Incident Number: nOY1703748127

Release Assessment and Closure

Bettis State Com #002H/Hyperion State Com #002H

Section 20, Township 24 South, Range 33 East

API: 30-025-41436

County: Lea

Vertex File Number: 24E-03315

Prepared for:

Tap Rock Operating, LLC.

Prepared by:

Vertex Resource Services Inc.

Date:

August 2024

Release Assessment and Closure
Bettis 20 State Com #002H
Section 20, Township 24 South, Range 33 East
County: Lea

Prepared for:
Tap Rock Resources
523 Park Point Drive, Suite 200
Golden, Colorado 80401

New Mexico Oil Conservation Division – District #1 Hobbs
1625 N. French Drive
Hobbs, New Mexico 88210

Prepared by:
Vertex Resource Services Inc.
3101 Boyd Drive
Carlsbad, New Mexico 88220

John Rewis 8/23/2024

John Rewis, B.Sc. Date
ENVIRONMENTAL TECHNICIAN, REPORTING

Chance Dixon 8/23/2024

Chance Dixon, B.Sc. Date
PROJECT MANAGER, REPORT REVIEW

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1.0 Introduction

Tap Rock Operating, LLC. (Tap Rock) retained Vertex Resource Services Inc. (Vertex) to conduct a Release Assessment and Closure for a crude oil release that occurred on January 16, 2017, at Bettis 20 State Com #002H API 30-025-41436 (hereafter referred to as the "site"). Murchinson Oil & Gas, Inc., who formerly owned the site, submitted an initial C-141 Release Notification (Appendix A) to New Mexico Oil Conservation Division (NMOCD) District 1 on February 6, 2017. Incident ID number nOY1703748127, 1RP-4578 was assigned to this incident.

This report provides a description of the release assessment and remediation activities associated with the site. The information presented demonstrates that closure criteria established in Table I of 19.15.29.12 of the *New Mexico Administrative Code* (NMAC; New Mexico Oil Conservation Division, 2018) related to NMOCD has been 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 is complete as per NMAC 19.15.29.13.

2.0 Incident Description

The release occurred on January 16, 2017, due to human error when a tanker truck overfilled. The incident was reported on February 6, 2017, and involved the release of approximately 9.7 barrels (bbl.) of oil on the pad site. There were no fluids recovered from the release. Additional details relevant to the release are presented in the C-141 Report (Appendix A).

3.0 Site Characteristics

The site is located approximately 27 miles west of Jal, New Mexico. The legal location for the site is Section 20, Township 24 South and Range 33 East in Lea County, New Mexico. The release area is located on State property. An aerial photograph and site schematic are presented in Figure 1.

The location is typical of oil and gas exploration and production sites in the Permian Basin and is currently used for oil and gas production and storage. The following sections specifically describe the release area on the constructed pad (Figure 1).

The Geological Map of New Mexico (New Mexico Bureau of Geology and Mineral Resources, 2024) indicates the site's surface geology primarily comprises Qep – eolian and piedmont deposits (Holocene to middle Pleistocene). The soil at the site is characterized as Pyote and Maljamar fine sands (United States Department of Agriculture, Natural Resources Conservation Service, 2024). Additional soil characteristics include a drainage class of well drained to somewhat excessively drained with a runoff class of moderate to moderately rapid. The karst geology potential for the site is low (United States Department of the Interior, Bureau of Land Management, 2018).

The surrounding landscape is associated with fan piedmonts and alluvial fan with elevations ranging between 2,800 and 5,000 feet. The climate is semiarid with average annual precipitation ranging between 8 and 13 inches. Using information from the United States Department of Agriculture, the dominant vegetation was determined to be grasslands. Black grama, dropseeds, and bluestems dominate the historical plant community (United States Department

of Agriculture, Natural Resources Conservation Service, 2024). Limited to no vegetation is allowed to grow on the compacted production pad, right-of-way and access road.

4.0 Closure Criteria Determination

The nearest depth to groundwater (DTGW) reference is a New Mexico Office of the State Engineer pod located approximately 0.23 miles west of the site (New Mexico Office of the State Engineer, 2024). The pod was from an exploratory borehole that was drilled on July 3, 2024. The borehole was advanced to a depth of 103 feet below ground surface (bgs) and did not record any groundwater. The location and well logs pertaining to the borehole that determined DTGW are included in Appendix B.

There is no surface water located at the site. The nearest significant watercourse, as defined in Subsection P of 19.15.17.7 NMAC, is an intermittent stream (National Wetlands Inventory, 2024) located approximately 1.28 miles east of the site.

At the site, there are no continuously flowing watercourses or significant watercourses, lakebeds, sinkholes, playa lakes, or other critical water or community features as outlines in Paragraph (4) of Subsection C of 19.15.29.12 NMAC.

Table 1. Closure Criteria Determination			
Site Name: Bettis 20 State Com #002H			
Spill Coordinates: 32.1964455 -103.5888443		**X: 633012.11**	**Y: 3563083.46**
Site Specific Conditions		**Value**	**Unit**
1	Depth to Groundwater (nearest reference)	>100	feet
	Distance between release and nearest DTGW reference	1,137	feet
		0.21	miles
	Date of nearest DTGW reference measurement	July 3, 2024	
2	Within 300 feet of any continuously flowing watercourse or any other significant watercourse	6,810	feet
3	Within 200 feet of any lakebed, sinkhole or playa lake (measured from the ordinary high-water mark)	115,205	feet
4	Within 300 feet from an occupied residence, school, hospital, institution or church	25,048	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**	143,852	feet
	ii) Within 1000 feet of any fresh water well or spring	143,852	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	10,368	feet
8	Within the area overlying a subsurface mine	No	(Y/N)
	Distance between release and nearest registered mine	106,128	feet
9	Within an unstable area (Karst Map)	Low	Critical High Medium Low
	Distance between release and nearest unstable area	87,495	feet
10	Within a 100-year Floodplain	100 - 500	year
	Distance between release and nearest FEMA Zone A (100-year Floodplain)	57,165	feet
11	Soil Type	Pu	
12	Ecological Classification	Loamy Sand	
13	Geology	Qep	
	NMAC 19.15.29.12 E (Table 1) Closure Criteria	>100'	<50' 51-100' >100'

The closure criteria determined for the site are associated with the following constituent concentration limits as presented in Table 2.

Table 1. Closure Criteria for Soils to Remediation & Reclamation Standards

	Constituent	Limit
0-4 feet bgs (19.15.29.13)	Chloride	600 mg/kg
	TPH (GRO+DRO+MRO)	100 mg/kg
DTGW > 100 feet (19.15.29.12)	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

TDS – total dissolved solids
TPH – total petroleum hydrocarbons, GRO – gas range organics, DRO – diesel range organics, MRO – motor oil range organics
BTEX – benzene, toluene, ethylbenzene and xylenes

5.0 Site Assessment

On February 6, 2017, two reports were submitted to NMOCD documenting the response and scrape of the release area for the initial C-141 (Appendix F). In a meeting with NMOCD on July 2, 2024, it was agreed that the site should be assessed with delineation sampling from the surface to 4 feet bgs to determine if any remnant impacts from the release remain on the site. It was agreed that NMOCD would consider closure of the release if no impacts were identified. Email correspondence coordinating this meeting is included in Appendix A.

The assessment of the release area was completed on July 5, 2024, which identified the area of the release stipulated in the C-141 report. The impacted area was determined to be on the pad to the north of the containment. The Daily Field Reports associated with the site inspection are included in Appendix C.

Field screening was completed on a total of seven sample points (boreholes) at 1-foot increments from the surface to 4 feet bgs and consisted of analysis using a Photo Ionization Detector (volatile hydrocarbons), Dexsil Petroflag using EPA SW-846 Method 9074 (extractable hydrocarbons) and Silver Nitrate Titration (chlorides). Field screening results depicted no exceedances to NMOCD's strictest closure criteria.

Notification that confirmatory samples were being collected was provided to the NMOCD on July 2, 2024, and is included in Appendix D. A total of 35 samples were collected for laboratory analysis following NMOCD soil sampling procedures. Samples were submitted to Envirotech Laboratories under chain-of-custody protocols and analyzed for BTEX (EPA Method 8021B), total petroleum hydrocarbons (GRO, DRO, MRO – EPA Method 8015D) and total chlorides (EPA Method 300.0). Laboratory results are presented in Table 3, and the laboratory data reports are included in Appendix E. All confirmatory samples collected and analyzed were below closure criteria for the site.

6.0 Closure/Variance Request

Vertex recommends no additional action to the site. Laboratory analyses of the assessment samples collected in the vicinity of the release show final confirmatory values below NMOCD closure criteria for areas where depth to groundwater is greater than 100 feet bgs, but also does not contain any exceedances to NMOCD's strictest closure criteria. There are no anticipated risks to human, ecological, or hydrological receptors at the site.

Vertex would like to respectfully request a variance for confirmation sampling. The release area was not sampled every 200 square feet after excavation as per 19.15.29.12 NMAC as there were no impacts in exceedance to closure criteria from the surface to 4 feet bgs. After discussion with NMOCD, it was agreed that composite sampling every 200 square feet of the area would not be required.

Vertex requests that this incident be approved for remediation as all closure requirements set forth were met, and there are no standing exceedances to closure criteria at the site at this time. Tap Rock certifies that all information in this report and the appendices are 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 site.

Should you have any questions or concerns, please do not hesitate to contact Chance Dixon at 575.988.1472 or cdixon@vertexresource.com

7.0 References

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8.0 Limitations

This report has been prepared for the sole benefit of Tap Rock Resources. This document may not be used by any other person or entity, with the exception of the New Mexico Oil Conservation Division and the Bureau of Land Management, without the express written consent of Vertex Resource Services Inc. (Vertex) and Tap Rock Resources. 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.

FIGURE

Borehole (Prefixed by "BH24-") Powerline Approximate Lease Boundary

VERTEX

0 25 50 ft

NAD 1983 UTM Zone 13N

Date: Jul 08/24

Map Center:
Lat/Long
32.196467°,-103.588618°

N

Characterization Schematic
Bettis State Com #2

FIGURE:
1

TAP ROCK RESOURCES

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: Georeferenced image from Esri, 2022. Approximate site boundary from sketch by Vertex Professional Services Ltd. (Vertex), 2024. Site features from GPS, Vertex, 2024.

VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects\ US PROJECTS\Tap Rock\2024\24E-03315\Project\24E-03315.aprx

TABLE

Client Name: Tap Rock Resources
Site Name: Bettis 20 State Com #002H
NMOCD Tracking #: nOY1703748127
Project #: 24E-03315
Lab Reports: E407055 and E407056

Table 3. Initial Characterization Sample Field Screen and Laboratory Results DTGW >100 feet bgs

Sample Description			Field Screening			Petroleum Hydrocarbons							Inorganic
						Volatile		Extractable					
Sample ID	Depth (ft)	Sample Date	Volatile Organic Compounds (PID)	Extractable Organic Compounds (PetroFlag)	Chloride Concentration	Benzene	BTEX (Total)	Gasoline Range Organics (GRO)	Diesel Range Organics (DRO)	Motor Oil Range Organics (MRO)	(GRO + DRO)	Total Petroleum Hydrocarbons (TPH)	Chloride Concentration
			(ppm)	(ppm)	(ppm)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
BH24-01	0	July 4,2024	0	**206**	438	ND	ND	ND	ND	ND	ND	ND	ND
BH24-01	1	July 4,2024	0	33	367	ND	ND	ND	ND	ND	ND	ND	ND
BH24-01	2	July 4,2024	0	22	320	ND	ND	ND	ND	ND	ND	ND	ND
BH24-01	3	July 4,2024	0	31	472	ND	ND	ND	ND	ND	ND	ND	ND
BH24-01	4	July 4,2024	0	30	312	ND	ND	ND	ND	ND	ND	ND	ND
BH24-02	0	July 4,2024	0	25	352	ND	ND	ND	ND	ND	ND	ND	ND
BH24-02	1	July 4,2024	0	0	315	ND	ND	ND	ND	ND	ND	ND	ND
BH24-02	2	July 4,2024	0	27	503	ND	ND	ND	ND	ND	ND	ND	ND
BH24-02	3	July 4,2024	0	30	470	ND	ND	ND	ND	ND	ND	ND	ND
BH24-02	4	July 4,2024	0	17	400	ND	ND	ND	ND	ND	ND	ND	ND
BH24-03	0	July 4,2024	0	9	392	ND	ND	ND	ND	ND	ND	ND	ND
BH24-03	1	July 4,2024	0	14	**605**	ND	ND	ND	ND	ND	ND	ND	ND
BH24-03	2	July 4,2024	0	71	295	ND	ND	ND	ND	ND	ND	ND	ND
BH24-03	3	July 4,2024	0	22	327	ND	ND	ND	ND	ND	ND	ND	ND
BH24-03	4	July 4,2024	0	23	345	ND	ND	ND	ND	ND	ND	ND	ND
BH24-04	0	July 5,2024	0	11	235	ND	ND	ND	ND	ND	ND	ND	ND
BH24-04	1	July 5,2024	0	9	227	ND	ND	ND	ND	ND	ND	ND	ND
BH24-04	2	July 5,2024	0	10	198	ND	ND	ND	ND	ND	ND	ND	ND
BH24-04	3	July 5,2024	0	23	233	ND	ND	ND	ND	ND	ND	ND	24.3
BH24-04	4	July 5,2024	0	39	275	ND	ND	ND	ND	ND	ND	ND	ND
BH24-05	0	July 5,2024	0	9	**1,200**	ND	ND	ND	ND	ND	ND	ND	ND
BH24-05	1	July 5,2024	0	20	325	ND	ND	ND	ND	ND	ND	ND	131
BH24-05	2	July 5,2024	0	0	262	ND	ND	ND	ND	ND	ND	ND	28.7
BH24-05	3	July 5,2024	0	23	480	ND	ND	ND	ND	ND	ND	ND	51.6
BH24-05	4	July 5,2024	0	6	270	ND	ND	ND	ND	ND	ND	ND	ND
BH24-06	0	July 5,2024	0	26	**1,175**	ND	ND	ND	ND	ND	ND	ND	ND
BH24-06	1	July 5,2024	0	20	252	ND	ND	ND	ND	ND	ND	ND	25.3
BH24-06	2	July 5,2024	0	8	193	ND	ND	ND	ND	ND	ND	ND	ND
BH24-06	3	July 5,2024	0	34	240	ND	ND	ND	ND	ND	ND	ND	29.7
BH24-06	4	July 5,2024	0	12	248	ND	ND	ND	ND	ND	ND	ND	28.2
BH24-07	0	July 5,2024	0	16	325	ND	ND	ND	ND	ND	ND	ND	26.1
BH24-07	1	July 5,2024	0	60	272	ND	ND	ND	ND	ND	ND	ND	ND
BH24-07	2	July 5,2024	0	18	337	ND	ND	ND	ND	ND	ND	ND	ND
BH24-07	3	July 5,2024	0	14	235	ND	ND	ND	ND	ND	ND	ND	ND
BH24-07	4	July 5,2024	0	9	230	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 NMOCD Closure Criteria (on-pad)

APPENDIX A - NMOCD C-141 Report and NMOCD Correspondence

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Murchison Oil & Gas, Inc.	Contact	Greg Boans
Address	7250 Dallas Parkway, Suite 1400, Plano, TX 75024	Telephone No.	(575) 361-4962
Facility Name	Bettis 20 State Com 2H	Facility Type	Production Facility

Surface Owner	State of New Mexico	Mineral Owner		API No.	30-025-41436

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	20	24S	33E	200	South	940	East	Lea

Latitude 32° 11' 47.195" N **Longitude** 103° 35'19.732" W

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 9.7 bbls	Volume Recovered: 0 bbls
Source of Release: Tanker truck	Date and Hour of Occurrence: 1/16/2017, 7:30 PM	Date and Hour of Discovery: 1/16/2017, 7:30 PM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

n/a

Describe Cause of Problem and Remedial Action Taken.*

Oil was released onto the location pad during tanker truck loading due to driver inattention. Vacuum truck removed standing fluid and affected pad and subsoils were removed.

Describe Area Affected and Cleanup Action Taken.*

Oil was released onto approximately 400 ft^2 of the location pad. Penetration was minimal and the affected material from the surface of the location was removed and replaced.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Greg Boans	Approved by Environmental Specialist:	
Title: Production Superintendent	Approval Date:	Expiration Date:
E-mail Address: gboans@jdmii.com	Conditions of Approval:	Attached ☐
Date: 1/23/2017 Phone: (575) 361-4962		

* Attach Additional Sheets If Necessary

Subject: FW: [EXTERNAL] Incident number transfers

From: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Sent: Thursday, June 27, 2024 9:02 AM
To: Bill Ramsey <Bramsey@taprk.com>; Paul Weddle <pweddle@taprk.com>
Cc: Moander, Chris, EMNRD <Chris.Moander@emnrd.nm.gov>; Romero, Rosa, EMNRD <RosaM.Romero@emnrd.nm.gov>; Smith, Cory, EMNRD <cory.smith@emnrd.nm.gov>; Powell, Brandon, EMNRD <Brandon.Powell@emnrd.nm.gov>; Dana Arnold <darnold@taprk.com>; Justin Britsch <JBritsch@taprk.com>
Subject: RE: [EXTERNAL] Incident number transfers

Mr. Ramsey,

The 90-day extension requests for NOY1703748127 and NSAP0215477198 are approved. A remediation plan/closure report is due for both incidents by 9/27/2024.

Please include a copy of this email in both reports.

Thank you,
Brittany Hall ● Environmental Specialist
Environmental Bureau Projects Group
EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87110
505.517.5333 | Brittany.Hall@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd/

Please be advised that the new Digital C-141 is live as of December 1, 2023. Please review the new Digital C-141 submission Dec 1, 2023 Guidance document posted on the EMRND Website prior to submitting any C-141s. The guidance documents can be found at https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ or https://www.emnrd.nm.gov/ocd/ocd-forms/.

