

BD P-4 EOL Corrective Action Plan

**UL "P", Sec. 4, T22S, R37E
32.416894°, -103.161316°
Lea County, New Mexico
nAPP2110241347**

December 20, 2023



PREPARED ON BEHALF OF

Rice Operating
Company
122 West Taylor
Hobbs, NM 88240

PREPARED BY

Tasman, Inc.
2620 W. Marland Blvd.
Hobbs, NM 88240



December 20, 2023

Rice Operating Company (ROC)
122 West Taylor
Hobbs, NM 88240

Attn: Katie Davis
Email: kjones@riceswd.com

Re: Corrective Action Plan (CAP) and Variance Request
BD P-4 EOL – BD SWD System
UL “P”, Section 4, Township 22 South, Range 37 East
Lea County, New Mexico
Rice Operating Company Project No. 1R426-06
Tasman Project No. 2251

Dear Ms. Davis,

Tasman, Inc. (Tasman) is pleased to submit this Corrective Action Plan for the above referenced site. Site assessment activities were executed in accordance with the New Mexico Oil Conservation Division (NMOCD) regulations concerning the delineation of releases of natural gas and natural gas condensate to the environment.

Tasman conducted assessment activities, identifying an approximately 15,162-square foot area that had been impacted. The area was then vertically and horizontally delineated through installation of soil borings. Based on laboratory analytical results from soil samples collected during sampling activities, impacted soil within the release area has been delineated to the applicable NMOCD Action Level. Additional project details are provided in the attached Corrective Action Plan.

Tasman appreciates the opportunity to provide environmental services to Rice Operating Company. Should you have any questions or require additional information, please do not hesitate to contact the undersigned.

Sincerely,
Tasman, Inc.

Brett Dennis
Senior Environmental Scientist
bdennis@tasman-geo.com

Kyle Norman
Regional Project Manager
knorman@tasman-geo.com

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1.0 INTRODUCTION

Tasman, Inc. (Tasman) is pleased to submit this Corrective Action Plan (CAP) for the BD P-4 EOL (site) on behalf of Rice Operating Company (ROC), documenting the results of field activities conducted in relation to the former P-4 EOL junction box.

ROC is the service provider (agent) for the BD SWD System and has no ownership of any portion of the pipeline, well, or facility. The system is owned by a consortium of oil producers, System Parties, who provide all operating capital on a percentage ownership/usage basis.

1.1 Site Description

The site is located in Unit Letter "P" of Section 4, Township 22 South, Range 37 East in Lea County, New Mexico on private property. The site location is illustrated on Figure 1.

1.2 Background and Previous Work

In 2003, ROC initiated work on the former P-4 EOL junction box. The site was delineated using a backhoe to form a 30x30x12-ft deep excavation. Collected soil samples were screened at regular intervals for hydrocarbons and chlorides. A four-wall composite soil sample, a bottom composite soil sample, and remediated soils sample were sent to a commercial laboratory for analysis. Laboratory analysis of the four-wall composite indicated a chloride concentration of 1,950 milligrams per kilogram (mg/kg) and a Gasoline Range Organics (GRO), Diesel Range Organics (DRO), and BTEX concentrations below the laboratory reported detection limits (RDLs). The bottom composite soil sample indicated a chloride concentration of 3,650 mg/kg, a GRO concentration below the laboratory RDL, a DRO concentration of 102 mg/kg, and BTEX concentration below the laboratory RDL. The remediated soils sample indicated a chloride concentration of 1,100 mg/kg, a GRO concentration below the laboratory RDL, a DRO concentration of 131 mg/kg, and BTEX concentration below the laboratory RDL. A 20-mil reinforced liner was installed at the bottom of the excavation to prevent vertical migration of any constituents of concern to groundwater. The excavation was then backfilled with the excavated soils, contoured to the surrounding area and the disturbed area was seeded with native vegetation. A new water-tight junction box was installed 40 feet west of the site.

2.0 SITE CHARACTERISTICS

2.1 Depth to Groundwater

Tasman reviewed available depth to groundwater information available through the New Mexico Office of the State Engineer (NMOSE) and United States Geologic Survey (USGS) for registered water wells near the site. Tasman identified the nearest registered water well as NMOSE POD CP 00422, located 0.18 miles (approximately 900 ft) southwest of the site. The depth to groundwater was measured at 93 feet below ground surface (bgs) in March 1967. POD CP 00255 was identified 0.29 miles from the site. Depth to groundwater was measured at 120 feet bgs in 1975. Figure 1 illustrates the location of the registered water wells within the vicinity of the site, and a summary of depth to groundwater information is provided as Appendix A.

2.2 Karst Potential & Subsurface Mines

Tasman utilized the publicly available karst potential map published by the Bureau of Land Management (BLM) Carlsbad Field Office (CFO) to determine the potential for encountering karst formations beneath the site. Review of the BLM CFO karst potential map indicates that the site is not located in an area of high potential to encounter karstic features.

Tasman utilized the USGS Mineral Resources database to determine that there are no subsurface mines beneath or in the vicinity of the site.

Areas of high/critical karst and subsurface mine locations are illustrated on Figure 2.

2.3 Distance to Nearest Potable Water Well

The nearest potable water well was identified as POD CP 00422, which is approximately 900 ft southwest of the former junction box. The next nearest well is identified as POD CP 00255, which is located 0.29 miles from the site. The location of POD CP 00422 and POD CP 00255 are shown on the attached Figure 1.

2.4 Distance to Nearest Surface Water

Tasman reviewed aerial imagery and the National Wetland Inventory Map, published by the U.S. Fish and Wildlife Service, for wetlands and surface water in the vicinity of the site. The nearest significant surface water was identified as Whalen Lake, located 20.5 miles from the site. One freshwater pond was identified 0.86 miles from the site. The location of the freshwater pond is illustrated on Figure 1 and Whalen Lake is illustrated on Figure 3.

2.5 100-year Floodplain

Review of flood map data published by the Federal Emergency Management Agency (FEMA) indicates the site is not located within a 100-year floodplain. A copy of the FEMA FIRMette Map can be found attached as Figure 4.

2.6 Residence, School, Hospital, or Institution

Review of aerial imagery did not show that the site is within 300 feet of an occupied permanent residence, school, hospital, or institution.

2.7 Proximity to Sensitive Receptors and Site Characteristics Summary

The table below denotes if the site is located within the minimum allowable distance from a sensitive receptor, as defined in New Mexico Administrative Code (NMAC) 19.15.29.

Site Characteristics Summary		
Approximate depth to groundwater:	~ 93 ft bgs	
Within an area of high karst potential?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within 300 ft. of any continuously flowing of significant watercourse?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within 200 ft. of any lakebed, sinkhole, or playa lake?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within 300 ft. of an occupied permanent residence, school, hospital, or institution?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within 500 ft. of a spring or private, domestic fresh water well?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within 1,000 ft. of any fresh water well?	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No
Within the incorporated municipal boundaries or within a municipal well field?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within 300 ft. of a wetland?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within the area overlying a subsurface mine?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within an unstable area?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Within a 100-year floodplain?	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No

3.0 REMEDIATION AND ASSESSMENT LEVELS

NMOCD assessment and cleanup levels for hydrocarbon and produced water releases are based on depth to groundwater and proximity to sensitive receptors as established in NMAC 19.15.29. NMOSE POD CP 00422 is located approximately 900 ft southwest of the former junction box. Upon review of the water well, it was determined the well is used on occasion by the landowner and has not been impacted by the former junction box. The prevailing groundwater gradient in this area is known to be generally flowing from the northwest to the southeast, and the water

well is not located down-gradient from the former junction. Further, there is non-ROC oil field activity located between the former junction box and the water well, suggesting the threat of any potential impact would be from the non-ROC facilities. Based on the distance and direction of the water well in relation to the former junction box and site characteristics described in Section 2.0, ROC requests the NMOCD Action Levels for a site with a depth to groundwater of greater than 50 feet but less than 100 feet bgs be utilized; these Action Levels are as follows:

Constituent	Action Level
Chloride	10,000 mg/kg
TPH (GRO+DRO+MRO)	2,500 mg/kg
TPH (GRO+DRO)	1,000 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

TPH – total petroleum hydrocarbons

DRO – diesel range organics

BTEX – benzene, toluene, ethylbenzene, total xylenes

GRO – gasoline range organics

MRO – motor/lube oil range organics

mg/kg – milligrams per kilogram

3.1 Reclamation Levels

NMAC 19.15.29.13(D) codifies, and the *Procedures for Implementation of the Spill Rule*, dated September 6, 2019, clarifies that the top four feet of the remediated area should be non-waste containing. Therefore, the NMOCD Reclamation Standards are applied to the top four feet of any area impacted by a release that is not located within an active production facility. NMOCD Reclamation Standards are as follows:

Constituent	Reclamation Standard
Chloride	600 mg/kg
TPH (GRO+DRO+MRO)	100 mg/kg
BTEX	50 mg/kg
Benzene	10 mg/kg

4.0 RELEASE ASSESSMENT

According to the Investigation and Characterization Plan (ICP), fourteen soil bores were drilled on August 27-28, 2018, June 28, 2019, November 14-15, 2019, and February 21, 2021 (Appendix B and C). Soil samples were collected at regular intervals and field screened for chloride and hydrocarbon using a photoionization detector (PID). Representative samples from each soil bore were sent to a commercial laboratory for analysis.

The attached Figures 5a-5c illustrate the location of soil bores and soil boring logs can be found in Appendix C.

4.1 Soil Sampling Procedures for Laboratory Analysis

The collection of soil samples for laboratory analysis was conducted in accordance with NMOCD criteria and generally approved industry standards. Collected soil samples were placed in laboratory provided containers, properly labeled, and preserved on ice pending delivery under a chain of custody form to Cardinal Laboratory in Hobbs, New Mexico.

