:17:46 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

March 18, 2022

Dennis Williams
Vertex Resources Services, Inc.
3101 Boyd Drive
Carlsbad, NM 88220
TEL: (505) 506-0040
FAX

RE: Gem North Tank Battery

OrderNo.: 2203355

Dear Dennis Williams:

Hall Environmental Analysis Laboratory received 21 sample(s) on 3/5/2022 for the analyses presented in the following report.

These were analyzed according to EPA procedures or equivalent. To access our accredited tests please go to www.hallenvironmental.com or the state specific web sites. In order to properly interpret your results, it is imperative that you review this report in its entirety. See the sample checklist and/or the Chain of Custody for information regarding the sample receipt temperature and preservation. Data qualifiers or a narrative will be provided if the sample analysis or analytical quality control parameters require a flag. When necessary, data qualifiers are provided on both the sample analysis report and the QC summary report, both sections should be reviewed. All samples are reported, as received, unless otherwise indicated. Lab measurement of analytes considered field parameters that require analysis within 15 minutes of sampling such as pH and residual chlorine are qualified as being analyzed outside of the recommended holding time.

Please don't hesitate to contact HEAL for any additional information or clarifications.

ADHS Cert #AZ0682 -- NMED-DWB Cert #NM9425 -- NMED-Micro Cert #NM0901

Sincerely,

A handwritten signature in black ink, appearing to read "Andy Freeman", is written over a white background.

Andy Freeman
Laboratory Manager
4901 Hawkins NE
Albuquerque, NM 87109

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-17 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:00:00 AM

Lab ID: 2203355-001

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	3/11/2022 5:23:26 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/11/2022 5:23:26 PM
Surr: DNOP	73.5	51.1-141		%Rec	1	3/11/2022 5:23:26 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2022 12:26:54 AM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 12:26:54 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 12:26:54 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2022 12:26:54 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2022 12:26:54 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/11/2022 12:26:54 AM
Surr: 4-Bromofluorobenzene	94.0	70-130		%Rec	1	3/11/2022 12:26:54 AM
EPA METHOD 300.0: ANIONS						Analyst: CAS
Chloride	ND	60		mg/Kg	20	3/11/2022 10:15:00 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-05 1'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:05:00 AM

Lab ID: 2203355-002

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/11/2022 5:37:24 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/11/2022 5:37:24 PM
Surr: DNOP	83.6	51.1-141		%Rec	1	3/11/2022 5:37:24 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2022 12:50:24 AM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 12:50:24 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	3/11/2022 12:50:24 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2022 12:50:24 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2022 12:50:24 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/11/2022 12:50:24 AM
Surr: 4-Bromofluorobenzene	94.1	70-130		%Rec	1	3/11/2022 12:50:24 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 7:34:49 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-18 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:10:00 AM

Lab ID: 2203355-003

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	8.5		mg/Kg	1	3/11/2022 5:51:19 PM
Motor Oil Range Organics (MRO)	ND	43		mg/Kg	1	3/11/2022 5:51:19 PM
Surr: DNOP	71.2	51.1-141		%Rec	1	3/11/2022 5:51:19 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/11/2022 1:13:48 AM
Surr: BFB	102	70-130		%Rec	1	3/11/2022 1:13:48 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	3/11/2022 1:13:48 AM
Toluene	ND	0.050		mg/Kg	1	3/11/2022 1:13:48 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/11/2022 1:13:48 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/11/2022 1:13:48 AM
Surr: 4-Bromofluorobenzene	94.5	70-130		%Rec	1	3/11/2022 1:13:48 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 8:36:31 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-19 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:15:00 AM

Lab ID: 2203355-004

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	7.5		mg/Kg	1	3/11/2022 6:05:04 PM
Motor Oil Range Organics (MRO)	38	37		mg/Kg	1	3/11/2022 6:05:04 PM
Surr: DNOP	106	51.1-141		%Rec	1	3/11/2022 6:05:04 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2022 1:37:13 AM
Surr: BFB	100	70-130		%Rec	1	3/11/2022 1:37:13 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 1:37:13 AM
Toluene	ND	0.048		mg/Kg	1	3/11/2022 1:37:13 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2022 1:37:13 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/11/2022 1:37:13 AM
Surr: 4-Bromofluorobenzene	92.8	70-130		%Rec	1	3/11/2022 1:37:13 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 8:48:51 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-06 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:20:00 AM

Lab ID: 2203355-005

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/11/2022 6:18:56 PM
Motor Oil Range Organics (MRO)	ND	49		mg/Kg	1	3/11/2022 6:18:56 PM
Surr: DNOP	79.1	51.1-141		%Rec	1	3/11/2022 6:18:56 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2022 2:00:40 AM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 2:00:40 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 2:00:40 AM
Toluene	ND	0.048		mg/Kg	1	3/11/2022 2:00:40 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2022 2:00:40 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/11/2022 2:00:40 AM
Surr: 4-Bromofluorobenzene	96.3	70-130		%Rec	1	3/11/2022 2:00:40 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 9:01:12 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-20 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:25:00 AM

Lab ID: 2203355-006

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/11/2022 6:32:44 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/11/2022 6:32:44 PM
Surr: DNOP	91.4	51.1-141		%Rec	1	3/11/2022 6:32:44 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2022 2:24:03 AM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 2:24:03 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 2:24:03 AM
Toluene	ND	0.048		mg/Kg	1	3/11/2022 2:24:03 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2022 2:24:03 AM
Xylenes, Total	ND	0.097		mg/Kg	1	3/11/2022 2:24:03 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	3/11/2022 2:24:03 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 9:13:33 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-21 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:30:00 AM

Lab ID: 2203355-007

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/11/2022 6:46:38 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/11/2022 6:46:38 PM
Surr: DNOP	81.8	51.1-141		%Rec	1	3/11/2022 6:46:38 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2022 3:10:51 AM
Surr: BFB	102	70-130		%Rec	1	3/11/2022 3:10:51 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	3/11/2022 3:10:51 AM
Toluene	ND	0.047		mg/Kg	1	3/11/2022 3:10:51 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2022 3:10:51 AM
Xylenes, Total	ND	0.093		mg/Kg	1	3/11/2022 3:10:51 AM
Surr: 4-Bromofluorobenzene	93.9	70-130		%Rec	1	3/11/2022 3:10:51 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	59		mg/Kg	20	3/11/2022 9:25:55 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-07 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:35:00 AM

Lab ID: 2203355-008

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/11/2022 7:00:22 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/11/2022 7:00:22 PM
Surr: DNOP	74.8	51.1-141		%Rec	1	3/11/2022 7:00:22 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2022 3:34:17 AM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 3:34:17 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 3:34:17 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2022 3:34:17 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2022 3:34:17 AM
Xylenes, Total	ND	0.098		mg/Kg	1	3/11/2022 3:34:17 AM
Surr: 4-Bromofluorobenzene	95.5	70-130		%Rec	1	3/11/2022 3:34:17 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 9:38:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-22 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:40:00 AM

Lab ID: 2203355-009

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.5		mg/Kg	1	3/11/2022 7:14:05 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/11/2022 7:14:05 PM
Surr: DNOP	93.6	51.1-141		%Rec	1	3/11/2022 7:14:05 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.6		mg/Kg	1	3/11/2022 3:57:39 AM
Surr: BFB	102	70-130		%Rec	1	3/11/2022 3:57:39 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	3/11/2022 3:57:39 AM
Toluene	ND	0.046		mg/Kg	1	3/11/2022 3:57:39 AM
Ethylbenzene	ND	0.046		mg/Kg	1	3/11/2022 3:57:39 AM
Xylenes, Total	ND	0.093		mg/Kg	1	3/11/2022 3:57:39 AM
Surr: 4-Bromofluorobenzene	94.2	70-130		%Rec	1	3/11/2022 3:57:39 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	61		mg/Kg	20	3/11/2022 9:50:36 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-23 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:45:00 AM

Lab ID: 2203355-010

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	3/11/2022 7:27:50 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/11/2022 7:27:50 PM
Surr: DNOP	82.7	51.1-141		%Rec	1	3/11/2022 7:27:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2022 4:20:57 AM
Surr: BFB	100	70-130		%Rec	1	3/11/2022 4:20:57 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	3/11/2022 4:20:57 AM
Toluene	ND	0.047		mg/Kg	1	3/11/2022 4:20:57 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2022 4:20:57 AM
Xylenes, Total	ND	0.093		mg/Kg	1	3/11/2022 4:20:57 AM
Surr: 4-Bromofluorobenzene	93.0	70-130		%Rec	1	3/11/2022 4:20:57 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 10:02:56 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-24 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:50:00 AM

Lab ID: 2203355-011

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	8.8		mg/Kg	1	3/11/2022 7:41:28 PM
Motor Oil Range Organics (MRO)	ND	44		mg/Kg	1	3/11/2022 7:41:28 PM
Surr: DNOP	89.8	51.1-141		%Rec	1	3/11/2022 7:41:28 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/11/2022 4:44:19 AM
Surr: BFB	98.9	70-130		%Rec	1	3/11/2022 4:44:19 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 4:44:19 AM
Toluene	ND	0.049		mg/Kg	1	3/11/2022 4:44:19 AM
Ethylbenzene	ND	0.049		mg/Kg	1	3/11/2022 4:44:19 AM
Xylenes, Total	ND	0.097		mg/Kg	1	3/11/2022 4:44:19 AM
Surr: 4-Bromofluorobenzene	92.1	70-130		%Rec	1	3/11/2022 4:44:19 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 10:39:58 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-25 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 9:55:00 AM

Lab ID: 2203355-012

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.7		mg/Kg	1	3/11/2022 7:55:12 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/11/2022 7:55:12 PM
Surr: DNOP	95.7	51.1-141		%Rec	1	3/11/2022 7:55:12 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2022 9:10:07 AM
Surr: BFB	107	70-130		%Rec	1	3/11/2022 9:10:07 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 9:10:07 AM
Toluene	ND	0.048		mg/Kg	1	3/11/2022 9:10:07 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2022 9:10:07 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/11/2022 9:10:07 AM
Surr: 4-Bromofluorobenzene	94.4	70-130		%Rec	1	3/11/2022 9:10:07 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 10:52:19 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-08 0.5'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 10:00:00 AM

Lab ID: 2203355-013

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: TOM
Diesel Range Organics (DRO)	ND	9.6		mg/Kg	1	3/11/2022 8:08:52 PM
Motor Oil Range Organics (MRO)	ND	48		mg/Kg	1	3/11/2022 8:08:52 PM
Surr: DNOP	78.0	51.1-141		%Rec	1	3/11/2022 8:08:52 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2022 9:33:20 AM
Surr: BFB	99.9	70-130		%Rec	1	3/11/2022 9:33:20 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 9:33:20 AM
Toluene	ND	0.047		mg/Kg	1	3/11/2022 9:33:20 AM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2022 9:33:20 AM
Xylenes, Total	ND	0.094		mg/Kg	1	3/11/2022 9:33:20 AM
Surr: 4-Bromofluorobenzene	95.0	70-130		%Rec	1	3/11/2022 9:33:20 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/11/2022 11:04:40 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-01 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 11:30:00 AM

Lab ID: 2203355-014

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	62	9.8		mg/Kg	1	3/10/2022 2:45:09 PM
Motor Oil Range Organics (MRO)	150	49		mg/Kg	1	3/10/2022 2:45:09 PM
Surr: DNOP	129	51.1-141		%Rec	1	3/10/2022 2:45:09 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2022 9:56:43 AM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 9:56:43 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 9:56:43 AM
Toluene	ND	0.048		mg/Kg	1	3/11/2022 9:56:43 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2022 9:56:43 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/11/2022 9:56:43 AM
Surr: 4-Bromofluorobenzene	94.8	70-130		%Rec	1	3/11/2022 9:56:43 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	1600	60		mg/Kg	20	3/11/2022 11:17:01 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order 2203355

Date Reported: 3/18/2022

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-02 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 11:35:00 AM

Lab ID: 2203355-015

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	980	96		mg/Kg	10	3/10/2022 2:55:53 PM
Motor Oil Range Organics (MRO)	1900	480		mg/Kg	10	3/10/2022 2:55:53 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	3/10/2022 2:55:53 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	23		mg/Kg	5	3/11/2022 10:20:00 AM
Surr: BFB	101	70-130		%Rec	5	3/11/2022 10:20:00 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	3/11/2022 10:20:00 AM
Toluene	ND	0.23		mg/Kg	5	3/11/2022 10:20:00 AM
Ethylbenzene	ND	0.23		mg/Kg	5	3/11/2022 10:20:00 AM
Xylenes, Total	ND	0.46		mg/Kg	5	3/11/2022 10:20:00 AM
Surr: 4-Bromofluorobenzene	94.6	70-130		%Rec	5	3/11/2022 10:20:00 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	2200	60		mg/Kg	20	3/11/2022 11:29:22 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-03 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 11:40:00 AM

Lab ID: 2203355-016

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	240	88		mg/Kg	10	3/10/2022 1:49:55 PM
Motor Oil Range Organics (MRO)	500	440		mg/Kg	10	3/10/2022 1:49:55 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	3/10/2022 1:49:55 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	23		mg/Kg	5	3/11/2022 10:43:21 AM
Surr: BFB	101	70-130		%Rec	5	3/11/2022 10:43:21 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.12		mg/Kg	5	3/11/2022 10:43:21 AM
Toluene	ND	0.23		mg/Kg	5	3/11/2022 10:43:21 AM
Ethylbenzene	ND	0.23		mg/Kg	5	3/11/2022 10:43:21 AM
Xylenes, Total	ND	0.47		mg/Kg	5	3/11/2022 10:43:21 AM
Surr: 4-Bromofluorobenzene	94.2	70-130		%Rec	5	3/11/2022 10:43:21 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	2100	60		mg/Kg	20	3/11/2022 11:41:43 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-04 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 11:45:00 AM

Lab ID: 2203355-017

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	110	9.6		mg/Kg	1	3/10/2022 9:10:09 AM
Motor Oil Range Organics (MRO)	160	48		mg/Kg	1	3/10/2022 9:10:09 AM
Surr: DNOP	111	51.1-141		%Rec	1	3/10/2022 9:10:09 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/11/2022 11:06:41 AM
Surr: BFB	104	70-130		%Rec	1	3/11/2022 11:06:41 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	3/11/2022 11:06:41 AM
Toluene	ND	0.050		mg/Kg	1	3/11/2022 11:06:41 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/11/2022 11:06:41 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/11/2022 11:06:41 AM
Surr: 4-Bromofluorobenzene	95.8	70-130		%Rec	1	3/11/2022 11:06:41 AM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	1700	60		mg/Kg	20	3/11/2022 11:54:04 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-05 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 11:50:00 AM

Lab ID: 2203355-018

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	370	100		mg/Kg	10	3/9/2022 6:40:36 PM
Motor Oil Range Organics (MRO)	540	500		mg/Kg	10	3/9/2022 6:40:36 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	3/9/2022 6:40:36 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/11/2022 12:16:55 PM
Surr: BFB	100	70-130		%Rec	1	3/11/2022 12:16:55 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	3/11/2022 12:16:55 PM
Toluene	ND	0.050		mg/Kg	1	3/11/2022 12:16:55 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/11/2022 12:16:55 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/11/2022 12:16:55 PM
Surr: 4-Bromofluorobenzene	93.2	70-130		%Rec	1	3/11/2022 12:16:55 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	1100	60		mg/Kg	20	3/12/2022 12:06:24 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Estimated value |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| PQL Practical Quantitative Limit | RL Reporting Limit |
| S % Recovery outside of range due to dilution or matrix interference | |

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-06 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 11:55:00 AM

Lab ID: 2203355-019

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	10		mg/Kg	1	3/9/2022 6:51:21 PM
Motor Oil Range Organics (MRO)	ND	50		mg/Kg	1	3/9/2022 6:51:21 PM
Surr: DNOP	93.7	51.1-141		%Rec	1	3/9/2022 6:51:21 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/11/2022 1:27:28 PM
Surr: BFB	102	70-130		%Rec	1	3/11/2022 1:27:28 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/11/2022 1:27:28 PM
Toluene	ND	0.048		mg/Kg	1	3/11/2022 1:27:28 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/11/2022 1:27:28 PM
Xylenes, Total	ND	0.095		mg/Kg	1	3/11/2022 1:27:28 PM
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	3/11/2022 1:27:28 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/12/2022 12:18:45 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-07 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 12:00:00 PM

Lab ID: 2203355-020

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.3		mg/Kg	1	3/9/2022 7:02:07 PM
Motor Oil Range Organics (MRO)	ND	46		mg/Kg	1	3/9/2022 7:02:07 PM
Surr: DNOP	90.4	51.1-141		%Rec	1	3/9/2022 7:02:07 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2022 1:51:11 PM
Surr: BFB	105	70-130		%Rec	1	3/11/2022 1:51:11 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	3/11/2022 1:51:11 PM
Toluene	ND	0.047		mg/Kg	1	3/11/2022 1:51:11 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2022 1:51:11 PM
Xylenes, Total	ND	0.094		mg/Kg	1	3/11/2022 1:51:11 PM
Surr: 4-Bromofluorobenzene	96.7	70-130		%Rec	1	3/11/2022 1:51:11 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	60		mg/Kg	20	3/12/2022 12:31:06 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203355**

Date Reported: **3/18/2022**

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: SS22-08 0'

Project: Gem North Tank Battery

Collection Date: 3/3/2022 12:05:00 PM

Lab ID: 2203355-021

Matrix: SOIL

Received Date: 3/5/2022 8:55:00 AM

Analyses	Result	PQL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: JME
Diesel Range Organics (DRO)	ND	9.4		mg/Kg	1	3/9/2022 7:12:50 PM
Motor Oil Range Organics (MRO)	ND	47		mg/Kg	1	3/9/2022 7:12:50 PM
Surr: DNOP	101	51.1-141		%Rec	1	3/9/2022 7:12:50 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/11/2022 2:14:49 PM
Surr: BFB	103	70-130		%Rec	1	3/11/2022 2:14:49 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.023		mg/Kg	1	3/11/2022 2:14:49 PM
Toluene	ND	0.047		mg/Kg	1	3/11/2022 2:14:49 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/11/2022 2:14:49 PM
Xylenes, Total	ND	0.094		mg/Kg	1	3/11/2022 2:14:49 PM
Surr: 4-Bromofluorobenzene	95.3	70-130		%Rec	1	3/11/2022 2:14:49 PM
EPA METHOD 300.0: ANIONS						Analyst: LRN
Chloride	ND	59		mg/Kg	20	3/12/2022 1:08:08 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: MB-66133	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 66133	RunNo: 86445								
Prep Date: 3/11/2022	Analysis Date: 3/11/2022	SeqNo: 3049868	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-66133	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 66133	RunNo: 86445								
Prep Date: 3/11/2022	Analysis Date: 3/11/2022	SeqNo: 3049869	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.0	90	110			

Sample ID: MB-66134	SampType: mblk	TestCode: EPA Method 300.0: Anions								
Client ID: PBS	Batch ID: 66134	RunNo: 86446								
Prep Date: 3/11/2022	Analysis Date: 3/11/2022	SeqNo: 3049953	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	ND	1.5								