From: Bill Ramsey <Bramsey@taprk.com>
Sent: Wednesday, June 26, 2024 4:25 PM
To: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>; Paul Weddle <pweddle@taprk.com>
Cc: Moander, Chris, EMNRD <Chris.Moander@emnrd.nm.gov>; Romero, Rosa, EMNRD <RosaM.Romero@emnrd.nm.gov>; Smith, Cory, EMNRD <cory.smith@emnrd.nm.gov>; Powell, Brandon, EMNRD <Brandon.Powell@emnrd.nm.gov>; Dana Arnold <darnold@taprk.com>; Justin Britsch <JBritsch@taprk.com>
Subject: RE: [EXTERNAL] Incident number transfers

Thanks for the time this afternoon Ms. Hall.

As discussed on the phone, Tap Rock was not aware of the Murchison's historic spills mentioned in your email during the sale in 2017-2018. Since these spills were never disclosed or transferred to Tap Rock during or after the sale, we have not had the opportunity to address these issues. Since Tap Rock is now in receipt of the information detailing the spills and in acknowledgment of the language in the C-145 and the email on June 11th, 2024, we will

immediately undertake to remediate them in accordance with the NMAC rules. Tap Rock would like to request a 90-day extension for the following spills to allow for proper delineation/remediation efforts to be made:

- Incident number NOY1703748127, 30-025-41436 - Hyperion State Com #002H
- Incident number NSAP0215477198, 30-025-33238 - Jackson Unit #003

If you should have any questions or need more information about the remediation efforts, please feel free to contact me via cell phone or by email.

Thank you for your time and appreciate your patience as we get this issue resolved.

Bill Ramsey
Sr. Environmental and Regulatory Specialist
Cell: (720) 238-2787

From: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Sent: Tuesday, June 11, 2024 9:05 AM
To: Bill Ramsey <Bramsey@taprk.com>; Paul Weddle <pweddle@taprk.com>
Cc: Moander, Chris, EMNRD <Chris.Moander@emnrd.nm.gov>; Romero, Rosa, EMNRD <RosaM.Romero@emnrd.nm.gov>; Smith, Cory, EMNRD <cory.smith@emnrd.nm.gov>; Powell, Brandon, EMNRD <Brandon.Powell@emnrd.nm.gov>; Cindy Cottrell <ccottrell@jdmii.com>; Jaclyn McLean <JMcLean@hinklelawfirm.com>
Subject: [EXTERNAL] Incident number transfers

[EXTERNAL] This email originated from outside your organization. Do not trust links or attachments.

Greetings,

It has been requested by Murchison Oil and Gas, LLC (OGRID: 15363) that OCD transfer the below incidents to your company, Tap Rock Operating, LLC (OGRID: 372043), as the facilities associated with this release were transferred as part of an operator transfer. Note, it is standard OCD practice to transfer the open incidents to the new operator of record as this provision is specifically listed in all C-145 operator transfers.

List of Incidents and associated API or Facility #, if applicable.

- Incident number NOY1703748127, 30-025-41436 - Hyperion State Com #002H
- Incident number NSAP0215477198, 30-025-33238 - Jackson Unit #003

If you believe these should not be transferred to your company, please notify OCD immediately and provide any reasons or evidence as to why they should not be transferred.

Thank you,
Brittany Hall ● Environmental Specialist
Environmental Bureau Projects Group
EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87110
505.517.5333 | Brittany.Hall@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd/

Please be advised that the new Digital C-141 is live as of December 1, 2023. Please review the new Digital C-141 submission Dec 1, 2023 Guidance document posted on the EMRND Website prior to submitting any C-141s. The guidance documents can be found at https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ or https://www.emnrd.nm.gov/ocd/ocd-forms/.

Lisa Roback

From: Chance Dixon
Sent: Thursday, August 22, 2024 8:08 AM
To: Lisa Roback
Subject: FW: [EXTERNAL] Tap Rock: Incident Transfer Plan

Will you save this correspondence to Tap Rock/Bettis State Com #2/Correspondence/Regulator.

From: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Sent: Tuesday, July 2, 2024 9:14 AM
To: Bill Ramsey <Bramsey@taprk.com>
Cc: Chance Dixon <cdixon@vertexresource.com>; Michael Moffitt <MMoffitt@vertexresource.com>
Subject: RE: [EXTERNAL] Tap Rock: Incident Transfer Plan

> Caution: This email is from an external sender. Please take care when clicking links or opening attachments. When in doubt, contact your IT Department

I received the invite and you should be receiving my confirmation soon, if you have not already.

Thank you,
Brittany Hall ● Environmental Specialist
Environmental Bureau Projects Group
EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87110
505.517.5333 | Brittany.Hall@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd/

Please be advised that the new Digital C-141 is live as of December 1, 2023. Please review the new Digital C-141 submission Dec 1, 2023 Guidance document posted on the EMRND Website prior to submitting any C-141s. The guidance documents can be found at https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ or https://www.emnrd.nm.gov/ocd/ocd-forms/.

From: Bill Ramsey <Bramsey@taprk.com>
Sent: Tuesday, July 2, 2024 9:12 AM
To: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Cc: Chance Dixon <cdixon@vertexresource.com>; Michael Moffitt <MMoffitt@vertexresource.com>
Subject: RE: [EXTERNAL] Tap Rock: Incident Transfer Plan

Thank you Brittany,

An invitation was sent for 1:30PM today – I don't expect this to be a long meeting but just a quick summary to ensure there are no issues with the plan.

Regards,

Bill Ramsey
Sr. Environmental and Regulatory Specialist
Cell: (720) 238-2787

From: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Sent: Tuesday, July 2, 2024 8:52 AM
To: Bill Ramsey <Bramsey@taprk.com>
Cc: Chance Dixon <cdixon@vertexresource.com>; Michael Moffitt <MMoffitt@vertexresource.com>
Subject: RE: [EXTERNAL] Tap Rock: Incident Transfer Plan

[EXTERNAL] This email originated from outside your organization. Do not trust links or attachments.

Good morning Bill,

The OCD does not review/approve/deny delineation workplans as delineation points may have to be adjusted due to field conditions, additional delineation points may have to be augered/bored to achieve delineation, etc. If delineation is being performed in accordance with 19.15.29 NMAC, proceed with the delineation efforts.

If you would like to set up a meeting I am available today or tomorrow. I am out of the office on July 5th for the holiday.

Today (7/2) I have availability between 10:30 AM-12 PM or 1:30 PM-2:30PM.
Tomorrow (7/3) I have availability between 9 AM-10:30 AM or 2 PM-3 PM.

All times are in mountain time. If any of those times work for you and our consultant, please send me a meeting invite as soon as possible.

Thank you,
Brittany Hall ● Environmental Specialist
Environmental Bureau Projects Group
EMNRD - Oil Conservation Division
1000 Rio Brazos Road | Aztec, NM 87110
505.517.5333 | Brittany.Hall@emnrd.nm.gov
http://www.emnrd.nm.gov/ocd/

Please be advised that the new Digital C-141 is live as of December 1, 2023. Please review the new Digital C-141 submission Dec 1, 2023 Guidance document posted on the EMRND Website prior to submitting any C-141s. The guidance documents can be found at https://www.emnrd.nm.gov/ocd/ocd-announcements-and-notifications/ or https://www.emnrd.nm.gov/ocd/ocd-forms/.

From: Bill Ramsey <Bramsey@taprk.com>
Sent: Monday, July 1, 2024 4:07 PM
To: Hall, Brittany, EMNRD <Brittany.Hall@emnrd.nm.gov>
Cc: Chance Dixon <cdixon@vertexresource.com>; Michael Moffitt <MMoffitt@vertexresource.com>
Subject: [EXTERNAL] Tap Rock: Incident Transfer Plan

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

Good Afternoon Ms. Hall,

Wanted to follow up and detail our proposed plan of action for the following spills IDs in the hope of getting NMED's blessing/make any changes you see fit:

- Incident number NOY1703748127, 30-025-41436 - Hyperion State Com #002H – formerly known as the Bettis State Com #2H
- Incident number NSAP0215477198, 30-025-33238 - Jackson Unit #003

As mentioned in our phone call last week, Tap Rock will be using a third-party environmental company to handle the remediation/reclamation of the area. Vertex Resource Services will be that environmental company and the oversight of the project will be handled by Chance Dixon and Michael Moffitt (contacts below). For a high-level summary, we plan to place multiple boreholes ranging from 1-4' BGS throughout each spill area to determine if any contamination remains. We will also be utilizing nearby water wells and the depth to ground water to determine our closure criteria. IF there is any present contamination, we will delineate the extent, excavate, and replace the contaminated soil accordingly with fresh topsoil.

We welcome the opportunity to meet with you and discuss these two projects in greater detail at your convenience. We hope this could occur sometime this week as we do not want to leave this issue open for any longer than it needs to be. We understand the 4th is a holiday so possibly July 2nd, 3rd, or 5th if you have some availability.

Chance Dixon
cdixon@vertexresource.com
575-988-1472

Michael Moffitt
MMoffitt@vertexresource.com
575-988-2681

Please let us know a day/time that works for you, and we can get something scheduled. Additionally, if you have any questions, please let this group know.

Thank you for your time,

Bill Ramsey
Sr. Environmental and Regulatory Specialist
Cell: (720) 238-2787

APPENDIX B – Closure Criteria Research Documentation

Bettis State Com #2 C-04844 POD1

8/12/2024, 2:58:01 PM

GIS WATERS PODs

- Pending
- Inactive
- Plugged
-

OSE District Boundary

Water Right Regulations

- Closure Area
- Artesian Planning Area

New Mexico State Trust Lands

- Both Estates

1:18,056

0 0.17 0.35 0.7 mi

0 0.28 0.55 1.1 km

Esri, HERE, iPC, Esri, HERE, Garmin, iPC, Maxar

Online web user

This is an unofficial map from the OSE's online application.

WELL RECORD & LOG

OFFICE OF THE STATE ENGINEER

www.ose.state.nm.us

BETTIS #3

1. GENERAL AND WELL LOCATION

OSE POD NO. (WELL NO.)	WELL TAG ID NO	OSE FILE NO(S).
C 04844 - POD1		C-4844

WELL OWNER NAME(S)	PHONE (OPTIONAL)
Tap Rock Resources	

WELL OWNER MAILING ADDRESS	CITY	STATE	ZIP
523 Park Point DR. Suite 200	Golden	CO	80401

WELL LOCATION (FROM GPS)		DEGREES	MINUTES	SECONDS	
	LATITUDE	32	11'46	94	N
	LONGITUDE	-103	35'32	93	W

* ACCURACY REQUIRED: ONE TENTH OF A SECOND
* DATUM REQUIRED: WGS 84

DESCRIPTION RELATING WELL LOCATION TO STREET ADDRESS AND COMMON LANDMARKS – PLSS (SECTION, TOWNSHIP, RANGE) WHERE AVAILABLE

2. DRILLING & CASING INFORMATION

LICENSE NO.	NAME OF LICENSED DRILLER	NAME OF WELL DRILLING COMPANY
1833	Jason Maley	Vision Resources

DRILLING STARTED	DRILLING ENDED	DEPTH OF COMPLETED WELL (FT)	BORE HOLE DEPTH (FT)	DEPTH WATER FIRST ENCOUNTERED (FT)
7-3-24	7-3-24	105'	105'	N/A

COMPLETED WELL IS: ☐ ARTESIAN *add Centralizer info below ☑ DRY HOLE ☐ SHALLOW (UNCONFINED)

STATIC WATER LEVEL IN COMPLETED WELL (FT): 0'

DATE STATIC MEASURED: 7-3-24

DRILLING FLUID: ☑ AIR ☐ MUD ADDITIVES – SPECIFY:

DRILLING METHOD: ☑ ROTARY ☐ HAMMER ☐ CABLE TOOL ☐ OTHER – SPECIFY:

CHECK HERE IF PITLESS ADAPTER IS INSTALLED ☐

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM (inches)	CASING MATERIAL AND/OR GRADE (include each casing string, and note sections of screen)	CASING CONNECTION TYPE (add coupling diameter)	CASING INSIDE DIAM. (inches)	CASING WALL THICKNESS (inches)	SLOT SIZE (inches)
0	95	6"	PVC 2" SCH40	Thread	2"	SCH40	N/A
95	105	6"	PVC 2" SCH40	Thread	2"	SCH40	.02

3. ANNULAR MATERIAL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	BORE HOLE DIAM. (inches)	LIST ANNULAR SEAL MATERIAL AND GRAVEL PACK SIZE-RANGE BY INTERVAL *(if using Centralizers for Artesian wells- indicate the spacing below)	AMOUNT (cubic feet)	METHOD OF PLACEMENT
			None pulled and plugged		

FOR OSE INTERNAL USE WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 1 OF 2

4. HYDROGEOLOGIC LOG OF WELL

DEPTH (feet bgl) FROM	DEPTH (feet bgl) TO	THICKNESS (feet)	COLOR AND TYPE OF MATERIAL ENCOUNTERED - INCLUDE WATER-BEARING CAVITIES OR FRACTURE ZONES **(attach supplemental sheets to fully describe all units)**	WATER BEARING? (YES / NO)	ESTIMATED YIELD FOR WATER-BEARING ZONES (gpm)
0	20	20'	Brown dirt with white caliche	Y ✓ N	
20	60	40'	Red and Brown clay with small rock	Y ✓ N	
60	110	50'	Gray Green Rock with Fine sand	Y ✓ N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	
				Y N	

METHOD USED TO ESTIMATE YIELD OF WATER-BEARING STRATA:

☐ PUMP ☐ AIR LIFT ☐ BAILER ☐ OTHER – SPECIFY: Dry hole

TOTAL ESTIMATED WELL YIELD (gpm): 0

5. TEST; RIG SUPERVISION

WELL TEST — TEST RESULTS - ATTACH A COPY OF DATA COLLECTED DURING WELL TESTING, INCLUDING DISCHARGE METHOD, START TIME, END TIME, AND A TABLE SHOWING DISCHARGE AND DRAWDOWN OVER THE TESTING PERIOD.

MISCELLANEOUS INFORMATION:

PRINT NAME(S) OF DRILL RIG SUPERVISOR(S) THAT PROVIDED ONSITE SUPERVISION OF WELL CONSTRUCTION OTHER THAN LICENSEE:

Jason Maley

6. SIGNATURE

THE UNDERSIGNED HEREBY CERTIFIES THAT, TO THE BEST OF HIS OR HER KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT RECORD OF THE ABOVE DESCRIBED HOLE AND THAT HE OR SHE WILL FILE THIS WELL RECORD WITH THE STATE ENGINEER AND THE PERMIT HOLDER WITHIN 30 DAYS AFTER COMPLETION OF WELL DRILLING:

Jason Maley — SIGNATURE OF DRILLER / PRINT SIGNEE NAME

7/31/24 — DATE

FOR OSE INTERNAL USE — WR-20 WELL RECORD & LOG (Version 09/22/2022)

FILE NO.	POD NO.	TRN NO.	
LOCATION		WELL TAG ID NO.	PAGE 2 OF 2

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: C-04844

Well owner: Taprock Resources Phone No.: _____

Mailing address: 523 Park Point Drive Suite 200

City: Golden State: CO Zip code: 80401

II. WELL PLUGGING INFORMATION:

1) Name of well drilling company that plugged well: Vision Resources

2) New Mexico Well Driller License No.: 1833 Expiration Date: 10-7-25

3) Well plugging activities were supervised by the following well driller(s)/rig supervisor(s): _____
Jason Maley

4) Date well plugging began: 7-9-24 Date well plugging concluded: 7-9-24

5) GPS Well Location: Latitude: 32 deg, 11'46 min, 94 sec
Longitude: -103 deg, 35'32 min, 93 sec, WGS 84

6) Depth of well confirmed at initiation of plugging as: 105' ft below ground level (bgl),
by the following manner: Tape

7) Static water level measured at initiation of plugging: N/A ft bgl

8) Date well plugging plan of operations was approved by the State Engineer: 5-30-24

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.)
0		155	155	Tremie pipe Open Hole	
	Wyoming Bentonite				
105'					

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

III. SIGNATURE:

I, Jason Maley, 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

07-31-2024
Date

Version: September 8, 2009
Page 2 of 2

U.S. Fish and Wildlife Service
National Wetlands Inventory

Bettis 20 State Com #002H
Watercourse 6,810ft

July 6, 2024

Wetlands

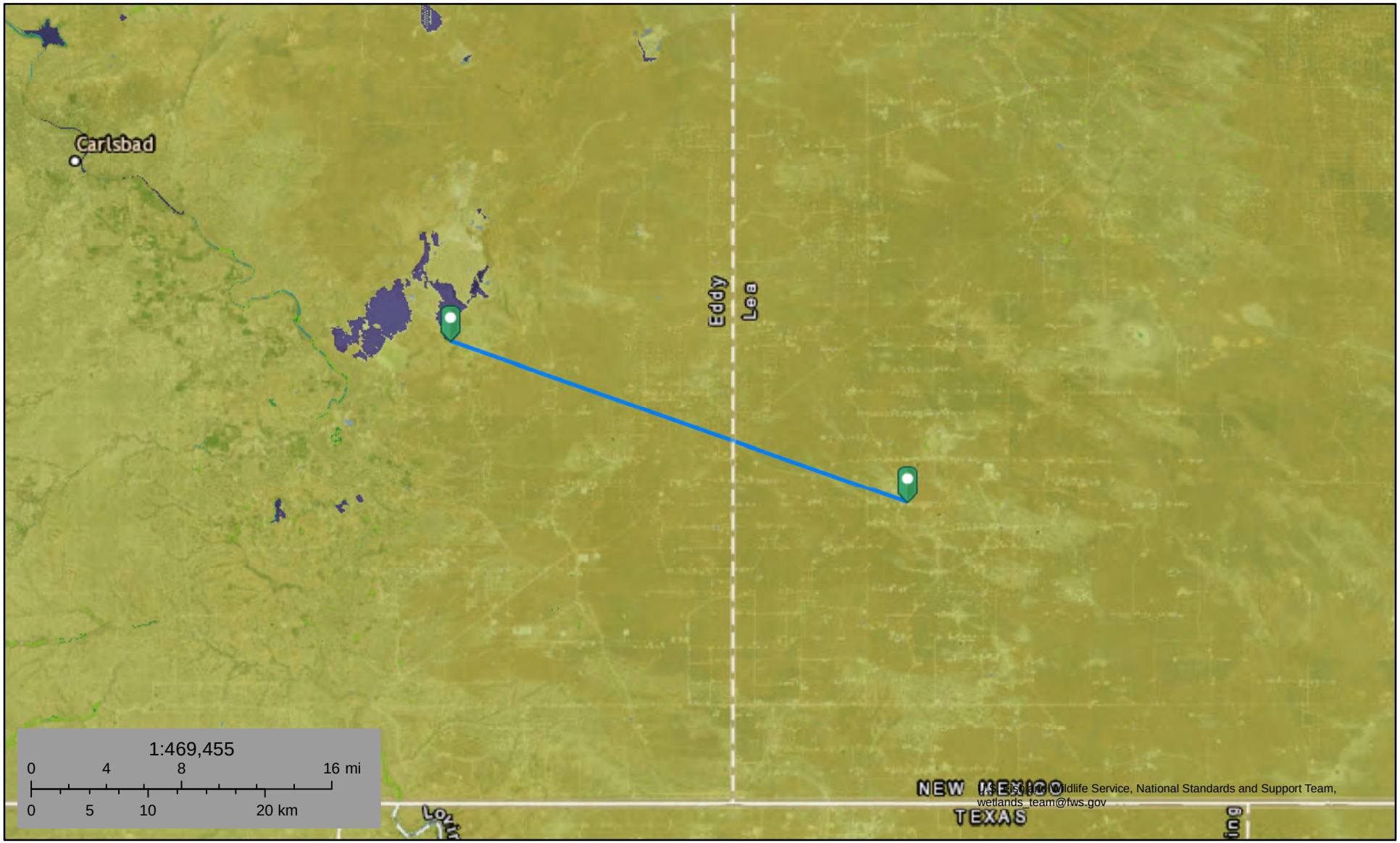
- Estuarine and Marine Deepwater
- Estuarine and Marine Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Lake
- Other
- Riverine