4.2 Soil Analytical Methods

Each soil sample was analyzed using Environmental Protection Agency (EPA) or other NMOCD-approved methods. Laboratory analytical methods are as follows:

- Chloride – EPA Method SM4500.
- Total petroleum hydrocarbons (TPH) – gasoline, diesel, and motor/lube oil range organics (GRO+DRO+MRO) – EPA Method 8015M Extended.
- Benzene, toluene, ethylbenzene, and total xylenes (BTEX) – EPA Method 8021B.

4.3 Impact Area Assessment Data Evaluation

Laboratory results of the interior soil bores resulted in elevated concentrations of chloride, but concentrations decreased laterally as additional bores were installed. Laboratory analysis of the 15 ft and 30 ft samples collected from soil bore SB-14 indicated a chloride concentration of 1,230 mg/kg and 176 mg/kg, respectively. Laboratory analysis of the 10 ft and 25 ft samples collected from soil bore SB-11 indicated a chloride concentration of 752 mg/kg and 240 mg/kg, respectively. Laboratory analysis of the 15 ft and 30 ft samples collected from soil bore SB-10 indicated a chloride concentration of 1,260 mg/kg and 240 mg/kg. Field screening results indicated that the chloride concentrations in soil bore SB-8 were low throughout. Therefore, the 10 ft and 15 ft samples were selected for laboratory analysis to confirm field results. The 10 ft sample indicated a chloride concentration of 288 mg/kg and the 15 ft sample indicated a concentration of 128 mg/kg. Hydrocarbon (GRO/DRO/EXT DRO and BTEX) were below detectable limit throughout the site. At the completion of sampling activities, each soil bore was plugged with bentonite to ground surface.

Analytical results are summarized on Table 1 and laboratory analytical results are included as Appendix D.

5.0 PROPOSED REMEDIAL ACTIONS

Based on the collected soil data, the site has been delineated to the concentrations listed in Table 1 of 19.15.29.12 NMAC. To meet the reclamation levels for the top four ft, ROC proposes to excavate the site to dimensions of 93x80-ft to a depth of 4 ft bgs (Figure 6). The proposed excavation dimensions (93x80-ft) are nominal based on the laboratory analytical results of the sidewall soil samples.

ROC will collect a 5-point composite wall sample every approximately 100 lateral feet (400 sq ft). Samples will not be collected from the base of the excavation based on soil data collected from soil bore installation. Unimpacted soils (as determined by a composite soil sample) will be placed in the excavated area. Excavated soils will be evaluated for use as backfill (one sample per 50 cubic yards) and any soils that do not meet requirements (i.e. chloride concentrations above 600 mg/kg) will be properly disposed of at a NMOCD approved facility.

5.1 Variance Request

On September 11, 2023, ROC submitted the CAP to the NMOCD. On September 29, 2023, NMOCD responded, indicating ROC must treat the release with the NMOCD Action Levels of groundwater occurring within 1,000 feet of any freshwater well or spring. NMOCD also requested clarification of the variance request.

5.2 Variance Request Addendum

This Variance Request Addendum is being provided to formally request use of constituent values from Table I of NMAC part 19.15.29.12 for sites where groundwater is between 51 and 100 feet below the horizontal boundary of the site. Field personnel investigated the wells within the 1,000 feet radius of the site and determined NMOSE POD CP 00422, located approximately 900 ft southwest of the former junction box, is still in use by the landowner. This well is the closest water well to the site, as referenced in Section 2.1, and is surrounded by non-ROC oilfield activity. At least two non-ROC facilities are located between the former junction box and the water well. The former junction box has not impacted the water well and poses little threat of impact due to the distance and location of the water well. The prevailing groundwater gradient in this area is flowing from the northwest to the southeast, and the well is not located down-gradient of the former junction box. As such, ROC is requesting the water well (NMOSE POD CP 00422) be excluded from consideration.

ROC is requesting a variance in accordance with Section 14 of NMOCD Part 29. The variance

request is for requirements of Section D, Paragraph (1) of Section 12 of Part 29. Chloride concentrations collected from the former junction box site are below the limits outlined in Table 1 of 19.15.29.12 NMAC for a site with depth to groundwater between 51 ft and 100 ft bgs. However, samples collected from the surface to a depth of 5 ft bgs suggest some areas in the upper 4 ft may have concentrations >600 mg/kg. Therefore, ROC proposes to excavate a 93x80-ft area to depth of 4 ft bgs. Based on the proposed excavation dimensions and soil bore data, ROC is requesting to not collect a bottom composite sample. Chloride concentrations of soil samples collected from 5 ft bgs are well below the standard of 10,000 mg/kg. Approval of the variance will provide equal or better protection of fresh water, public health, and the environment.

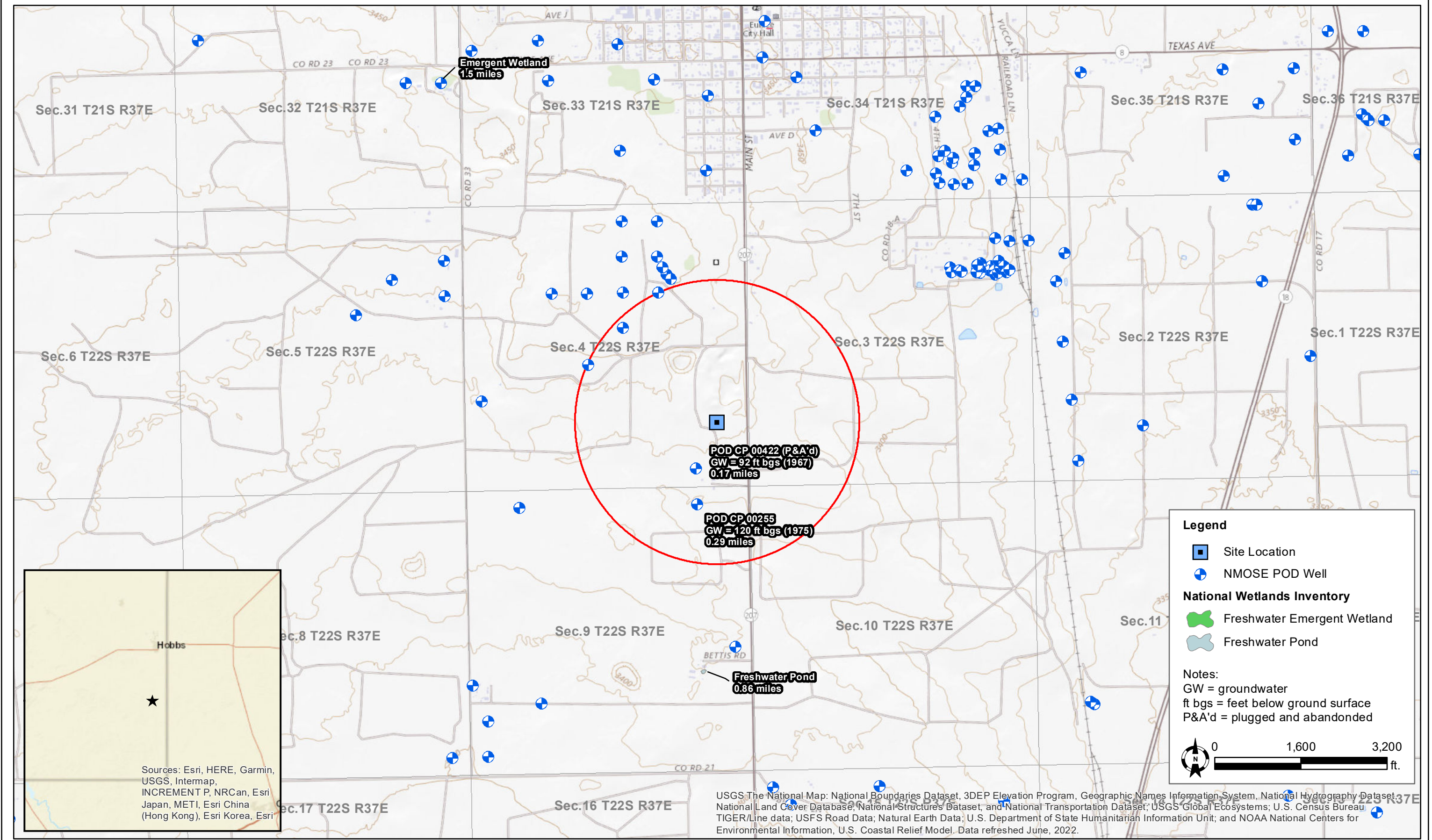
6.0 PROPOSED RECLAMATION AND REVEGETATION

Upon receipt of confirmation soil samples that indicate remediation objectives have been met, areas affected by the former junction box and associated remediation activities will be restored to the condition which existed prior to the release to the maximum extent possible. Excavated areas will be backfilled with non-impacted “like” material and contoured and/or compacted to achieve erosion control, stability, and preservation of surface water flow to the extent practicable.

ROC will seed the area using a native seed mixture during the next favorable growing season. The seed mix will be broadcast at a rate two times the suggested amount to ensure the greatest likelihood for sufficient germination. The seed will be “set” using mechanical means (e.g., screen or disc harrow) following the seeding event.