Sample ID: LCS-66134	SampType: ics	TestCode: EPA Method 300.0: Anions								
Client ID: LCSS	Batch ID: 66134	RunNo: 86446								
Prep Date: 3/11/2022	Analysis Date: 3/11/2022	SeqNo: 3049954	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Chloride	14	1.5	15.00	0	92.3	90	110			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: MB-66042	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 66042	RunNo: 86364								
Prep Date: 3/8/2022	Analysis Date: 3/9/2022	SeqNo: 3045934	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	9.6		10.00		96.2	51.1	141			

Sample ID: LCS-66042	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 66042	RunNo: 86364								
Prep Date: 3/8/2022	Analysis Date: 3/9/2022	SeqNo: 3045937	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	10	50.00	0	90.2	68.9	135			
Surr: DNOP	4.4		5.000		88.9	51.1	141			

Sample ID: 2203355-020AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: SS22-07 0'	Batch ID: 66042	RunNo: 86364								
Prep Date: 3/8/2022	Analysis Date: 3/9/2022	SeqNo: 3046000	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	48	10	50.35	4.670	85.4	36.1	154			
Surr: DNOP	4.4		5.035		88.3	51.1	141			

Sample ID: 2203355-020AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: SS22-07 0'	Batch ID: 66042	RunNo: 86364								
Prep Date: 3/8/2022	Analysis Date: 3/9/2022	SeqNo: 3046001	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	46	9.5	47.30	4.670	88.3	36.1	154	2.56	33.9	
Surr: DNOP	4.4		4.730		92.0	51.1	141	0	0	

Sample ID: MB-66050	SampType: MBLK	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: PBS	Batch ID: 66050	RunNo: 86373								
Prep Date: 3/9/2022	Analysis Date: 3/10/2022	SeqNo: 3047399	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	ND	10								
Motor Oil Range Organics (MRO)	ND	50								
Surr: DNOP	12		10.00		116	51.1	141			

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: LCS-66050	SampType: LCS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: LCSS	Batch ID: 66050	RunNo: 86373								
Prep Date: 3/9/2022	Analysis Date: 3/10/2022	SeqNo: 3047414	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	91	10	100.0	0	91.3	68.9	135			
Surr: DNOP	9.9		10.00		99.3	51.1	141			

Sample ID: 2203354-015AMS	SampType: MS	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BatchQC	Batch ID: 66050	RunNo: 86399								
Prep Date: 3/9/2022	Analysis Date: 3/11/2022	SeqNo: 3049481	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	45	9.6	48.08	0	94.3	36.1	154			
Surr: DNOP	4.3		4.808		88.4	51.1	141			

Sample ID: 2203354-015AMSD	SampType: MSD	TestCode: EPA Method 8015M/D: Diesel Range Organics								
Client ID: BatchQC	Batch ID: 66050	RunNo: 86399								
Prep Date: 3/9/2022	Analysis Date: 3/11/2022	SeqNo: 3049482	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Diesel Range Organics (DRO)	44	9.2	46.04	0	96.5	36.1	154	2.00	33.9	
Surr: DNOP	4.0		4.604		87.1	51.1	141	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: mb-66026	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047578	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1100		1000		106	70	130			

Sample ID: ics-66026	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047579	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	27	5.0	25.00	0	107	78.6	131			
Surr: BFB	2200		1000		224	70	130			S

Sample ID: 2203354-014ams	SampType: MS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BatchQC	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047581	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.63	0	103	70	130			
Surr: BFB	2200		985.2		221	70	130			S

Sample ID: 2203354-014amsd	SampType: MSD	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: BatchQC	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047582	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	5.0	24.78	0	100	70	130	2.55	20	
Surr: BFB	2200		991.1		218	70	130	0	0	S

Sample ID: mb-66034	SampType: MBLK	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: PBS	Batch ID: 66034	RunNo: 86431								
Prep Date: 3/8/2022	Analysis Date: 3/11/2022	SeqNo: 3049152	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	ND	5.0								
Surr: BFB	1300		1000		125	70	130			

Sample ID: ics-66034	SampType: LCS	TestCode: EPA Method 8015D: Gasoline Range								
Client ID: LCSS	Batch ID: 66034	RunNo: 86431								
Prep Date: 3/8/2022	Analysis Date: 3/11/2022	SeqNo: 3049153	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: Ics-66034	SampType: LCS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: LCSS	Batch ID: 66034		RunNo: 86431							
Prep Date: 3/8/2022	Analysis Date: 3/11/2022		SeqNo: 3049153		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	32	5.0	25.00	0	128	78.6	131			
Surr: BFB	2600		1000		263	70	130			S

Sample ID: 2203355-017ams	SampType: MS		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: SS22-04 0'	Batch ID: 66034		RunNo: 86431							
Prep Date: 3/8/2022	Analysis Date: 3/11/2022		SeqNo: 3049155		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.30	0	104	70	130			
Surr: BFB	2100		971.8		216	70	130			S

Sample ID: 2203355-017amsd	SampType: MSD		TestCode: EPA Method 8015D: Gasoline Range							
Client ID: SS22-04 0'	Batch ID: 66034		RunNo: 86431							
Prep Date: 3/8/2022	Analysis Date: 3/11/2022		SeqNo: 3049156		Units: mg/Kg					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Gasoline Range Organics (GRO)	25	4.9	24.39	0	103	70	130	0.650	20	
Surr: BFB	2100		975.6		211	70	130	0	0	S

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: mb-66026	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047626	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.98		1.000		97.5	70	130			

Sample ID: LCS-66026	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047627	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.89	0.025	1.000	0	89.1	80	120			
Toluene	0.94	0.050	1.000	0	93.8	80	120			
Ethylbenzene	0.95	0.050	1.000	0	95.3	80	120			
Xylenes, Total	2.8	0.10	3.000	0	94.7	80	120			
Surr: 4-Bromofluorobenzene	1.0		1.000		102	70	130			

Sample ID: 2203354-015ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: BatchQC	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047630	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.024	0.9718	0	85.3	68.8	120			
Toluene	0.89	0.049	0.9718	0	91.1	73.6	124			
Ethylbenzene	0.90	0.049	0.9718	0	92.8	72.7	129			
Xylenes, Total	2.7	0.097	2.915	0	93.7	75.7	126			
Surr: 4-Bromofluorobenzene	0.96		0.9718		98.5	70	130			

Sample ID: 2203354-015amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: BatchQC	Batch ID: 66026	RunNo: 86398								
Prep Date: 3/8/2022	Analysis Date: 3/10/2022	SeqNo: 3047631	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.76	0.024	0.9775	0	78.1	68.8	120	8.28	20	
Toluene	0.82	0.049	0.9775	0	84.0	73.6	124	7.49	20	
Ethylbenzene	0.84	0.049	0.9775	0	86.1	72.7	129	6.91	20	
Xylenes, Total	2.5	0.098	2.933	0	85.8	75.7	126	8.18	20	
Surr: 4-Bromofluorobenzene	0.95		0.9775		97.0	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit

QC SUMMARY REPORT

Hall Environmental Analysis Laboratory, Inc.

WO#: 2203355

18-Mar-22

Client: Vertex Resources Services, Inc.

Project: Gem North Tank Battery

Sample ID: mb-66034	SampType: MBLK	TestCode: EPA Method 8021B: Volatiles								
Client ID: PBS	Batch ID: 66034	RunNo: 86431								
Prep Date: 3/8/2022	Analysis Date: 3/11/2022	SeqNo: 3049237	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	ND	0.025								
Toluene	ND	0.050								
Ethylbenzene	ND	0.050								
Xylenes, Total	ND	0.10								
Surr: 4-Bromofluorobenzene	0.96		1.000		96.1	70	130			

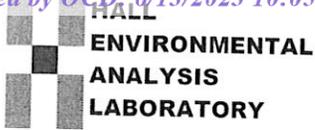
Sample ID: LCS-66034	SampType: LCS	TestCode: EPA Method 8021B: Volatiles								
Client ID: LCSS	Batch ID: 66034	RunNo: 86431								
Prep Date: 3/8/2022	Analysis Date: 3/11/2022	SeqNo: 3049238	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.85	0.025	1.000	0	85.4	80	120			
Toluene	0.91	0.050	1.000	0	90.8	80	120			
Ethylbenzene	0.92	0.050	1.000	0	91.8	80	120			
Xylenes, Total	2.8	0.10	3.000	0	91.7	80	120			
Surr: 4-Bromofluorobenzene	0.96		1.000		96.4	70	130			

Sample ID: 2203355-018ams	SampType: MS	TestCode: EPA Method 8021B: Volatiles								
Client ID: SS22-05 0'	Batch ID: 66034	RunNo: 86431								
Prep Date: 3/8/2022	Analysis Date: 3/11/2022	SeqNo: 3049241	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.83	0.024	0.9533	0	86.6	68.8	120			
Toluene	0.90	0.048	0.9533	0.01499	92.7	73.6	124			
Ethylbenzene	0.90	0.048	0.9533	0	94.3	72.7	129			
Xylenes, Total	2.7	0.095	2.860	0	94.7	75.7	126			
Surr: 4-Bromofluorobenzene	0.94		0.9533		99.0	70	130			

Sample ID: 2203355-018amsd	SampType: MSD	TestCode: EPA Method 8021B: Volatiles								
Client ID: SS22-05 0'	Batch ID: 66034	RunNo: 86431								
Prep Date: 3/8/2022	Analysis Date: 3/11/2022	SeqNo: 3049242	Units: mg/Kg							
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	%RPD	RPDLimit	Qual
Benzene	0.74	0.024	0.9470	0	78.6	68.8	120	10.4	20	
Toluene	0.81	0.047	0.9470	0.01499	83.6	73.6	124	10.8	20	
Ethylbenzene	0.81	0.047	0.9470	0	86.0	72.7	129	9.81	20	
Xylenes, Total	2.4	0.095	2.841	0	85.5	75.7	126	10.8	20	
Surr: 4-Bromofluorobenzene	0.92		0.9470		96.9	70	130	0	0	

Qualifiers:

- * Value exceeds Maximum Contaminant Level.
- D Sample Diluted Due to Matrix
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- PQL Practical Quantitative Limit
- S % Recovery outside of range due to dilution or matrix interference
- B Analyte detected in the associated Method Blank
- E Estimated value
- J Analyte detected below quantitation limits
- P Sample pH Not In Range
- RL Reporting Limit



Hall Environmental Analysis Laboratory
4901 Hawkins NE
Albuquerque, NM 87109
TEL: 505-345-3975 FAX: 505-345-4107
Website: clients.hallenvironmental.com

Sample Log-In Check List

Client Name: Vertex Resources Services, Inc. Work Order Number: 2203355 RcptNo: 1

Received By: Cheyenne Cason 3/5/2022 8:55:00 AM [Signature]

Completed By: Cheyenne Cason 3/5/2022 9:38:29 AM [Signature]

Reviewed By: KPA 3/5/22

Chain of Custody

- 1. Is Chain of Custody complete? Yes [checked] No [] Not Present []
2. How was the sample delivered? Courier

Log In

- 3. Was an attempt made to cool the samples? Yes [checked] No [] NA []
4. Were all samples received at a temperature of >0° C to 6.0°C Yes [checked] No [] NA []
5. Sample(s) in proper container(s)? Yes [checked] No []
6. Sufficient sample volume for indicated test(s)? Yes [checked] No []
7. Are samples (except VOA and ONG) properly preserved? Yes [checked] No []
8. Was preservative added to bottles? Yes [] No [checked] NA []
9. Received at least 1 vial with headspace <1/4" for AQ VOA? Yes [] No [] NA [checked]
10. Were any sample containers received broken? Yes [] No [checked]
11. Does paperwork match bottle labels? Yes [checked] No []
12. Are matrices correctly identified on Chain of Custody? Yes [checked] No []
13. Is it clear what analyses were requested? Yes [checked] No []
14. Were all holding times able to be met? Yes [checked] No []

of preserved bottles checked for pH: (<2 or >12 unless noted) Adjusted?

Checked by: [Signature] 3/5/22

Special Handling (if applicable)

- 15. Was client notified of all discrepancies with this order? Yes [] No [] NA [checked]

Person Notified: [] Date: []
By Whom: [] Via: [] eMail [] Phone [] Fax [] In Person []
Regarding: []
Client Instructions: []

16. Additional remarks:

17. Cooler Information

Table with 7 columns: Cooler No, Temp °C, Condition, Seal Intact, Seal No, Seal Date, Signed By. Contains 3 rows of data.

Chain-of-Custody Record

Client: VERTEX

Turn-Around Time: 5-DAY

Standard Rush

Project Name: Gen North Tank Battery

Project #: 22E-00197

Project Manager: Dennis Williams

Sampler: Chance Dixon

On Ice: Yes No

of Coolers: 3

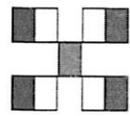
Cooler Temp (including CP): See Checks (°C)

Date	Time	Matrix	Sample Name	Container Type and #	Preservative Type	HEAL No.
3/3	9:00	SOIL	WES22-17 0.5'	40Z	Ice	2203355
	9:05		WES22-17 BES22-05 1'			
	9:10		WES22-18 0.5'			
	9:15		WES22-19 0.5'			
	9:20		BES22-06 0.5'			
	9:25		WES22-20 0.5'			
	9:30		WES22-21 0.5'			
	9:35		BES22-07 0.5'			
	9:40		WES22-22 0.5'			
	9:45		WES22-23 0.5'			
	9:50		WES22-24 0.5'			
	9:55		WES22-25 0.5'			

Relinquished by: awm Date: 3/4/22 Time: 1900

Received by: awm Date: 3/4/22 Time: 9:45

Via: car Date: 3/5/22 Time: 0855



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com

4901 Hawkins NE - Albuquerque, NM 87109

Tel. 505-345-3975 Fax 505-345-4107

Analysis Request

<input checked="" type="checkbox"/> BTEX / MTBE / TMB's (8021)	<input checked="" type="checkbox"/> TPH:6015D(GRO / DRO / MRO)	<input type="checkbox"/> 8081 Pesticides/8082 PCBs	<input type="checkbox"/> EDB (Method 504.1)	<input type="checkbox"/> PAHs by 8310 or 8270SIMS	<input type="checkbox"/> RCRA 8 Metals	<input type="checkbox"/> Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	<input type="checkbox"/> 8260 (VOA)	<input type="checkbox"/> 8270 (Semi-VOA)	<input type="checkbox"/> Total Coliform (Present/Absent)
--	--	--	---	---	--	---	-------------------------------------	--	--

Remarks: CC: Chance Dixon

Chain-of-Custody Record

Client: Vertex

Turn-Around Time: 5-Day

Standard Rush

Project Name: SEM North Tank Battery

Mailing Address: On File

Project #: 22E-00197

Project Manager: Dennis Williams

Sampler: Chance Dixon

On Ice: Yes No

of Coolers: 3

Cooler Temp (including OFI): See Check. # (°C)

Container Type and # 40Z Preservative Type ICE HEAL No. 220355

Sample Name BS22-08 0.5'

Matrix SOI'

Date 3/3 Time 10:00

11:30

11:35

11:40

11:45

11:50

11:55

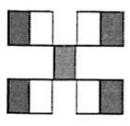
12:00

12:05

Accreditation: Az Compliance Level 4 (Full Validation)

NELAC Other

EDD (Type)



HALL ENVIRONMENTAL ANALYSIS LABORATORY

www.hallenvironmental.com
 4901 Hawkins NE - Albuquerque, NM 87109
 Tel. 505-345-3975 Fax 505-345-4107

Analysis Request	
<input checked="" type="checkbox"/> BTEX / MTBE / TMB's (8021)	
<input checked="" type="checkbox"/> TPH:8015D(GRO / DRO / MRO)	
8081 Pesticides/8082 PCB's	
EDB (Method 504.1)	
PAHs by 8310 or 8270SIMS	
RCRA 8 Metals	
Cl, F, Br, NO ₃ , NO ₂ , PO ₄ , SO ₄	
8260 (VOA)	
8270 (Semi-VOA)	
Total Coliform (Present/Absent)	

Received by: Williams Date: 3/4/22 Time: 9:45

Received by: CM Courr Date: 3/5/22 Time: 08:55

Remarks: CC: Chance Dixon

Analytical Report

Lab Order **2203D55**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: BES22-09 2'

Project: Gem North Tank Battery

Collection Date: 3/23/2022 11:45:00 AM

Lab ID: 2203D55-001

Matrix: SOIL

Received Date: 3/25/2022 7:23:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: ED
Diesel Range Organics (DRO)	35	10		mg/Kg	1	3/30/2022 1:16:37 PM
Motor Oil Range Organics (MRO)	67	50		mg/Kg	1	3/30/2022 1:16:37 PM
Surr: DNOP	109	51.1-141		%Rec	1	3/30/2022 1:16:37 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/29/2022 11:10:10 AM
Surr: BFB	97.9	37.7-212		%Rec	1	3/29/2022 11:10:10 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/29/2022 11:10:10 AM
Toluene	ND	0.048		mg/Kg	1	3/29/2022 11:10:10 AM
Ethylbenzene	ND	0.048		mg/Kg	1	3/29/2022 11:10:10 AM
Xylenes, Total	ND	0.096		mg/Kg	1	3/29/2022 11:10:10 AM
Surr: 4-Bromofluorobenzene	97.6	70-130		%Rec	1	3/29/2022 11:10:10 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	2100	150		mg/Kg	50	4/1/2022 9:49:03 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

- | | |
|--|---|
| * Value exceeds Maximum Contaminant Level. | B Analyte detected in the associated Method Blank |
| D Sample Diluted Due to Matrix | E Estimated value |
| H Holding times for preparation or analysis exceeded | J Analyte detected below quantitation limits |
| ND Not Detected at the Reporting Limit | P Sample pH Not In Range |
| PQL Practical Quantitative Limit | RL Reporting Limit |
| S % Recovery outside of range due to dilution or matrix interference | |

Analytical Report

Lab Order **2203D55**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-26 1'

Project: Gem North Tank Battery

Collection Date: 3/23/2022 11:50:00 AM

Lab ID: 2203D55-002

Matrix: SOIL

Received Date: 3/25/2022 7:23:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: ED
Diesel Range Organics (DRO)	360	96		mg/Kg	10	3/30/2022 1:41:02 PM
Motor Oil Range Organics (MRO)	720	480		mg/Kg	10	3/30/2022 1:41:02 PM
Surr: DNOP	0	51.1-141	S	%Rec	10	3/30/2022 1:41:02 PM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/29/2022 11:33:34 AM
Surr: BFB	97.9	37.7-212		%Rec	1	3/29/2022 11:33:34 AM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	3/29/2022 11:33:34 AM
Toluene	ND	0.050		mg/Kg	1	3/29/2022 11:33:34 AM
Ethylbenzene	ND	0.050		mg/Kg	1	3/29/2022 11:33:34 AM
Xylenes, Total	ND	0.099		mg/Kg	1	3/29/2022 11:33:34 AM
Surr: 4-Bromofluorobenzene	98.8	70-130		%Rec	1	3/29/2022 11:33:34 AM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1300	60		mg/Kg	20	3/31/2022 10:27:16 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203D55**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-27 1'