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.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

U.S. Fish and Wildlife Service
National Wetlands Inventory

Bettis 20 State Com #002H
Lake 115,205 ft



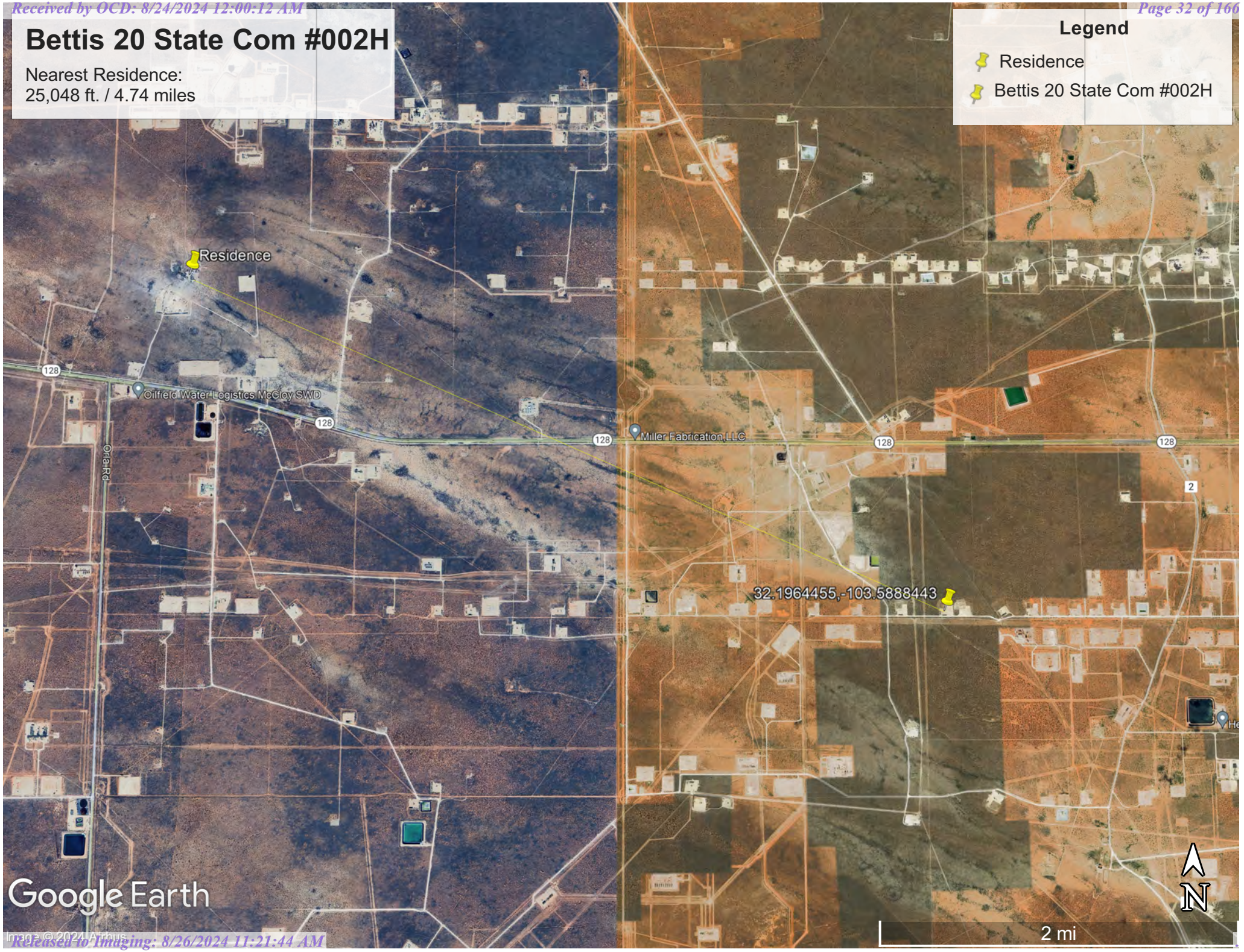
June 29, 2024

- 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.

Bettis 20 State Com #002H

Nearest Residence:
25,048 ft. / 4.74 miles



U.S. Fish and Wildlife Service
National Wetlands Inventory

Bettis 20 State Com #002H
Wetland 10,368 ft

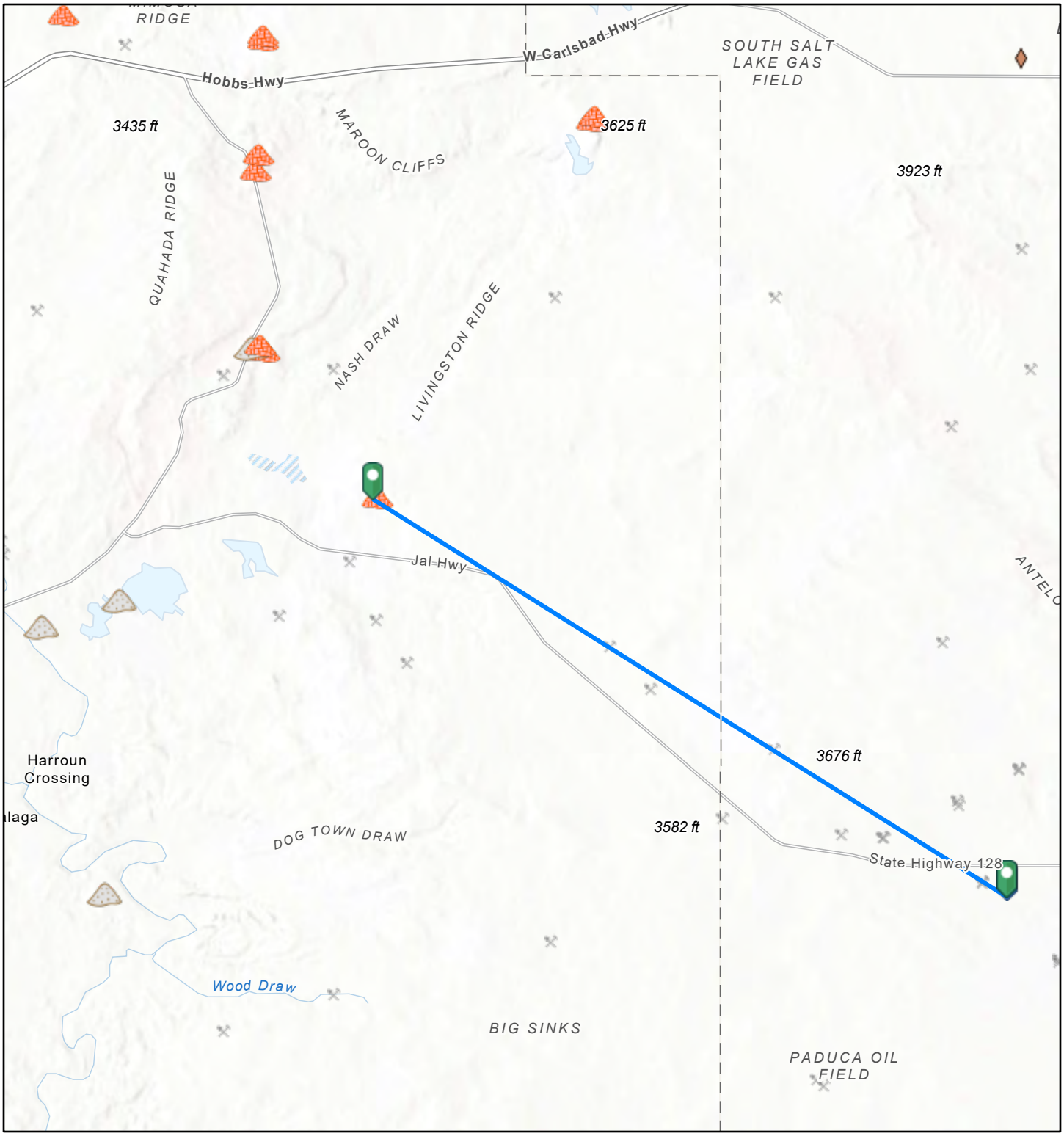
June 29, 2024

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.

Bettis 20 State Com #002H Mine 106,128ft



7/6/2024, 4:13:07 PM

1:288,895

0 2 4 8 mi

0 3.25 6.5 13 km

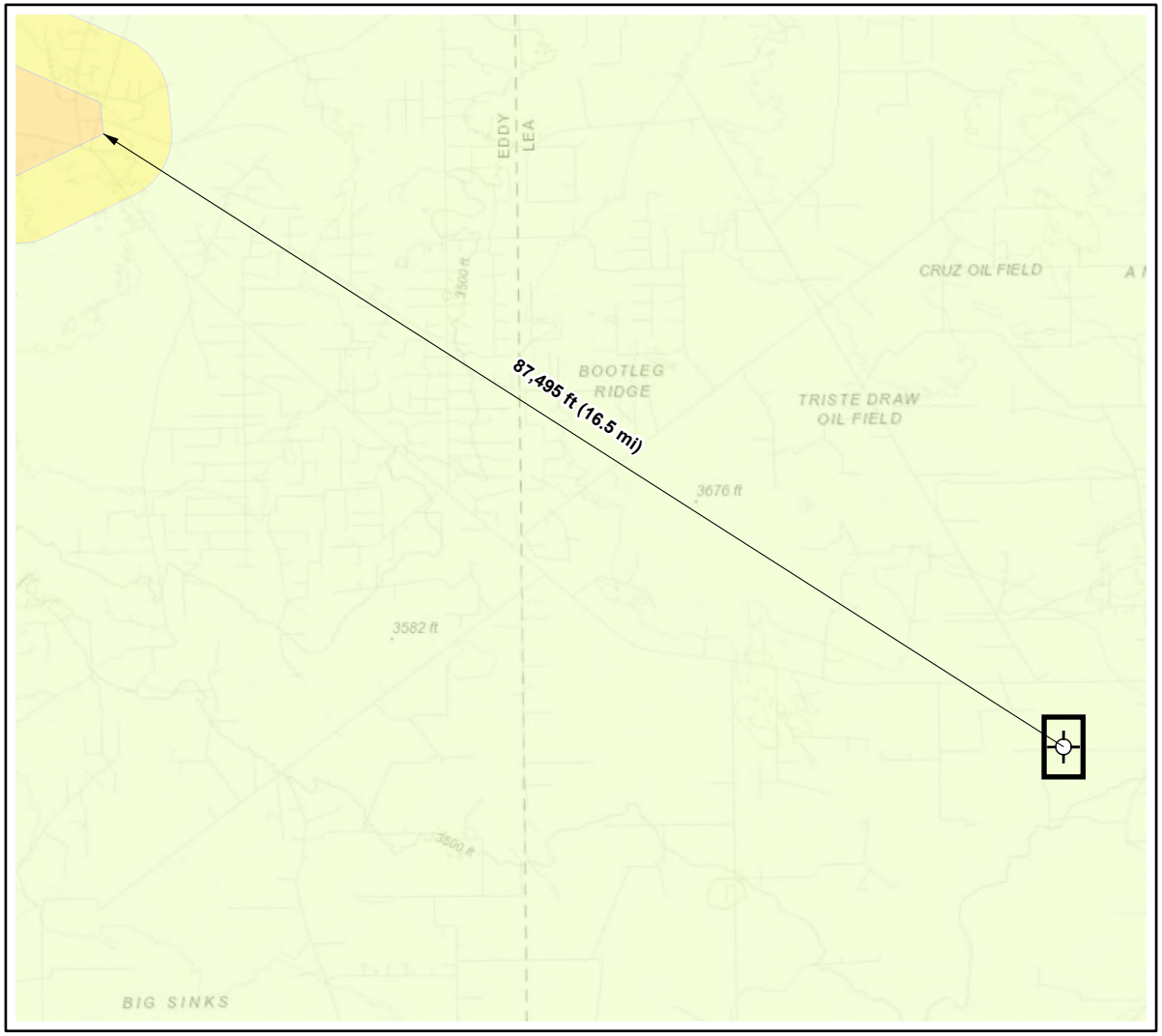
Registered Mines

- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Aggregate, Stone etc.
- Industrial Minerals (Other)
- Potash
- Salt

Texas Parks & Wildlife, CONANP, Esri, TomTom, Garmin, SafeGraph, METI/NASA, USGS, EPA, NPS, USDA, USFWS, Esri, NASA, NGA, USGS

EMNRD MMD GIS Coordinator

New Mexico Energy, Minerals and Natural Resources Department (http://nm-emnrd.maps.arcgis.com/apps/webappviewer/index.html?id=1b5e577974664d689b47790897ca2795)



Karst Potential

- Critical
- High
- Medium
- Low

Site Location

Site Buffer (1000 ft)

Overview Map

0 0.5 1 2 mi

Detail Map

0 150 300 600 ft

VERTEX

Map Center:
Lat/Long
32.196446°,-103.588844°

NAD 1983 UTM Zone 13N
Date: Jul 05/24

N

Karst Potential Map
Bettis 20 State Com #002H

Figure:
X

TAP ROCK RESOURCES

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.

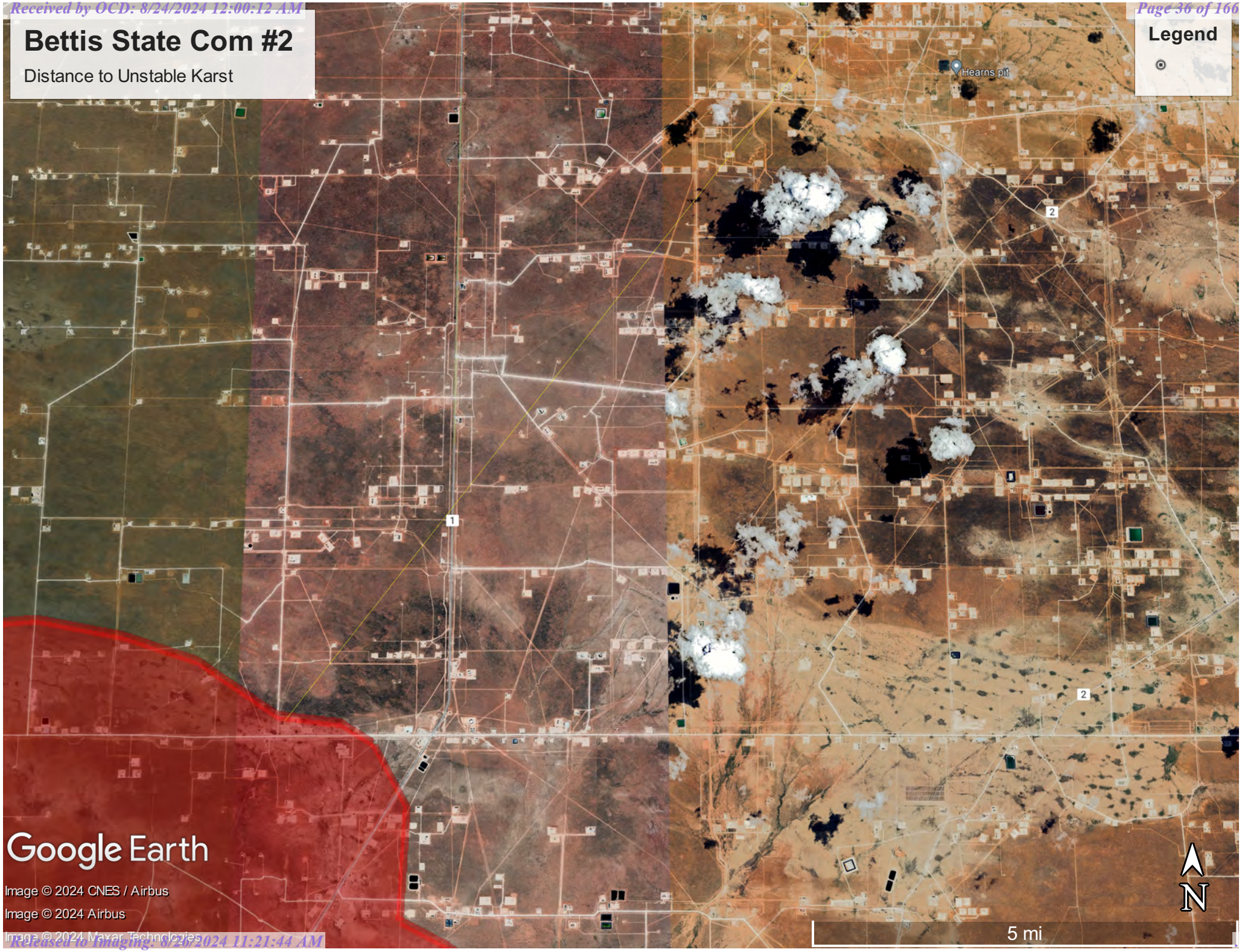
Note: Inset Map, Esri 2022; Overview Map: Esri World Topographic. Karst potential data sources from Roswell Field Office, Bureau of Land Management, 2020 or United States Department of the Interior, Bureau of Land Management, (2018). Karst Potential.