Figures

RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174



DATE:	November 2023
DESIGNED BY:	B. Dennis
DRAWN BY:	B. Dennis

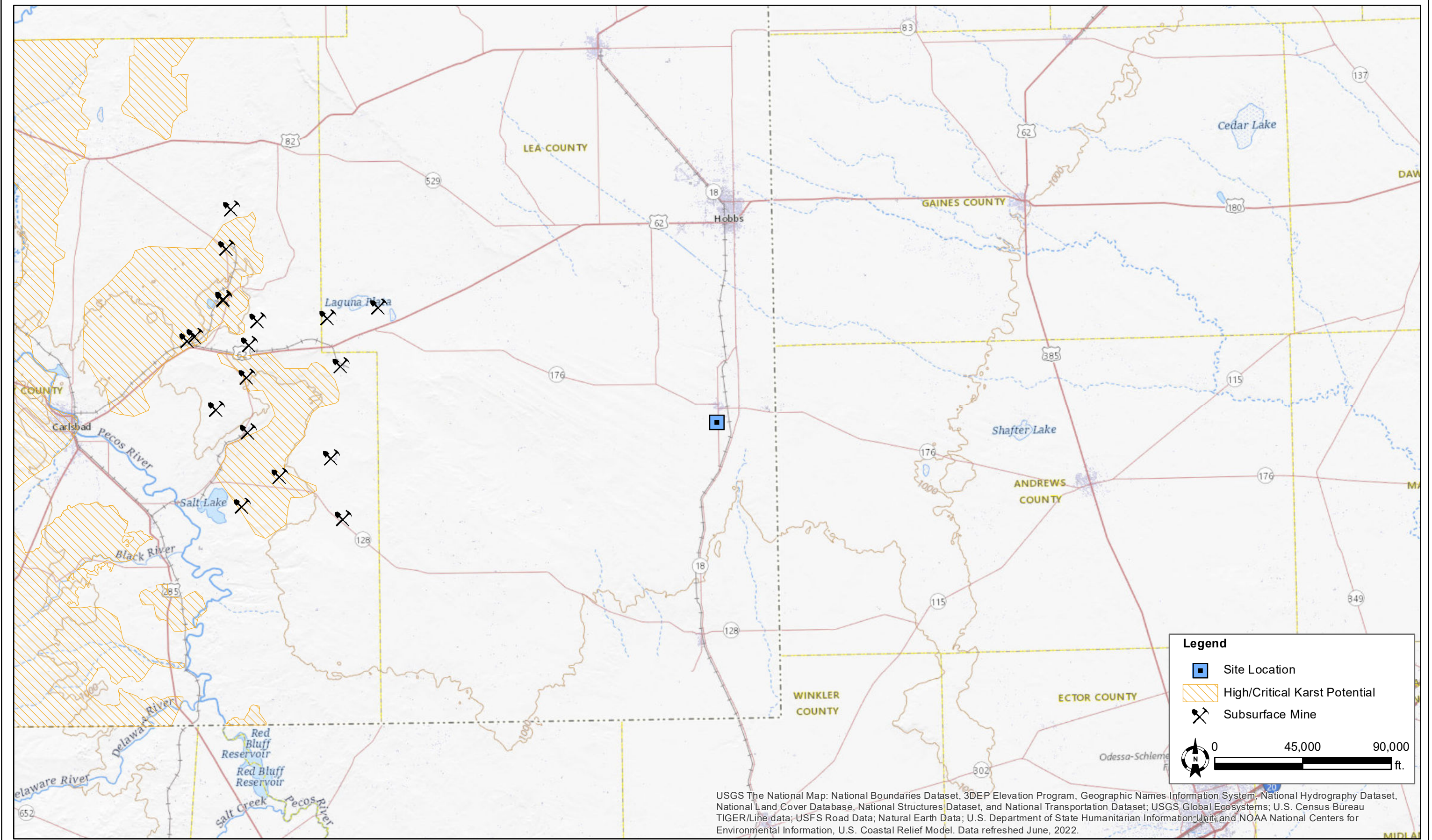


Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

RICE Operating Company
BD P-4 EOL - [Incident No]
UL "P", Sec. 4, T22S, R37E
Lea County, New Mexico

Site Location & Groundwater
Map

Figure
1



DATE:	November 2023
DESIGNED BY:	B. Dennis
DRAWN BY:	B. Dennis

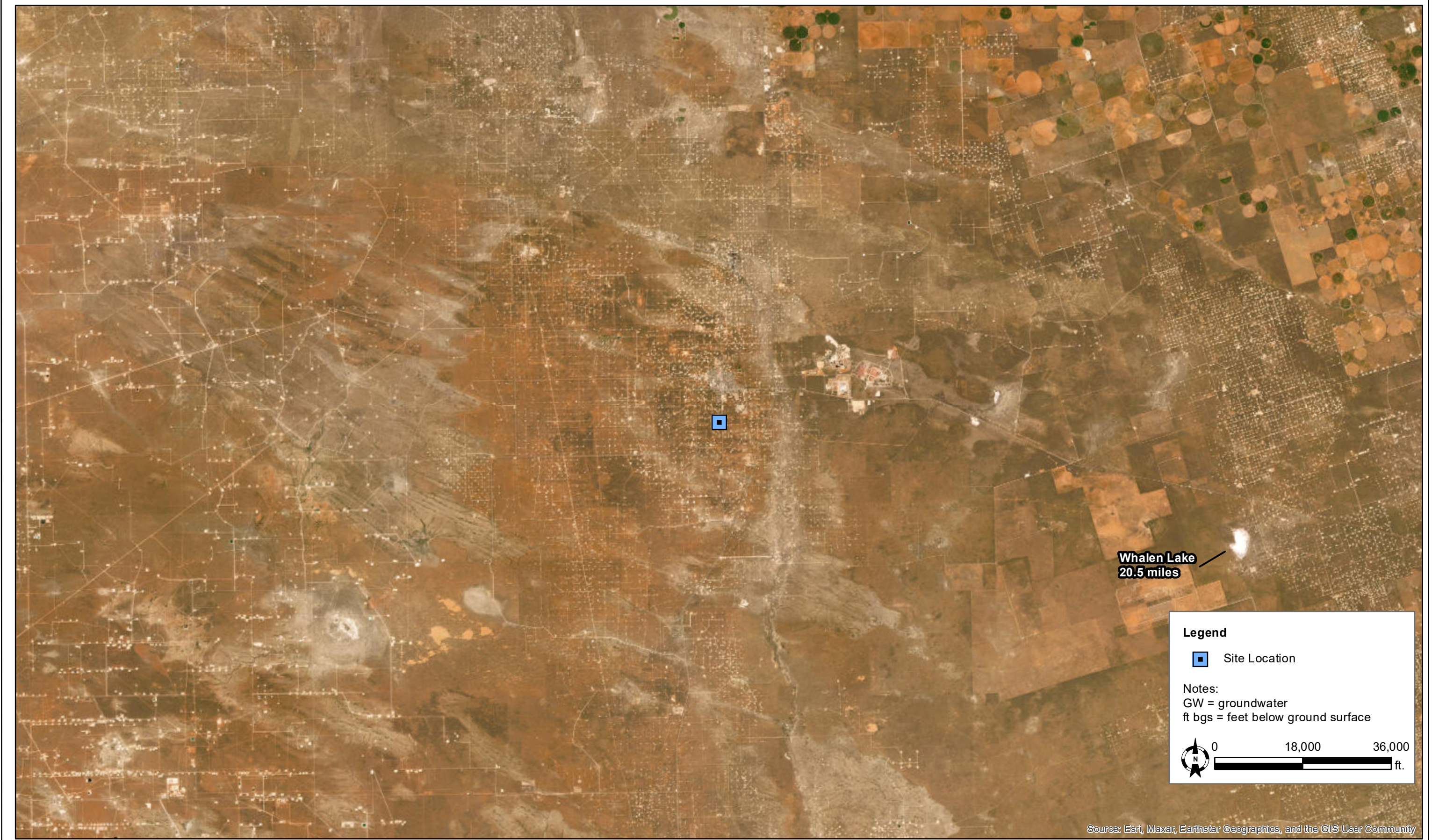


Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

Rice Operating Company
BD P-4 EOL - nAPP2110241347
UL "P", Sec. 4, T22S, R37E
Lea County, New Mexico

Karst Potential & Subsurface
Mine Map

Figure
2



DATE:	November 2023
DESIGNED BY:	B. Dennis
DRAWN BY:	B. Dennis



Tasman, Inc.
6855 W. 119th Ave
Broomfield, CO 80020

Rice Operating Company
BD P-4 EOL - nAPP2110241347
UL "P", Sec. 4, T22S, R37E
Lea County, New Mexico

Surface Water Map

Figure
3

National Flood Hazard Layer FIRMMette



103°9'59"W 32°25'16"N



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

1:6,000

103°9'22"W 32°24'46"N

Released to Imaging: 1/2/2024 10:20:16 AM

Basemap Imagery Source: USGS National Map 2023

Legend

Figure 4

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
OTHER AREAS OF FLOOD HAZARD		Regulatory Floodway
		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 Water Surface Elevation
		17.5 Coastal Transect
		Base Flood Elevation Line (BFE)
		Limit of Study
		Jurisdiction Boundary
		Coastal Transect Baseline
		Profile Baseline
MAP PANELS		Digital Data Available
		No Digital Data Available
		Unmapped