Project: Gem North Tank Battery

Collection Date: 3/23/2022 11:55:00 AM

Lab ID: 2203D55-003

Matrix: SOIL

Received Date: 3/25/2022 7:23:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: ED
Diesel Range Organics (DRO)	100	9.5		mg/Kg	1	4/1/2022 1:18:33 AM
Motor Oil Range Organics (MRO)	260	48		mg/Kg	1	4/1/2022 1:18:33 AM
Surr: DNOP	104	51.1-141		%Rec	1	4/1/2022 1:18:33 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	5.0		mg/Kg	1	3/29/2022 12:05:34 PM
Surr: BFB	98.1	37.7-212		%Rec	1	3/29/2022 12:05:34 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.025		mg/Kg	1	3/29/2022 12:05:34 PM
Toluene	ND	0.050		mg/Kg	1	3/29/2022 12:05:34 PM
Ethylbenzene	ND	0.050		mg/Kg	1	3/29/2022 12:05:34 PM
Xylenes, Total	ND	0.10		mg/Kg	1	3/29/2022 12:05:34 PM
Surr: 4-Bromofluorobenzene	99.9	70-130		%Rec	1	3/29/2022 12:05:34 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	8200	300		mg/Kg	100	4/1/2022 10:01:23 AM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:

- | | | | |
|-----|--|----|---|
| * | Value exceeds Maximum Contaminant Level. | B | Analyte detected in the associated Method Blank |
| D | Sample Diluted Due to Matrix | E | Estimated value |
| H | Holding times for preparation or analysis exceeded | J | Analyte detected below quantitation limits |
| ND | Not Detected at the Reporting Limit | P | Sample pH Not In Range |
| PQL | Practical Quantitative Limit | RL | Reporting Limit |
| S | % Recovery outside of range due to dilution or matrix interference | | |

Analytical Report

Lab Order **2203D55**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-28 1'

Project: Gem North Tank Battery

Collection Date: 3/23/2022 12:00:00 PM

Lab ID: 2203D55-004

Matrix: SOIL

Received Date: 3/25/2022 7:23:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: ED
Diesel Range Organics (DRO)	35	9.5		mg/Kg	1	4/1/2022 2:06:52 AM
Motor Oil Range Organics (MRO)	89	48		mg/Kg	1	4/1/2022 2:06:52 AM
Surr: DNOP	102	51.1-141		%Rec	1	4/1/2022 2:06:52 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.8		mg/Kg	1	3/29/2022 12:29:03 PM
Surr: BFB	94.7	37.7-212		%Rec	1	3/29/2022 12:29:03 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/29/2022 12:29:03 PM
Toluene	ND	0.048		mg/Kg	1	3/29/2022 12:29:03 PM
Ethylbenzene	ND	0.048		mg/Kg	1	3/29/2022 12:29:03 PM
Xylenes, Total	ND	0.096		mg/Kg	1	3/29/2022 12:29:03 PM
Surr: 4-Bromofluorobenzene	96.6	70-130		%Rec	1	3/29/2022 12:29:03 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1600	60		mg/Kg	20	3/31/2022 10:52:06 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203D55**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-29 1'

Project: Gem North Tank Battery

Collection Date: 3/23/2022 12:05:00 PM

Lab ID: 2203D55-005

Matrix: SOIL

Received Date: 3/25/2022 7:23:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: ED
Diesel Range Organics (DRO)	140	9.8		mg/Kg	1	4/1/2022 2:30:54 AM
Motor Oil Range Organics (MRO)	310	49		mg/Kg	1	4/1/2022 2:30:54 AM
Surr: DNOP	111	51.1-141		%Rec	1	4/1/2022 2:30:54 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.7		mg/Kg	1	3/29/2022 12:52:26 PM
Surr: BFB	94.8	37.7-212		%Rec	1	3/29/2022 12:52:26 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/29/2022 12:52:26 PM
Toluene	ND	0.047		mg/Kg	1	3/29/2022 12:52:26 PM
Ethylbenzene	ND	0.047		mg/Kg	1	3/29/2022 12:52:26 PM
Xylenes, Total	ND	0.095		mg/Kg	1	3/29/2022 12:52:26 PM
Surr: 4-Bromofluorobenzene	97.8	70-130		%Rec	1	3/29/2022 12:52:26 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1000	60		mg/Kg	20	3/31/2022 11:29:20 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Analytical Report

Lab Order **2203D55**

Date Reported:

Hall Environmental Analysis Laboratory, Inc.

CLIENT: Vertex Resources Services, Inc.

Client Sample ID: WES22-30 1'

Project: Gem North Tank Battery

Collection Date: 3/23/2022 12:10:00 PM

Lab ID: 2203D55-006

Matrix: SOIL

Received Date: 3/25/2022 7:23:00 AM

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
EPA METHOD 8015M/D: DIESEL RANGE ORGANICS						Analyst: ED
Diesel Range Organics (DRO)	120	9.4		mg/Kg	1	4/1/2022 3:19:01 AM
Motor Oil Range Organics (MRO)	280	47		mg/Kg	1	4/1/2022 3:19:01 AM
Surr: DNOP	120	51.1-141		%Rec	1	4/1/2022 3:19:01 AM
EPA METHOD 8015D: GASOLINE RANGE						Analyst: NSB
Gasoline Range Organics (GRO)	ND	4.9		mg/Kg	1	3/29/2022 1:15:46 PM
Surr: BFB	97.6	37.7-212		%Rec	1	3/29/2022 1:15:46 PM
EPA METHOD 8021B: VOLATILES						Analyst: NSB
Benzene	ND	0.024		mg/Kg	1	3/29/2022 1:15:46 PM
Toluene	ND	0.049		mg/Kg	1	3/29/2022 1:15:46 PM
Ethylbenzene	ND	0.049		mg/Kg	1	3/29/2022 1:15:46 PM
Xylenes, Total	ND	0.097		mg/Kg	1	3/29/2022 1:15:46 PM
Surr: 4-Bromofluorobenzene	97.1	70-130		%Rec	1	3/29/2022 1:15:46 PM
EPA METHOD 300.0: ANIONS						Analyst: JMT
Chloride	1100	60		mg/Kg	20	3/31/2022 11:41:45 PM

Refer to the QC Summary report and sample login checklist for flagged QC data and preservation information.

Qualifiers:	* Value exceeds Maximum Contaminant Level.	B Analyte detected in the associated Method Blank
	D Sample Diluted Due to Matrix	E Estimated value
	H Holding times for preparation or analysis exceeded	J Analyte detected below quantitation limits
	ND Not Detected at the Reporting Limit	P Sample pH Not In Range
	PQL Practical Quantitative Limit	RL Reporting Limit
	S % Recovery outside of range due to dilution or matrix interference	

Environmental Site Remediation Work Plan
General Information

NMOCD District:	District 1	Incident ID:	nAPP2201956795
Landowner:	SLO	RP Reference:	N/A
Client:	BTA Oil Producers	Site Location:	Gem North Tank Battery
Date:	February 18, 2022	Project #:	22E-00197
Client Contact:	Bob Hall	Phone #:	(432)-312-2203
Vertex PM:	Dennis Williams	Phone #:	(575)-361-1137

Objective

The objective of the Environmental Remediation Workplan is to identify areas of exceedance for areas of concern delineated during spill assessment and site characterization activities and propose appropriate remediation techniques to address the open release for the Gem North Tank Battery (hereafter referred to as "Gem"). The incident occurred when there was a piping nipple that broke on the water transfer pump and released approximately 20 barrels (bbls) of produced water outside of the firewall and onto the pad and lease road. The containment with the water transfer pump is located on the south side of the pad next to the entrance on the southwest corner. Closure criteria has been selected as per New Mexico Administrative Code (NMAC) 19.15.29.12. All applicable research as it pertains to closure criteria selection is presented in Attachment 1. The closure criteria for the site is presented below (Table 1).

Minimum depth below any point within the horizontal boundary of the release to groundwater less than 10,000 mg/l TDS	Constituent	Limit
> 100 feet	Chloride	20,000 mg/kg
	TPH (GRO+DRO+MRO)	2,500 mg/kg
	GRO+DRO	1,000 mg/kg
	BTEX	50 mg/kg
	Benzene	10 mg/kg

Site Assessment/Characterization

Site characterization was started on February 4, 2022 and completed on February 8, 2022. A total of 30 sample points (boreholes) were established. They were obtained at various depths for horizontal and vertical delineation. Samples collected at the deepest vertical distance and horizontal distance below closure criteria were submitted to the laboratory for analysis. In total, 61 samples were submitted to Hall Environmental Analysis Laboratory in Albuquerque, New Mexico for analysis. The characterization sampling locations are presented in Figure 1 (Attachment 2). Laboratory analyses were compared to the above noted closure criteria and the results from the characterization activity are presented in Table 2 (Attachment 3).

Remedial Activities
General

Areas identified with contaminant concentrations above closure criteria will be remediated through excavation. Laboratory results from the site assessment/characterization have been referenced to estimate both the vertical and horizontal limits of the impacts and the volume of soil to be removed. Soil will be excavated to the extents of the known contamination or in one foot increments, whichever is the lesser. Field screening will be utilized to confirm removal of contaminated soil below the applicable closure criteria. Contaminated soils will be stored on a 30mil liner prior to disposal at an approved facility. Once excavation is complete, confirmatory samples will be



Environmental Site Remediation Work Plan

collected and laboratory analysis will be completed to confirm closure criteria guidelines are met. Excavations will be backfilled with clean soil sourced locally.

Exceedances to closure criteria were found at sample points BH22-01, BH22-06, BH22-12, BH22-18, BH22-25, and BH22-28. Based on the table below which reflects the laboratory analysed soil samples, minimal excavation will be required to ensure removal of contamination. Mechanical excavation equipment will be used to complete the excavation at these boreholes and hand excavation will be utilized in areas that mechanical excavation would be deemed unsafe. Field screening will be utilized to ensure that all contaminated material is removed horizontally and vertically during excavation. Confirmatory samples will be collected as per NMOCD guidance and they will be submitted for laboratory analysis of all applicable parameters. The estimated volume to be excavated is 130 yards.

Sample Point	Excavation Depth	Remediation Method
BH22-01	2'	Backhoe
BH22-06	2'	Backhoe
BH22-12	2'	Backhoe
BH22-18	5'	Backhoe
BH22-25	2'	Backhoe
BH22-28	1'	Backhoe

Should you have any questions or concerns, please do not hesitate to contact the undersigned at 575-988-1472 or cdixon@vertex.ca.

Chance Dixon

 Chance Dixon B. Sc.
 PROJECT MANAGER, REPORTING

2/18/2022

 Date

Dhugal Hanton

 Dhugal Hanton MBA, P. Ag., SR/WA, P. Biol.
 VICE PRESIDENT US OPERATIONS, REPORT REVIEW

2/18/2022

 Date



Environmental Site Remediation Work Plan

Attachments

- Attachment 1. C-141 Report
- Attachment 2. Closure Criteria Research
- Attachment 3. Sample Locations - Remediation Plan Figure 1
- Attachment 4. Laboratory Results Table and Laboratory Analysis

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	nAPP2201956795
District RP	
Facility ID	fAPP2201827868
Application ID	

Release Notification

Responsible Party

Responsible Party: BTA Oil Producers, LLC	OGRID: 260297
Contact Name: Bob Hall	Contact Telephone: 432-682-3753
Contact email: bhall@btaoil.com	Incident # (assigned by OCD) nAPP2201956795
Contact mailing address: 104 S. Pecos St., Midland, TX 79701	

Location of Release Source

Latitude: 32.60729 Longitude: -103.63186

(NAD 83 in decimal degrees to 5 decimal places)

Site Name: Gem North Tank Battery	Site Type: Tank Battery
Date Release Discovered: 1/18/2022	API# (if applicable) Nearest well: Gem #1 API #30-025-29916

Unit Letter	Section	Township	Range	County
L2	2	20S	33E	Lea

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)

<input type="checkbox"/> Crude Oil	Volume Released (bbls)	Volume Recovered (bbls)
<input checked="" type="checkbox"/> Produced Water	Volume Released (bbls) 20 BBL	Volume Recovered (bbls) 15 BBL
	Is the concentration of dissolved chloride in the produced water >10,000 mg/l?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
<input type="checkbox"/> Condensate	Volume Released (bbls)	Volume Recovered (bbls)
<input type="checkbox"/> Natural Gas	Volume Released (Mcf)	Volume Recovered (Mcf)
<input type="checkbox"/> Other (describe)	Volume/Weight Released (provide units)	Volume/Weight Recovered (provide units)

Cause of Release

Failure of piping nipple on water transfer pump sprayed 20 BBL of produced water outside the firewall and on the adjacent pad & lease road. Recovered 15 BBL water with vacuum truck.

(Spill calculation spreadsheet pending measurement of affected area.)

Incident ID	nAPP2201956795
District RP	
Facility ID	fAPP2201827868
Application ID	

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	>100 (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> 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.

State of New Mexico
Oil Conservation Division

Incident ID	
District RP	
Facility ID	
Application ID	

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

Printed Name: Kelton Beaird Title: Environmental Manager

Signature:  Date: 6-13-23

email: KBeaird@btaoil.com Telephone: 432-312-2203

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2201956795
District RP	
Facility ID	fAPP2201827868
Application ID	

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: Kelton Beaird Title: Environmental Manager
 Signature:  Date: 6-13-23
 email: KBeaird@btaoil.com Telephone: 432-312-2203

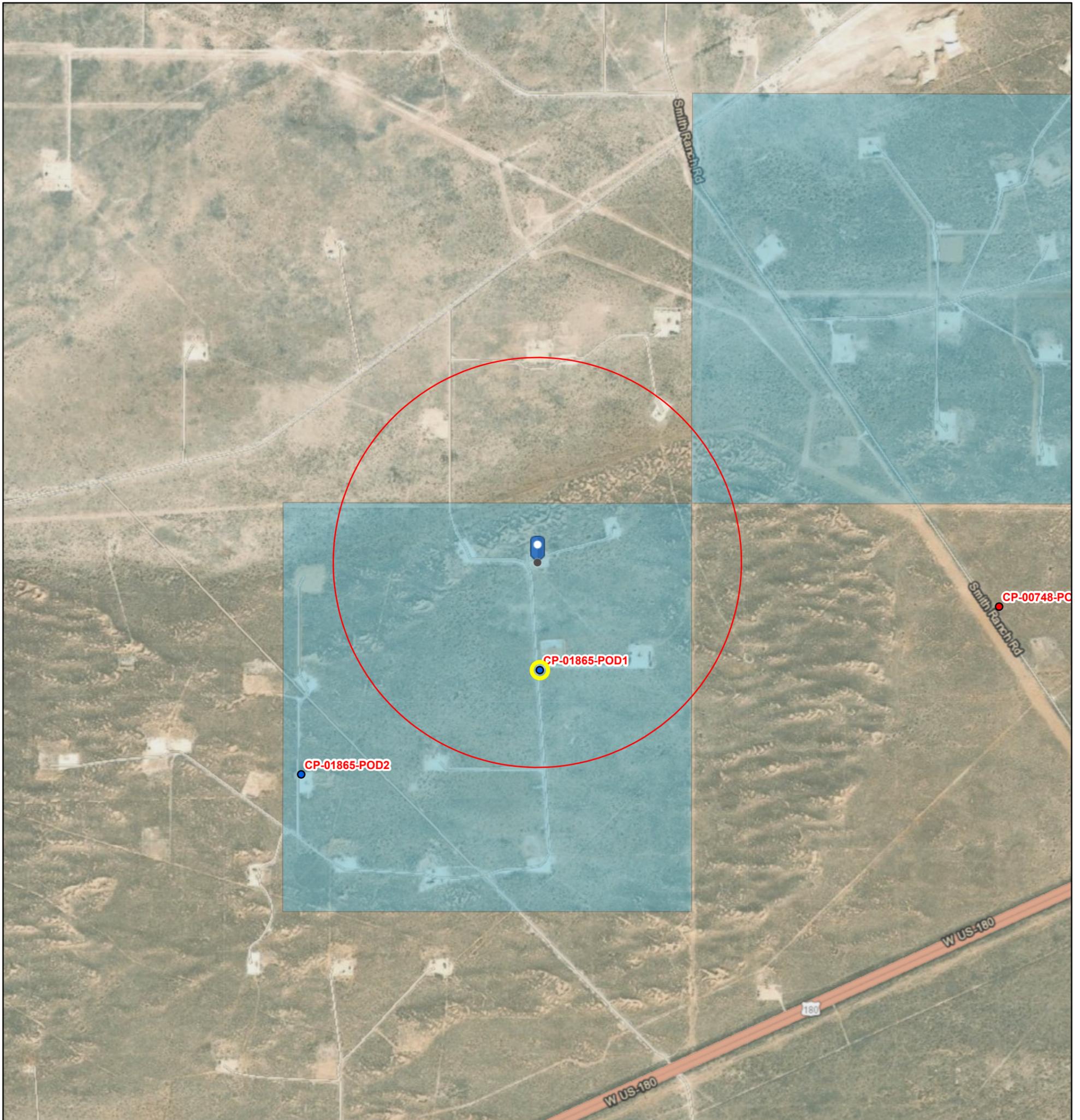
OCD Only

Received by: _____ Date: _____

- Approved Approved with Attached Conditions of Approval Denied Deferral Approved

Signature: _____ Date: _____

Gem North Tank Battery



1/27/2022, 3:30:32 PM

GIS WATERS PODs

- Active
- Plugged

OSE District Boundary

Water Right Regulations

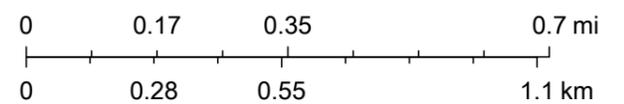
Closure Area

New Mexico State Trust Lands

Both Estates

SiteBoundaries

1:18,056



Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar



New Mexico Office of the State Engineer

Point of Diversion Summary

Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE)				(NAD83 UTM in meters)	
		(quarters are smallest to largest)				X	Y
		Q64	Q16	Q4	Sec	Tws	Rng
NA	CP 01865 POD1	4	3	2	02	20S	33E
						628390	3608155

Driller License: 1753	Driller Company: VANGUARD WATER WELLS	
Driller Name: FRIESSEN, JACOBOIELNER		
Drill Start Date: 02/08/2021	Drill Finish Date: 02/08/2021	Plug Date:
Log File Date: 07/22/2021	PCW Rcv Date:	Source:
Pump Type:	Pipe Discharge Size:	Estimated Yield: 0 GPM
Casing Size: 2.00	Depth Well: 105 feet	Depth Water: 0 feet