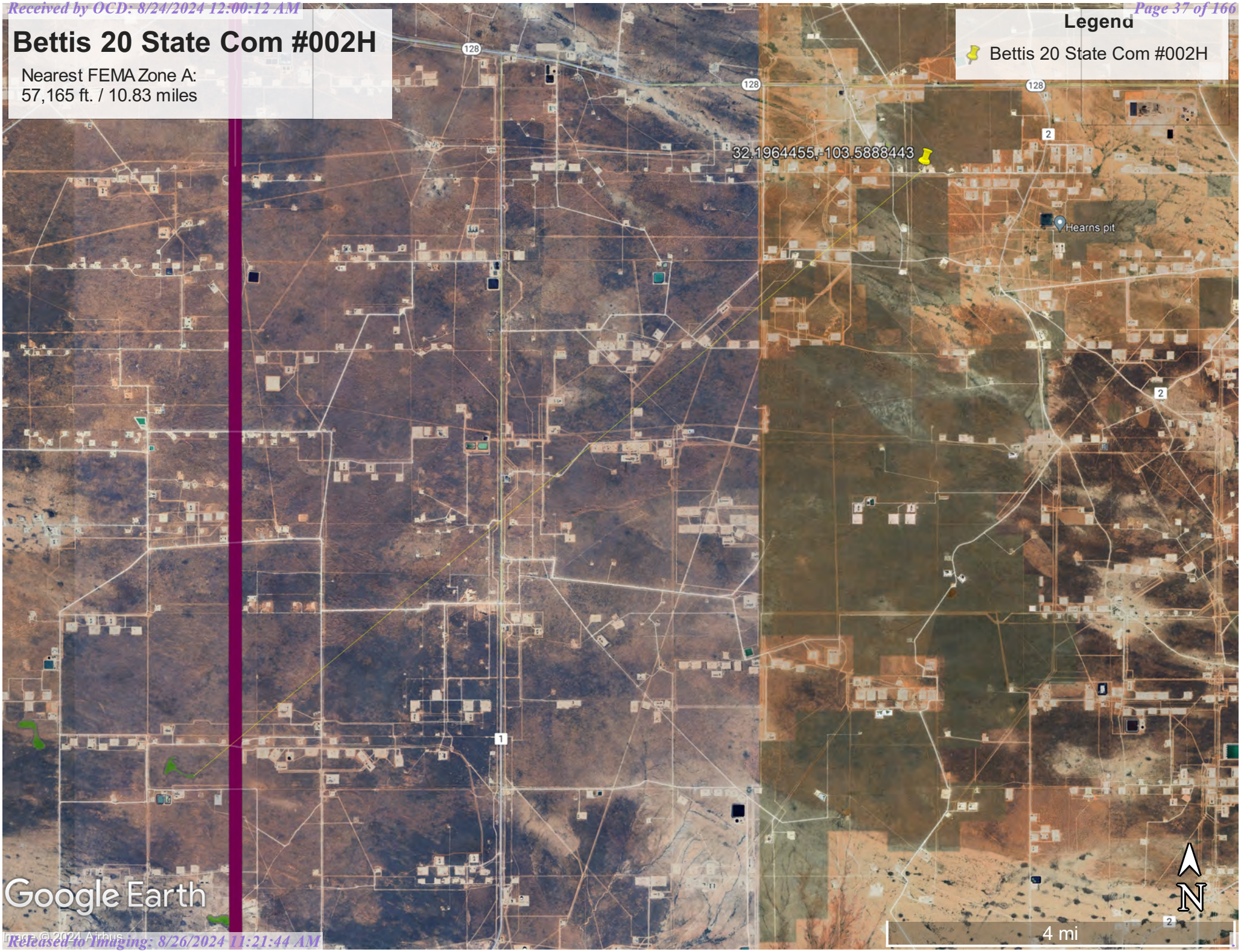
VERSATILITY. EXPERTISE.

Document Path: S:\04 - Geomatics\1-Projects_US PROJECTS\Tap Rock\2024\24E-03315\Project\24E-03315.aprx

Bettis State Com #2

Distance to Unstable Karst

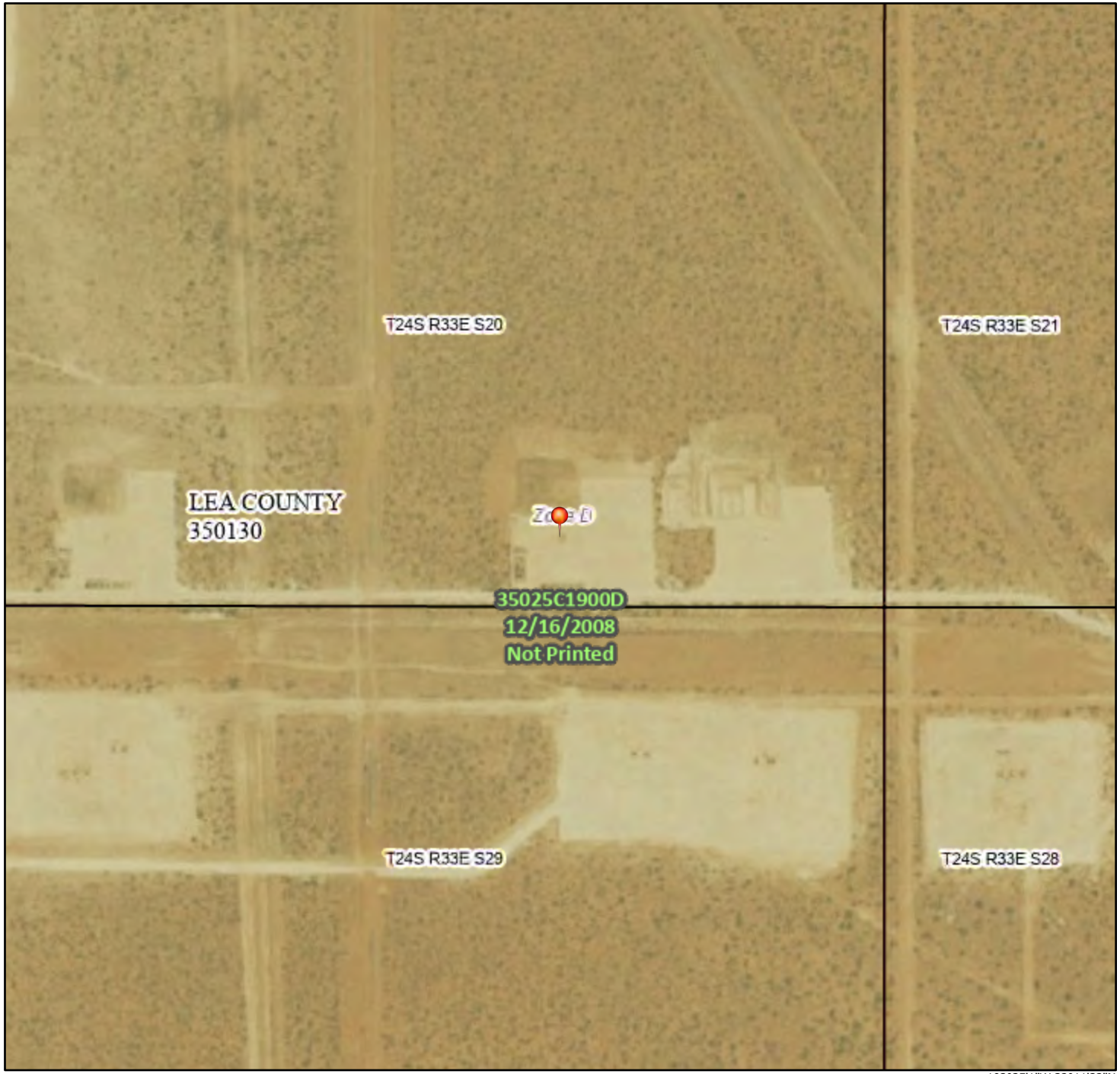



Bettis 20 State Com #002H
Nearest FEMA Zone A:
57,165 ft. / 10.83 miles
Legend
Bettis 20 State Com #002H
32.1964455,-103.5888443
Hearns pit
128
2
1
Google Earth
Image © 2024 Airbus
N
4 mi

National Flood Hazard Layer FIRMette

FEMA

103°35'39"W 32°12'2"N



103°35'1"W 32°11'32"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap Imagery Source: USGS National Map 2023

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
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- 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

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 6/29/2024 at 3:12 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Lea County, New Mexico

June 29, 2024

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

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Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

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 20, Sep 6, 2023

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
PU	Pyote and Maljamar fine sands	5.4	100.0%
Totals for Area of Interest		**5.4**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

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
Land capability classification (nonirrigated): 7s
Hydrologic Soil Group: A
Ecological site: R070BD003NM - 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: R070BD003NM - Loamy Sand
Hydric soil rating: No

Minor Components

Kermit

Percent of map unit: 10 percent
Ecological site: R070BC022NM - Sandhills
Hydric soil rating: No

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USDA Natural Resources Conservation Service

Ecological site R070BD003NM
Loamy Sand

Accessed: 06/29/2024

General information

Provisional. A provisional ecological site description has undergone quality control and quality assurance review. It contains a working state and transition model and enough information to identify the ecological site.

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

R070BD004NM	**Sandy** Sandy
R070BD005NM	**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

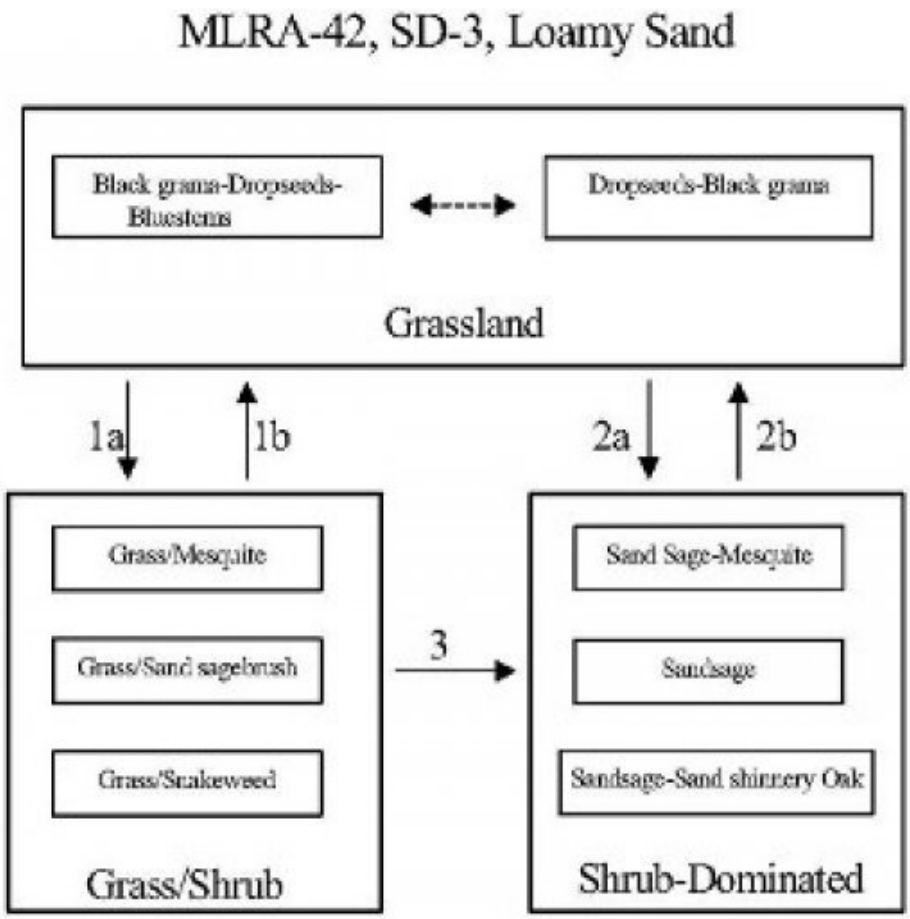
Overview

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.

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 5. 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/threeawns cover • Surface soil erosion • Bare patch expansion • Increased sand sage, shinnery oak, and mesquite/dropseed/threeawn 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	*Schizachyrium scoparium*	61–123	–
2	**Warm Season**			37–61	
	sand bluestem	ANHA	*Andropogon hallii*	37–61	–
3	**Warm Season**			37–61	
	cane bluestem	BOBA3	*Bothriochloa barbinodis*	37–61	–
	silver bluestem	BOSA	*Bothriochloa saccharoides*	37–61	–
4	**Warm Season**			123–184	
	black grama	BOER4	*Bouteloua eriopoda*	123–184	–
	bush muhly	MUPO2	*Muhlenbergia porteri*	123–184	–
5	**Warm Season**			123–184	
	thin paspalum	PASE5	*Paspalum setaceum*	123–184	–
	plains bristlegrass	SEVU2	*Setaria vulpiseta*	123–184	–
	fringed signalgrass	URCI	*Urochloa ciliatissima*	123–184	–
6	**Warm Season**			123–184	
	spike dropseed	SPCO4	*Sporobolus contractus*	123–184	–
	sand dropseed	SPCR	*Sporobolus cryptandrus*	123–184	–
	mesa dropseed	SPFL2	*Sporobolus flexuosus*	123–184	–
7	**Warm Season**			61–123	
	hooded windmill grass	CHCU2	*Chloris cucullata*	61–123	–
	Arizona cottontop	DICA8	*Digitaria californica*	61–123	–
9	**Other Perennial Grasses**			37–61	
	Grass, perennial	2GP	*Grass, perennial*	37–61	–
Shrub/Vine					
8	**Warm Season**			37–61	
	New Mexico feathergrass	HENE5	*Hesperostipa neomexicana*	37–61	–
	giant dropseed	SPGI	*Sporobolus giganteus*	37–61	–
10	**Shrub**			61–123	

	sand sagebrush	ARFI2	*Artemisia filifolia*	61–123	–
	Havard oak	QUHA3	*Quercus havardii*	61–123	–
11	**Shrub**			34–61	
	fourwing saltbush	ATCA2	*Atriplex canescens*	37–61	–
	featherplume	DAFO	*Dalea formosa*	37–61	–
12	**Shrub**			37–61	
	jointfir	EPHED	*Ephedra*	37–61	–
	littleleaf ratany	KRER	*Krameria erecta*	37–61	–
13	**Other Shrubs**			37–61	
	Shrub (>.5m)	2SHRUB	*Shrub (>.5m)*	37–61	–
Forb					
14	**Forb**			61–123	
	leatherweed	CRPOP	*Croton pottsii var. pottsii*	61–123	–
	Indian blanket	GAPU	*Gaillardia pulchella*	61–123	–
	globemallow	SPHAE	*Sphaeralcea*	61–123	–
15	**Forb**			12–37	
	woolly groundsel	PACA15	*Packera cana*	12–37	–
16	**Forb**			61–123	
	touristplant	DIWI2	*Dimorphocarpa wislizeni*	61–123	–
	woolly plantain	PLPA2	*Plantago patagonica*	61–123	–
17	**Other Forbs**			37–61	
	Forb (herbaceous, not grass nor grass-like)	2FORB	*Forb (herbaceous, not grass nor grass-like)*	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, blsck 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

Literature Cited:

Ansley, R. J.; Jacoby, P. W. 1998. Manipulation of fire intensity to achieve mesquite management goals in north Texas. In: Pruden, Teresa L.; Brennan, Leonard A., eds. Fire in ecosystem management: shifting the paradigm from suppression to prescription: Proceedings, Tall Timbers fire ecology conference; 1996 May 7-10; Boise, ID. No. 20. Tallahassee, FL: Tall Timbers Research Station: 195-204.

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Britton, Carlton M.; Wright, Henry A. 1971. Correlation of weather and fuel variables to mesquite damage by fire. Journal of Range Management 24:136-141.

Davis, Joseph H., III and Bonham, Charles D. 1979. Interference of sand sagebrush canopy with needleandthread. Journal of Range Management 32(5):384-386.