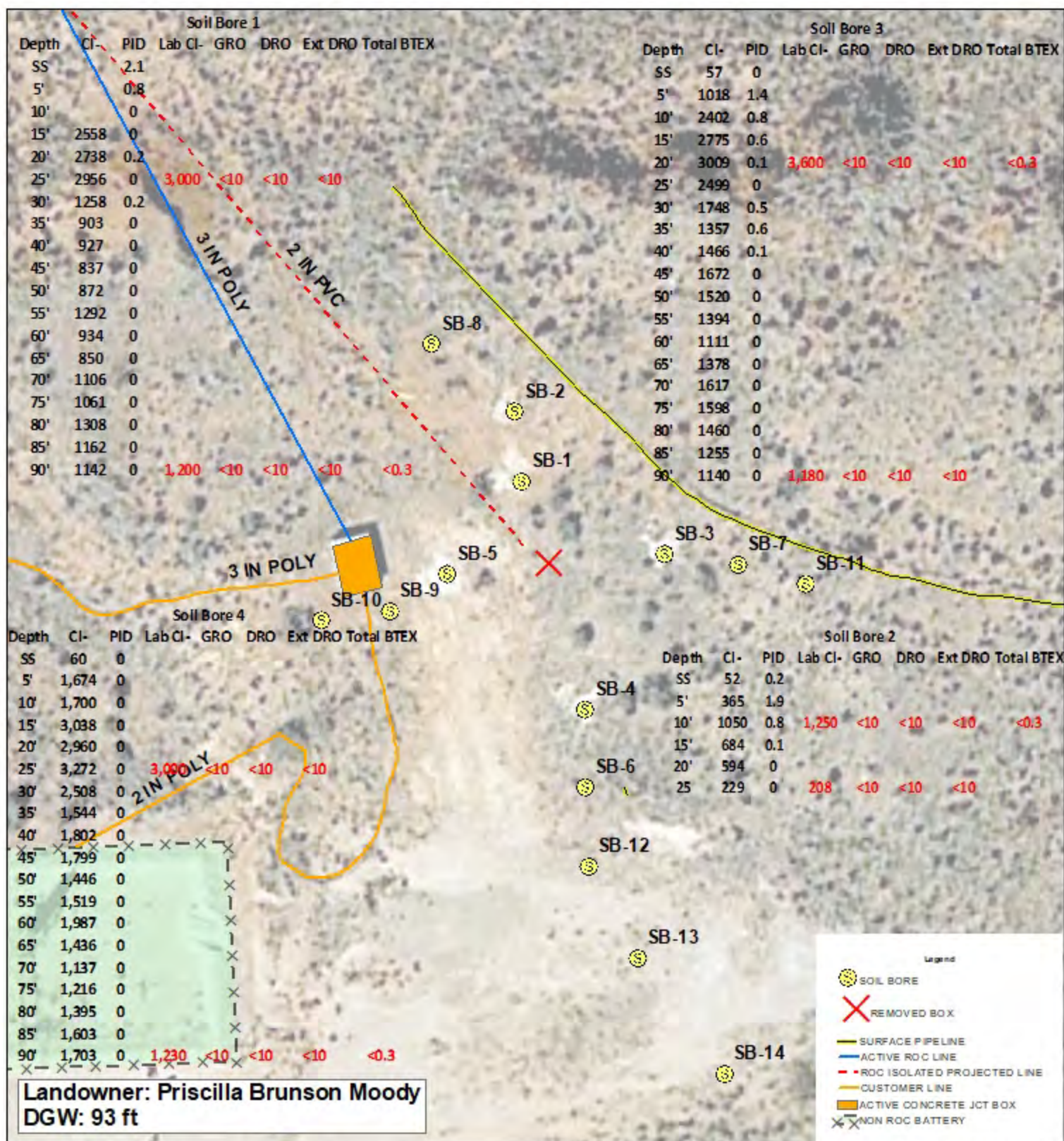
The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

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 **11/6/2023 at 12:35 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.

Figure 5a



BD
P-4 EOL
 1R426-06

UL P SECTION 4
 T-22-S R-37-E
 LEA COUNTY, NM

GPS: 32.416894 -103.161316
 NAD 83 STATE PLANE PROJECTION
 NM EAST ZONE

0 10 20
 Feet

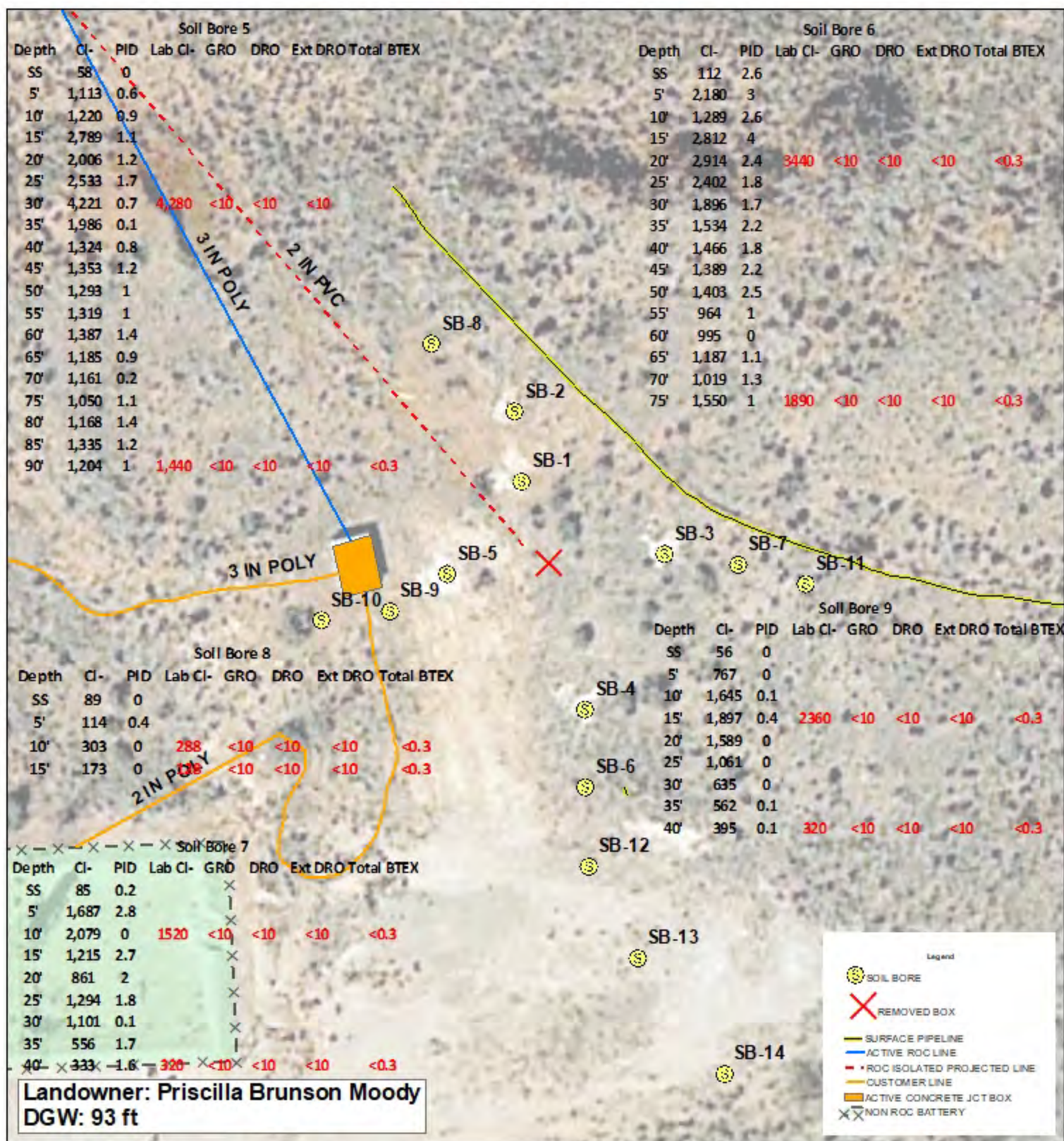
GPS date: 9/4/18, 7/1/19 TG
 Drawing date: 11/16/21
 Drafted by: T. Grieco



Figure 2

Soil Bore Installation 5-9

Figure 5b



BD
P-4 EOL
1R426-06

UL P SECTION 4
T-22-S R-37-E
LEA COUNTY, NM

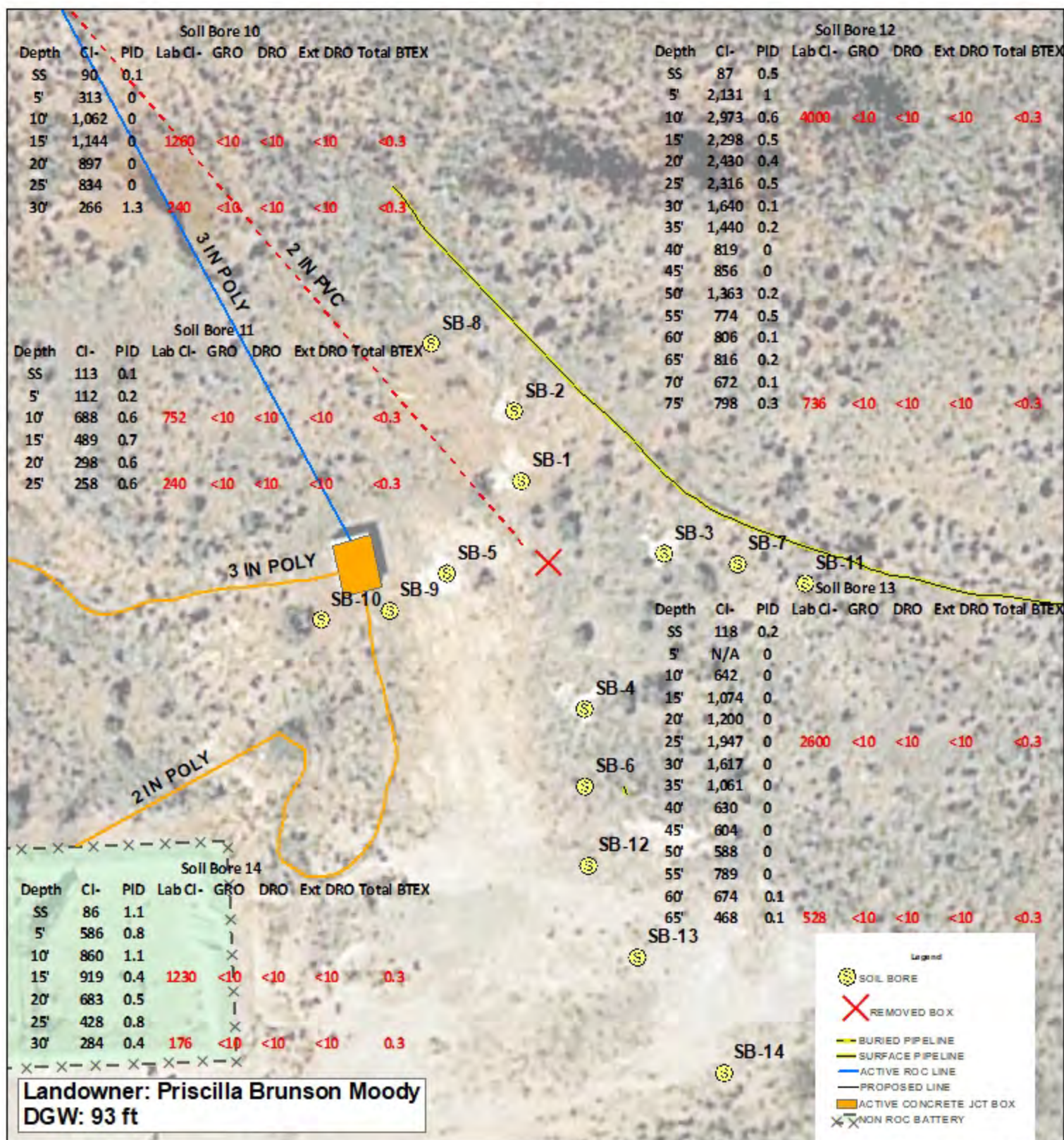
GPS: 32.416894 -103.161316
NAD 83 STATE PLANE PROJECTION
NM EAST ZONE