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

1/27/22 3:49 PM

POINT OF DIVERSION SUMMARY



New Mexico Office of the State Engineer

Point of Diversion Summary

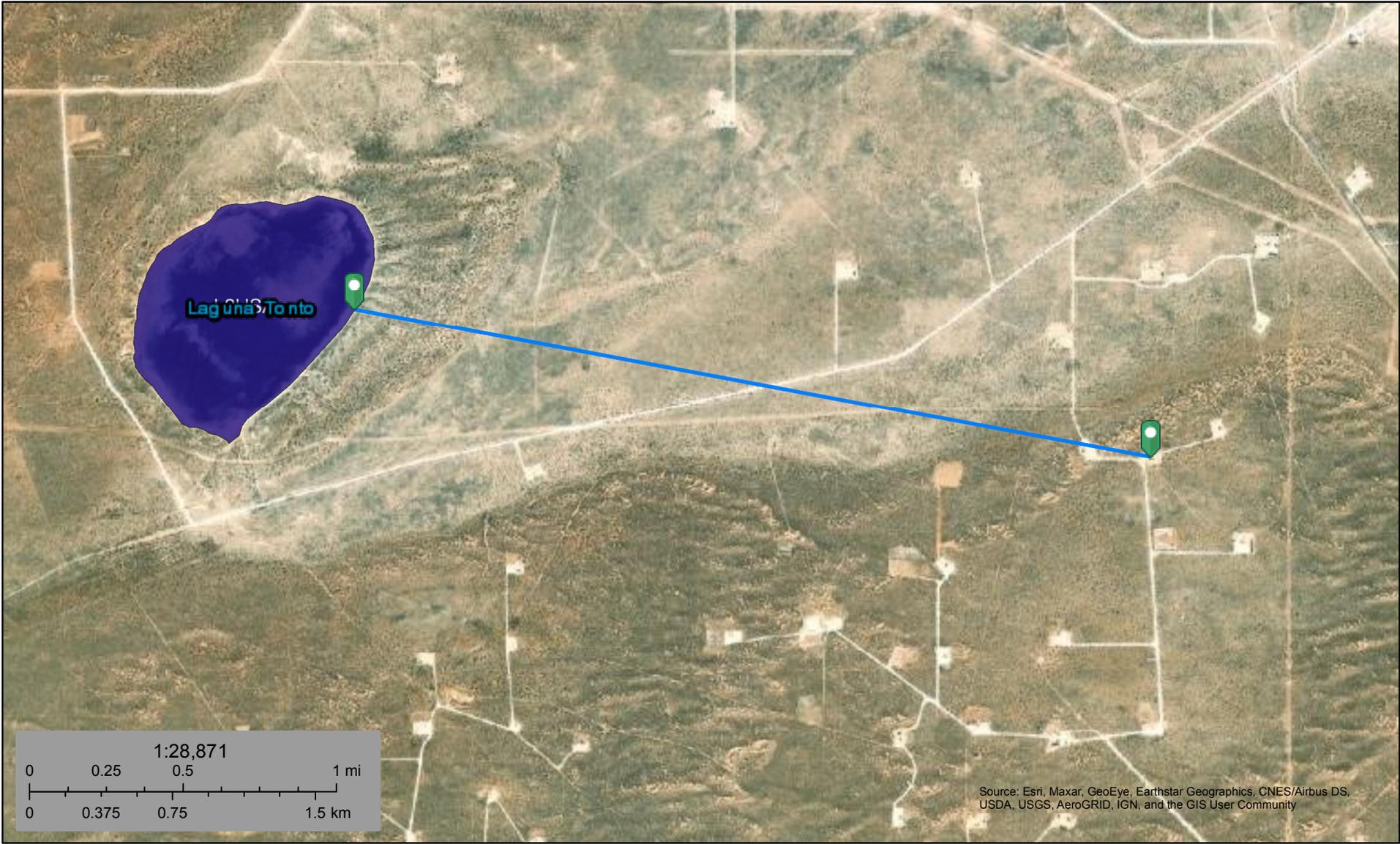
Well Tag	POD Number	(quarters are 1=NW 2=NE 3=SW 4=SE)				(NAD83 UTM in meters)		
		(quarters are smallest to largest)				X	Y	
		Q64	Q16	Q4	Sec	Tws	Rng	
NA	CP 01865 POD2	3	1	3	02	20S	33E	627454 3607733
Driller License: 1753		Driller Company: VANGUARD WATER WELLS						
Driller Name: FRIESSEN, JACOBOIELNER								
Drill Start Date: 02/08/2021	Drill Finish Date: 02/08/2021	Plug Date:						
Log File Date: 07/22/2021	PCW Rcv Date:	Source:						
Pump Type:	Pipe Discharge Size:	Estimated Yield: 0 GPM						
Casing Size: 2.00	Depth Well: 105 feet	Depth Water: 0 feet						

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

1/27/22 3:28 PM

POINT OF DIVERSION SUMMARY

Gem North Tank Battery



January 27, 2022

Wetlands

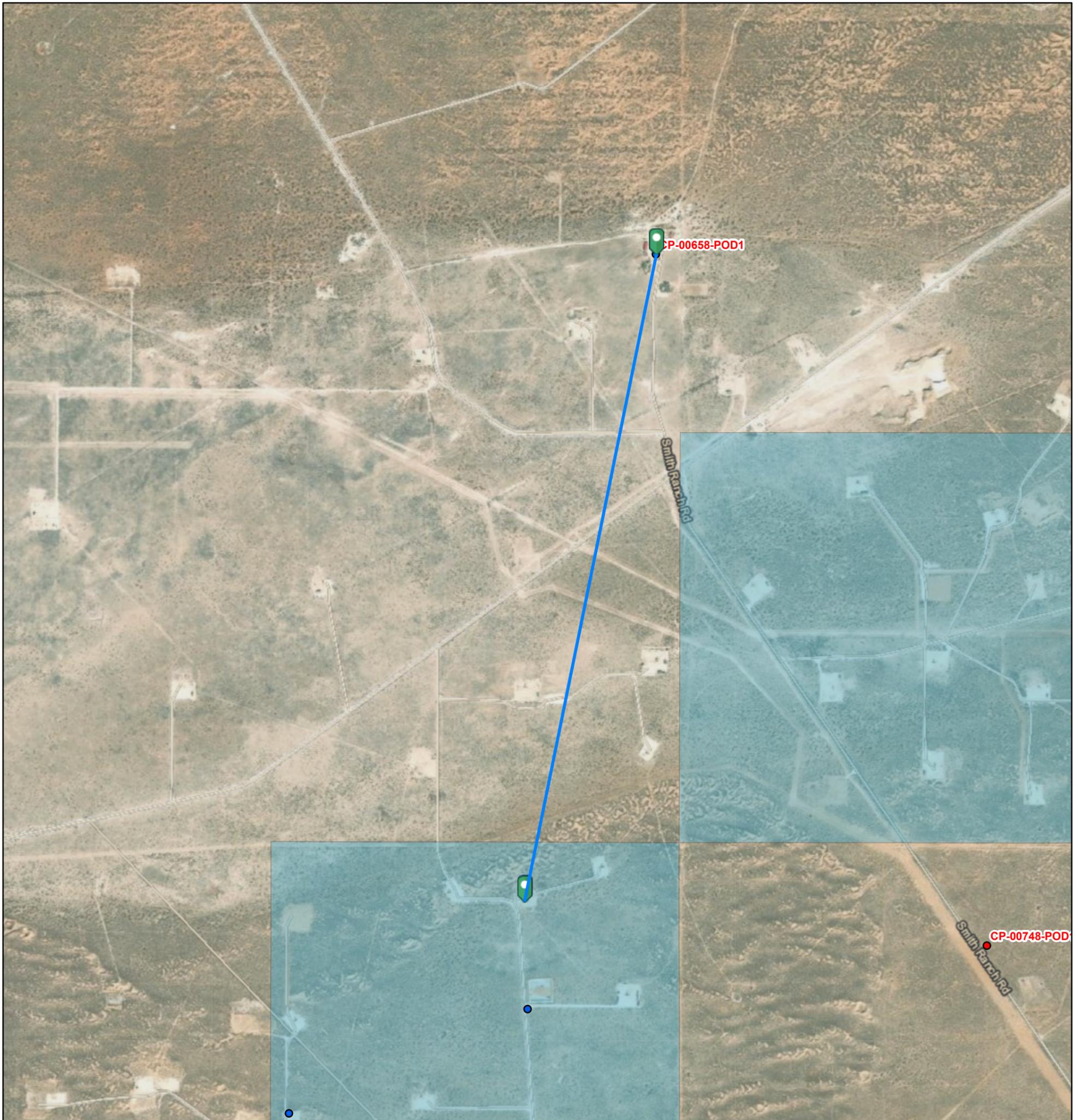
-  Estuarine and Marine Deepwater
-  Estuarine and Marine Wetland

-  Freshwater Emergent Wetland
-  Freshwater Forested/Shrub Wetland
-  Freshwater Pond

-  Lake
-  Other
-  Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

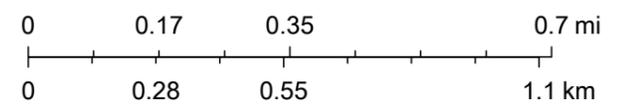
Gem North Tank Battery



1/27/2022, 3:52:53 PM

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— Override 1



GIS WATERS PODs

- Active
- Plugged

□ OSE District Boundary

Water Right Regulations

□ Closure Area

New Mexico State Trust Lands

□ Both Estates

□ SiteBoundaries

Esri, HERE, iPC, U.S. Department of Energy Office of Legacy Management, Esri, HERE, Garmin, iPC, Maxar



New Mexico Office of the State Engineer

Water Right Summary



WR File Number: CP 00658 **Subbasin:** CP **Cross Reference:** -
Primary Purpose: PLS NON 72-12-1 LIVESTOCK WATERING
Primary Status: DCL DECLARATION
Total Acres: 0 **Subfile:** - **Header:** -
Total Diversion: 2 **Cause/Case:** -
Owner: KENNETH SMITH

Documents on File

Trn #	Doc	File/Act	Status		Transaction Desc.	From/	Acres	Diversion	Consumptive
			1	2		To			
547000_COWNF_1993-08-23			CHG	PRC	CP 00658	T	0	0	
546999_DCL_1982-11-17			DCL	PRC	CP 00658	T	0	2	

Current Points of Diversion

(NAD83 UTM in meters)

POD Number	Well Tag	Source	Q	64	Q16	Q4	Sec	Tws	Rng	X	Y	Other Location Desc
CP 00658 POD1		Shallow	2	2	4	26	19S	33E		628857	3611125*	

An () after northing value indicates UTM location was derived from PLSS - see Help

Priority Summary

Priority	Status	Acres	Diversion	Pod Number	Other Location Desc
12/31/1920	DCL	0	2	CP 00658 POD1	Shallow

Place of Use

Q	Q	256	64	Q16	Q4	Sec	Tws	Rng	Acres	Diversion	CU	Use	Priority	Status	Other Location Desc
									0	2	PLS	12/31/1920	DCL	NO PLACE OF USE GIVEN	

Source

Acres	Diversion	CU	Use	Priority	Source Description
0	2	PLS	12/31/1920	GW	

The data is furnished by the NMOSE/ISC and is accepted by the recipient with the expressed understanding that the OSE/ISC make no warranties, expressed or implied, concerning the accuracy, completeness, reliability, usability, or suitability for any particular purpose of the data.

1/27/22 3:50 PM

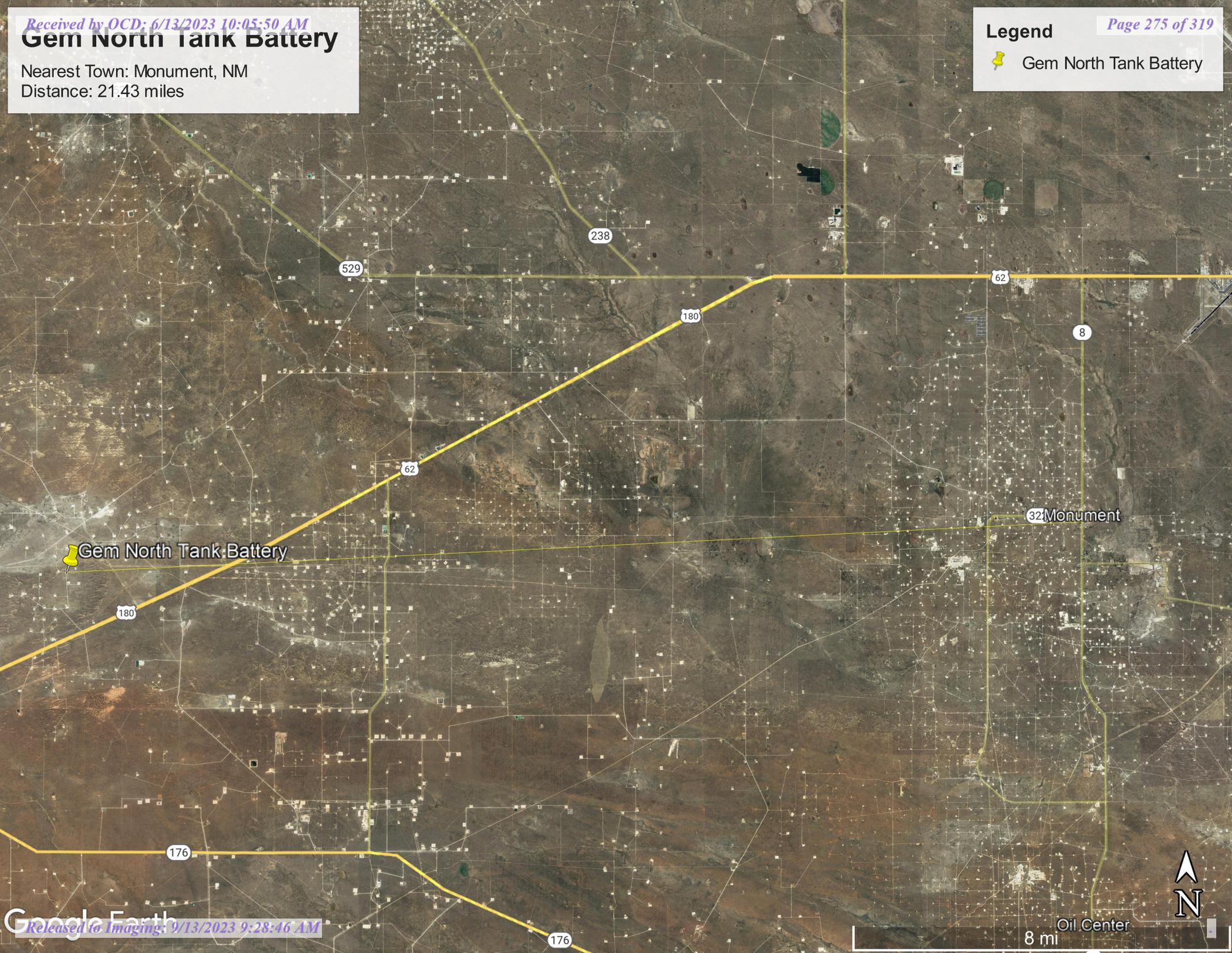
WATER RIGHT
SUMMARY

Gem North Tank Battery

Nearest Town: Monument, NM
Distance: 21.43 miles

Legend

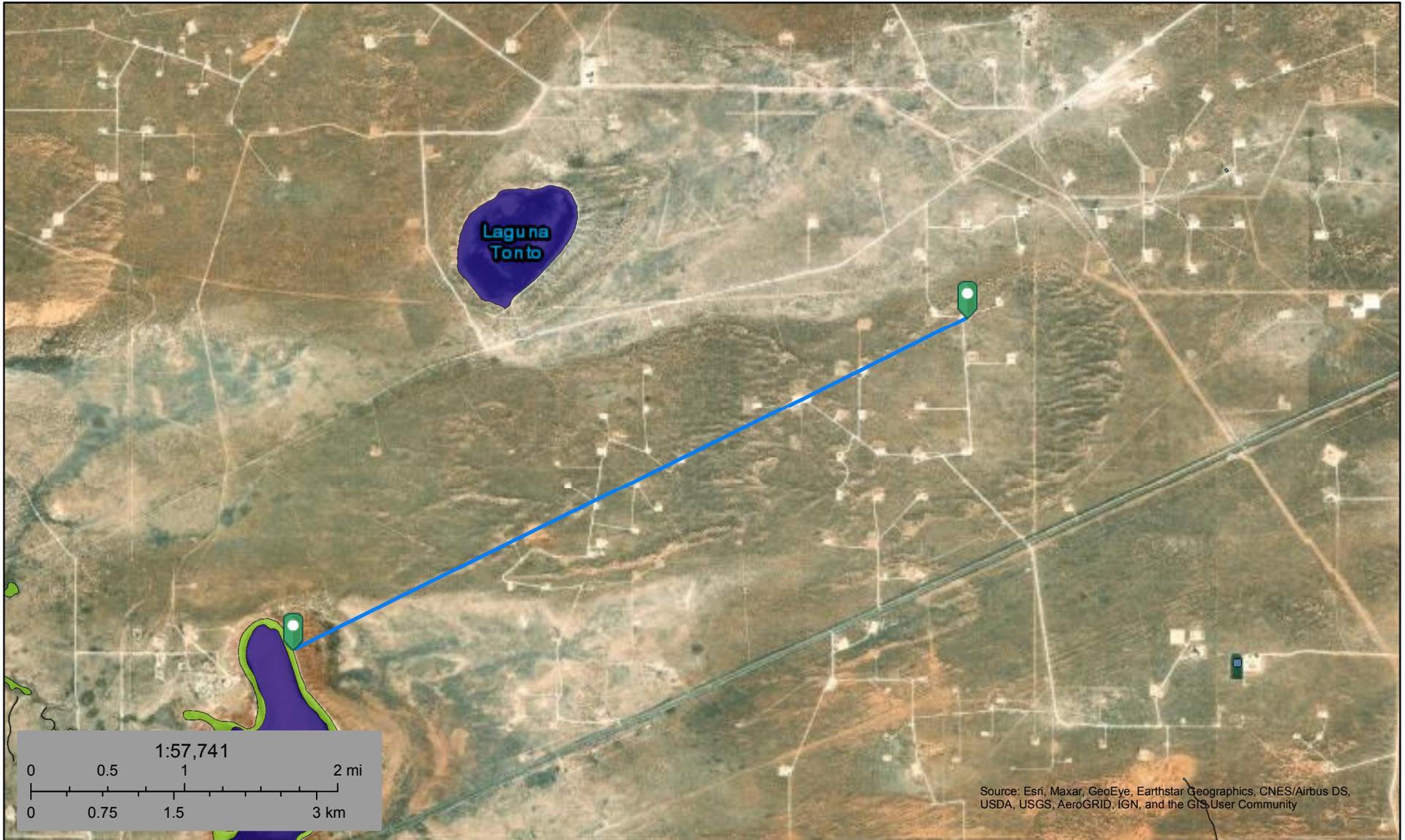
 Gem North Tank Battery



 Gem North Tank Battery

32 Monument

Wetlands



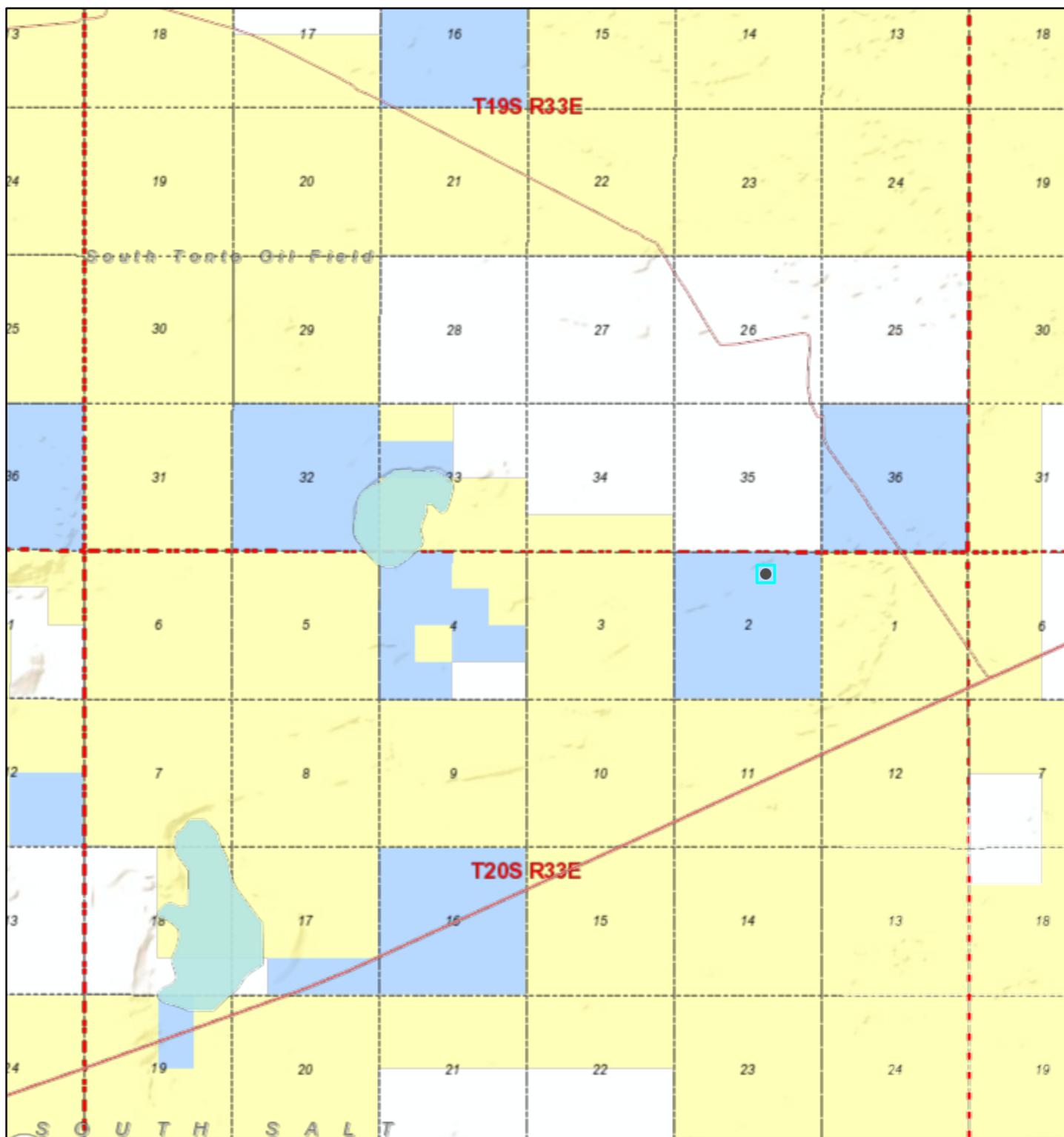
January 27, 2022

Wetlands

- | | | | | | |
|---|--------------------------------|---|-----------------------------------|---|----------|
|  | Estuarine and Marine Deepwater |  | Freshwater Emergent Wetland |  | Lake |
|  | Estuarine and Marine Wetland |  | Freshwater Forested/Shrub Wetland |  | Other |
| | |  | Freshwater Pond |  | Riverine |