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

Don Sylvester
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):**

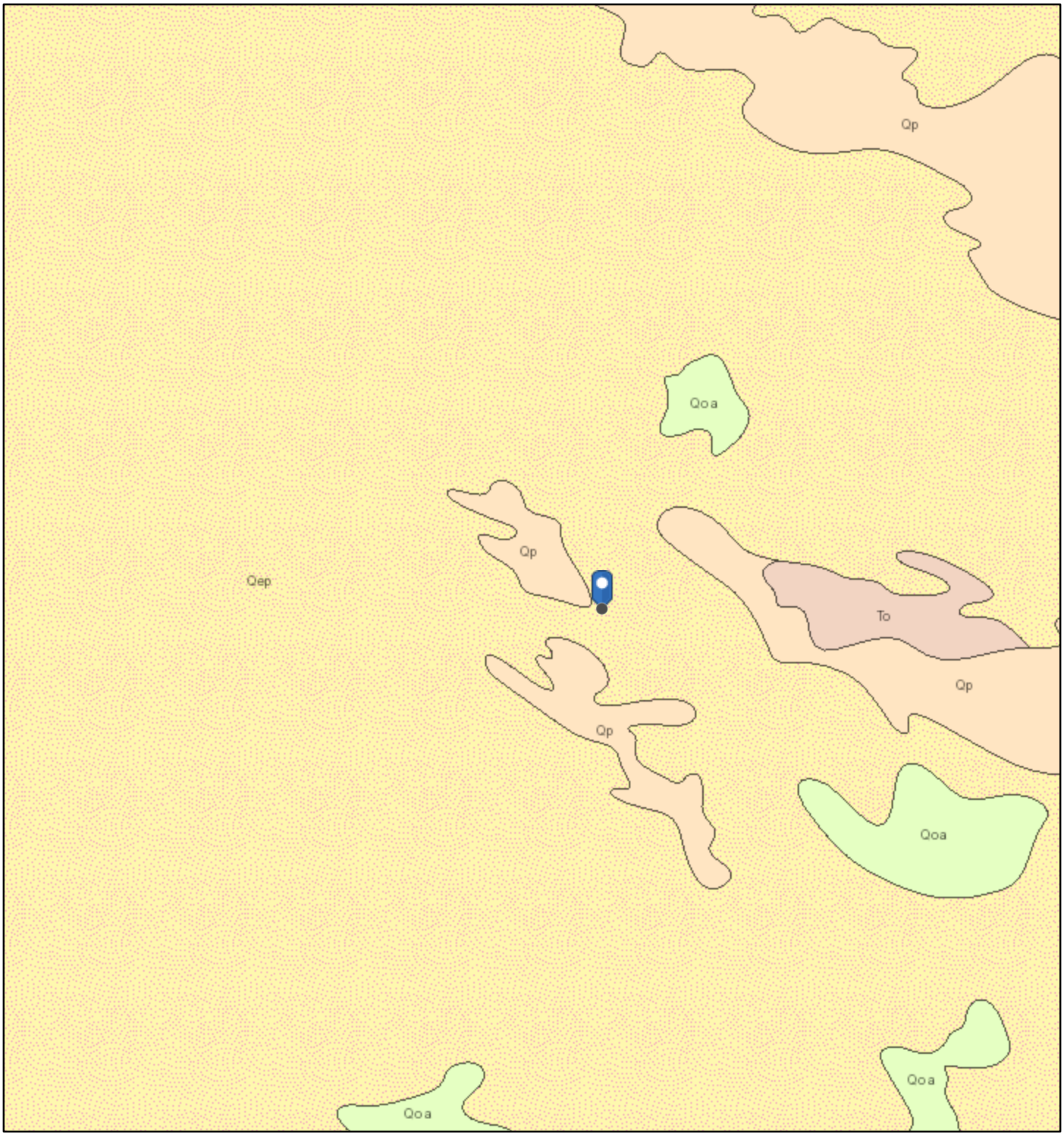
---

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:**

Bettis 20 State Com #002H Geology



6/29/2024, 2:28:47 PM

1:144,448

0 1 2 4 mi

0 1.5 3 6 km

Lithologic Units

- Playa——Alluvium and evaporite deposits (Holocene)
- Water——Perenial standing water
- Qa——Alluvium (Holocene to upper Pleistocene)

Esri, NASA, NGA, USGS, NMBGMR, USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National Structures Dataset, and National Transportation Dataset; USGS Global Ecosystems; U.S. Census Bureau TIGER/Line data; USFS

ArcGIS Web AppBuilder

USGS The National Map: National Boundaries Dataset, 3DEP Elevation Program, Geographic Names Information System, National Hydrography Dataset, National Land Cover Database, National

APPENDIX C – Daily Field Reports

Daily Site Visit Report

Client:	Tap Rock	Inspection Date:	7/4/2024
Site Location Name:	Bettis State Com #2	Report Run Date:	7/4/2024 11:02 PM
Client Contact Name:	Bill Ramsey	API #:	
Client Contact Phone #:	720-238-2787		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/4/2024 8:04 AM
Departed Site	7/4/2024 2:47 PM

Daily Site Visit Report

Field Notes

8:06 Arrived on site and completed safety paperwork. Performed a site walkthrough and used the magnetic line sweeper prior to ground disturbance.

10:39 On site to delineate sections of the pad just north of the containment.

10:42 Collected samples BH24-01 through BH24-03. Samples were obtained at 0', 1', 2', 3', 4' bgs.
15 samples were collected in total today.

16:49 All samples were field screened for chlorides using silver nitrate titration and TPH using a Dexsil Petroflag. All samples met criteria.

10:49 All samples were jarred in preparation to be sent to the laboratory for further analysis.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: South

BH24-01 at 4’bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’ bgs.

Viewing Direction: Southeast

BH24-02 at 4’bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’ bgs.

Viewing Direction: West

BH24-03 at 4’bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’ bgs.

Viewing Direction: West

Sample area.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature: 

Daily Site Visit Report

Client:	Tap Rock	Inspection Date:	7/5/2024
Site Location Name:	Bettis State Com #2	Report Run Date:	7/5/2024 11:04 PM
Client Contact Name:	Bill Ramsey	API #:	
Client Contact Phone #:	720-238-2787		
Unique Project ID		Project Owner:	
Project Reference #		Project Manager:	

Summary of Times

Arrived at Site	7/5/2024 8:17 AM
Departed Site	7/5/2024 3:40 PM

Field Notes

8:19 Arrived on site and completed safety paperwork upon arrival. Performed a site walkthrough and used the magnetic line sweeper prior to ground disturbance.

8:21 On site to continue delineating the release area on the pad just north of the containment.

15:39 Collected samples BH24-04 through BH24-07 at 0', 2', 3', and 4' bgs. All samples were field screened for chlorides using silver nitrate titration and TPH using a Dexsil Petroflag. All samples met criteria.

15:40 20 samples in total were collected today. Every sample was jarred in preparation to be sent to the lab.

Next Steps & Recommendations

1

Daily Site Visit Report

Site Photos

Viewing Direction: Southeast

BH24-04 at 4’ bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’bgs.

Viewing Direction: North

BH24-05 at 4’ bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’bgs.

Viewing Direction: East

BH24-06 at 4’bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’bgs.

Viewing Direction: South

Samples area.

Daily Site Visit Report

Viewing Direction: South	**Viewing Direction**: West
	
BH24-07 at 4’bgs. Samples were collected at 0’, 1’, 2’, 3’, and 4’bgs.	Sample area looking west.

Daily Site Visit Report

Daily Site Visit Signature

Inspector: John Rewis

Signature: _____
Signature

APPENDIX D – Notifications

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

QUESTIONS

Action 360589

QUESTIONS

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 360589
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1703748127**
Incident Name	**NOY1703748127 2017 MAJOR AIA OS @ 30-025-41436**
Incident Type	**Oil Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-025-41436] HYPERION STATE COM #002H**

Location of Release Source	
Site Name	*Unavailable.*
Date Release Discovered	**01/16/2017**
Surface Owner	**State**

Sampling Event General Information *Please answer all the questions in this group.*	
What is the sampling surface area in square feet	3,000
What is the estimated number of samples that will be gathered	40
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	07/04/2024
Time sampling will commence	02:30 PM
Warning: Notification can not be less than two business days prior to conducting final sampling.	
Please provide any information necessary for observers to contact samplers	575-988-1472
Please provide any information necessary for navigation to sampling site	32.211771, -103.562296

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

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 360589
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

CONDITIONS

Created By	Condition	Condition Date
vertex1	Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.	7/2/2024

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

QUESTIONS

Action 360593

QUESTIONS

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 360593
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1703748127**
Incident Name	**NOY1703748127 2017 MAJOR AIA OS @ 30-025-41436**
Incident Type	**Oil Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-025-41436] HYPERION STATE COM #002H**

Location of Release Source	
Site Name	*Unavailable.*
Date Release Discovered	**01/16/2017**
Surface Owner	**State**

Sampling Event General Information *Please answer all the questions in this group.*	
What is the sampling surface area in square feet	3,000
What is the estimated number of samples that will be gathered	40
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	07/05/2024
Time sampling will commence	08:00 AM
Please provide any information necessary for observers to contact samplers	575-988-1472
Please provide any information necessary for navigation to sampling site	32.196144, -103.588770

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 360593
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

CONDITIONS

Created By	Condition	Condition Date
vertex1	Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.	7/2/2024

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

QUESTIONS

Action 360595

QUESTIONS

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 360595
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1703748127**
Incident Name	**NOY1703748127 2017 MAJOR AIA OS @ 30-025-41436**
Incident Type	**Oil Release**
Incident Status	**Initial C-141 Approved**
Incident Well	**[30-025-41436] HYPERION STATE COM #002H**

Location of Release Source	
Site Name	*Unavailable.*
Date Release Discovered	**01/16/2017**
Surface Owner	**State**

Sampling Event General Information *Please answer all the questions in this group.*	
What is the sampling surface area in square feet	3,000
What is the estimated number of samples that will be gathered	40
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	07/06/2024
Time sampling will commence	08:00 AM
Please provide any information necessary for observers to contact samplers	575-988-1472
Please provide any information necessary for navigation to sampling site	32.196144, -103.588770

District I
1625 N. French Dr., Hobbs, NM 88240
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State of New Mexico
Energy, Minerals and Natural Resources
Oil Conservation Division
1220 S. St Francis Dr.
Santa Fe, NM 87505

CONDITIONS

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 360595
	Action Type: [NOTIFY] Notification Of Sampling (C-141N)

CONDITIONS

Created By	Condition	Condition Date
vertex1	Failure to notify the OCD of sampling events including any changes in date/time per the requirements of 19.15.29.12.D.(1).(a) NMAC, may result in the remediation closure samples not being accepted.	7/2/2024

APPENDIX E – Laboratory Data Reports and Chain of Custody Forms

Report to:

Chance Dixon

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com

envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name:	Bettis 20 State Com #002H
Work Order:	E407056
Job Number:	24015-0001
Received:	7/10/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
7/16/24

Envirotech Inc. certifies the test results meet all requirements of TNI unless noted otherwise.
Statement of Data Authenticity: Envirotech Inc, attests the data reported has not been altered in any way.
Partial or incomplete reproduction of this report is prohibited, unless approved by Envirotech Inc.
Envirotech Inc, holds the Utah TNI certification NM00979 for data reported.
Envirotech Inc, holds the Texas TNI certification T104704557 for data reported.

Date Reported: 7/16/24

Chance Dixon
3101 Boyd Drive
Carlsbad, NM 88220

Project Name: Bettis 20 State Com #002H
Workorder: E407056
Date Received: 7/10/2024 8:30:00AM

Chance Dixon,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 7/10/2024 8:30:00AM, under the Project Name: Bettis 20 State Com #002H.

The analytical test results summarized in this report with the Project Name: Bettis 20 State Com #002H apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
Office: 505-632-1881
rainaschwanz@envirotech-inc.com

Field Offices:

Southern New Mexico Area

Lynn Jarboe
Laboratory Technical Representative
Office: 505-421-LABS(5227)
Cell: 505-320-4759
ljarboe@envirotech-inc.com

Michelle Gonzales
Client Representative
Office: 505-421-LABS(5227)
Cell: 505-947-8222
mgonzales@envirotech-inc.com

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

Table of Contents (continued)

Sample Summary

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	07/16/24 14:13

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BH24-05 0'	E407056-01A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-05 1'	E407056-02A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-05 2'	E407056-03A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-05 3'	E407056-04A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-05 4'	E407056-05A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-06 0'	E407056-06A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-06 1'	E407056-07A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-06 2'	E407056-08A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-06 3'	E407056-09A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-06 4'	E407056-10A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-07 0'	E407056-11A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-07 1'	E407056-12A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-07 2'	E407056-13A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-07 3'	E407056-14A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-07 4'	E407056-15A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-05 0'

E407056-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/10/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/10/24	
Toluene	ND	0.0250	1	07/10/24	07/10/24	
o-Xylene	ND	0.0250	1	07/10/24	07/10/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/10/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/10/24	
Surrogate: Bromofluorobenzene		*93.1 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: Toluene-d8		*95.8 %*	*70-130*	*07/10/24*	*07/10/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/10/24	
Surrogate: Bromofluorobenzene		*93.1 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: Toluene-d8		*95.8 %*	*70-130*	*07/10/24*	*07/10/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*78.7 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-05 1'

E407056-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/10/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/10/24	
Toluene	ND	0.0250	1	07/10/24	07/10/24	
o-Xylene	ND	0.0250	1	07/10/24	07/10/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/10/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/10/24	
Surrogate: Bromofluorobenzene		*93.6 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: Toluene-d8		*94.9 %*	*70-130*	*07/10/24*	*07/10/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/10/24	
Surrogate: Bromofluorobenzene		*93.6 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: Toluene-d8		*94.9 %*	*70-130*	*07/10/24*	*07/10/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*121 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**131**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-05 2'

E407056-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*93.8 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*93.8 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*122 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**28.7**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-05 3'

E407056-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/10/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/10/24	
Toluene	ND	0.0250	1	07/10/24	07/10/24	
o-Xylene	ND	0.0250	1	07/10/24	07/10/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/10/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/10/24	
Surrogate: Bromofluorobenzene		*91.2 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: Toluene-d8		*96.1 %*	*70-130*	*07/10/24*	*07/10/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/10/24	
Surrogate: Bromofluorobenzene		*91.2 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: 1,2-Dichloroethane-d4		*100 %*	*70-130*	*07/10/24*	*07/10/24*	
Surrogate: Toluene-d8		*96.1 %*	*70-130*	*07/10/24*	*07/10/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*125 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**51.6**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-05 4'

E407056-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*99.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.9 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*99.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.9 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*127 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-06 0'

E407056-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*99.3 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.3 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*99.3 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.3 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*125 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-06 1'

E407056-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*98.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.7 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*98.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.7 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*122 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**25.3**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-06 2'

E407056-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*121 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-06 3'

E407056-09

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.9 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*103 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.9 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*124 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**29.7**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-06 4'

E407056-10

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*91.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*96.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*91.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*96.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*125 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**28.2**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-07 0'

E407056-11

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*94.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*94.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*126 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	**26.1**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-07 1'

E407056-12

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*94.1 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*94.1 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*127 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-07 2'

E407056-13

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*91.6 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*91.6 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*101 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*120 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-07 3'

E407056-14

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*93.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*93.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*127 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

BH24-07 4'

E407056-15

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organic Compounds by EPA 8260B	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.1 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428061
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: Bromofluorobenzene		*92.1 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: 1,2-Dichloroethane-d4		*102 %*	*70-130*	*07/10/24*	*07/11/24*	
Surrogate: Toluene-d8		*95.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428062
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/12/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/12/24	
Surrogate: n-Nonane		*123 %*	*50-200*	*07/10/24*	*07/12/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: DT			Batch: 2428065
Chloride	ND	20.0	1	07/10/24	07/10/24	

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

Volatile Organic Compounds by EPA 8260B

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428061-BLK1)									Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: Bromofluorobenzene	*0.461*		*0.500*		*92.2*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.497*		*0.500*		*99.4*	*70-130*			
Surrogate: Toluene-d8	*0.477*		*0.500*		*95.4*	*70-130*			
LCS (2428061-BS1)									Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	2.34	0.0250	2.50		93.7	70-130			
Ethylbenzene	2.42	0.0250	2.50		96.8	70-130			
Toluene	2.26	0.0250	2.50		90.5	70-130			
o-Xylene	2.34	0.0250	2.50		93.7	70-130			
p,m-Xylene	4.61	0.0500	5.00		92.2	70-130			
Total Xylenes	6.95	0.0250	7.50		92.7	70-130			
Surrogate: Bromofluorobenzene	*0.472*		*0.500*		*94.4*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.486*		*0.500*		*97.2*	*70-130*			
Surrogate: Toluene-d8	*0.485*		*0.500*		*97.0*	*70-130*			
Matrix Spike (2428061-MS1)				**Source: E407056-03**					Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	2.43	0.0250	2.50	ND	97.1	48-131			
Ethylbenzene	2.47	0.0250	2.50	ND	98.7	45-135			
Toluene	2.32	0.0250	2.50	ND	92.8	48-130			
o-Xylene	2.43	0.0250	2.50	ND	97.3	43-135			
p,m-Xylene	4.76	0.0500	5.00	ND	95.2	43-135			
Total Xylenes	7.19	0.0250	7.50	ND	95.9	43-135			
Surrogate: Bromofluorobenzene	*0.473*		*0.500*		*94.5*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.495*		*0.500*		*98.9*	*70-130*			
Surrogate: Toluene-d8	*0.481*		*0.500*		*96.1*	*70-130*			
Matrix Spike Dup (2428061-MSD1)				**Source: E407056-03**					Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	2.50	0.0250	2.50	ND	99.9	48-131	2.84	23	
Ethylbenzene	2.54	0.0250	2.50	ND	102	45-135	2.97	27	
Toluene	2.40	0.0250	2.50	ND	96.0	48-130	3.43	24	
o-Xylene	2.57	0.0250	2.50	ND	103	43-135	5.44	27	
p,m-Xylene	5.02	0.0500	5.00	ND	100	43-135	5.27	27	
Total Xylenes	7.59	0.0250	7.50	ND	101	43-135	5.33	27	
Surrogate: Bromofluorobenzene	*0.486*		*0.500*		*97.1*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.496*		*0.500*		*99.1*	*70-130*			
Surrogate: Toluene-d8	*0.482*		*0.500*		*96.4*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428061-BLK1)									Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: Bromofluorobenzene	*0.461*		*0.500*		*92.2*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.497*		*0.500*		*99.4*	*70-130*			
Surrogate: Toluene-d8	*0.477*		*0.500*		*95.4*	*70-130*			
LCS (2428061-BS2)									Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	44.1	20.0	50.0		88.2	70-130			
Surrogate: Bromofluorobenzene	*0.482*		*0.500*		*96.4*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.495*		*0.500*		*98.9*	*70-130*			
Surrogate: Toluene-d8	*0.486*		*0.500*		*97.1*	*70-130*			
Matrix Spike (2428061-MS2)				**Source: E407056-03**					Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	42.2	20.0	50.0	ND	84.4	70-130			
Surrogate: Bromofluorobenzene	*0.475*		*0.500*		*95.0*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.485*		*0.500*		*97.0*	*70-130*			
Surrogate: Toluene-d8	*0.486*		*0.500*		*97.1*	*70-130*			
Matrix Spike Dup (2428061-MSD2)				**Source: E407056-03**					Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	42.3	20.0	50.0	ND	84.6	70-130	0.343	20	
Surrogate: Bromofluorobenzene	*0.479*		*0.500*		*95.7*	*70-130*			
Surrogate: 1,2-Dichloroethane-d4	*0.472*		*0.500*		*94.3*	*70-130*			
Surrogate: Toluene-d8	*0.484*		*0.500*		*96.7*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428062-BLK1)									Prepared: 07/10/24 Analyzed: 07/12/24
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*71.9*		*50.0*		*144*	*50-200*			
LCS (2428062-BS1)									Prepared: 07/10/24 Analyzed: 07/15/24
Diesel Range Organics (C10-C28)	282	25.0	250		113	38-132			
Surrogate: n-Nonane	*50.8*		*50.0*		*102*	*50-200*			
Matrix Spike (2428062-MS1)				**Source: E407056-05**					Prepared: 07/10/24 Analyzed: 07/15/24
Diesel Range Organics (C10-C28)	290	25.0	250	ND	116	38-132			
Surrogate: n-Nonane	*45.4*		*50.0*		*90.7*	*50-200*			
Matrix Spike Dup (2428062-MSD1)				**Source: E407056-05**					Prepared: 07/10/24 Analyzed: 07/15/24
Diesel Range Organics (C10-C28)	291	25.0	250	ND	116	38-132	0.367	20	
Surrogate: n-Nonane	*47.3*		*50.0*		*94.6*	*50-200*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/16/2024 2:13:50PM