0 10 20
Feet

GPS date: 9/4/18, 7/1/19, 11/19/19 TG
Drawing date: 11/16/21
Drafted by: T. Grieco



Figure 5c



BD
P-4 EOL
1R426-06

UL P SECTION 4
T-22-S R-37-E
LEA COUNTY, NM

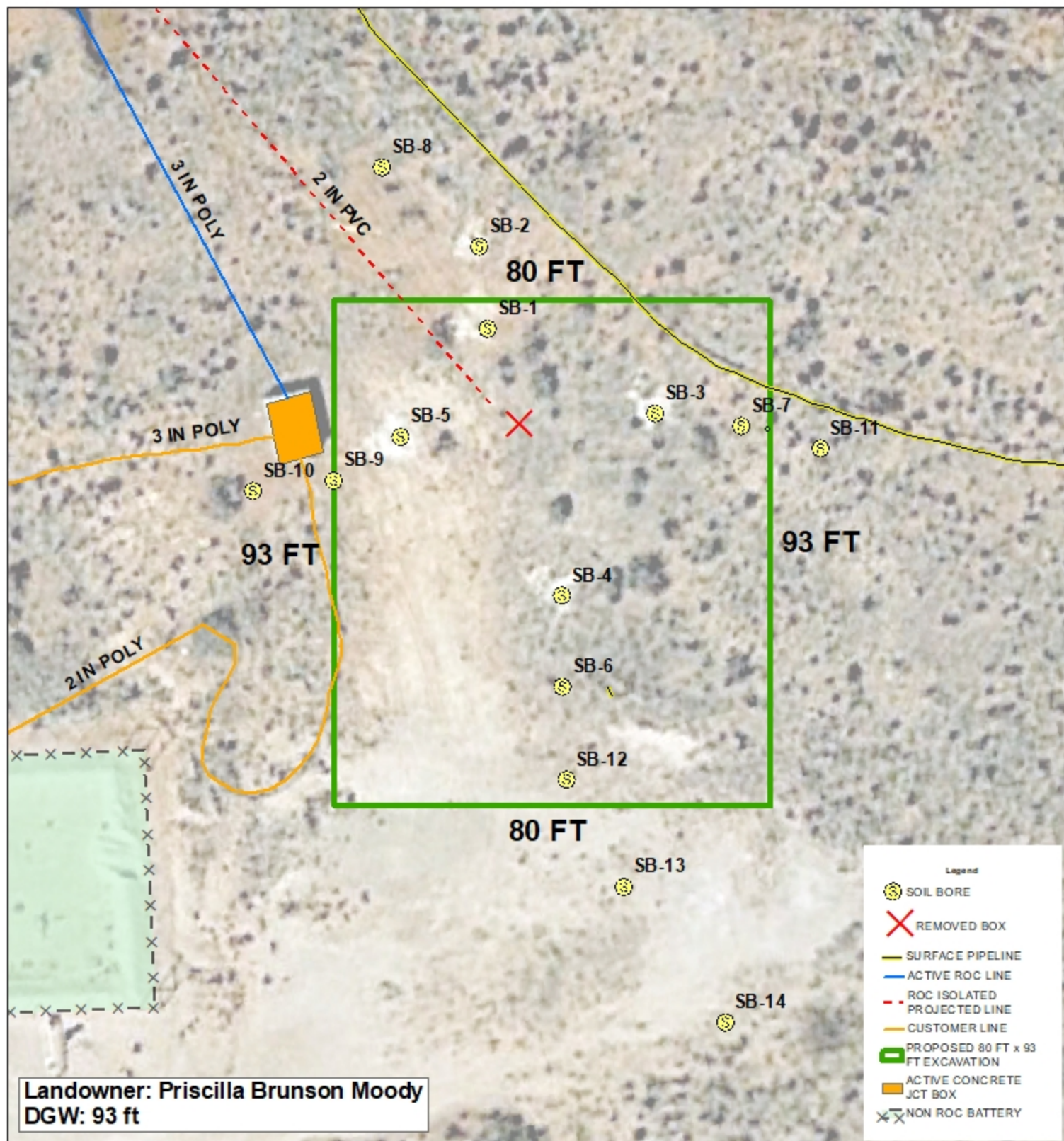
GPS: 32.416894 -103.161316
NAD 83 STATE PLANE PROJECTION
NM EAST ZONE

0 10 20
Feet

GPS date: 9/4/18, 7/1/19, 11/19/19 TG
Drawing date: 11/16/20
Drafted by: T. Grieco



Figure 6



BD
P-4 EOL
 1R426-06

UL P SECTION 4
 T-22-S R-37-E
 LEA COUNTY, NM

GPS: 32.416894 -103.161316
 NAD 83 STATE PLANE PROJECTION
 NM EAST ZONE

0 10 20
 Feet

GPS date: 9/4/18, 7/1/19, 11/19/19 TG
 Drawing date: 8/31/23
 Drafted by: T. Grieco



Table

RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174

TABLE 1 - SOIL ANALYTICAL SUMMARY - DELINEATION SOIL SAMPLES
Rice Operating Company
BD P-4 EOL

Sample ID	Sample Depth	Sample Date	Soil Status	PID (ppm)	Field Chloride (mg/kg)	Benzene (mg/kg)	Total BTEX ¹ (mg/kg)	TPH ² (mg/kg)				Chloride ³ (mg/kg)
								GRO	DRO	MRO	TOTAL	
SB-1	SS	8/27/2018	In-Situ	2.1	----	----	----	----	----	----	----	----
	5'		In-Situ	0.8	----	----	----	----	----	----	----	
	10'		In-Situ	0.0	----	----	----	----	----	----	----	
	15'		In-Situ	0.0	2,558	----	----	----	----	----	----	
	20'		In-Situ	0.2	2,738	----	----	----	----	----	----	
	25'		In-Situ	0.0	2,956	----	----	<10.0	<10.0	----	<10.0	3,000
	30'		In-Situ	0.2	1,258	----	----	----	----	----	----	----
	35'		In-Situ	0.0	903	----	----	----	----	----	----	----
	40'		In-Situ	0.0	927	----	----	----	----	----	----	----
	45'		In-Situ	0.0	837	----	----	----	----	----	----	----
	50'		In-Situ	0.0	872	----	----	----	----	----	----	----
	55'		In-Situ	0.0	1,292	----	----	----	----	----	----	----
	60'		In-Situ	0.0	934	----	----	----	----	----	----	----
	65'		In-Situ	0.0	850	----	----	----	----	----	----	----
	70'		In-Situ	0.0	1,106	----	----	----	----	----	----	----
	75'		In-Situ	0.0	1,061	----	----	----	----	----	----	----
	80'		In-Situ	0.0	1,308	----	----	----	----	----	----	----
	85'		In-Situ	0.0	1,162	----	----	----	----	----	----	----
	90'		In-Situ	0.0	1,142	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,200
SB-2	SS	8/27/2018	In-Situ	0.2	52	----	----	----	----	----	----	----
	5'		In-Situ	1.9	365	----	----	----	----	----	----	----
	10'		In-Situ	0.8	1,050	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,250
	15'		In-Situ	0.1	684	----	----	----	----	----	----	----
	20'		In-Situ	0.0	594	----	----	----	----	----	----	----
25'	In-Situ	0.0	229	----	----	<10.0	<10.0	----	<10.0	208		
SB-3	SS	8/27/2018	In-Situ	0.0	57	----	----	----	----	----	----	----
	5'		In-Situ	1.4	1,018	----	----	----	----	----	----	----
	10'		In-Situ	0.8	2,402	----	----	----	----	----	----	----
	15'		In-Situ	0.6	2,775	----	----	----	----	----	----	----
	20'		In-Situ	0.1	3,009	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	3,600
	25'		In-Situ	0.0	2,499	----	----	----	----	----	----	----
	30'		In-Situ	0.5	1,748	----	----	----	----	----	----	----
	35'		In-Situ	0.6	1,357	----	----	----	----	----	----	----
	40'		In-Situ	0.1	1,466	----	----	----	----	----	----	----
	45'		In-Situ	0.0	1,672	----	----	----	----	----	----	----
	50'		In-Situ	0.0	1,520	----	----	----	----	----	----	----
	55'		In-Situ	0.0	1,394	----	----	----	----	----	----	----
	60'		In-Situ	0.0	1,111	----	----	----	----	----	----	----
	65'		In-Situ	0.0	1,378	----	----	----	----	----	----	----
	70'		In-Situ	0.0	1,617	----	----	----	----	----	----	----
	75'		In-Situ	0.0	1,598	----	----	----	----	----	----	----
	80'		In-Situ	0.0	1,460	----	----	----	----	----	----	----
	85'		In-Situ	0.0	1,255	----	----	----	----	----	----	----
	90'		In-Situ	0.0	1,140	----	----	<10.0	<10.0	<10.0	<10.0	1,180
NMOCD Reclamation Standards ⁴ (Applicable for soils less than 4 ft. below grade surface)				N/A	N/A	10	50	N/A			100	600
NMOCD Remediation and Delineation Standards ⁵ (Applicable for soils greater than 4 ft. below grade surface)				N/A	N/A	10	50	1,000		N/A	2,500	10,000