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

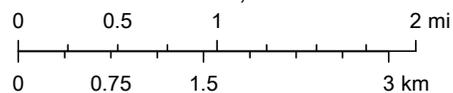
Active Mines in New Mexico



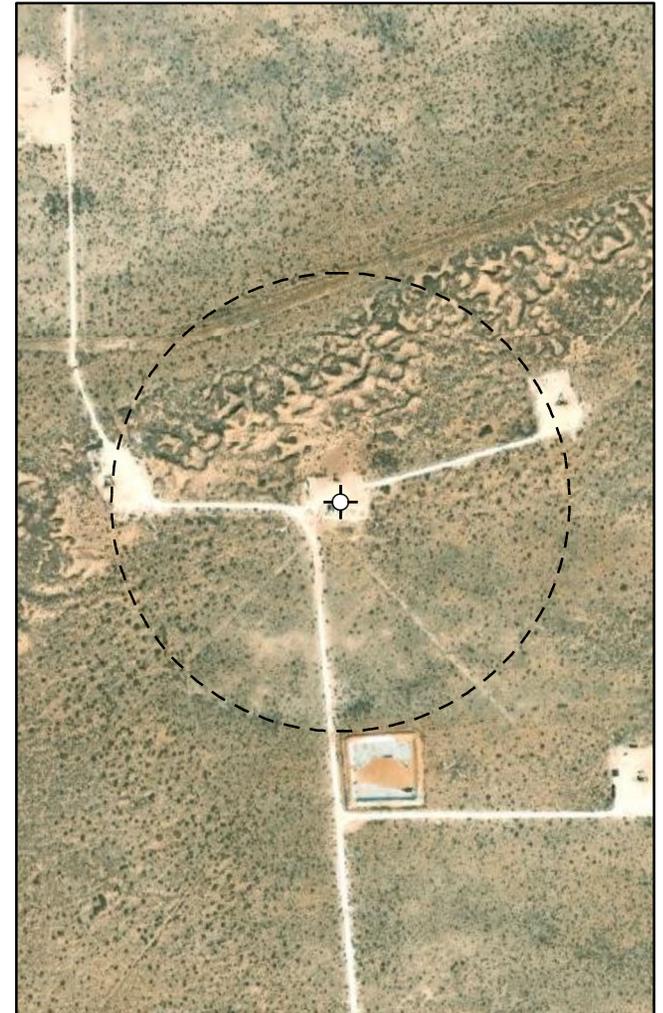
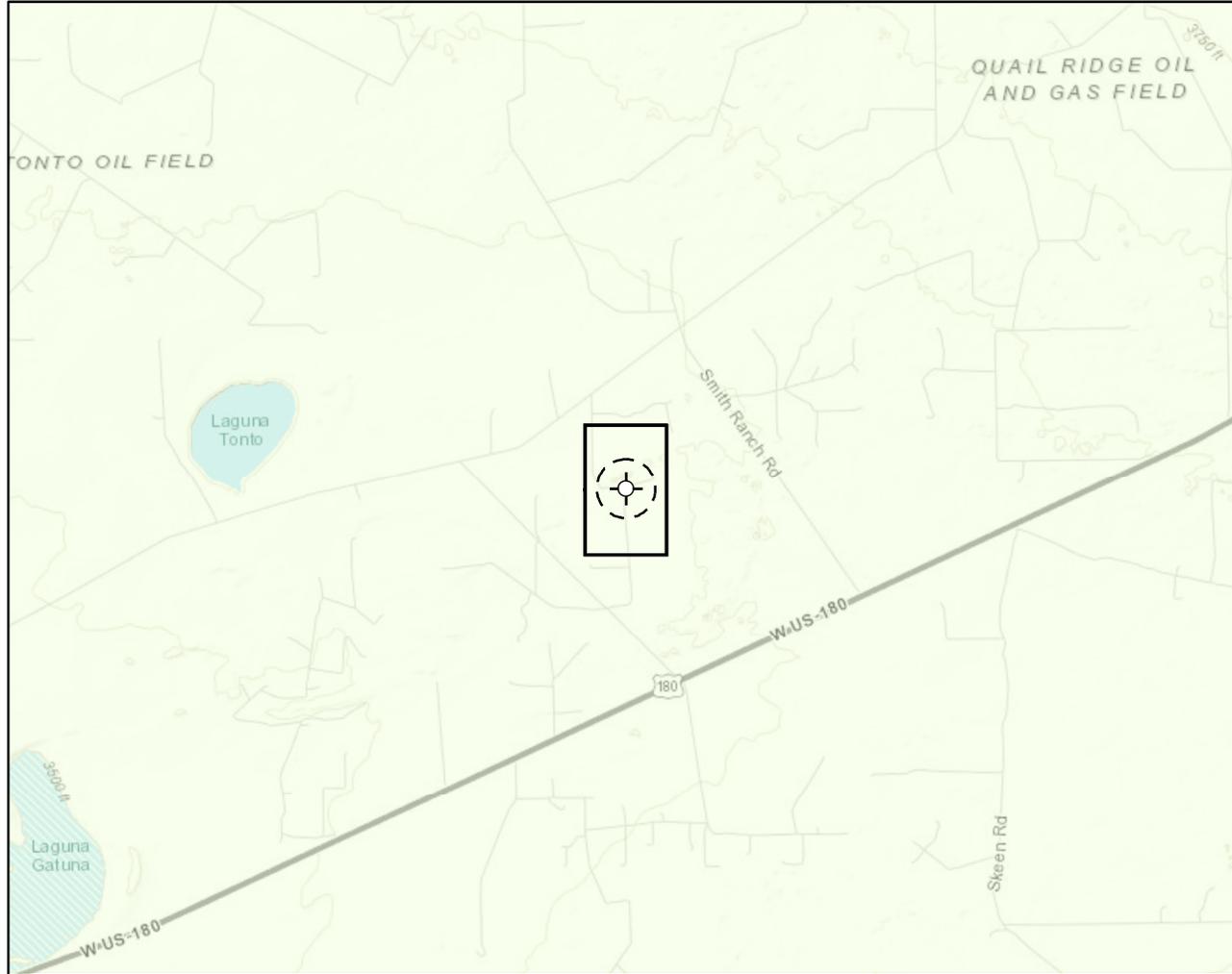
2/18/2022, 11:52:29 AM

1:72,224

- Township / Range
- Sections
- Land Ownership**
- Bureau of Land Management
- State Land
- State Game and Fish
- Private Land
- Bureau of Reclamation
- Department of Defense
- Department of Energy
- National Park Service
- Tribal



U.S. Bureau of Land Management - New Mexico State Office, Sources: Esri, USGS, NOAA, Sources: Esri, Garmin, USGS, NPS



Karst Potential

- Critical
- High
- Medium
- Low

- Site Location
- Site Buffer (1,000 ft.)

Overview Map

0 0.25 0.5 1 mi

Detail Map

0 150 300 600 ft.



Map Center:
Lat/Long: 32.607290, -103.631860

NAD 1983 UTM Zone 13N
Date: Jan 28/22



**Karst Potential Map
Gem North Tank Battery**

FIGURE:

X



Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Inset Map, ESRI 2020; Overview Map: ESRI World Topographic

VERSATILITY. EXPERTISE.

National Flood Hazard Layer FIRMette



103°38'13"W 32°36'41"N



Legend

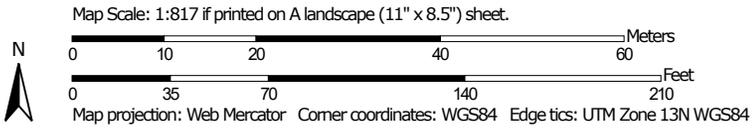
SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

- SPECIAL FLOOD HAZARD AREAS**
 - Without Base Flood Elevation (BFE) Zone A, V, A99
 - With BFE or Depth Zone AE, AO, AH, VE, AR
 - Regulatory Floodway
 - OTHER AREAS OF FLOOD HAZARD**
 - 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
 - Future Conditions 1% Annual Chance Flood Hazard Zone X
 - Area with Reduced Flood Risk due to Levee. See Notes. Zone X
 - Area with Flood Risk due to Levee Zone D
 - OTHER AREAS**
 - NO SCREEN Area of Minimal Flood Hazard Zone X
 - Effective LOMRs
 - Area of Undetermined Flood Hazard Zone D
 - GENERAL STRUCTURES**
 - Channel, Culvert, or Storm Sewer
 - Levee, Dike, or Floodwall
 - OTHER FEATURES**
 - Cross Sections with 1% Annual Chance Water Surface Elevation: 20.2 (top), 17.5 (bottom)
 - Coastal Transect
 - Base Flood Elevation Line (BFE)
 - Limit of Study
 - Jurisdiction Boundary
 - Coastal Transect Baseline
 - Profile Baseline
 - Hydrographic Feature
 - MAP PANELS**
 - Digital Data Available
 - No Digital Data Available
 - Unmapped
- The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

Soil Map—Lea County, New Mexico



Soil Map may not be valid at this scale.



Soil Map—Lea County, New Mexico

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

 Soil Map Unit Polygons

 Soil Map Unit Lines

 Soil Map Unit Points

Special Point Features

-  Blowout
-  Borrow Pit
-  Clay Spot
-  Closed Depression
-  Gravel Pit
-  Gravelly Spot
-  Landfill
-  Lava Flow
-  Marsh or swamp
-  Mine or Quarry
-  Miscellaneous Water
-  Perennial Water
-  Rock Outcrop
-  Saline Spot
-  Sandy Spot
-  Severely Eroded Spot
-  Sinkhole
-  Slide or Slip
-  Sodic Spot

-  Spoil Area
-  Stony Spot
-  Very Stony Spot
-  Wet Spot
-  Other
-  Special Line Features

Water Features

 Streams and Canals

Transportation

-  Rails
-  Interstate Highways
-  US Routes
-  Major Roads
-  Local Roads

Background

 Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:20,000.

Warning: Soil Map may not be valid at this scale.
 Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
 Web Soil Survey URL:
 Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Lea County, New Mexico
 Survey Area Data: Version 18, Sep 10, 2021

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Feb 7, 2020—May 12, 2020

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
KM	Kermit soils and Dune land, 0 to 12 percent slopes	2.5	82.4%
PU	Pyote and Maljamar fine sands	0.5	17.6%
Totals for Area of Interest		3.0	100.0%

Map Unit Description: Kermit soils and Dune land, 0 to 12 percent slopes---Lea County, New Mexico

Lea County, New Mexico

KM—Kermit soils and Dune land, 0 to 12 percent slopes

Map Unit Setting

National map unit symbol: dmpx
Elevation: 3,000 to 4,400 feet
Mean annual precipitation: 10 to 15 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Kermit and similar soils: 46 percent
Dune land: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Kermit

Setting

Landform: Dunes
Landform position (two-dimensional): Shoulder, backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave, convex, linear
Across-slope shape: Convex
Parent material: Calcareous sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 8 inches: fine sand
C - 8 to 60 inches: fine sand

Properties and qualities

Slope: 5 to 12 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Excessively drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very high (20.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 3 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 3.1 inches)

Map Unit Description: Kermit soils and Dune land, 0 to 12 percent slopes---Lea County, New Mexico

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 7e

Hydrologic Soil Group: A

Ecological site: R042XC022NM - Sandhills

Hydric soil rating: No

Description of Dune Land**Setting**

Landform: Dunes

Landform position (two-dimensional): Shoulder, backslope, footslope

Landform position (three-dimensional): Side slope

Down-slope shape: Concave, convex, linear

Across-slope shape: Convex

Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 6 inches: fine sand

C - 6 to 60 inches: fine sand

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 8

Hydrologic Soil Group: A

Hydric soil rating: No

Minor Components**Pyote**

Percent of map unit: 3 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Palomas

Percent of map unit: 3 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Wink

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Hydric soil rating: No

Maljamar

Percent of map unit: 2 percent

Ecological site: R042XC003NM - Loamy Sand

Map Unit Description: Kermit soils and Dune land, 0 to 12 percent slopes---Lea County, New Mexico

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 18, Sep 10, 2021

Map Unit Description: Pyote and Maljamar fine sands---Lea County, New Mexico

Lea County, New Mexico

PU—Pyote and Maljamar fine sands

Map Unit Setting

National map unit symbol: dmqq
Elevation: 3,000 to 3,900 feet
Mean annual precipitation: 10 to 12 inches
Mean annual air temperature: 60 to 62 degrees F
Frost-free period: 190 to 205 days
Farmland classification: Not prime farmland

Map Unit Composition

Pyote and similar soils: 46 percent
Maljamar and similar soils: 44 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pyote

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 30 inches: fine sand
Bt - 30 to 60 inches: fine sandy loam

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
Capacity of the most limiting layer to transmit water (Ksat): High (2.00 to 6.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.1 inches)

Interpretive groups

Land capability classification (irrigated): 6e

Map Unit Description: Pyote and Maljamar fine sands---Lea County, New Mexico

Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Description of Maljamar

Setting

Landform: Plains
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy eolian deposits derived from sedimentary rock

Typical profile

A - 0 to 24 inches: fine sand
Bt - 24 to 50 inches: sandy clay loam
Bkm - 50 to 60 inches: cemented material

Properties and qualities

Slope: 0 to 3 percent
Depth to restrictive feature: 40 to 60 inches to petrocalcic
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 5 percent
Gypsum, maximum content: 1 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Low (about 5.6 inches)

Interpretive groups

Land capability classification (irrigated): 6e
Land capability classification (nonirrigated): 7e
Hydrologic Soil Group: B
Ecological site: R042XC003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: R042XC022NM - Sandhills

Map Unit Description: Pyote and Maljamar fine sands---Lea County, New Mexico

Hydric soil rating: No

Data Source Information

Soil Survey Area: Lea County, New Mexico
Survey Area Data: Version 18, Sep 10, 2021

Ecological site R042XC003NM Loamy Sand

Accessed: 01/27/2022

General information

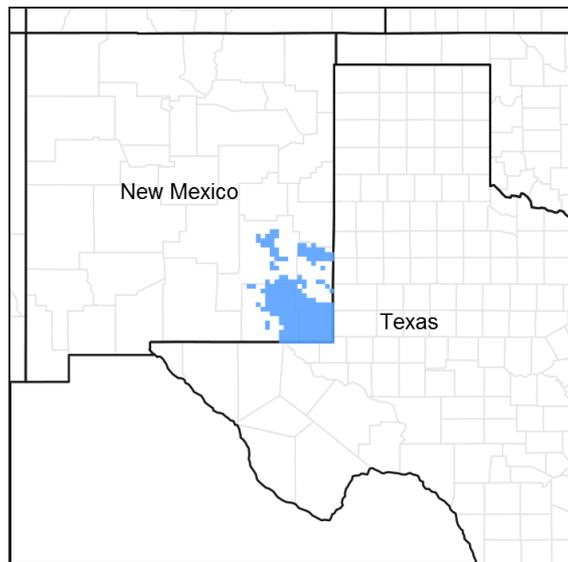


Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Associated sites

R042XC004NM	Sandy Sandy
R042XC005NM	Deep Sand Deep Sand

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site is on uplands, plains, dunes, fan piedmonts and in inter dunal areas. The parent material consists of mixed alluvium and or eolian sands derived from sedimentary rock. Slope range on this site range from 0 to 9 percent with the average of 5 percent.

Low stabilized dunes may occur occasionally on this site. Elevations range from 2,800 to 5,000 feet.

Table 2. Representative physiographic features

Landforms	(1) Fan piedmont (2) Alluvial fan (3) Dune
Elevation	2,800–5,000 ft
Slope	0–9%
Aspect	Aspect is not a significant factor

Climatic features

The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity-short duration thunderstorms.

Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer.

The average frost-free season is 207 to 220 days. The last killing frost being late March or early April and the first killing frost being in later October or early November.

Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Strong winds blow from the southwest from January through June, which accelerates soil drying during a critical period for cool season plant growth.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

Table 3. Representative climatic features

Frost-free period (average)	221 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

This site is not influenced from water from wetlands or streams.

Soil features

Soils are moderately deep or very deep. Surface textures are loamy fine sand, fine sandy loam, loamy very fine sand or gravelly sandy loam.

Subsurface is a loamy fine sand, coarse sandy loam, fine sandy loam or loam that averages less than 18 percent clay and less than 15 percent carbonates.

Substratum is a fine sandy loam or gravelly fine sandy loam with less than 15 percent gravel and with less than 40 percent calcium carbonate. Some layers high in lime or with caliche fragments may occur at depths of 20 to 30 inches.

These soils, if unprotected by plant cover and organic residue, become wind blown and low hummocks are formed.

Minimum and maximum values listed below represent the characteristic soils for this site.