Anions by EPA 300.0/9056A

Analyst: DT

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428065-BLK1)									Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	ND	20.0							
LCS (2428065-BS1)									Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	250	20.0	250		100	90-110			
Matrix Spike (2428065-MS1)				**Source: E407056-03**					Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	282	20.0	250	28.7	101	80-120			
Matrix Spike Dup (2428065-MSD1)				**Source: E407056-03**					Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	280	20.0	250	28.7	101	80-120	0.518	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Definitions and Notes

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	07/16/24 14:13

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Client Information	Invoice Information	Lab Use Only		TAT				State				
Client: **Vertex (bill direct to Tap Rock)**	Company: **Tap Rock (Bill Ramsay)**	Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX	
Project Name: **Bettis 20 State Com #002H**	Address:	E407056	24015-0001				X					
Project Manager: **Chance Dixon**	City, State, Zip:											
Project Number: 24E-03315	Phone:											
City, State, Zip:	Email:											
Phone:	Miscellaneous: **Direct bill to Tap Rock ATTN: Bill Ramsay.**											
Email: cdixon@vertexresource.com												

Sample Information

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals				Remarks
9:50	07.05.2024	Soil	1	BH24-05 0'		1	X	X	X		X							
10:00	07.05.2024	Soil	1	BH24-05 1'		2	X	X	X		X							
10:10	07.05.2024	Soil	1	BH24-05 2'		3	X	X	X		X							
10:20	07.05.2024	Soil	1	BH24-05 3'		4	X	X	X		X							
10:30	07.05.2024	Soil	1	BH24-05 4'		5	X	X	X		X							
10:40	07.05.2024	Soil	1	BH24-06 0'		6	X	X	X		X							
10:50	07.05.2024	Soil	1	BH24-06 1'		7	X	X	X		X							
11:00	07.05.2024	Soil	1	BH24-06 2'		8	X	X	X		X							
11:10	07.05.2024	Soil	1	BH24-06 3'		9	X	X	X		X							
11:20	07.05.2024	Soil	1	BH24-06 4'		10	X	X	X		X							

Analysis and Method

EPA Program

SDWA	CWA	RCRA

Compliance Y or N

PWSID #

Remarks

Additional Instructions: Direct bill to Tap Rock ATTN: Bill Ramsay. Please email final report to cdixon@vertexresource.com, permain@vertexresource.com

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: X. XXXXXXX

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jm Robadell	7/9/24	7:00	Michelle Gonzales	7-9-24	0700
Michelle Gonzales	7-9-24	1725	J.M.	7.9.24	1725
J.M.	7.9.24	2345		7-10-24	0830
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only

Received on ice: (Y) / N

T1 T2 T3

AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech

Chain of Custody

Client Information	Invoice Information	Lab Use Only		TAT				State					
Client: **Vertex (bill direct to Tap Rock)**	Company: **Tap Rock (Bill Ramsay)**	Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX		
Project Name: **Bettis 20 State Com #002H**	Address:	E407056	24015-0001				X						
Project Manager: **Chance Dixon**	City, State, Zip:												
Project Number: 24E-03315	Phone:												
City, State, Zip:	Email:												
Phone:	Miscellaneous: **Direct bill to Tap Rock ATTN: Bill Ramsay.**												
Email: cdixon@vertexresource.com													

Sample Information

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals				Remarks
11:30	07.05.2024	Soil	1	BH24-07 0'		11	X	X	X		X							
11:40	07.05.2024	Soil	1	BH24-07 1'		12	X	X	X		X							
11:50	07.05.2024	Soil	1	BH24-07 2'		13	X	X	X		X							
12:00	07.05.2024	Soil	1	BH24-07 3'		14	X	X	X		X							
12:10	07.05.2024	Soil	1	BH24-07 4'		15	X	X	X		X							

Analysis and Method

EPA Program

SDWA	CWA	RCRA

Compliance Y or N

PWSID #

Remarks

Additional Instructions: Direct bill to Tap Rock ATTN: Bill Ramsay. Please email final report to cdixon@vertexresource.com, permain@vertexresource.com

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: X. XXXXXXX

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Tm Robach	7/9/24	7:00	Michelle Gonzales	7-9-24	0700
Michelle Gonzales	7.9.24	1725	L.M.	7.9.24	1725
L.M.	7.9.24	2345		7-10-24	0830
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only

Received on ice: (Y) / N

T1 _____ T2 _____ T3 _____

AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech

Envirotech Analytical Laboratory

Printed: 7/10/2024 4:00:29PM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.
If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Vertex Resource Services Inc.	Date Received:	07/10/24 18:19	Work Order ID:	E407056
Phone:	(575) 748-0176	Date Logged In:	07/09/24 18:19	Logged In By:	Alexa Michaels
Email:	cdixon@vertex.ca	Due Date:	07/17/24 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC?	Yes	
2. Does the number of samples per sampling site location match the COC	Yes	
3. Were samples dropped off by client or carrier?	Yes	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT?	Yes	

Sample Cooler

7. Was a sample cooler received?	Yes	
8. If yes, was cooler received in good condition?	Yes	
9. Was the sample(s) received intact, i.e., not broken?	Yes	
10. Were custody/security seals present?	No	
11. If yes, were custody/security seals intact?	NA	
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling	Yes	
13. If no visible ice, record the temperature. Actual sample temperature: 4°C		

Sample Container

14. Are aqueous VOC samples present?	No	
15. Are VOC samples collected in VOA Vials?	NA	
16. Is the head space less than 6-8 mm (pea sized or less)?	NA	
17. Was a trip blank (TB) included for VOC analyses?	NA	
18. Are non-VOC samples collected in the correct containers?	Yes	
19. Is the appropriate volume/weight or number of sample containers collected?	Yes	

Field Label

20. Were field sample labels filled out with the minimum information:		
Sample ID?	Yes	
Date/Time Collected?	Yes	
Collectors name?	No	

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved?	No	
22. Are sample(s) correctly preserved?	NA	
24. Is lab filteration required and/or requested for dissolved metals?	No	

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase?	No	
27. If yes, does the COC specify which phase(s) is to be analyzed?	NA	

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory?	No	
29. Was a subcontract laboratory specified by the client and if so who?	NA	Subcontract Lab: NA

Comments/Resolution

Bettis 20 State Com #002H has been separated into multiple WO due to high sample volume. WO are E407055 and E407056

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date

envirotech Inc.

Report to:

Chance Dixon

5796 U.S. Hwy 64
Farmington, NM 87401

Phone: (505) 632-1881
Envirotech-inc.com

envirotech

Practical Solutions for a Better Tomorrow

Analytical Report

Vertex Resource Services Inc.

Project Name:	Bettis 20 State Com #002H
Work Order:	E407055
Job Number:	24015-0001
Received:	7/10/2024

Revision: 1

Report Reviewed By:

Walter Hinchman
Laboratory Director
7/15/24

Date Reported: 7/15/24

Chance Dixon
3101 Boyd Drive
Carlsbad, NM 88220

Project Name: Bettis 20 State Com #002H
Workorder: E407055
Date Received: 7/10/2024 8:30:00AM

Chance Dixon,

Thank you for choosing Envirotech, Inc. as your analytical testing laboratory for the sample(s) received on, 7/10/2024 8:30:00AM, under the Project Name: Bettis 20 State Com #002H.

The analytical test results summarized in this report with the Project Name: Bettis 20 State Com #002H apply to the individual samples collected, identified and submitted bearing the project name on the enclosed chain-of-custody. Subcontracted sample analyses not conducted by Envirotech, Inc., are attached in full as issued by the subcontract laboratory.

Please review the Chain-of-Custody (COC) and Sample Receipt Checklist (SRC) for any issues reguarding sample receipt temperature, containers, preservation etc. To best understand your test results, review the entire report summarizing your sample data and the associated quality control batch data.

All reported data in this analytical report were analyzed according to the referenced method(s) and are in compliance with the latest NELAC/TNI standards, unless otherwise noted. Samples or analytical quality control parameters not meeting specific QC criteria are qualified with a data flag. Data flag definitions are located in the Notes and Definitions section of this analytical report.

If you have any questions concerning this report, please feel free to contact Envirotech, Inc.

Respectfully,

Walter Hinchman
Laboratory Director
Office: 505-632-1881
Cell: 775-287-1762
whinchman@envirotech-inc.com

Raina Schwanz
Laboratory Administrator
Office: 505-632-1881
rainaschwanz@envirotech-inc.com

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Cell: 505-320-4759
ljarboe@envirotech-inc.com

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Client Representative
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mgonzales@envirotech-inc.com

Envirotech Web Address: www.envirotech-inc.com

Table of Contents

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Sample Summary

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	07/15/24 15:59

Client Sample ID	Lab Sample ID	Matrix	Sampled	Received	Container
BH24-01 0'	E407055-01A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-01 1'	E407055-02A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-01 2'	E407055-03A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-01 3'	E407055-04A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-01 4'	E407055-05A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-02 0'	E407055-06A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-02 1'	E407055-07A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-02 2'	E407055-08A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-02 3'	E407055-09A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-02 4'	E407055-10A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-03 0'	E407055-11A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-03 1'	E407055-12A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-03 2'	E407055-13A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-03 3'	E407055-14A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-03 4'	E407055-15A	Soil	07/04/24	07/10/24	Glass Jar, 2 oz.
BH24-04 0'	E407055-16A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-04 1'	E407055-17A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-04 2'	E407055-18A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-04 3'	E407055-19A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.
BH24-04 4'	E407055-20A	Soil	07/05/24	07/10/24	Glass Jar, 2 oz.

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-01 0'

E407055-01

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*90.1 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*115 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-01 1'

E407055-02

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*89.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*94.3 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-01 2'

E407055-03

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*89.6 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*108 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*106 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-01 3'

E407055-04

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*90.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*113 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-01 4'

E407055-05

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*90.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*107 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-02 0'

E407055-06

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*91.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*112 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-02 1'

E407055-07

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*91.7 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*110 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*114 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-02 2'

E407055-08

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*91.1 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*108 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-02 3'

E407055-09

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*91.3 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*109 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-02 4'

E407055-10

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*89.3 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*108 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-03 0'

E407055-11

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*91.7 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*108 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*112 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-03 1'

E407055-12

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*91.6 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*108 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*114 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-03 2'

E407055-13

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*90.2 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*108 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/10/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/10/24	
Surrogate: n-Nonane		*106 %*	*50-200*	*07/10/24*	*07/10/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-03 3'

E407055-14

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*89.9 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*110 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*113 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-03 4'

E407055-15

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*89.4 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*110 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*112 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-04 0'

E407055-16

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*88.6 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*116 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-04 1'

E407055-17

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*88.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*103 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-04 2'

E407055-18

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*88.8 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*110 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*105 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-04 3'

E407055-19

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*88.0 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*109 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*109 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	**24.3**	20.0	1	07/10/24	07/10/24	

Sample Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

BH24-04 4'

E407055-20

Analyte	Result	Reporting Limit	Dilution	Prepared	Analyzed	Notes
Volatile Organics by EPA 8021B	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Benzene	ND	0.0250	1	07/10/24	07/11/24	
Ethylbenzene	ND	0.0250	1	07/10/24	07/11/24	
Toluene	ND	0.0250	1	07/10/24	07/11/24	
o-Xylene	ND	0.0250	1	07/10/24	07/11/24	
p,m-Xylene	ND	0.0500	1	07/10/24	07/11/24	
Total Xylenes	ND	0.0250	1	07/10/24	07/11/24	
Surrogate: 4-Bromochlorobenzene-PID		*87.5 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - GRO	mg/kg	mg/kg	Analyst: BA			Batch: 2428056
Gasoline Range Organics (C6-C10)	ND	20.0	1	07/10/24	07/11/24	
Surrogate: 1-Chloro-4-fluorobenzene-FID		*110 %*	*70-130*	*07/10/24*	*07/11/24*	
Nonhalogenated Organics by EPA 8015D - DRO/ORO	mg/kg	mg/kg	Analyst: NV			Batch: 2428060
Diesel Range Organics (C10-C28)	ND	25.0	1	07/10/24	07/11/24	
Oil Range Organics (C28-C36)	ND	50.0	1	07/10/24	07/11/24	
Surrogate: n-Nonane		*115 %*	*50-200*	*07/10/24*	*07/11/24*	
Anions by EPA 300.0/9056A	mg/kg	mg/kg	Analyst: JM			Batch: 2428063
Chloride	ND	20.0	1	07/10/24	07/10/24	

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

Volatile Organics by EPA 8021B

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428056-BLK1)									Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	ND	0.0250							
Ethylbenzene	ND	0.0250							
Toluene	ND	0.0250							
o-Xylene	ND	0.0250							
p,m-Xylene	ND	0.0500							
Total Xylenes	ND	0.0250							
Surrogate: 4-Bromochlorobenzene-PID	*7.17*		*8.00*		*89.6*	*70-130*			
LCS (2428056-BS1)									Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	5.58	0.0250	5.00		112	70-130			
Ethylbenzene	5.21	0.0250	5.00		104	70-130			
Toluene	5.48	0.0250	5.00		110	70-130			
o-Xylene	5.33	0.0250	5.00		107	70-130			
p,m-Xylene	10.7	0.0500	10.0		107	70-130			
Total Xylenes	16.0	0.0250	15.0		107	70-130			
Surrogate: 4-Bromochlorobenzene-PID	*7.21*		*8.00*		*90.2*	*70-130*			
Matrix Spike (2428056-MS1)				**Source: E407055-10**					Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	4.76	0.0250	5.00	ND	95.3	54-133			
Ethylbenzene	4.43	0.0250	5.00	ND	88.7	61-133			
Toluene	4.67	0.0250	5.00	ND	93.5	61-130			
o-Xylene	4.55	0.0250	5.00	ND	91.0	63-131			
p,m-Xylene	9.12	0.0500	10.0	ND	91.2	63-131			
Total Xylenes	13.7	0.0250	15.0	ND	91.1	63-131			
Surrogate: 4-Bromochlorobenzene-PID	*7.19*		*8.00*		*89.8*	*70-130*			
Matrix Spike Dup (2428056-MSD1)				**Source: E407055-10**					Prepared: 07/10/24 Analyzed: 07/11/24
Benzene	5.11	0.0250	5.00	ND	102	54-133	7.11	20	
Ethylbenzene	4.77	0.0250	5.00	ND	95.5	61-133	7.39	20	
Toluene	5.02	0.0250	5.00	ND	100	61-130	7.20	20	
o-Xylene	4.88	0.0250	5.00	ND	97.6	63-131	6.95	20	
p,m-Xylene	9.82	0.0500	10.0	ND	98.2	63-131	7.42	20	
Total Xylenes	14.7	0.0250	15.0	ND	98.0	63-131	7.26	20	
Surrogate: 4-Bromochlorobenzene-PID	*7.19*		*8.00*		*89.8*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

Nonhalogenated Organics by EPA 8015D - GRO

Analyst: BA

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428056-BLK1)									Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	ND	20.0							
Surrogate: 1-Chloro-4-fluorobenzene-FID	*8.70*		*8.00*		*109*	*70-130*			
LCS (2428056-BS2)									Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	43.6	20.0	50.0		87.2	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*8.78*		*8.00*		*110*	*70-130*			
Matrix Spike (2428056-MS2)				**Source: E407055-10**					Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	50.4	20.0	50.0	ND	101	70-130			
Surrogate: 1-Chloro-4-fluorobenzene-FID	*8.80*		*8.00*		*110*	*70-130*			
Matrix Spike Dup (2428056-MSD2)				**Source: E407055-10**					Prepared: 07/10/24 Analyzed: 07/11/24
Gasoline Range Organics (C6-C10)	49.4	20.0	50.0	ND	98.8	70-130	2.01	20	
Surrogate: 1-Chloro-4-fluorobenzene-FID	*8.82*		*8.00*		*110*	*70-130*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

Nonhalogenated Organics by EPA 8015D - DRO/ORO

Analyst: NV

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428060-BLK1)									Prepared: 07/10/24 Analyzed: 07/10/24
Diesel Range Organics (C10-C28)	ND	25.0							
Oil Range Organics (C28-C36)	ND	50.0							
Surrogate: n-Nonane	*62.5*		*50.0*		*125*	*50-200*			
LCS (2428060-BS1)									Prepared: 07/10/24 Analyzed: 07/10/24
Diesel Range Organics (C10-C28)	329	25.0	250		131	38-132			
Surrogate: n-Nonane	*62.1*		*50.0*		*124*	*50-200*			
Matrix Spike (2428060-MS1)				**Source: E407055-07**					Prepared: 07/10/24 Analyzed: 07/11/24
Diesel Range Organics (C10-C28)	326	25.0	250	ND	130	38-132			
Surrogate: n-Nonane	*58.4*		*50.0*		*117*	*50-200*			
Matrix Spike Dup (2428060-MSD1)				**Source: E407055-07**					Prepared: 07/10/24 Analyzed: 07/11/24
Diesel Range Organics (C10-C28)	315	25.0	250	ND	126	38-132	3.18	20	
Surrogate: n-Nonane	*56.0*		*50.0*		*112*	*50-200*			

QC Summary Data

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	**Reported:**
3101 Boyd Drive	Project Number:	24015-0001	
Carlsbad NM, 88220	Project Manager:	Chance Dixon	7/15/2024 3:59:58PM

Anions by EPA 300.0/9056A

Analyst: JM

Analyte	Result	Reporting Limit	Spike Level	Source Result	Rec	Rec Limits	RPD	RPD Limit	Notes
	mg/kg	mg/kg	mg/kg	mg/kg	%	%	%	%	
Blank (2428063-BLK1)									Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	ND	20.0							
LCS (2428063-BS1)									Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	250	20.0	250		100	90-110			
Matrix Spike (2428063-MS1)				**Source: E407055-05**					Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	251	20.0	250	ND	100	80-120			
Matrix Spike Dup (2428063-MSD1)				**Source: E407055-05**					Prepared: 07/10/24 Analyzed: 07/10/24
Chloride	252	20.0	250	ND	101	80-120	0.361	20	

QC Summary Report Comment:
Calculations are based off of the raw (non-rounded) data. However, for reporting purposes all QC data is rounded to three significant figures. Therefore, hand calculated values may differ slightly.