SB-4	SS	8/27/2018	In-Situ	0.0	60	----	----	----	----	----	----	----
	5'		In-Situ	0.0	1,674	----	----	----	----	----	----	----
	10'		In-Situ	0.0	1,700	----	----	----	----	----	----	----
	15'		In-Situ	0.0	3,038	----	----	----	----	----	----	----
	20'		In-Situ	0.0	2,960	----	----	----	----	----	----	----
	25'		In-Situ	0.0	3,272	----	----	<10.0	<10.0	----	<10.0	3,000
	30'		In-Situ	0.0	2,508	----	----	----	----	----	----	----
	35'		In-Situ	0.0	1,544	----	----	----	----	----	----	----
	40'		In-Situ	0.0	1,802	----	----	----	----	----	----	----
	45'		In-Situ	0.0	1,799	----	----	----	----	----	----	----
	50'		In-Situ	0.0	1,446	----	----	----	----	----	----	----
	55'		In-Situ	0.0	1,519	----	----	----	----	----	----	----
	60'		In-Situ	0.0	1,987	----	----	----	----	----	----	----
	65'		In-Situ	0.0	1,436	----	----	----	----	----	----	----
	70'		In-Situ	0.0	1,137	----	----	----	----	----	----	----
	75'		In-Situ	0.0	1,216	----	----	----	----	----	----	----
	80'		In-Situ	0.0	1,395	----	----	----	----	----	----	----
	85'		In-Situ	0.0	1,603	----	----	----	----	----	----	----
	90'		In-Situ	0.0	1,703	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,230
SB-5	SS	8/28/2018	In-Situ	0.0	58	----	----	----	----	----	----	----
	5'		In-Situ	0.6	1,113	----	----	----	----	----	----	----
	10'		In-Situ	0.9	1,220	----	----	----	----	----	----	----
	15'		In-Situ	1.1	2,789	----	----	----	----	----	----	----
	20'		In-Situ	1.2	2,006	----	----	----	----	----	----	----
	25'		In-Situ	1.7	2,533	----	----	----	----	----	----	----
	30'		In-Situ	0.7	4,221	----	----	<10.0	<10.0	----	<10.0	4,280
	35'		In-Situ	0.1	1,986	----	----	----	----	----	----	----
	40'		In-Situ	0.8	1,324	----	----	----	----	----	----	----
	45'		In-Situ	1.2	1,353	----	----	----	----	----	----	----
	50'		In-Situ	1.0	1,293	----	----	----	----	----	----	----
	55'		In-Situ	1.0	1,319	----	----	----	----	----	----	----
	60'		In-Situ	1.4	1,387	----	----	----	----	----	----	----
	65'		In-Situ	0.9	1,185	----	----	----	----	----	----	----
	70'		In-Situ	0.2	1,161	----	----	----	----	----	----	----
	75'		In-Situ	1.1	1,050	----	----	----	----	----	----	----
	80'		In-Situ	1.4	1,168	----	----	----	----	----	----	----
	85'		In-Situ	1.2	1,335	----	----	----	----	----	----	----
	90'		In-Situ	1.0	1,204	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,440
SB-6	SS	6/28/2019	In-Situ	2.6	112	----	----	----	----	----	----	----
	5'		In-Situ	3.0	2,180	----	----	----	----	----	----	----
	10'		In-Situ	2.6	1,289	----	----	----	----	----	----	----
	15'		In-Situ	4.0	2,812	----	----	----	----	----	----	----
	20'		In-Situ	2.4	2,914	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	3,440
	25'		In-Situ	1.8	2,402	----	----	----	----	----	----	----
	30'		In-Situ	1.7	1,896	----	----	----	----	----	----	----
	35'		In-Situ	2.2	1,534	----	----	----	----	----	----	----
	40'		In-Situ	1.8	1,466	----	----	----	----	----	----	----
	45'		In-Situ	2.2	1,389	----	----	----	----	----	----	----
	50'		In-Situ	2.5	1,403	----	----	----	----	----	----	----
	55'		In-Situ	1.0	964	----	----	----	----	----	----	----
	60'		In-Situ	0.0	995	----	----	----	----	----	----	----
	65'		In-Situ	1.1	1,187	----	----	----	----	----	----	----
	70'		In-Situ	1.3	1,019	----	----	----	----	----	----	----
75'	In-Situ	1.0	1,550	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,890		
NMOCD Reclamation Standards ⁴ (Applicable for soils less than 4 ft. below grade surface)				N/A	N/A	10	50	N/A			100	600
NMOCD Remediation and Delineation Standards ⁵ (Applicable for soils greater than 4 ft. below grade surface)				N/A	N/A	10	50	1,000	N/A	2,500	10,000	

SB-7	SS	6/28/2019	In-Situ	0.2	85	----	----	----	----	----	----	----
	5'		In-Situ	2.8	1,687	----	----	----	----	----	----	----
	10'		In-Situ	0.0	2,079	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,520
	15'		In-Situ	2.7	125	----	----	----	----	----	----	----
	20'		In-Situ	2.0	861	----	----	----	----	----	----	----
	25'		In-Situ	1.8	1,294	----	----	----	----	----	----	----
	30'		In-Situ	0.1	1,101	----	----	----	----	----	----	----
	35'		In-Situ	1.7	556	----	----	----	----	----	----	----
SB-8	40'	In-Situ	1.6	333	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	320	
	SS	6/28/2019	In-Situ	0.0	89	----	----	----	----	----	----	----
	5'		In-Situ	0.4	114	----	----	----	----	----	----	----
	10'		In-Situ	0.0	303	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	288
15'	In-Situ		0.0	173	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	118	
SB-9	SS	6/28/2019	In-Situ	0.0	56	----	----	----	----	----	----	----
	5'		In-Situ	0.0	767	----	----	----	----	----	----	----
	10'		In-Situ	0.1	1,645	----	----	----	----	----	----	----
	15'		In-Situ	0.4	1,897	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	2,360
	20'		In-Situ	0.0	1,589	----	----	----	----	----	----	----
	25'		In-Situ	0.0	1,061	----	----	----	----	----	----	----
	30'		In-Situ	0.0	635	----	----	----	----	----	----	----
	35'		In-Situ	0.1	562	----	----	----	----	----	----	----
SB-10	40'	In-Situ	0.1	395	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	320	
	SS	11/14/2019	In-Situ	0.1	90	----	----	----	----	----	----	----
	5'		In-Situ	0.0	313	----	----	----	----	----	----	----
	10'		In-Situ	0.0	1,062	----	----	----	----	----	----	----
	15'		In-Situ	0.0	1,144	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,260
	20'		In-Situ	0.0	897	----	----	----	----	----	----	----
SB-11	25'		In-Situ	0.0	834	----	----	----	----	----	----	----
	30'	In-Situ	1.3	266	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	240	
	SS	11/14/2019	In-Situ	0.1	113	----	----	----	----	----	----	----
	5'		In-Situ	0.2	112	----	----	----	----	----	----	----
	10'		In-Situ	0.6	688	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	752
	15'		In-Situ	0.7	489	----	----	----	----	----	----	----
20'	In-Situ		0.6	398	----	----	----	----	----	----	----	
25'	In-Situ		0.6	258	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	240	
SB-12	SS	11/14/2019	In-Situ	0.5	87	----	----	----	----	----	----	----
	5'		In-Situ	1.0	2,131	----	----	----	----	----	----	----
	10'		In-Situ	0.6	2,973	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	4,000
	15'		In-Situ	0.5	2,298	----	----	----	----	----	----	----
	20'		In-Situ	0.4	2,430	----	----	----	----	----	----	----
	25'		In-Situ	0.5	2,316	----	----	----	----	----	----	----
	30'		In-Situ	0.1	1,640	----	----	----	----	----	----	----
	35'		In-Situ	0.2	1,440	----	----	----	----	----	----	----
	40'		In-Situ	0.0	819	----	----	----	----	----	----	----
	45'		In-Situ	0.0	856	----	----	----	----	----	----	----
	50'		In-Situ	0.2	1,363	----	----	----	----	----	----	----
	55'		In-Situ	0.5	774	----	----	----	----	----	----	----
	60'		In-Situ	0.1	806	----	----	----	----	----	----	----
	65'		In-Situ	0.2	816	----	----	----	----	----	----	----
	70'		In-Situ	0.1	672	----	----	----	----	----	----	----
75'	In-Situ	0.3	798	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	736		
NMOCD Reclamation Standards ⁴ (Applicable for soils less than 4 ft. below grade surface)				N/A	N/A	10	50	N/A			100	600
NMOCD Remediation and Delineation Standards ⁵ (Applicable for soils greater than 4 ft. below grade surface)				N/A	N/A	10	50	1,000	N/A		2,500	10,000