Characteristic soils are:

Maljamar
Berino

Parjarito
Palomas
Wink
Pyote

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Fine sandy loam (3) Loamy fine sand
Family particle size	(1) Sandy
Drainage class	Well drained to somewhat excessively drained
Permeability class	Moderate to moderately rapid
Soil depth	40–72 in
Surface fragment cover ≤3"	0–10%
Surface fragment cover >3"	0%
Available water capacity (0-40in)	5–7 in
Calcium carbonate equivalent (0-40in)	3–40%
Electrical conductivity (0-40in)	2–4 mmhos/cm
Sodium adsorption ratio (0-40in)	0–2
Soil reaction (1:1 water) (0-40in)	6.6–8.4
Subsurface fragment volume ≤3" (Depth not specified)	4–12%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Overview

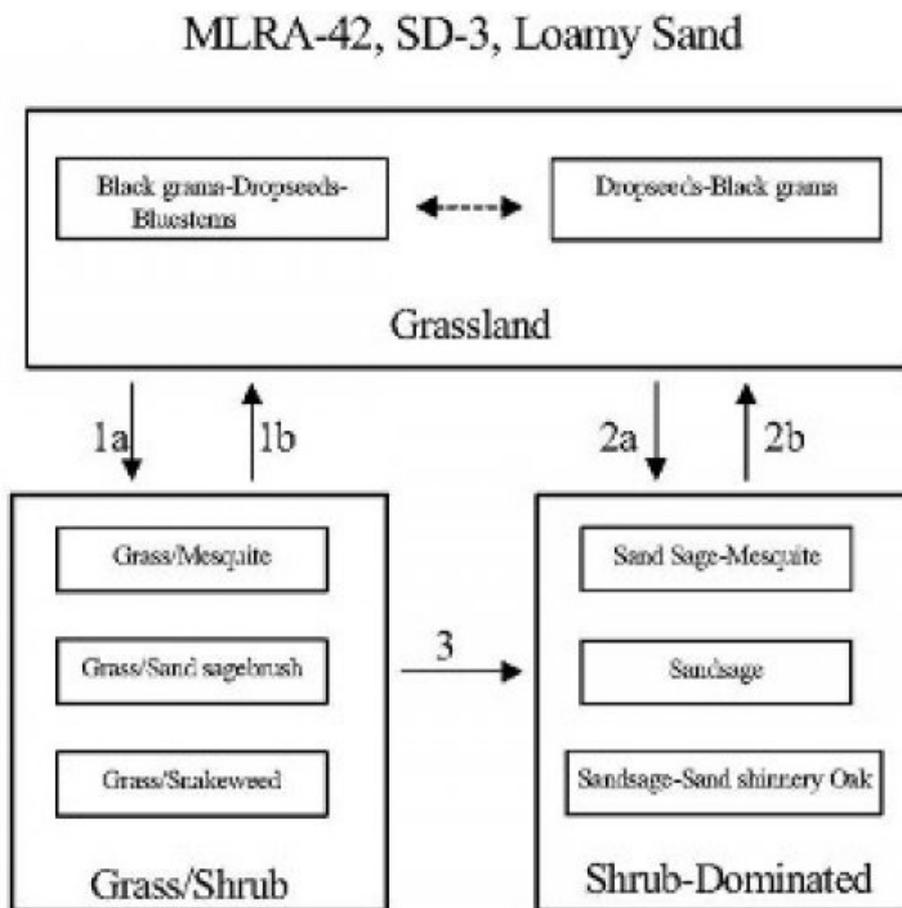
The Loamy Sand site intergrades with the Deep Sand and Sandy sites (SD-3). These sites can be differentiated by surface soil texture and depth to a textural change. Loamy Sand and Deep Sand sites have coarse textured (sands and loamy sand) surface soils while Sandy sites have moderately coarse textured (sandy loam and fine sandy loam) surfaces. Although Loamy Sand and Deep Sand sites have similar surface textures, the depth to a textural change is different—Loamy Sand sub-surface textures typically increase in clay at approximately 20 to 30 inches, and Deep Sand sites not until around 40 inches.

The historic plant community of Loamy Sand sites is dominated by black grama (*Bouteloua eriopoda*), dropseeds (*Sporobolus flexuosus*, *S. contractus*, *S. cryptandrus*), and bluestems (*Schizachyrium scoparium* and *Andropogon hallii*), with scattered shinnery oak (*Quercus havardii*) and sand sage (*Artemisia filifolia*). Perennial and annual forb abundance and distribution are dependent on precipitation. Litter and to a lesser extent, bare ground, are a significant proportion of ground cover while grasses compose the remainder. Decreases in black grama indicate a transition to either a grass/shrub or shrub-dominated state. The grass/shrub state is composed of grasses/honey mesquite (*Prosopis glandulosa*), grasses/broom snakeweed (*Gutierrezia sarothrae*), or grasses/sand sage. The shrub-dominated state occurs after a severe loss of grass cover and a prevalence of sand sage with secondary shinnery oak and mesquite. Heavy grazing intensity and/or drought are influential drivers in decreasing black grama and bluestems and subsequently increasing shrub cover, erosion, and bare patches. Historical fire suppression also encourages shrub pervasiveness and a competitive advantage over grass species (McPherson 1995). Brush and grazing management, however, may reverse grass/shrub and shrub-dominated states toward the grassland-

dominated historic plant community.

State and transition model

Plant Communities and Transitional Pathways (diagram):



- 1a. Drought, over grazing, fire suppression.
- 1b. Brush control, prescribed grazing

- 2.a Severe loss of grass cover, fire suppression, erosion.
- 2b. Brush control, seeding, prescribed grazing.

- 3. Continued loss of grass cover, erosion.

Figure 4.

**State 1
Historic Climax Plant Community**

Community 1.1 Historic Climax Plant Community

Grassland: The historic plant community is a uniformly distributed grassland dominated by black grama, dropseeds, and bluestems. Sand sage and shinnery oak are evenly dispersed throughout the grassland due to the coarse soil surface texture. Perennial and annual forbs are common but their abundance and distribution are reflective of precipitation. Bluestems initially, followed by black grama, decrease with drought and heavy grazing intensity. Historical fire frequency is unknown but likely occurred enough to remove small shrubs to the competitive advantage of grass species. Fire suppression, drought conditions, and excessive grazing drive most grass species out of competition with shrub species.

Diagnosis: Grassland dominated by black grama, dropseeds, and bluestems. Shrubs, such as sand sage, shinnery oak, and mesquite are dispersed throughout the grassland. Forbs are present and populations fluctuate with precipitation variability.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	442	833	1224
Forb	110	208	306
Shrub/Vine	98	184	270
Total	650	1225	1800

Table 6. Ground cover

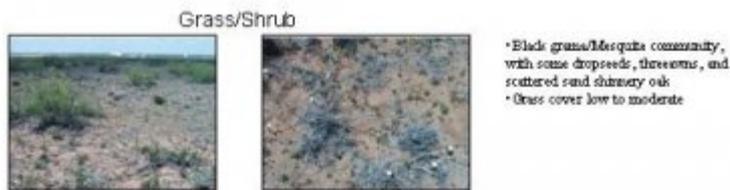
Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	28%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	50%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	22%

Figure 6. Plant community growth curve (percent production by month). NM2803, R042XC003NM-Loamy Sand-HCPC. SD-3 Loamy Sand - Warm season plant community .

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	0	3	5	10	10	25	30	12	5	0	0

State 2 Grass/Shrub

Community 2.1 Grass/Shrub



Grass/Shrub State: The grass/shrub state is dominated by communities of grasses/mesquite, grasses/snakeweed, or grasses/sand sage. Decreases in black grama and bluestem species lead to an increase in bare patches and mesquite which further competes with grass species. An increase of dropseeds and threeawns occurs. Grass distribution becomes more patchy with an absence or severe decrease in black grama and bluestems. Mesquite provides nitrogen and soil organic matter to co-dominant grasses (Ansley and Jacoby 1998, Ansley et al. 1998). Mesquite mortality when exposed to fire is low due to aggressive resprouting abilities. Herbicide application combined with subsequent prescribed fire may be more effective in mesquite reduction (Britton and Wright 1971).

Diagnosis: This state is dominated by an increased abundance of communities including grass/mesquite, grass/snakeweed, or grass/sand sage. Dropseeds and threeawns have a patchy distribution.

Transition to Grass/Shrub State (1a): The historic plant community begins to shift toward the grass/shrub state as drivers such as drought, fire suppression, interspecific competition, and excessive grazing contribute to alterations in soil properties and herbaceous cover. Cover loss and surface soil erosion are initial indicators of transition followed by a decrease in black grama with a subsequent increase of dropseeds, threeawns, mesquite, and snakeweed. Snakeweed has been documented to outcompete black grama especially under conditions of fire suppression and drought (McDaniel et al. 1984).

Key indicators of approach to transition:

- Loss of black grama cover
- Surface soil erosion
- Bare patch expansion
- Increased dropseed/threeawn and mesquite, snakeweed, or sand sage abundances

Transition to Historic Plant Community (1b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community.

State 3 Shrub Dominated

Community 3.1 Shrub Dominated

Shrub-Dominated State: The shrub-dominated state results from a severe loss of grass cover. This state’s primary species is sand sage. Shinnery oak and mesquite also occur; however, grass cover is limited to intershrub distribution. Sand sage stabilizes light sandy soils from wind erosion, which enhances protected grass/forb cover (Davis and Bonham 1979). However, shinnery oak also responds to the sandy soils with dense stands due to an aggressive rhizome system. Shinnery oak’s extensive root system promotes competitive exclusion of grasses and forbs. Sand sage, shinnery oak, and mesquite can be controlled with herbicide (Herbel et al. 1979, Pettit 1986).

Transition to Shrub-Dominated (2a): Severe loss of grass species with increased erosion and fire suppression will result in a transition to a shrub-dominated state with sand sage, Shin oak, and honey mesquite directly from the grassland-dominated state.

Key indicators of approach to transition:

- Severe loss of grass species cover
- Surface soil erosion
- Bare patch expansion
- Increased sand sage, shinnery oak, and mesquite abundance

Transition to Historic Plant Community (2b): Brush and grazing management may restore the grassland component and reverse shrub or grass/shrub dominated states back toward the historic plant community. In addition, seeding with native grass species will augment the transition to a grassland-dominated state.

Transition to Shrub-Dominated (3): If the grass/shrub site continues to lose grass cover with soil erosion, the site will transition to a shrub-dominated state with sand sage, shinnery oak, and honey mesquite.

Key indicators of approach to transition:

- Continual loss of dropseeds/threawns cover
- Surface soil erosion
- Bare patch expansion
- Increased sand sage, shinnery oak, and mesquite/dropseed/threawn and mesquite/snakeweed abundance

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1	Warm Season			61–123	
	little bluestem	SCSC	<i>Schizachyrium scoparium</i>	61–123	–
2	Warm Season			37–61	
	sand bluestem	ANHA	<i>Andropogon hallii</i>	37–61	–
3	Warm Season			37–61	
	cane bluestem	BOBA3	<i>Bothriochloa barbinodis</i>	37–61	–
	silver bluestem	BOSA	<i>Bothriochloa saccharoides</i>	37–61	–
4	Warm Season			123–184	
	black grama	BOER4	<i>Bouteloua eriopoda</i>	123–184	–
	bush muhly	MUPO2	<i>Muhlenbergia porteri</i>	123–184	–
5	Warm Season			123–184	
	thin paspalum	PASE5	<i>Paspalum setaceum</i>	123–184	–

	prains bristlegress	SEVUZ	<i>Setaria vupiseta</i>	123-184	-
	fringed signalgrass	URCI	<i>Urochloa ciliatissima</i>	123-184	-
6	Warm Season			123-184	
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	123-184	-
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	123-184	-
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	123-184	-
7	Warm Season			61-123	
	hooded windmill grass	CHCU2	<i>Chloris cucullata</i>	61-123	-
	Arizona cottontop	DICA8	<i>Digitaria californica</i>	61-123	-
9	Other Perennial Grasses			37-61	
	Grass, perennial	2GP	<i>Grass, perennial</i>	37-61	-
Shrub/Vine					
8	Warm Season			37-61	
	New Mexico feathergrass	HENE5	<i>Hesperostipa neomexicana</i>	37-61	-
	giant dropseed	SPGI	<i>Sporobolus giganteus</i>	37-61	-
10	Shrub			61-123	
	sand sagebrush	ARFI2	<i>Artemisia filifolia</i>	61-123	-
	Havard oak	QUHA3	<i>Quercus havardii</i>	61-123	-
11	Shrub			34-61	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	37-61	-
	featherplume	DAFO	<i>Dalea formosa</i>	37-61	-
12	Shrub			37-61	
	jointfir	EPHED	<i>Ephedra</i>	37-61	-
	littleleaf ratany	KRER	<i>Krameria erecta</i>	37-61	-
13	Other Shrubs			37-61	
	Shrub (>.5m)	2SHRUB	<i>Shrub (>.5m)</i>	37-61	-
Forb					
14	Forb			61-123	
	leatherweed	CRPOP	<i>Croton pottsii var. pottsii</i>	61-123	-
	Indian blanket	GAPU	<i>Gaillardia pulchella</i>	61-123	-
	globemallow	SPHAE	<i>Sphaeralcea</i>	61-123	-
15	Forb			12-37	
	woolly groundsel	PACA15	<i>Packera cana</i>	12-37	-
16	Forb			61-123	
	touristplant	DIWI2	<i>Dimorphocarpa wislizeni</i>	61-123	-
	woolly plantain	PLPA2	<i>Plantago patagonica</i>	61-123	-
17	Other Forbs			37-61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	<i>Forb (herbaceous, not grass nor grass-like)</i>	37-61	-

Animal community

This Ecological Site provides habitat which supports a resident animal community that is characterized by pronghorn antelope, desert cottontail, spotted ground squirrel, black-tailed prairie dog, yellow faced pocket gopher, Ord's kangaroo rat, northern grasshopper mouse, southern plains woodrat, badger, roadrunner, meadowlark, burrowing owl, white necked raven, lesser prairie chicken, morning dove, scaled quail, Harris hawk, side blotched

lizard, marbled whiptail, Texas horned lizard, western diamondback rattlesnake, dusty hognose snake and ornate box turtle.

Where mesquite has invaded, most resident birds and scissor-tailed flycatcher, morning dove and Swainson's hawk, nest. Vesper and grasshopper sparrows utilize the site during migration.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydraulic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series Hydrologic Group

Berino B

Kinco A

Maljamar B

Pajarito B

Palomas B

Wink B

Pyote A

Recreational uses

This site offers recreation potential for hiking, borseback riding, nature observation, photography and hunting. During years of abundant spring moisture, this site displays a colorful array of wildflowers during May and June.

Wood products

This site has no potential for wood products.

Other products

This site is suitable for grazing by all kinds and classes of livestock at any time of year. In cases where this site has been invaded by brush species it is especially suited for goats. Mismanagement of this site will cause a decrease in species such as the bluestems, black grama, bush muhly, plains bristlegrass, New Mexico feathergrass, Arizona cottontop and fourwing saltbush. A corresponding increase in the dropseeds, windmill grass, fall witchgrass, silver bluestem, sand sagebrush, shinery oak and ephedra will occur. This will also cause an increase in bare ground which will increase soil erodibility. This site will respond well to a system of management that rotates the season of use.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index Ac/AUM

100 - 76 2.3 – 3.5

75 – 51 3.0 – 4.5

50 – 26 4.6 – 9.0

25 – 0 9.1 +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains, Major Land Resource Areas of New Mexico. This site has been mapped and correlated with soils in the following soil surveys. Eddy County, Lea County, and Chaves County.

Other references

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Herbel, C. H, Steger, R, Gould, W. L. 1974. Managing semidesert ranges of the Southwest Circular 456. Las Cruces, NM: New Mexico State University, Cooperative Extension Service. 48 p.

McDaniel, Kirk C.; Pieper, Rex D.; Loomis, Lyn E.; Osman, Abdelgader A. 1984. Taxonomy and ecology of perennial snakeweeds in New Mexico. Bulletin 711. Las Cruces, NM: New Mexico State University, Agricultural Experiment Station. 34 p.

McPherson, Guy R. 1995. The role of fire in the desert grasslands. In: McClaran, Mitchel P.; Van Devender, Thomas R., eds. The desert grassland. Tucson, AZ: The University of Arizona Press: 130-151.

Pettit, Russell D. 1986. Sand shinnery oak: control and management. Management Note 8. Lubbock, TX: Texas Tech University, College of Agricultural Sciences, Department of Range and Wildlife Management. 5 p.

Contributors

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Quinn Hodgson

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

Dominant:

Sub-dominant:

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**

Ecological site R042XC022NM Sandhills

Accessed: 01/27/2022

General information



Figure 1. Mapped extent

Areas shown in blue indicate the maximum mapped extent of this ecological site. Other ecological sites likely occur within the highlighted areas. It is also possible for this ecological site to occur outside of highlighted areas if detailed soil survey has not been completed or recently updated.

Table 1. Dominant plant species

Tree	Not specified
Shrub	Not specified
Herbaceous	Not specified

Physiographic features

This site occurs on plains. The soils are calcareous sandy eolian deposits derived from sedimentary rock. Land form of sand dunes or hillslopes. Slopes average 5 to 35 percent. Slopes are complex as the steeper slopes are shorter in length while the more gentle slopes are longer in length. Direction of slopes vary and is usually not significant. Elevations range from 2,842 to 4,500 feet.

Table 2. Representative physiographic features

Landforms	(1) Plain (2) Hill (3) Dune
Flooding frequency	None
Ponding frequency	None
Elevation	2,842–4,500 ft
Slope	5–35%

Aspect	Aspect is not a significant factor
--------	------------------------------------

Climatic features

The climate of the area is "semi-arid continental". The average annual precipitation ranges from 8 to 13 inches. Variations of 5 inches, more or less, are common. Over 80 percent of the precipitation falls from April through October. Most of the summer precipitation comes in the form of high intensity – short duration thunderstorms. Temperatures are characterized by distinct seasonal changes and large annual and diurnal temperature changes. The average annual temperature is 61 degrees with extremes of 25 degrees below zero in the winter to 112 degrees in the summer. The average frost-free season is 180 to 220 days. The last killing frost is in late March or early April, and the first killing frost is in late October or early November. Temperature and rainfall both favor warm season perennial plant growth. In years of abundant spring moisture, annual forbs and cool season grasses can make up an important component of this site. Because of the texture of this soil, most rainfall is effective. Strong winds blow from the west and southwest from January through June which accelerates soil drying at a time for cool season plant growth.

Climate data was obtained from <http://www.wrcc.sage.dri.edu/summary/climsmnm.html> web site using 50% probability for freeze-free and frost-free seasons using 28.5 degrees F and 32.5 degrees F respectively.

Table 3. Representative climatic features

Frost-free period (average)	220 days
Freeze-free period (average)	240 days
Precipitation total (average)	13 in

Influencing water features

This site is not influenced by wetlands or streams.

Soil features

The soils of this site are deep and very deep. Surface textures are fine sand or loamy fine sand. Subsoils are fine sand or loamy fine sand to a depth of 60 inches or more. These soils have less than 10 percent clay content. These soils are subject to severe wind erosion if vegetative cover is not adequate.

Minimum and maximum values listed below represent the characteristic soils for this site.