Definitions and Notes

Vertex Resource Services Inc.	Project Name:	Bettis 20 State Com #002H	
3101 Boyd Drive	Project Number:	24015-0001	**Reported:**
Carlsbad NM, 88220	Project Manager:	Chance Dixon	07/15/24 15:59

ND	Analyte NOT DETECTED at or above the reporting limit
NR	Not Reported
RPD	Relative Percent Difference
DNI	Did Not Ignite
DNR	Did not react with the addition of acid or base.

Note (1): Methods marked with ** are non-accredited methods.

Note (2): Soil data is reported on an "as received" weight basis, unless reported otherwise.

Client Information	Invoice Information	Lab Use Only		TAT				State				
Client: **Vertex (bill direct to Tap Rock)**	Company: **Tap Rock (Bill Ramsay)**	Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX	
Project Name: **Bettis 20 State Com #002H**	Address:	E407055	24015-0001				X					
Project Manager: **Chance Dixon**	City, State, Zip:											
Project Number: 24E-03315	Phone:											
City, State, Zip:	Email:											
Phone:	Miscellaneous: **Direct bill to Tap Rock ATTN: Bill Ramsay.**											
Email: cdixon@vertexresource.com												

Sample Information

Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals				Remarks
14:40	07.04.2024	Soil	1	BH24-01 0'		1	X	X	X		X							
14:45	07.04.2024	Soil	1	BH24-01 1'		2	X	X	X		X							
14:50	07.04.2024	Soil	1	BH24-01 2'		3	X	X	X		X							
14:55	07.04.2024	Soil	1	BH24-01 3'		4	X	X	X		X							
15:00	07.04.2024	Soil	1	BH24-01 4'		5	X	X	X		X							
15:05	07.04.2024	Soil	1	BH24-02 0'		6	X	X	X		X							
15:10	07.04.2024	Soil	1	BH24-02 1'		7	X	X	X		X							
15:15	07.04.2024	Soil	1	BH24-02 2'		8	X	X	X		X							
15:20	07.04.2024	Soil	1	BH24-02 3'		9	X	X	X		X							
15:25	07.04.2024	Soil	1	BH24-02 4'		10	X	X	X		X							

Analysis and Method

EPA Program

SDWA	CWA	RCRA

Compliance Y or N

PWSID #

Remarks

Additional Instructions: Direct bill to Tap Rock ATTN: Bill Ramsay. Please email final report to cdixon@vertexresource.com, permain@vertexresource.com

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: X. XXXXXXX

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
	7/9/24	7:00	Michelle Gonzales	7-9-24	0700
Michelle Gonzales	7-9-24	1725		7.9.24	1725
	7.9.24	2345		7-10-24	0830

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only

Received on ice: (Y) / N

T1 T2 T3

AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech

Client Information	Invoice Information	Lab Use Only		TAT				State					
Client: **Vertex (bill direct to Tap Rock)**	Company: **Tap Rock (Bill Ramsay)**	Lab WO#	Job Number	1D	2D	3D	Std	NM	CO	UT	TX		
Project Name: **Bettis 20 State Com #002H**	Address:	E407055	24015-0001				X						
Project Manager: **Chance Dixon**	City, State, Zip:												
Project Number: 24E-03315	Phone:												
City, State, Zip:	Email:												
Phone:	Miscellaneous: **Direct bill to Tap Rock ATTN: Bill Ramsay.**												
Email: cdixon@vertexresource.com													

Sample Information							Analysis and Method										EPA Program			
Time Sampled	Date Sampled	Matrix	No. of Containers	Sample ID	Field Filter	Lab Number	DRO/ORO by 8015	GRO/DRO by 8015	BTEX by 8021	VOC by 8260	Chloride 300.0	BGDOC - NM	TCEQ 1005 - TX	RCRA 8 Metals				SDWA	CWA	RCRA
15:30	07.04.2024	Soil	1	BH24-03 0'		11	X	X	X		X									
15:35	07.04.2024	Soil	1	BH24-03 1'		12	X	X	X		X							Compliance	Y	or N
15:40	07.04.2024	Soil	1	BH24-03 2'		13	X	X	X		X							PWSID #		
15:45	07.04.2024	Soil	1	BH24-03 3'		14	X	X	X		X							Remarks		
15:50	07.04.2024	Soil	1	BH24-03 4'		15	X	X	X		X									
9:00	07.05.2024	Soil	1	BH24-04 0'		16	X	X	X		X									
9:10	07.05.2024	Soil	1	BH24-04 1'		17	X	X	X		X									
9:20	07.05.2024	Soil	1	BH24-04 2'		18	X	X	X		X									
9:30	07.05.2024	Soil	1	BH24-04 3'		19	X	X	X		X									
9:40	07.05.2024	Soil	1	BH24-04 4'		20	X	X	X		X									

Additional Instructions: Direct bill to Tap Rock ATTN: Bill Ramsay. Please email final report to cdixon@vertexresource.com, permain@vertexresource.com

I, (field sampler), attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Sampled by: X. XXXXXXX

Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time
Jim Robach	7/9/24	7:00	Michelle Gonzales	7-9-24	0700
Michelle Gonzales	7.9.24	1725	J.M.	7-9-24	1725
J.M.	7-9-24	2345		7-10-24	0830
Relinquished by: (Signature)	Date	Time	Received by: (Signature)	Date	Time

Samples requiring thermal preservation must be received on ice the day they are sampled or received packed in ice at an avg temp above 0 but less than 6 °C on subsequent days.

Lab Use Only
Received on ice: Y / N
T1 T2 T3
AVG Temp °C 4

Sample Matrix: S - Soil, Sd - Solid, Sg - Sludge, A - Aqueous, O - Other _____

Container Type: g - glass, p - poly/plastic, ag - amber glass, v - VOA

Note: Samples are discarded 14 days after results are reported unless other arrangements are made. Hazardous samples will be returned to client or disposed of at the client expense. The report for the analysis of the above samples is applicable only to those samples received by the laboratory with this COC. The liability of the laboratory is limited to the amount paid for on the report.

envirotech

Envirotech Analytical Laboratory

Printed: 7/10/2024 2:54:27PM

Sample Receipt Checklist (SRC)

Instructions: Please take note of any NO checkmarks.
If we receive no response concerning these items within 24 hours of the date of this notice, all the samples will be analyzed as requested.

Client:	Vertex Resource Services Inc.	Date Received:	07/10/24 08:30	Work Order ID:	E407055
Phone:	(575) 748-0176	Date Logged In:	07/09/24 18:16	Logged In By:	Alexa Michaels
Email:	cdixon@vertex.ca	Due Date:	07/16/24 17:00 (4 day TAT)		

Chain of Custody (COC)

1. Does the sample ID match the COC?	Yes	
2. Does the number of samples per sampling site location match the COC	Yes	
3. Were samples dropped off by client or carrier?	Yes	Carrier: Courier
4. Was the COC complete, i.e., signatures, dates/times, requested analyses?	Yes	
5. Were all samples received within holding time? Note: Analysis, such as pH which should be conducted in the field, i.e, 15 minute hold time, are not included in this disucssion.	Yes	

Sample Turn Around Time (TAT)

6. Did the COC indicate standard TAT, or Expedited TAT?	Yes	

Sample Cooler

7. Was a sample cooler received?	Yes	
8. If yes, was cooler received in good condition?	Yes	
9. Was the sample(s) received intact, i.e., not broken?	Yes	
10. Were custody/security seals present?	No	
11. If yes, were custody/security seals intact?	NA	
12. Was the sample received on ice? If yes, the recorded temp is 4°C, i.e., 6°±2°C Note: Thermal preservation is not required, if samples are received w/i 15 minutes of sampling	Yes	
13. If no visible ice, record the temperature. Actual sample temperature: 4°C		

Sample Container

14. Are aqueous VOC samples present?	No	
15. Are VOC samples collected in VOA Vials?	NA	
16. Is the head space less than 6-8 mm (pea sized or less)?	NA	
17. Was a trip blank (TB) included for VOC analyses?	NA	
18. Are non-VOC samples collected in the correct containers?	Yes	
19. Is the appropriate volume/weight or number of sample containers collected?	Yes	

Field Label

20. Were field sample labels filled out with the minimum information:		
Sample ID?	Yes	
Date/Time Collected?	Yes	
Collectors name?	Yes	

Sample Preservation

21. Does the COC or field labels indicate the samples were preserved?	No	
22. Are sample(s) correctly preserved?	NA	
24. Is lab filteration required and/or requested for dissolved metals?	No	

Multiphase Sample Matrix

26. Does the sample have more than one phase, i.e., multiphase?	No	
27. If yes, does the COC specify which phase(s) is to be analyzed?	NA	

Subcontract Laboratory

28. Are samples required to get sent to a subcontract laboratory?	No	
29. Was a subcontract laboratory specified by the client and if so who?	NA	Subcontract Lab: NA

Comments/Resolution

Bettis 20 State Com #002H has been separated into multiple WO due to high sample volume. WO are E407055 and E407056.

Client Instruction

Signature of client authorizing changes to the COC or sample disposition.

Date

envirotech Inc.

APPENDIX F - R.T. Hicks and Cura Emergency Services Reports

CURA EMERGENCY SERVICES

ENVIRONMENTAL

The Leader in Nationwide 24-Hour Emergency Management
For Emergency Only: 1-800-579-2872

January 26, 2017

Sent Via Email: Jamie.Keyes@state.nm.us

Mr. Jamie Keyes
New Mexico - Oil Conservation Division District 1
1625 N. French Drive
Hobbs, New Mexico 88240

RECEIVED
By Olivia Yu at 1:13 pm, Feb 06, 2017

RE: CRUDE OIL RELEASE- INITIAL REPORT

1RP-4578

FRONTIER TANK LINES

BETTIS 20 STATE COM NO. 002H
HIGHWAY 128, MM 128; 32°11'47.195" N, 103°35'19.732" W
CARLSBAD, LEA COUNTY, NEW MEXICO

CES PROJECT NO.	**EM170063T3**
FEDERATED CLAIM NO.	**374720-4**
API NO.	**30-025-41436**
ULSTR NO.	**P-20-24S-33E**
FRONTIER TRACTOR NO.	**459112**
FRONTIER TANKER NO.	**6721**

Mr. Keyes:

Enclosed is a copy of the initial Cura Emergency Services, L.C. (CES) Hazardous Materials Incident Report for the unauthorized crude oil release that occurred on January 16, 2017, at the above-referenced location. A final report will be submitted to your office in the near future.

Frontier Tank Lines and Cura Emergency Services, L.C. appreciates your assistance during this incident. Should any questions regarding this project arise, please feel free to contact me at (972) 378-7794.

Respectfully,
Cura Emergency Services, L.C.
Jared W. Melton
Jared W. Melton
Incident Manager

Attachments: *CES Hazardous Materials Incident Report*
Initial C-141 Form (previously submitted by Murchison Oil & Gas, Inc.)

CC: *Federated Insurance*
Mr. Kurt Konold *kekonold@fedins.com*
Mr. Tom Docksey *tjdocksey@fedins.com*

CC: *Frontier Tank Lines*
Mr. Fred Mundt *fredm@frontiertanklines.com*
Mr. Ed Martinez *edmartinez@frontiertanklines.com*

Cura Emergency Services, L.C.
6205 Chapel Hill Boulevard,Suite 100
Plano,Texas 75093
Ph. (972) 378-7333 Fax (972) 378-6789

Hazardous Materials Incident Report

Client File No : _____

A. Incident Information :

Incident Manager : Jared Melton

Project No. : EM170063T3 - JWM **Project Name :** Federated Insurance - Carlsbad - NM

Date of Loss : 1/16/2017 **Time of Loss :** 08:30:PM CST

Date Reported : 1/16/2017 **Time of Reported :** 09:00:PM CST

Person Reporting : Fred Mundt **Phone :** _____

Driver : Russell **Tractor # :** 459112 **Trailer # :** 6721

Incident Location Contact : _____ **Phone :** _____

Incident Location : Highway 128, MM 28; 32°11'47.195" N, 103°35'19.732" W

City : Carlsbad **County :** Lea **State :** NM

Incident Description :

On January 16, 2017, at approximately 8:30 p.m. CST, a driver with Frontier Tank Lines (FTL) was dispensing crude oil from an above-ground storage tank (AST) into a tractor-tanker when the tanker's H2S monitor alarmed. As the driver was assessing the tanker's H2S alarm, the tractor-tanker overfilled with crude oil. As a result, approximately 427 gallons of crude oil was released to the soil surfaces below, mixing with rain water on the soils surface.

Surface Affected : Soil / grass

Water Affected : Surface

Sensitive Report Impact :

Surface Water

Incident Report (Cont.)

Project Number : EM170063T3 - JWM

B . Chemical Information

Client File No :

		Reportable Qnty	Reported Volume	Actual* Volume	Gals /Lbs
Chemical :	Crude Oil (unrefined)	220	427	427	Gals
Chemical :					

C . Health & Safety :

Site Monitoring (If Applicable) :

Vapor Concentration (ppm) : unmetered

Available Oxygen (%) : ambient

LEL Exceeded

PPE :

Level A **Level C**

Level B **X Level D**

MSDS Attached

Site Special Precations :

No special precautions were noted for this site.

Site Condition :

No complicating conditions existed at the site during cleanup operations.

Injuries :

Explain :

No injuries or fatalities that were a direct result of the released material were reported.

D . Emergency Response :

Initial Emergency Actions :

On January 16, 2017, at approximately 9:00 p.m. CST, a representative with FTL, Mr. Fred Mundt, retained Cura Emergency Services, L.C. (CES) to manage the environmental remediation of the site on their behalf. Based on the available information, the CES incident manager dispatched a crew from Enviro Clean (EC) to assess and remediate the site as necessary.

*Unless specified in the Incident Description section, the "Actual Volume" is an estimate, based on the observations of the CES subcontractor

Incident Report (Cont.) **Project Number :** EM170063T3 - JWM

E . Corrective Actions : **Client File No :**

Corrective Actions :

On January 17, 2017, at approximately 12:40 a.m. CST, a crew from EC arrived on-site. Following a site assessment, EC personnel noted approximately 427 gallons of crude oil released to a soil surface, mixed with rain water. EC personnel deployed absorbent boom to contain the release. EC personnel then utilized a vacuum truck to collect approximately 1,200 gallons of crude oil mixed with rain water from the soils surface. EC personnel secured the site and scheduled excavation later in the day pending line locates.

On January 17, 2017, at approximately 1:30 p.m. CST, a crew from EC arrived on-site. EC personnel utilized machinery to excavate the crude oil-impacted soil surfaces vertically and laterally until no visual or olfactory evidence of crude oil remained on-site. All crude oil-impacted soil was then staged on-site. EC personnel secured the site and scheduled collection of the crude oil-impacted soil the following day.

On January 18, 2017, at approximately 8:30 a.m. CST, a crew from EC arrived on-site. EC personnel collected the staged crude oil-impacted soil surfaces in six (6) dump trucks for transport and disposal. EC personnel then backfilled the excavated area, returning the site to near pre-release conditions. EC personnel secured the site and demobilized.

F . Responsible Party Information :

Responsible Party : Frontier Tank Lines **RP Ref # :**

Contact : Fred Mundt **Contact :** **X Send Report**

Address : 6850 TPC Dr. Ste 200 **Phone :** (469)223-4437

City : McKinney **State :** TX **Zip :** 75070 **Fax :**

Incident Report (Cont.)

Project Number : EM170063T3 - JWM

G . Regulatory Agencies

Client File No :

X **Reportable Spill (Check if yes)**

Explain : Pursuant to New Mexico state regulations, unrefined oil releases involved in energy and exploration in excess of 220 gallons (5 barrels) but below 1,100 gallons (25 barrels) are considered a "minor release" requiring only written notification.

New Mexico- Oil Conservation Division - Dist. 1

Contact : **Contact Date :**

Address : 1625 N. French Drive **Phone:** (505) 393-6161 **Contact Time:**

City : Hobbs **State :** NM **Zip:** 88240- **Fax :** 88240-

X **Report Required** **Confirmation No :**

Note :

Incident Report (Cont.)

Project Number : EM170063T3 - JWM

H . Disposal Facilities

Client File No :

Waste Facility : Waste Disposal Pending

Contact Person:

Address :

City : **State :** **Zip:**

Phone : **Ext :** **Fax:**

E-Mail : **Website :**

Disposal Date : **Amount :** **Disposal Document Attached**

Incident Report (Cont.)

Project Number : EM170063T3 - JWM

I . Contractors

Client File No :

Company : Enviro Clean

Contact Person: Jason Childress

Address : 2405 E. County Road 123 **Phone :** (432)301-0209

City : Midland **State :** TX **Zip:** 79706 **Fax:**

E-Mail :

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Murchison Oil & Gas, Inc.	Contact	Greg Boans
Address	7250 Dallas Parkway, Suite 1400, Plano, TX 75024	Telephone No.	(575) 361-4962
Facility Name	Bettis 20 State Com 2H	Facility Type	Production Facility

Surface Owner	State of New Mexico	Mineral Owner		API No.	30-025-41436

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	20	24S	33E	200	South	940	East	Lea

Latitude 32° 11' 47.195" N **Longitude** 103° 35'19.732" W

NATURE OF RELEASE

Type of Release: Oil	Volume of Release: 9.7 bbls	Volume Recovered: 0 bbls
Source of Release: Tanker truck	Date and Hour of Occurrence: 1/16/2017, 7:30 PM	Date and Hour of Discovery: 1/16/2017, 7:30 PM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

n/a

Describe Cause of Problem and Remedial Action Taken.*

Oil was released onto the location pad during tanker truck loading due to driver inattention. Vacuum truck removed standing fluid and affected pad and subsoils were removed.

Describe Area Affected and Cleanup Action Taken.*

Oil was released onto approximately 400 ft^2 of the location pad. Penetration was minimal and the affected material from the surface of the location was removed and replaced.