SB-13	SS	11/15/2019	In-Situ	0.2	118	----	----	----	----	----	----	----
	5'		In-Situ	0.0	----	----	----	----	----	----	----	----
	10'		In-Situ	0.0	642	----	----	----	----	----	----	----
	15'		In-Situ	0.0	1,074	----	----	----	----	----	----	----
	20'		In-Situ	0.0	1,200	----	----	----	----	----	----	----
	25'		In-Situ	0.0	1,947	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	2,600
	30'		In-Situ	0.0	1,617	----	----	----	----	----	----	----
	35'		In-Situ	0.0	1,061	----	----	----	----	----	----	----
	40'		In-Situ	0.0	631	----	----	----	----	----	----	----
	45'		In-Situ	0.0	604	----	----	----	----	----	----	----
	50'		In-Situ	0.0	588	----	----	----	----	----	----	----
	55'		In-Situ	0.0	789	----	----	----	----	----	----	----
	60'		In-Situ	0.1	674	----	----	----	----	----	----	----
	65'		In-Situ	0.1	468	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	528
SB-14	SS	2/11/2021	In-Situ	1.1	86	----	----	----	----	----	----	----
	5'		In-Situ	0.8	586	----	----	----	----	----	----	----
	10'		In-Situ	1.1	860	----	----	----	----	----	----	----
	15'		In-Situ	0.4	919	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	1,230
	20'		In-Situ	0.5	683	----	----	----	----	----	----	----
	25'		In-Situ	0.8	428	----	----	----	----	----	----	----
	30'		In-Situ	0.4	284	<0.050	<0.003	<10.0	<10.0	<10.0	<10.0	176
NMOCD Reclamation Standards ⁴ (Applicable for soils less than 4 ft. below grade surface)				N/A	N/A	10	50	N/A			100	600
NMOCD Remediation and Delineation Standards ⁵ (Applicable for soils greater than 4 ft. below grade surface)				N/A	N/A	10	50	1,000		N/A	2,500	10,000

Notes:

1. BTEX = Benzene, toluene, ethylbenzene, and total xylenes by EPA method 8021B
2. TPH = Total petroleum hydrocarbons analyzed by method EPA 8015M (GRO/DRO/MRO)
3. Chloride - Analyzed by EPA method SM4500
4. New Mexico Administrative Code (NMAC) 19.15.29.13(D) - Restoration, Reclamation, and Re-vegetation (Reclamation for areas no longer in use) for soils extending to 4 ft. below grade surface (bgs).
5. New Mexico Oil Conservation Division (NMOCD) Remediation and Delineation Standards (NMAC 19.15.29.12(N))

* = Denotes discrete/grab sample

Bold values denote concentrations above laboratory RDL

Red values denote concentrations above NMOCD Action Levels

BGS = Below ground surface

GRO = Gasoline range organics

DRO = Diesel range organics

MRO = Motor/lube oil range organics

PID = Photoionization detector

--- = Sample was not analyzed for this analyte

<RDL = The analyte was not detected above the laboratory reported detection limit (RDL)

N/A = Not applicable

Ft. = feet

Appendix A

Depth to Groundwater Information



RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174



(R=POD has been replaced,
O=orphaned,
C=the file is closed)

(quarters are smallest to largest) (NAD83 UTM in meters)

(In feet)

POD Number	Code	POD	County	Q Q Q						X	Y	Distance	Depth	Well	Depth	Water	Column
		Sub-basin		64	16	4	Sec	Tws	Rng								
CP 00422		CP	LE	3	4	4	04	22S	37E	672777	3587870*		289	130		92	38
CP 00255	POD2	CP	LE	2	2	3	04	22S	37E	672166	3588458*		798	157		120	37

Maximum Depth: **120 feet**

UTMNAD83 Radius Search (in meters):

Easting (X): 672895.83

Northing (Y): 3588134.269

Radius: 850

*UTM location was derived from PLSS - see Help

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

6/12/23 4:06 PM

WATER COLUMN/ AVERAGE DEPTH TO WATER

Appendix B

Photographic Log

RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174

BD P-4 EOL (1R426-06)
Unit P, Section 4, T22S, R37E



Drilling SB-1, facing south 8/27/2018



Drilling SB-2, facing southwest 8/27/2018



Drilling SB-3, facing west 8/27/2018



Drilling SB-4, facing west 8/27/2018



Drilling SB-5 8/28/2018



SB-6, facing northeast 6/28/2019



SB-7, facing north 6/28/2019



SB-8, facing southeast 6/28/2019



SB-9, facing northwest 6/28/2019



SB-10, facing east 11/14/2019



SB-11, facing south 11/14/2019



SB-12, facing southwest 11/14/2019



SB-13, facing northwest 11/15/2019





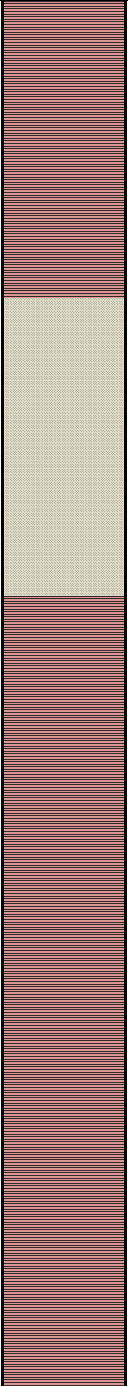
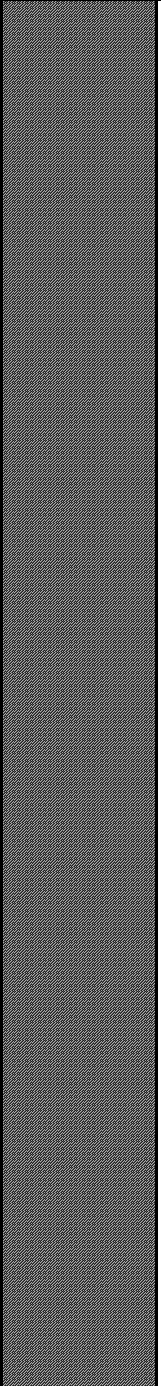
SB-14

2/11/2021


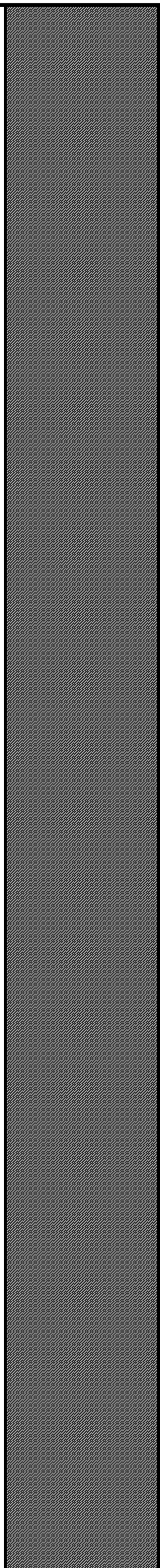

Appendix C

Soil Bore Installation

RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company:	Rice Operating Company		
Start Date:	8/27/2018		Project Name:	BD P-4 EOL		
End Date:	8/27/2018		Well ID:	SB-1		
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-1 was drilled approximately 15' North of the source area. DRAFTED BY: Nick Kopiasz TD = 90' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416942 County: Lea Long: -103.161334 (NAD 83) State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	N/A		2.1	SM- reddish tan, very fine sand		
5 ft	N/A		0.8	SM- rust red, very fine sand		
10 ft	N/A		0.0	SW-tan, well graded sand, coarse caliche grains		
15 ft	2,558		0.0	SW- Same as above (SAA)		
20 ft	2,738		0.2	SM-light tan, very fine sand, occasional sandstone pebbles		
25 ft	2,956	CI=3,000	0.0	SM-light tan, very fine sand		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
30 ft	1,258		0.2	SM-tan, very fine sand		
35 ft	903		0.0	SM-SAA		
40 ft	927		0.0	SM-tan, very fine sand, occasional sandstone pebbles		


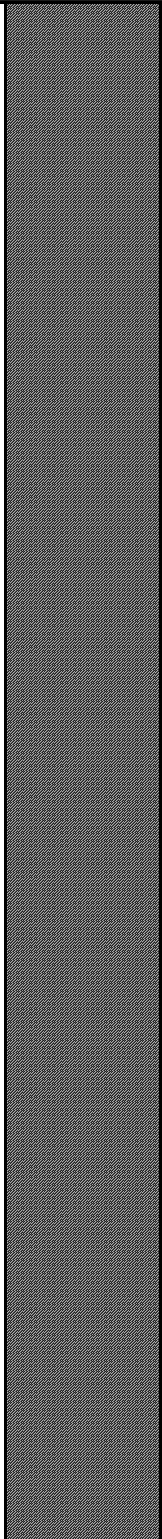

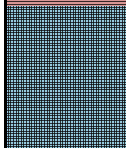







Bentonite Seal

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction		
45 ft	837		0.0	SM-tan, very fine sand				Bentonite Seal
50 ft	872		0.0	SM-tan, very fine sand, occasional caliche pebbles				
55 ft	1,292		0.0	SM-tan, very fine sand, occasional sandstone pebbles				
60 ft	934		0.0	SM-SAA				
65 ft	850		0.0	SM-tan, very fine sand, occasional caliche and sandstone pebbles				
70 ft	1,106		0.0	SM-tan, very fine sand				
75 ft	1,061		0.0	SM-tan, very fine sand, occasional caliche pebbles				
80 ft	1,308		0.0	SM-SAA				
85 ft	1,162		0.0	SM-light tan, very fine sand				
90 ft	1,142	CI=1,200	0.0	SM-SAA				
		GRO=<10						
		DRO=<10						
	EXT DRO=<10							
	Total BTEX=<0.3							