Characteristic Soils Are:

Kermit
Aguena

Table 4. Representative soil features

Surface texture	(1) Fine sand (2) Loamy fine sand (3) Loamy sand
Family particle size	(1) Sandy
Drainage class	Well drained to excessively drained
Permeability class	Rapid to very rapid
Soil depth	60–72 in
Surface fragment cover <=3"	0–5%
Surface fragment cover >3"	0%

Available water capacity (0-40in)	3-9 in
Calcium carbonate equivalent (0-40in)	0-7%
Electrical conductivity (0-40in)	0-2 mmhos/cm
Sodium adsorption ratio (0-40in)	0-1
Soil reaction (1:1 water) (0-40in)	7.4-8.4
Subsurface fragment volume <=3" (Depth not specified)	0-5%
Subsurface fragment volume >3" (Depth not specified)	0%

Ecological dynamics

Overview:

The Sandhills site occurs adjacent to or intergrades with the Deep Sand site. The Sandhills site is differentiated from deep sand sites by a steeper average slope, and an increased depth to a soil texture change. Sandhills slopes are usually greater than eight percent, and the soil profile is a fine sand or loamy fine sand to a depth greater than 60 inches. Deep Sand sites have slopes less than eight percent and a textural change can occur at less than 60 inches. The historic plant community of the Sandhills site is a mixture of grasses, shrubs and forbs, with tall grasses dominating in aspect. During years of abundant spring moisture, tall growing forbs occasionally reach aspect dominance. Sand bluestem and giant dropseed are the dominant grasses, with Havard panicum and dropseeds as sub-dominants. Sand shinnery oak and soapweed yucca are the dominant shrubs. Drought favors shinnery by impacting grasses more severely. Shinnery oak's ability to store water and carbohydrates, and its strong negative leaf water potential enable it to out compete grasses during drought conditions. Changes in historical fire regimes, competition by shrubs, and overgrazing may contribute to this site becoming dominated by sand shinnery oak.

State and transition model

Plant Communities and Transitional Pathways (diagram)

MLRA-42, SD-3, Sandhills

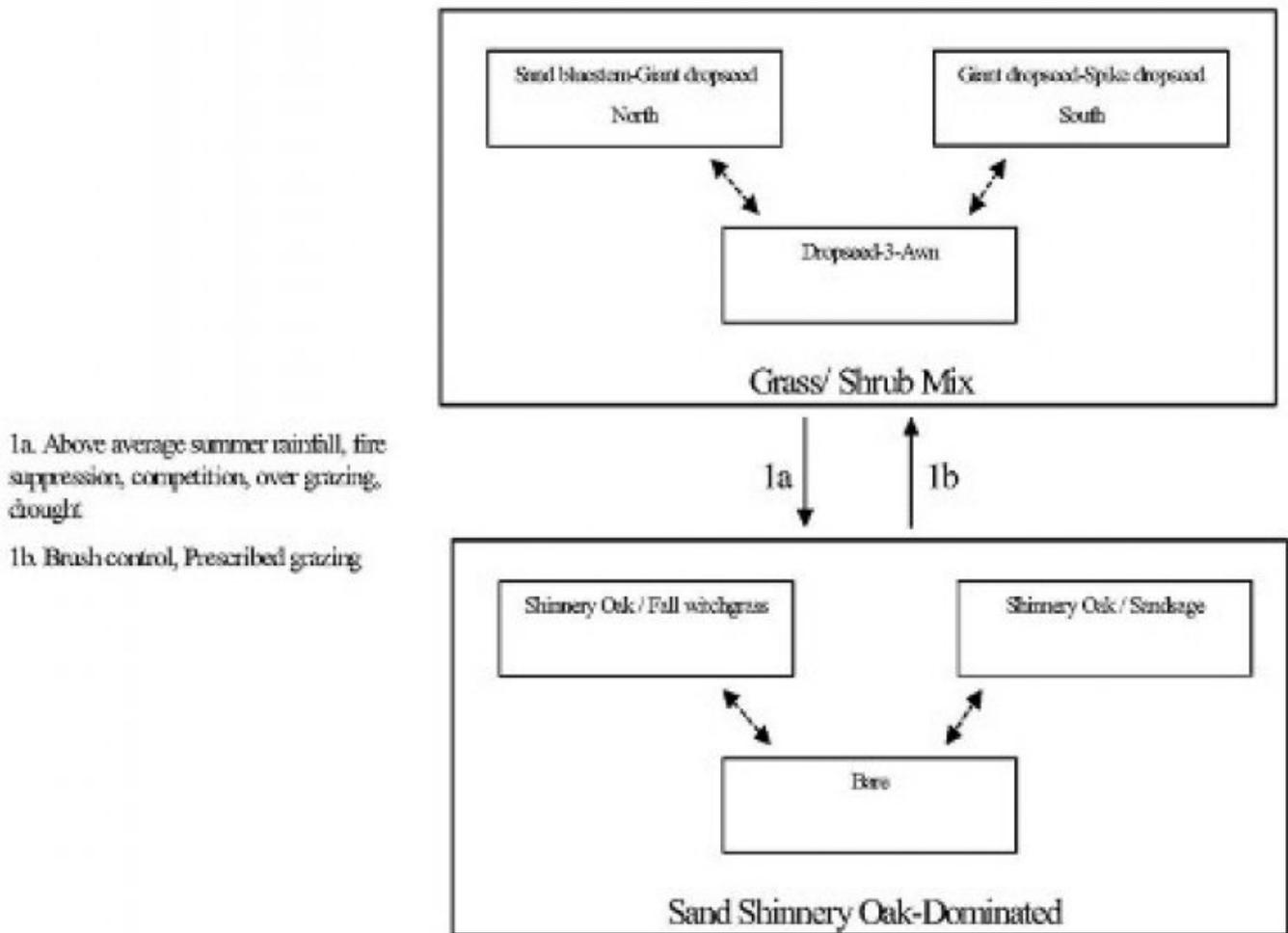


Figure 4.

**State 1
Grass/Shrub Mix**

**Community 1.1
Grass/Shrub Mix**

Grass/Shrub Mix: The historic plant community in the northern part of the resource area (SD-3) is dominated by sand bluestem and giant dropseed, with Havard panicum as a sub-dominant. Primary grass dominance may gradually shift moving south across the resource area to a community dominated by giant dropseed and spike dropseed, with mesa dropseed as the sub-dominant grass species. Throughout the resource area sand shinnery oak and soapweed yucca are the dominant shrubs with sand sagebrush as the sub-dominant. As retrogression within this state occurs, plants such as sand bluestem, giant dropseed, Havard panicum, plains bristlegrass, sand paspalum, and fourwing saltbush decrease. This results in an increase in spike dropseed, sand dropseed, mesa dropseed, threeawns sand shinnery oak, and sand sagebrush. Continued loss of grass cover may result in a transition to a sand shinnery oak dominated state.

Diagnosis: Sand bluestem or giant dropseed are dominant or present in substantial amounts. Spike dropseed, sand dropseed or mesa dropseed may be dominant in some instances. Grass cover is variable, shifting sands and large irregular dunes produce considerable variation in the spatial distribution and composition of the plant community. Grass cover is not continuous, but is fairly uniform across the more stable areas. Large natural bare areas or blowouts are a common feature on the less stable portions of the Sandhills site.

Table 5. Annual production by plant type

Plant Type	Low (Lb/Acre)	Representative Value (Lb/Acre)	High (Lb/Acre)
Grass/Grasslike	360	585	810
Shrub/Vine	120	195	270
Forb	120	195	270
Total	600	975	1350

Table 6. Ground cover

Tree foliar cover	0%
Shrub/vine/liana foliar cover	0%
Grass/grasslike foliar cover	10-15%
Forb foliar cover	0%
Non-vascular plants	0%
Biological crusts	0%
Litter	20-25%
Surface fragments >0.25" and <=3"	0%
Surface fragments >3"	0%
Bedrock	0%
Water	0%
Bare ground	45-60%

Figure 6. Plant community growth curve (percent production by month). NM2822, R042XC022NM Sandhills HCPC. R042XC022NM Sandhills HCPC warm season plant community.

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
0	1	3	4	10	10	25	30	12	5	0	0

State 2 Sand Shinnery Oak-Dominated

Community 2.1 Sand Shinnery Oak-Dominated

Additional States:

Sand Shinnery Oak -Dominated: Sand shinnery oak is the dominant species and in dense stands may reduce forage production by as much as 90 percent.¹ It often forms a mosaic of dense thickets interspersed with occasional motts of taller oaks, large areas of bare ground, and concentrations of sand sagebrush. Sand shinnery oak is well suited to deep sandy soils. The height and cover of oak decreases as sand depth decreases or clay content increases. The aggressive nature of fall witchgrass and continued loss of more palatable grasses and threeawn species may result in a sand shinnery oak-fall witchgrass community. Burning may result in a community with very little grass or sand shinnery oak (bare). Sand shinnery oak usually recovers due to its ability to sprout aggressively following fire.

Diagnosis: Sand shinnery oak is the dominant species. Grass cover is sparse and patchy. Shrub cover is high. Blowouts and bare areas are common, however, high shrub cover mediates erosion.

Transition to Sand Shinnery Oak Dominated (1a): Climate may play a role in facilitating the spread sand shinnery oak. It is best adapted to those areas that receive an average of 16 inches of annual rainfall; it may therefore gain a competitive advantage during cycles of above average precipitation. Sand shinnery oak spreads mainly by elongation of rhizomes, but in some instances will reproduce by seed. The establishment and survival of seedlings is limited to those years with abundant rainfall during the months of July and August. If fire historically played a part in suppressing the density and distribution of shrubs in desert grasslands, then fire suppression may facilitate a shift to shrub dominance.² Competition for resources between grasses and shrubs may be a factor in increased densities of sand shinnery oak. 1 Sand shinnery oak has an extensive system of underground roots and stems that can uptake and store water for growth during drier periods, allowing it to increase, at times when grasses decrease. Evidence of competitive suppression of grasses is indicated by increases in herbaceous vegetation following chemical control of sand shinnery oak.¹ However, this increase may in part be due to a flush of nutrients made available from the decomposing biomass of woody roots and stems. Loss of grass cover due to overgrazing or drought may give a competitive advantage to sand shinnery oak.

Key indicators of approach to transition:

* A decrease in the tall grass species and the associated increase in threeawns may be indicative of the initial stage of transition to a shrub-dominated state.

* Increased cover of sand shinnery oak.

Transition back to Grass/Shrub Mix (1b) Chemical brush control is an effective means of controlling sand shinnery oak and sand sagebrush. Where large areas of chemical control are planned, increased erosion and the effect on loss of wildlife habitat should be considered. Prescribed grazing will help ensure an adequate deferment period to allow grass recovery and subsequent proper forage utilization. There have been studies that suggest long term browsing by goats can reduce sand shinnery oak, altering production in favor of grasses.³

Additional community tables

Table 7. Community 1.1 plant community composition

Group	Common Name	Symbol	Scientific Name	Annual Production (Lb/Acre)	Foliar Cover (%)
Grass/Grasslike					
1				195–293	
	sand bluestem	ANHA	<i>Andropogon hallii</i>	195–293	–
	Havard's panicgrass	PAHA2	<i>Panicum havardii</i>	195–293	–
	giant dropseed	SPGI	<i>Sporobolus giganteus</i>	195–293	–
2				146–195	
	spike dropseed	SPCO4	<i>Sporobolus contractus</i>	146–195	–
	sand dropseed	SPCR	<i>Sporobolus cryptandrus</i>	146–195	–
	mesa dropseed	SPFL2	<i>Sporobolus flexuosus</i>	146–195	–
3				49–98	
	thin paspalum	PASE5	<i>Paspalum setaceum</i>	49–98	–
	plains bristleglass	SEVU2	<i>Setaria vulpisetia</i>	49–98	–
4				29–49	
	threeawn	ARIST	<i>Aristida</i>	29–49	–
	mat sandbur	CELO3	<i>Cenchrus longispinus</i>	29–49	–
	flatsedge	CYPER	<i>Cyperus</i>	29–49	–
5				29–49	
	Grass, perennial	2GP	<i>Grass, perennial</i>	29–49	–
Shrub/Vine					

6				49-98	
	Havard oak	QUHA3	<i>Quercus havardii</i>	49-98	-
7				49-98	
	soapweed yucca	YUGL	<i>Yucca glauca</i>	49-98	-
8				29-49	
	sand sagebrush	ARFI2	<i>Artemisia filifolia</i>	29-49	-
9				20-49	
	fourwing saltbush	ATCA2	<i>Atriplex canescens</i>	20-49	-
10				20-49	
	rabbitbrush	CHRY9	<i>Chrysothamnus</i>	20-49	-
11				20-49	
	Shrub (>.5m)	2SHRUB	<i>Shrub (>.5m)</i>	20-49	-
Forb					
12				20-49	
	featherplume	DAFO	<i>Dalea formosa</i>	20-49	-
13				29-49	
	sundrops	CALYL	<i>Calylophus</i>	29-49	-
	phlox heliotrope	HECO5	<i>Heliotropium convolvulaceum</i>	29-49	-
	sharpleaf penstemon	PEAC	<i>Penstemon acuminatus</i>	29-49	-
14				20-49	
	touristplant	DIWI2	<i>Dimorphocarpa wislizeni</i>	20-49	-
	lemon beebalm	MOCI	<i>Monarda citriodora</i>	20-49	-
16				29-49	
	hymenopappus	HYMEN4	<i>Hymenopappus</i>	29-49	-
	blazingstar	MENTZ	<i>Mentzelia</i>	29-49	-
	threadleaf ragwort	SEFLF	<i>Senecio flaccidus var. flaccidus</i>	29-49	-
17				20-49	
	sunflower	HELIA3	<i>Helianthus</i>	20-49	-
18				20-49	
	buckwheat	ERIOG	<i>Eriogonum</i>	20-49	-
19				20-49	
	Forb (herbaceous, not grass nor grass-like)	2FORB	<i>Forb (herbaceous, not grass nor grass-like)</i>	20-49	-

Animal community

This site provides habitat which support a resident animal community that is characterized by pronghorn antelope, black-tailed jackrabbit, Ord's kangaroo rat, Northern grasshopper mouse, Southern Plains woodrat, swift fox, roadrunner, meadowlark, lark bunting, ferruginous hawk, lesser prairie chicken, mourning dove, scaled quail, sand dune lizard, marbled whiptail, ornate box turtle, bullsnake and Western diamondback rattlesnake. Grasshopper and vesper sparrows utilize the site during migration. The ferruginous hawk sometimes nests on dunes associated with the site. White-tailed deer are also sometimes associated with this site (Mescalero Sands). Where mesquite invades, resident species of birds such as white-necked raven, roadrunner, pyrrhuloxia, mourning dove, and Harris hawk nest. Where sand hummocks form around shrubs, rodent populations and their predators increase. Fourwing saltbush, shinnery oak, sand sagebrush, and mesquite provide protective cover for scaled quail. Seed, green herbage, and fruit from a variety of grasses, forbs, and shrubs provide food for a number of birds and mammals, including mourning dove, scaled quail, lesser prairie chicken and antelope.

Hydrological functions

The runoff curve numbers are determined by field investigations using hydrolic cover conditions and hydrologic soil groups.

Hydrologic Interpretations

Soil Series----- Hydrologic Group

Kermit----- A

Aguena----- A

Recreational uses

This site offers recreation potential for hiking, horseback riding, nature observation and photography. This site also offers opportunities for hunting of such species as quail, dove and antelope.

Mechanical, off-road vehicle use by dune buggies, four wheelers, or motor bikes is site-destructive, resulting in severe soil movement by wind erosion. Off-road vehicle use should be confined to those areas which are already deterioriated and where intensive management for soil protection can be practiced.

During years of abundant spring moisture, this site displays a colorful array of wildflowers during May and June. A few showy summer and fall flowers also occur.

Wood products

The plant community associated with this site affords little or no wood products.

Other products

This site is suitable for grazing during all seasons of the year by all kinds and classes of livestock. Where shinnery oak has increased considerably above the amount in the potential plant community cattle loss can occur if grazed during the late bud and early leaf stage. This site responds well to an integrated brush management and grazing management. Brush management is inappropriate in occupied or potential habitat for sand dune lizard. Mismannagement of this site will cause a decrease in Harvard panicum, sand bluestem, giant dropseed, plains bristlegrass, sand paspalum and fourwing saltbush. There will be a corresponding increase in dropseeds, sand sagebrush and shinnery oak. When shinnery oak is not a problem, this site responds best to a system of mangement that rotates the season of use. Grazing management plans should be design to leave adequate residual cover for lesser prairie chicken nesting.

Other information

Guide to Suggested Initial Stocking Rate Acres per Animal Unit Month

Similarity Index----- Ac/AUM

100 - 76----- 2.0 – 4.0

75 – 51----- 3.0 – 6.5

50 – 26----- 5.0 – 12.0

25 – 0----- 12.0 - +

Inventory data references

Data collection for this site was done in conjunction with the progressive soil surveys within the Southern Desertic Basins, Plains and Mountains (SD-3) Major Land Resource Area of New Mexico. This site has been mapped and correlated with soils in the following soil surveys: South Chaves, Eddy, Lea and Otero Counties.

Other references

Literature Cited:

1. Sears, W.E., C.M. Britton, D.B. Wester, and R.D. Pettit. 1986. Herbicide conversion of a sand shinnery oak (*Quercus havardii*) community: effects on biomass. *J. Range. Manage.* 39: 399-403.
2. U.S. Department of Agriculture, Forest Service, Rocky Mountain Research Station, Fire Sciences Laboratory (2002, September). Fire Effects Information System, [Online]. Available: <http://www.fs.fed.us/database/feis/> [accessed 1/07/02].
3. Villena, F. and J.A. Pfister. 1990. Sand shinnery oak as forage for Angora and Spanish goats. *J. Range. Manage.* 43: 116-122.

Contributors

David Trujillo
 Don Sylvester

Rangeland health reference sheet

Interpreting Indicators of Rangeland Health is a qualitative assessment protocol used to determine ecosystem condition based on benchmark characteristics described in the Reference Sheet. A suite of 17 (or more) indicators are typically considered in an assessment. The ecological site(s) representative of an assessment location must be known prior to applying the protocol and must be verified based on soils and climate. Current plant community cannot be used to identify the ecological site.