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

Signature:	OIL CONSERVATION DIVISION	
Printed Name: Greg Boans	Approved by Environmental Specialist:	
Title: Production Superintendent	Approval Date:	Expiration Date:
E-mail Address: gboans@jdmii.com	Conditions of Approval:	Attached ☐
Date: 1/23/2017 Phone: (575) 361-4962		

* Attach Additional Sheets If Necessary

R. T. HICKS CONSULTANTS, LTD.

901 Rio Grande Blvd NW ▲ Suite F-142 ▲ Albuquerque, NM 87104 ▲ 505.266.5004 ▲ Fax: 505.266.0745

January 23, 2017

Mr. Jamie Keyes
NMOCD District 1
1625 N. French Drive
Hobbs, New Mexico 88240
Via Email to Jamie.Keyes@state.nm.us

RE: Murchison – Bettis 20 State Com 2H Release, initial C-141 form
Unit P, Section 20, T24S, R33E, Lea County, API# 30-025-41436

Dear Mr. Keyes:

On behalf of Murchison Oil and Gas, R.T Hicks Consultants submits the attached initial C-141 form for the above-referenced release. At 7:30 p.m. on January 16, a release occurred during the loading of a tanker truck at the above-referenced battery. The cause of the release was driver inattention. Approximately 9.7 barrels of oil were released onto the location pad, affecting approximately 400 ft^2 of the surface. A vacuum truck was immediately dispatched and recovered remaining standing fluid.

1/17/2017 Excavating impacted soil

The swift response assured minimal penetration. The next day the affected material (caliche pad and subsoils) was excavated and removed from the location. A final C-141 form will be submitted to the District with documentation of the final deposition of the excavated material from this release along with current photographs. Please contact me with any questions regarding this submission.

Best regards,

R.T. Hicks Consultants

Kristin Pope

Kristin Pope

Copy: Murchison Oil & Gas, State Land Office (Amber Groves)
Enclosure: initial C-141 form

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

State of New Mexico
Energy Minerals and Natural Resources

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

Form C-141
Revised August 8, 2011

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

Release Notification and Corrective Action

OPERATOR

☒ Initial Report ☐ Final Report

Name of Company	Murchison Oil & Gas, Inc.	Contact	Greg Boans
Address	7250 Dallas Parkway, Suite 1400, Plano, TX 75024	Telephone No.	(575) 361-4962
Facility Name	Bettis 20 State Com 2H	Facility Type	Production Facility

Surface Owner	State of New Mexico	Mineral Owner		API No.	30-025-41436

LOCATION OF RELEASE

Unit Letter	Section	Township	Range	Feet from the	North/South Line	Feet from the	East/West Line	County
P	20	24S	33E	200	South	940	East	Lea

Latitude 32° 11' 47.195" N **Longitude** 103° 35'19.732" W

32.1964455,-103.5888443

NATURE OF RELEASE

10 bbls oil

29 bbls oil + rainwater

Type of Release: Oil	Volume of Release: 9.7 bbls	Volume Recovered: 0 bbls
Source of Release: Tanker truck	Date and Hour of Occurrence: 1/16/2017, 7:30 PM	Date and Hour of Discovery: 1/16/2017, 7:30 PM
Was Immediate Notice Given? ☐ Yes ☐ No ☒ Not Required	If YES, To Whom?	
By Whom?	Date and Hour	
Was a Watercourse Reached? ☐ Yes ☒ No	If YES, Volume Impacting the Watercourse.	

If a Watercourse was Impacted, Describe Fully.*

n/a

RECEIVED
By Olivia Yu at 1:14 pm, Feb 06, 2017

Describe Cause of Problem and Remedial Action Taken.*

Oil was released onto the location pad during tanker truck loading due to driver inattention. Vacuum truck removed standing fluid and affected pad and subsoils were removed.

Describe Area Affected and Cleanup Action Taken.*

Oil was released onto approximately 400 ft^2 of the location pad. Penetration was minimal and the affected material from the surface of the location was removed and replaced.

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

Signature:

Printed Name: Greg Boans

Title: Production Superintendent

E-mail Address: gboans@jdmii.com

Date: 1/23/2017 Phone: (575) 361-4962

OIL CONSERVATION DIVISION

Approved by Environmental Specialist:

Approval Date: 02/06/2017 Expiration Date:

Conditions of Approval:

see attached directive

Attached ☑

* Attach Additional Sheets If Necessary

1RP-4578 nOY1703748127

pOY1703748868

Operator/Responsible Party,

The OCD has received the form C-141 you provided on _1/23/2017__ regarding an unauthorized release. The information contained on that form has been entered into our incident database and remediation case number __1R-_4578__ has been assigned. **Please refer to this case number in all future correspondence.**

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

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

Release characterization is the first phase of corrective action unless the release is ongoing or is of limited volume and all impacts can be immediately addressed. Proper and cost-effective remediation typically cannot occur without adequate characterization of the impacts of any release. Furthermore, the Division has the ability to impose reasonable conditions upon the efforts it oversees. **As such, the Division is requiring a workplan for the characterization of impacts associated with this release be submitted to the OCD District _1_ office in __Hobbs____ on or before _3/6/2017_. If and when the release characterization workplan is approved, there will be an associated deadline for submittal of the resultant investigation report. Modest extensions of time to these deadlines may be granted, but only with acceptable justification.**

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

● Horizontal delineation of soil impacts in each of the four cardinal compass directions. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. This is not an exclusive list of potential contaminants. Analyzed parameters should be modified based on the nature of the released substance(s). Soil sampling must be both within the impacted area and beyond.

● Vertical delineation of soil impacts. Adsorbed soil contamination must be characterized for the following constituents using the associated laboratory methods: benzene, toluene, ethylbenzene, and total xylenes by either Method 8260 or 8021, total petroleum hydrocarbons by Method 8015 extended range (GRO+DRO+MRO; C_6 thru C_{36}), and for chloride by Method 300. As above, this is not an exclusive list of potential contaminants and can be modified. Vertical characterization samples should be taken at depth intervals no greater than five feet apart. Lithologic description of encountered soils must also be provided. At least ten vertical feet of soils with contaminant concentrations at or below these values must be demonstrated as existing above the water table.

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

● Composite sampling is not generally allowed.

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

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

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

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

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

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

Jim Griswold
OCD Environmental Bureau Chief
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
505-476-3465
jim.griswold@state.nm.us

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

QUESTIONS

Action 377006

QUESTIONS

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Prerequisites	
Incident ID (n#)	**nOY1703748127**
Incident Name	**NOY1703748127 BETTIS STATE COM #2 @ 30-025-41436**
Incident Type	**Oil Release**
Incident Status	**Remediation Closure Report Received**
Incident Well	**[30-025-41436] HYPERION STATE COM #002H**

Location of Release Source	
Please answer all the questions in this group.	
Site Name	Bettis State Com #2
Date Release Discovered	01/16/2017
Surface Owner	State

Incident Details	
Please answer all the questions in this group.	
Incident Type	Oil Release
Did this release result in a fire or is the result of a fire	No
Did this release result in any injuries	No
Has this release reached or does it have a reasonable probability of reaching a watercourse	No
Has this release endangered or does it have a reasonable probability of endangering public health	No
Has this release substantially damaged or will it substantially damage property or the environment	No
Is this release of a volume that is or may with reasonable probability be detrimental to fresh water	No

Nature and Volume of Release	
Material(s) released, please answer all that apply below. Any calculations or specific justifications for the volumes provided should be attached to the follow-up C-141 submission.	
Crude Oil Released (bbls) Details	Cause: Human Error | Truck | Crude Oil | Released: 29 BBL | Recovered: 10 BBL | Lost: 19 BBL.
Produced Water Released (bbls) Details	*Not answered.*
Is the concentration of chloride in the produced water >10,000 mg/l	*Not answered.*
Condensate Released (bbls) Details	*Not answered.*
Natural Gas Vented (Mcf) Details	*Not answered.*
Natural Gas Flared (Mcf) Details	*Not answered.*
Other Released Details	*Not answered.*
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	*Not answered.*

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

QUESTIONS (continued)

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Nature and Volume of Release (continued)	
Is this a gas only submission (i.e. only significant Mcf values reported)	**No, according to supplied volumes this does not appear to be a "gas only" report.**
Was this a major release as defined by Subsection A of 19.15.29.7 NMAC	**Yes**
Reasons why this would be considered a submission for a notification of a major release	**From paragraph A. "Major release" determine using:** **(1) an unauthorized release of a volume, excluding gases, of 25 barrels or more.**
With the implementation of the 19.15.27 NMAC (05/25/2021), venting and/or flaring of natural gas (i.e. gas only) are to be submitted on the C-129 form.	

Initial Response	
The responsible party must undertake the following actions immediately unless they could create a safety hazard that would result in injury.	
The source of the release has been stopped	True
The impacted area has been secured to protect human health and the environment	True
Released materials have been contained via the use of berms or dikes, absorbent pads, or other containment devices	True
All free liquids and recoverable materials have been removed and managed appropriately	True
If all the actions described above have not been undertaken, explain why	*Not answered.*
Per Paragraph (4) of Subsection B of 19.15.29.8 NMAC the responsible party may commence remediation immediately after discovery of a release. If remediation has begun, please prepare and attach a narrative of actions to date in the follow-up C-141 submission. If remedial efforts have been successfully completed or if the release occurred within a lined containment area (see Subparagraph (a) of Paragraph (5) of Subsection A of 19.15.29.11 NMAC), please prepare and attach all information needed for closure evaluation in the follow-up C-141 submission.	

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.

I hereby agree and sign off to the above statement	Name: Chance Dixon Title: Project Manager Email: cdixon@vertex.ca Date: 08/23/2024

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
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QUESTIONS (continued)

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Site Characterization	
Please answer all the questions in this group (only required when seeking remediation plan approval and beyond). 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 in feet below ground surface (ft bgs)	Between 100 and 500 (ft.)
What method was used to determine the depth to ground water	NM OSE iWaters Database Search
Did this release impact groundwater or surface water	No
What is the minimum distance, between the closest lateral extents of the release and the following surface areas:	
A continuously flowing watercourse or any other significant watercourse	Between 1 and 5 (mi.)
Any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)	Greater than 5 (mi.)
An occupied permanent residence, school, hospital, institution, or church	Between 1 and 5 (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Greater than 5 (mi.)
Any other fresh water well or spring	Greater than 5 (mi.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Greater than 5 (mi.)
A wetland	Between 1 and 5 (mi.)
A subsurface mine	Greater than 5 (mi.)
An (non-karst) unstable area	Greater than 5 (mi.)
Categorize the risk of this well / site being in a karst geology	Low
A 100-year floodplain	Greater than 5 (mi.)
Did the release impact areas not on an exploration, development, production, or storage site	No

Remediation Plan	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
Requesting a remediation plan approval with this submission	Yes
Attach a comprehensive report demonstrating the lateral and vertical extents of soil contamination associated with the release have been determined, pursuant to 19.15.29.11 NMAC and 19.15.29.13 NMAC.	
Have the lateral and vertical extents of contamination been fully delineated	Yes
Was this release entirely contained within a lined containment area	No
Soil Contamination Sampling: (Provide the highest observable value for each, in milligrams per kilograms.)	
Chloride (EPA 300.0 or SM4500 Cl B)	131
TPH (GRO+DRO+MRO) (EPA SW-846 Method 8015M)	0
GRO+DRO (EPA SW-846 Method 8015M)	0
BTEX (EPA SW-846 Method 8021B or 8260B)	0
Benzene (EPA SW-846 Method 8021B or 8260B)	0
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
On what estimated date will the remediation commence	01/18/2017
On what date will (or did) the final sampling or liner inspection occur	07/05/2024
On what date will (or was) the remediation complete(d)	01/18/2017
What is the estimated surface area (in square feet) that will be reclaimed	2000
What is the estimated volume (in cubic yards) that will be reclaimed	84
What is the estimated surface area (in square feet) that will be remediated	2000
What is the estimated volume (in cubic yards) that will be remediated	84
These estimated dates and measurements are recognized to be the best guess or calculation at the time of submission and may (be) change(d) over time as more remediation efforts are completed.	
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Remediation Plan (continued)	
Please answer all the questions that apply or are indicated. This information must be provided to the appropriate district office no later than 90 days after the release discovery date.	
This remediation will (or is expected to) utilize the following processes to remediate / reduce contaminants:	
(Select all answers below that apply.)	
(Ex Situ) Excavation and **off-site** disposal (i.e. dig and haul, hydrovac, etc.)	Yes
Which OCD approved facility will be used for **off-site** disposal	HALFWAY DISPOSAL AND LANDFILL [fEEM0112334510]
OR which OCD approved well (API) will be used for **off-site** disposal	*Not answered.*
OR is the **off-site** disposal site, to be used, out-of-state	*Not answered.*
OR is the **off-site** disposal site, to be used, an NMED facility	*Not answered.*
(Ex Situ) Excavation and **on-site** remediation (i.e. On-Site Land Farms)	*Not answered.*
(In Situ) Soil Vapor Extraction	*Not answered.*
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	*Not answered.*
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	*Not answered.*
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	*Not answered.*
Ground Water Abatement pursuant to 19.15.30 NMAC	*Not answered.*
OTHER (Non-listed remedial process)	*Not answered.*
Per Subsection B of 19.15.29.11 NMAC unless the site characterization report includes completed efforts at remediation, the report must include a proposed remediation plan in accordance with 19.15.29.12 NMAC, which includes the anticipated timelines for beginning and completing the remediation.	
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.	
I hereby agree and sign off to the above statement	Name: Chance Dixon Title: Project Manager Email: cdixon@vertex.ca Date: 08/23/2024
The OCD recognizes that proposed remediation measures may have to be minimally adjusted in accordance with the physical realities encountered during remediation. If the responsible party has any need to significantly deviate from the remediation plan proposed, then it should consult with the division to determine if another remediation plan submission is required.	

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QUESTIONS (continued)

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Deferral Requests Only	
Only answer the questions in this group if seeking a deferral upon approval this submission. Each of the following items must be confirmed as part of any request for deferral of remediation.	
Requesting a deferral of the remediation closure due date with the approval of this submission	No

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QUESTIONS (continued)

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	**360595**
Sampling date pursuant to Subparagraph (a) of Paragraph (1) of Subsection D of 19.15.29.12 NMAC	**07/06/2024**
What was the (estimated) number of samples that were to be gathered	**40**
What was the sampling surface area in square feet	**3000**

Remediation Closure Request	
Only answer the questions in this group if seeking remediation closure for this release because all remediation steps have been completed.	
Requesting a remediation closure approval with this submission	Yes
Have the lateral and vertical extents of contamination been fully delineated	**Yes**
Was this release entirely contained within a lined containment area	**No**
All areas reasonably needed for production or subsequent drilling operations have been stabilized, returned to the sites existing grade, and have a soil cover that prevents ponding of water, minimizing dust and erosion	Yes
What was the total surface area (in square feet) remediated	2000
What was the total volume (cubic yards) remediated	84
All areas not reasonably needed for production or subsequent drilling operations have been reclaimed to contain a minimum of four feet of non-waste contain earthen material with concentrations less than 600 mg/kg chlorides, 100 mg/kg TPH, 50 mg/kg BTEX, and 10 mg/kg Benzene	Yes
What was the total surface area (in square feet) reclaimed	2000
What was the total volume (in cubic yards) reclaimed	84
Summarize any additional remediation activities not included by answers (above)	Release area was scraped shortly after the release occurred. Site had not been assessed with any analytical data until it was assessed by Vertex on 7/4/2024. No exceeded impact was discovered from the surface to four feet bgs. Therefore, a variance for the remediation to be closed based on delineation is being requested.

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 (in .pdf format) 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.

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.

I hereby agree and sign off to the above statement	Name: Chance Dixon Title: Project Manager Email: cdixon@vertex.ca Date: 08/23/2024

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QUESTIONS (continued)

Operator: TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	OGRID: 372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

QUESTIONS

Reclamation Report	
Only answer the questions in this group if all reclamation steps have been completed.	
Requesting a reclamation approval with this submission	No

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CONDITIONS

Operator:	OGRID:
TAP ROCK OPERATING, LLC 523 Park Point Drive Golden, CO 80401	372043
	Action Number: 377006
	Action Type: [C-141] Remediation Closure Request C-141 (C-141-v-Closure)

CONDITIONS

Created By	Condition	Condition Date
bhall	Remediation closure approved.	8/26/2024
bhall	A reclamation report will not be accepted until reclamation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	8/26/2024
bhall	The reclamation report will need to include: Executive Summary of the reclamation activities; Scaled Site Map including sampling locations; Analytical results including, but not limited to, results showing that any remaining impacts meet the reclamation standards and results to prove the backfill is non-waste containing; At least one (1) representative 5-point composite sample will need to be collected from the backfill material that will be used for the reclamation of the top four feet of the excavation. OCD reserves the right to request additional sampling if needed; pictures of the backfilled areas showing that the area is back, as nearly as practical, to the original condition or the final land use and maintain those areas to control dust and minimize erosion to the extent practical; pictures of the top layer, which is either the background thickness of topsoil or one foot of suitable material to establish vegetation at the site, whichever is greater; and a revegetation plan.	8/26/2024
bhall	A revegetation report will not be accepted until revegetation of the release area, including areas reasonably needed for production or drilling activities, is complete and meet the requirements of 19.15.29.13 NMAC. Areas not reasonably needed for production or drilling activities will still need to be reclaimed and revegetated as early as practicable.	8/26/2024
bhall	All revegetation activities will need to be documented and included in the revegetation report. The revegetation report will need to include: An executive summary of the revegetation activities including: Seed mix, Method of seeding, dates of when the release area was reseeded, information pertinent to inspections, information about any amendments added to the soil, information on how the vegetative cover established meets the life-form ratio of plus or minus fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds per 19.15.29.13 D.(3) NMAC, and any additional information; a scaled Site Map including area that was revegetated in square feet; and pictures of the revegetated areas during reseeding activities, inspections, and final pictures when revegetation is achieved.	8/26/2024
bhall	Per 19.15.29.13 E. NMAC, if a reclamation and revegetation report has been submitted to the surface owner, it may be used if the requirements of the surface owner provide equal or better protection of freshwater, human health, and the environment. A copy of the approval of the reclamation and revegetation report from the surface owner and a copy of the approved reclamation and revegetation report will need to be submitted to the OCD via the Permitting website.	8/26/2024