Author(s)/participant(s)	
Contact for lead author	
Date	
Approved by	
Approval date	
Composition (Indicators 10 and 12) based on	Annual Production

Indicators

1. **Number and extent of rills:**

2. **Presence of water flow patterns:**

3. **Number and height of erosional pedestals or terracettes:**

4. **Bare ground from Ecological Site Description or other studies (rock, litter, lichen, moss, plant canopy are not bare ground):**

5. **Number of gullies and erosion associated with gullies:**

6. **Extent of wind scoured, blowouts and/or depositional areas:**

7. **Amount of litter movement (describe size and distance expected to travel):**

8. **Soil surface (top few mm) resistance to erosion (stability values are averages - most sites will show a range of values):**

9. **Soil surface structure and SOM content (include type of structure and A-horizon color and thickness):**

10. **Effect of community phase composition (relative proportion of different functional groups) and spatial distribution on infiltration and runoff:**

11. **Presence and thickness of compaction layer (usually none; describe soil profile features which may be mistaken for compaction on this site):**

12. **Functional/Structural Groups (list in order of descending dominance by above-ground annual-production or live foliar cover using symbols: >>, >, = to indicate much greater than, greater than, and equal to):**

Dominant:

Sub-dominant:

Other:

Additional:

13. **Amount of plant mortality and decadence (include which functional groups are expected to show mortality or decadence):**

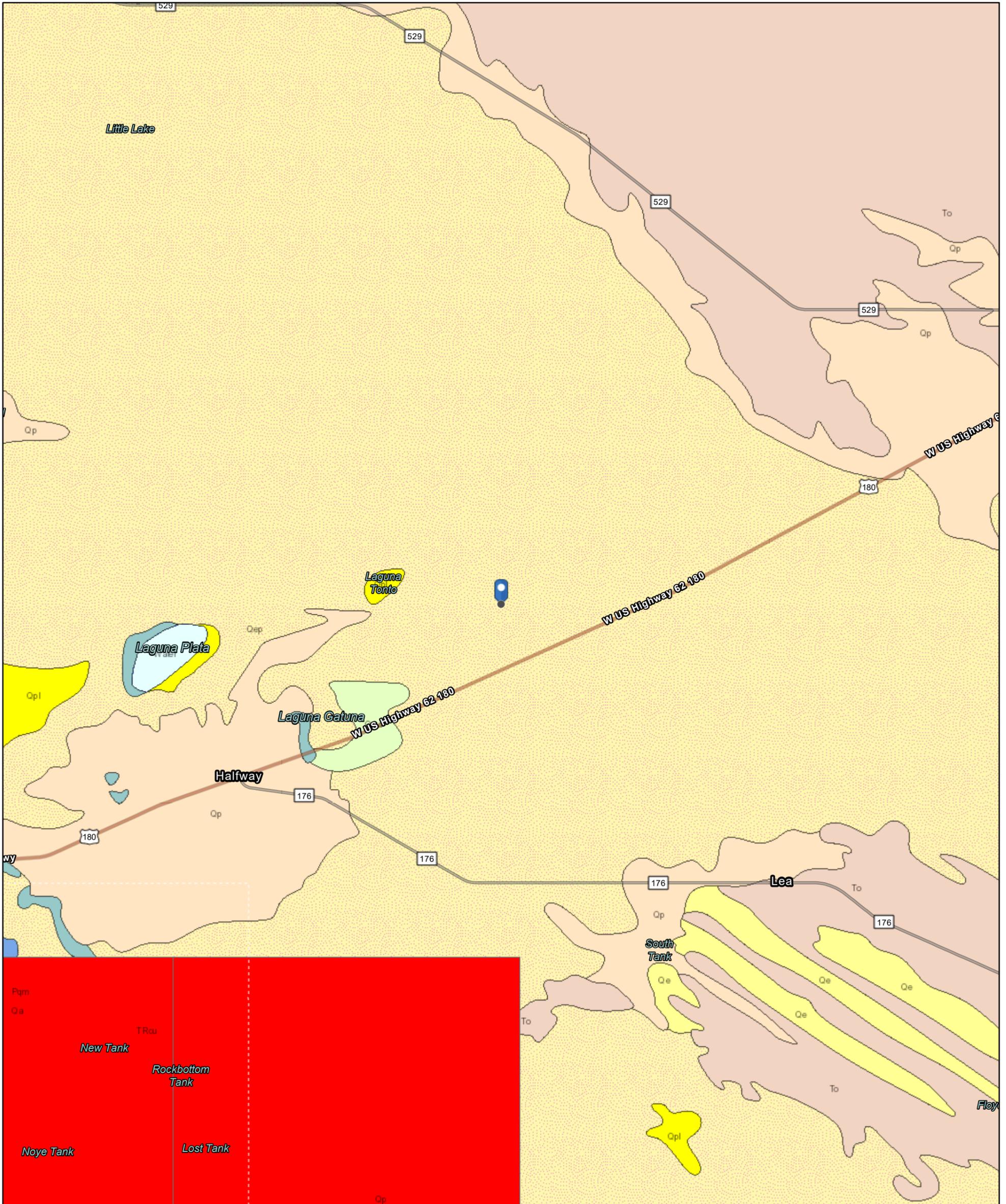
14. **Average percent litter cover (%) and depth (in):**

15. **Expected annual annual-production (this is TOTAL above-ground annual-production, not just forage annual-production):**

16. **Potential invasive (including noxious) species (native and non-native). List species which BOTH characterize degraded states and have the potential to become a dominant or co-dominant species on the ecological site if their future establishment and growth is not actively controlled by management interventions. Species that become dominant for only one to several years (e.g., short-term response to drought or wildfire) are not invasive plants. Note that unlike other indicators, we are describing what is NOT expected in the reference state for the ecological site:**

17. **Perennial plant reproductive capability:**

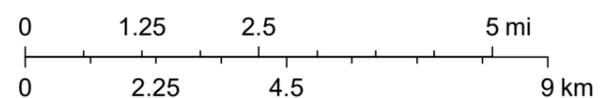
Gem North Tank Battery



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- | | | |
|-------------------------|-------------------------|---|
| Lithologic Contacts | --- Fault, Intermittent | — Dike intruding fault |
| — Contact, Exposed | Fault, Concealed | * Volcanic Vents |
| — Contact, Gradational | ~ Shere Zone | STATEMAP (1993 to Present) [Publications] |
| --- Nomenclature change | Dikes | ■ Mapping is Complete |
| — Map Boundary | <all other values> | ■ Mapping in Progress |
| Faults | — Dike | |
| — Fault, Exposed | | |

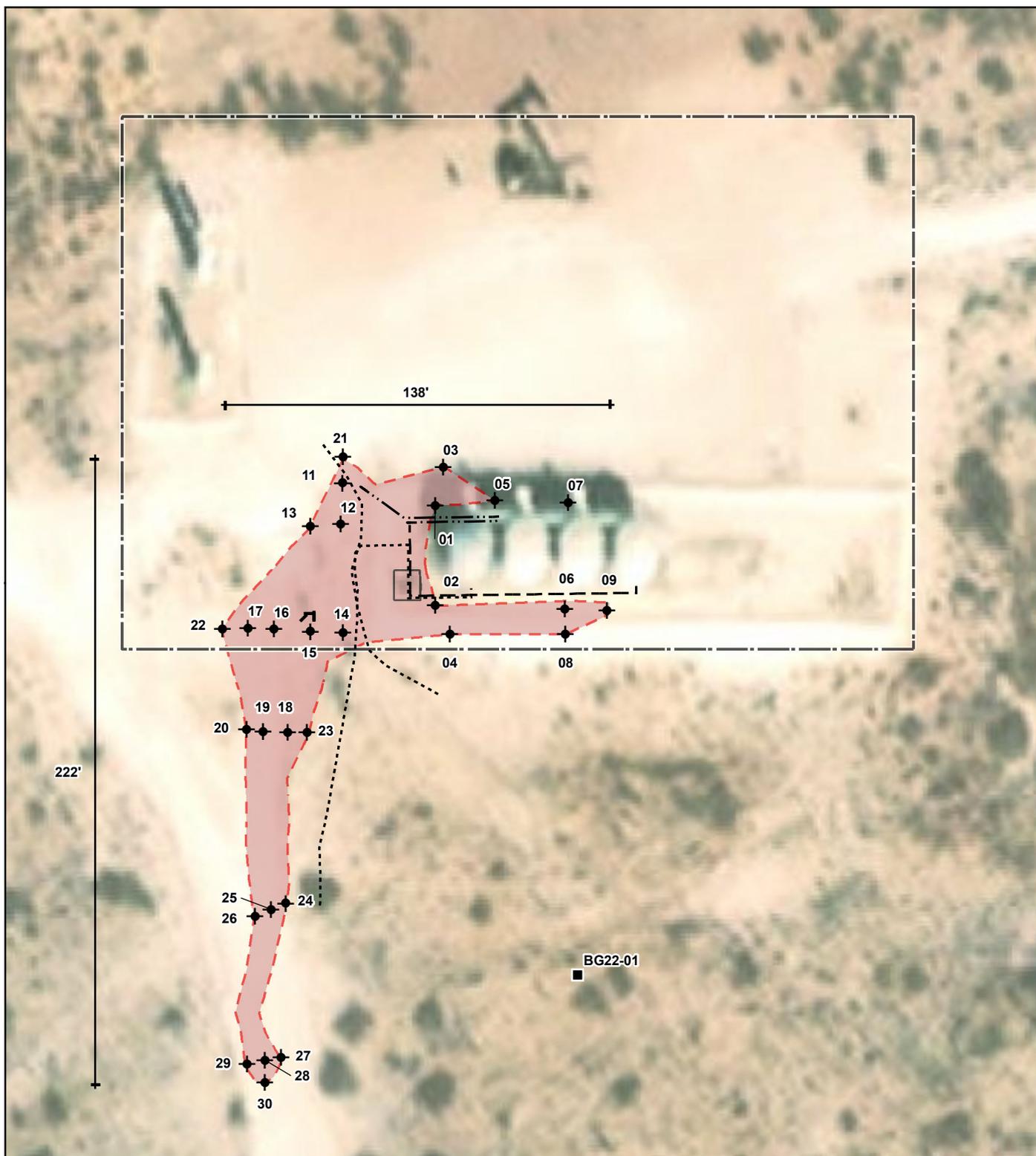
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Source: Esri, Maxar, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community, NMBGMR, Sources: Esri, HERE, Garmin, FAO, NOAA, USGS, © OpenStreetMap contributors, and the GIS User Community

Closure Criteria Worksheet			
Site Name: Gem North Tank Battery			
Spill Coordinates:		X: 32.60729	Y: -103.63186
Site Specific Conditions		Value	Unit
1	Depth to Groundwater	105	feet
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	192,065	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	11,780	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	8,679	feet
5	i) Within 500 feet of a spring or a private, domestic fresh water well used by less than five households for domestic or stock watering purposes, or	8,505	feet
	ii) Within 1000 feet of any fresh water well or spring	8,505	feet
6	Within incorporated municipal boundaries or within a defined municipal fresh water field covered under a municipal ordinance adopted pursuant to Section 3-27-3 NMSA 1978 as amended, unless the municipality specifically approves	No	(Y/N)
7	Within 300 feet of a wetland	21,804	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
10	Within a 100-year Floodplain	500	year
11	Soil Type	KM, PU	
12	Ecological Classification	Sandhills and Loamy sand	
13	Geology	Qep	
NMAC 19.15.29.12 E (Table 1) Closure Criteria		>100'	<50' 51-100' >100'

ATTACHMENT 3



- Background Sample
- ◆ Borehole (Prefixed by "BH22-")
- ↗ Riser
- Flowline
- Pipeline
- - - Pipeline Inside Containment
- Approximate Lease Boundary
- Total Spill Extent (6,449 sq. ft.)
- Water Transfer Pump



0 10 20 40 ft. Map Center:
 Lat: 32.607233,
 NAD 1983 UTM Zone 13N Long:-103.631857
 Date: Feb 09/22



Site Schematic
Gem North Tank Battery

FIGURE:
1b



Geospatial data presented in this figure may be derived from external sources and Vertex does not assume any liability for inaccuracies. This figure is intended for reference use only and is not certified for legal, survey, or engineering purposes.

Note: Background Imagery from ESRI, 2020.

Document Path: G:\1-Projects\BTA Oil Producers LLC\22E-001\97\Figure 1b Characterization Schematic Gem North Tank Battery.mxd

ATTACHMENT 4

Client Name: BTA Oil Producers
 Site Name: Gem North Tank Battery
 NM OCD Tracking #: nAPP2201956795
 Project #: 22E-00197
 Lab Report(sX): 2202388, 2202480

Table 2. Initial Characterization Sample Field Screen and Laboratory Results - Depth to Groundwater >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Volatile		Extractable					Chloride Concentration
						Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BG22-01	0	2/7/2022	0	-	135	ND	ND	ND	24	ND	24	24	ND
BG22-01	2	2/7/2022	0	-	163	ND	ND	ND	42	ND	42	42	ND
BG22-01	3	2/7/2022	0	-	135	ND	ND	ND	25	ND	25	25	ND
BH22-01	0	2/4/2022	0	-	9,346	ND	ND	ND	2000	2500	2000	4500	9700
BH22-01	2	2/4/2022	0	-	903	-	-	-	-	-	-	-	-
BH22-01	3	2/4/2022	0	387	611	-	-	-	-	-	-	-	-
BH22-01	4	2/4/2022	0	21	542	ND	ND	ND	ND	ND	ND	ND	ND
BH22-02	0	2/4/2022	1	56	10,043	ND	ND	ND	1000	1400	1000	2400	10000
BH22-02	2	2/4/2022	0	48	672	ND	ND	ND	ND	ND	ND	ND	ND
BH22-03	0	2/4/2022	0	79	551	ND	ND	ND	ND	ND	ND	ND	230
BH22-03	2	2/4/2022	0	62	495	ND	ND	ND	330	500	330	830	240
BH22-04	0	2/4/2022	0	27	216	ND	ND	ND	ND	ND	ND	ND	ND
BH22-04	2	2/4/2022	0	41	163	ND	ND	ND	ND	ND	ND	ND	ND
BH22-05	0	2/4/2022	0	24	219	ND	ND	ND	ND	ND	ND	ND	ND
BH22-05	2	2/4/2022	0	90	194	ND	ND	ND	24	ND	24	24	ND
BH22-06	0	2/4/2022	0	-	1,153	ND	ND	ND	2100	2600	2100	4700	1300
BH22-06	2	2/4/2022	0	640	295	-	-	-	-	-	-	-	-
BH22-06	4	2/4/2022	0	81	445	ND	ND	ND	ND	ND	ND	ND	ND
BH22-07	0	2/4/2022	0	5	225	ND	ND	ND	ND	ND	ND	ND	ND
BH22-07	2	2/4/2022	0	8	186	ND	ND	ND	ND	ND	ND	ND	ND
BH22-08	0	2/4/2022	0	75	1,440	ND	ND	ND	ND	ND	ND	ND	2000
BH22-08	2	2/4/2022	0	64	2,063	-	-	-	-	-	-	-	-
BH22-08	4	2/4/2022	0	37	587	ND	ND	ND	ND	ND	ND	ND	ND
BH22-09	0	2/4/2022	0	55	587	ND	ND	ND	ND	ND	ND	ND	ND
BH22-09	2	2/4/2022	0	56	577	ND	ND	ND	ND	ND	ND	ND	ND
BH22-10	0	2/4/2022	0	58	339	ND	ND	ND	ND	ND	ND	ND	ND
BH22-10	2	2/4/2022	0	20	215	ND	ND	ND	ND	ND	ND	ND	ND
BH22-11	0	2/7/2022	0	69	7,199	ND	ND	ND	ND	ND	ND	ND	8600
BH22-11	2	2/7/2022	0	96	1,021	-	-	-	-	-	-	-	-
BH22-11	4	2/7/2022	0	18	176	ND	ND	ND	ND	ND	ND	ND	ND
BH22-12	0	2/7/2022	0	941	2,257	ND	ND	ND	18000	10000	18000	28000	3300
BH22-12	2	2/7/2022	0	848	479	-	-	-	-	-	-	-	-
BH22-12	4	2/7/2022	0	31	499	ND	ND	ND	ND	ND	ND	ND	260
BH22-13	0	2/7/2022	0	18	382	ND	ND	ND	ND	ND	ND	ND	170
BH22-13	2	2/7/2022	0	17	376	ND	ND	ND	ND	ND	ND	ND	120
BH22-14	0	2/7/2022	0	762	284	ND	ND	ND	49	150	49	199	130
BH22-14	2	2/7/2022	0	799	376	-	-	-	-	-	-	-	-
BH22-14	4	2/7/2022	0	21	597	ND	ND	ND	ND	ND	ND	ND	470
BH22-15	0	2/7/2022	0	212	9,222	ND	ND	ND	ND	ND	ND	ND	12000
BH22-15	2	2/7/2022	0	503	842								
BH22-15	4	2/7/2022	0	560	616	ND	ND	ND	ND	ND	ND	ND	520
BH22-15	6	2/8/2022	0	39	623	ND	ND	ND	10	ND	10	10	ND
BH22-16	0	2/7/2022	0	284	1,721	ND	ND	ND	110	220	110	330	2100
BH22-16	2	2/7/2022	0	141	617	-	-	-	-	-	-	-	-
BH22-16	4	2/7/2022	0	40	639	-	-	-	-	-	-	-	-
BH22-17	0	2/7/2022	0	252	870	ND	ND	ND	12	ND	12	12	590
BH22-17	2	2/7/2022	0	91	656	ND	ND	ND	11	ND	10	10	400
BH22-18	0	2/7/2022	0	1,241	379	ND	ND	ND	180	380	180	560	460
BH22-18	2	2/7/2022	0	248	609	-	-	-	-	-	-	-	-
BH22-18	4	2/7/2022	0	58	917	ND	ND	ND	22	ND	22	22	870
BH22-18	5	2/8/2022	0	21	614	ND	ND	ND	9.9	ND	9.9	9.9	790



BH22-19	0	2/7/2022	0	33	343	ND	ND	ND	21	ND	21	21	120
BH22-19	2	2/7/2022	0	32	373	ND	ND	ND	23	ND	23	23	180
BH22-20	0	2/7/2022	0	31	210	ND	ND	ND	23	ND	23	23	ND
BH22-20	2	2/7/2022	0	28	248	ND	ND	ND	42	ND	42	42	ND
BH22-21	0	2/8/2022	0	43	489	ND	ND	ND	11	ND	11	11	ND
BH22-21	2	2/8/2022	0	57	233	ND	62						
BH22-22	0	2/8/2022	0	41	648	ND							
BH22-22	2	2/8/2022	0	18	652	ND	ND	ND	11	ND	11	11	390
BH22-23	0	2/8/2022	0	60	171	ND	ND	ND	12	ND	12	12	ND
BH22-23	2	2/8/2022	0	30	152	ND	ND	ND	12	ND	12	12	64
BH22-24	0	2/8/2022	0	79	21	ND	ND	ND	10	ND	10	10	ND
BH22-24	2	2/8/2022	0	36	238	ND	ND	ND	12	ND	12	12	150
BH22-25	0	2/8/2022	0	59	5,348	ND	ND	ND	12	ND	12	12	6400
BH22-25	2	2/8/2022	0	23	557	ND	ND	ND	10	ND	10	10	420
BH22-26	0	2/8/2022	0	62	474	ND	ND	ND	11	ND	11	11	ND
BH22-26	2	2/8/2022	0	12	349	ND	ND	ND	13	ND	13	13	310
BH22-27	0	2/8/2022	0	87	585	ND	ND	ND	12	ND	12	12	ND
BH22-27	2	2/8/2022	0	50	408	ND	ND	ND	12	ND	12	12	200
BH22-28	0	2/8/2022	0	70	298	ND	ND	ND	11	ND	11	11	6300
BH22-28	2	2/8/2022	0	25	152	ND	ND	ND	13	ND	13	13	180
BH22-29	0	2/8/2022	0	36	85	ND							
BH22-29	2	2/8/2022	0	29	150	ND	98						
BH22-30	0	2/8/2022	0	42	344	ND	300						
BH22-30	2	2/8/2022	0	41	225	ND	440						

"ND" Not Detected at the Reporting Limit

"-" indicates not analyzed/assessed

Bold and grey shaded indicates exceedance outside of NM OCD Closure Criteria (on-pad)

Bold and green shaded indicates exceedance outside of NM OCD Reclamation Criteria (off-pad)



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 226771

CONDITIONS

Operator: BTA OIL PRODUCERS, LLC 104 S Pecos Midland, TX 79701	OGRID: 260297
	Action Number: 226771
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
nvelez	None	9/13/2023