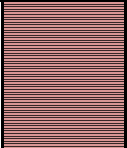
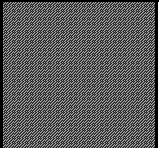
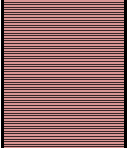
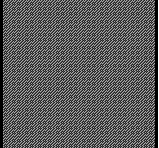
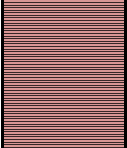
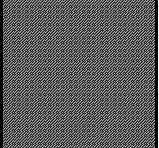
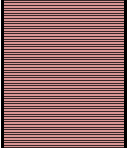
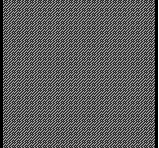
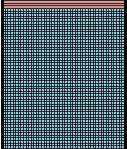
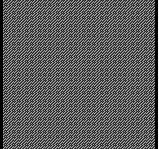
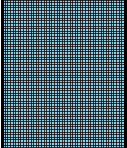
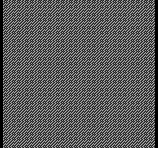
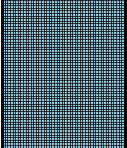
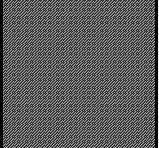
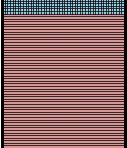
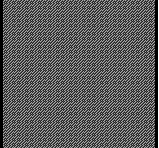
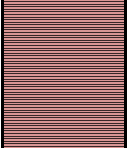
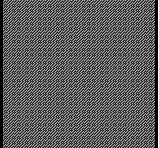
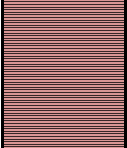
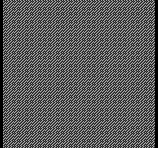
Bentonite Seal

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company:	Rice Operating Company		
Start Date:	8/27/2018		Project Name:	BD P-4 EOL		
End Date:	8/27/2018		Well ID:	SB-2		
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-2 was drilled approximately 25' North of the source area. DRAFTED BY: Nick Kopiasz TD = 25' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416984 County: Lea Long: -103.161339 (NAD83) State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	52		0.2	SM-rust red, very fine sand, occasional caliche pebbles		
5 ft	365		1.9	SM-rust red, very fine sand with clay		
10 ft	1,050	CI=1,250	0.8	GM-light tan, gravelly silt with gravels of caliche		
		GRO=<10				
		DRO=<10				
	EXT DRO=<10					
	Total BTEX=<0.3					
15 ft	684		0.1	GM-Same as above (SAA)		
20 ft	594		0.0	GM-SAA		
25 ft	229	CI=208	0.0	SM-light tan, very fine sand, occasional caliche pebbles		
		GRO=<10				
		DRO=<10				
	EXT DRO=<10					

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company: Rice Operating Company			
Start Date:	8/27/2018		Project Name: BD P-4 EOL			
End Date:	8/27/2018	Well ID: SB-3				
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-3 was drilled approximately 25' East of the source area. DRAFTED BY: Nick Kopiasz TD = 90' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416898 County: Lea Long: -103.161235 (NAD83) State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	57		0.0	SM-tan/red, very fine sand		
5 ft	1,018		1.4	SM-rust red, very fine sand with clay		
10 ft	2,402		0.8	SW-light tan, well graded sand, coarse caliche grains		
15 ft	2,775		0.6	SW-reddish tan, well graded sand, coarse caliche grains		
20 ft	3,009	CI=<3,600	0.1	GW-reddish tan, gravelly sand, gravels of caliche		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				
25 ft	2,499		0.0	SM-light tan, very fine sand		
30 ft	1,748		0.5	SM-tan, very fine sand		
35 ft	1,357		0.6	SM-reddish tan, very fine sand		
40 ft	1,466		0.1	SM-Same as above (SAA)		

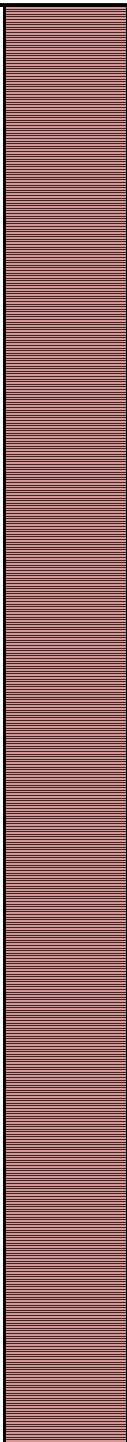
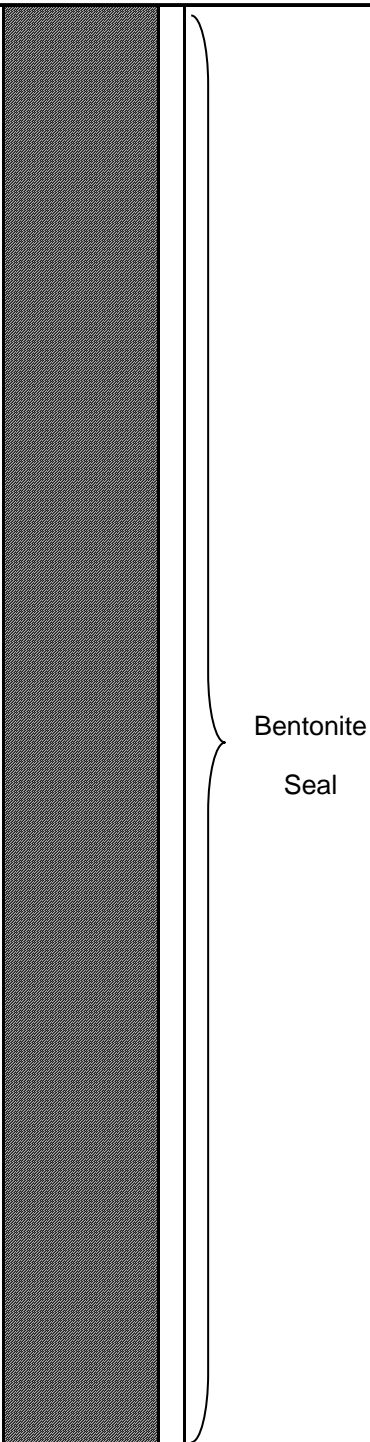
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
45 ft	1,672		0.0	SM-SAA		
50 ft	1,520		0.0	SM-tan, very fine sand		
55 ft	1,394		0.0	SM-SAA		
60 ft	1,111		0.0	SM-tan, very fine sand, occasional sandstone pebbles		
65 ft	1,378		0.0	SM-reddish tan, very fine sand		
70 ft	1,617		0.0	SM-tan, very fine sand		
75 ft	1,598		0.0	SM-SAA		
80 ft	1,460		0.0	SM-SAA		
85 ft	1,255		0.0	SM-tan, very fine sand, occasional sandstone and caliche pebbles		
90 ft	1,140	Cl=1,180	0.0	SM-SAA		
		GRO=<10				
		DRO=<10				
	EXT DRO=<10					

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company: Rice Operating Company			
Start Date:	8/27/2018		Project Name: BD P-4 EOL			
End Date:	8/27/2018	Well ID: SB-4				
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-4 was drilled approximately 25' South of the source area. DRAFTED BY: Nick Kopiasz TD = 90' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416807 County: Lea Long: -103.161292 (NAD83) State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	60		0.0	SM-reddish tan, very fine sand, occasional caliche pebbles		
5 ft	1,674		0.0	SW-tan, well graded sand, coarse grains of caliche		
10 ft	1,700		0.0	SM-tan, very fine sand, occasional caliche pebbles		
15 ft	3,038		0.0	SM-tan, very fine sand		
20 ft	2,960		0.0	SM-tan, very fine sand, occasional caliche pebbles		
25 ft	3,272	CI=3,000	0.0	SM-Same as above (SAA)		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
30 ft	2,508		0.0	SM-tan, very fine sand		
35 ft	1,544		0.0	SM-reddish tan, very fine sand		
40 ft	1,802		0.0	SM-SAA		

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
45 ft	1,799		0.0	SM-tan, very fine sand		
50 ft	1,446		0.0	SM-SAA		
55 ft	1,519		0.0	SM-SAA		
60 ft	1,987		0.0	SM-tan, very fine sand, occasional caliche and sandstone pebbles		
65 ft	1,436		0.0	GM-reddish tan, gravelly silt, gravels of caliche and sandstone		
70 ft	1,137		0.0	GM-SAA		
75 ft	1,216		0.0	GM-SAA		
80 ft	1,395		0.0	SM-reddish tan, very fine sand		
85 ft	1,603		0.0	SM-SAA		
90 ft	1,703	CI=1,230	0.0	SM-SAA		
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		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				


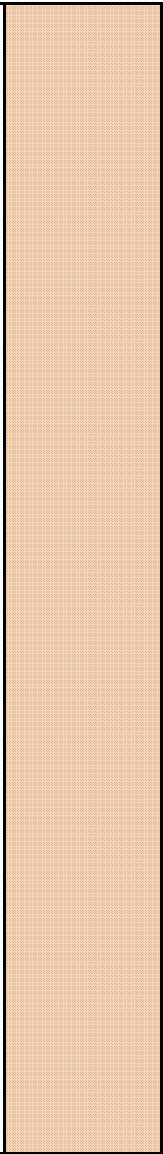
Bentonite Seal



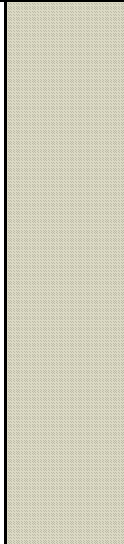
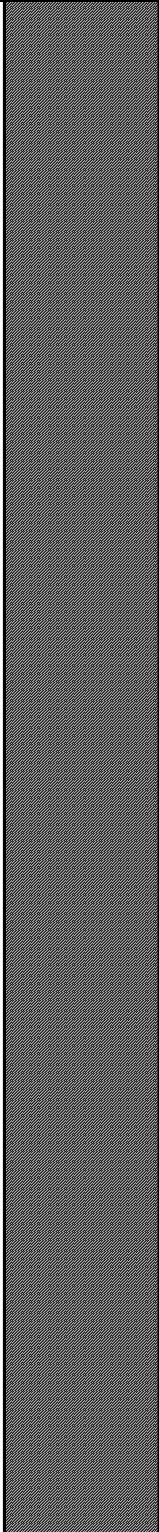
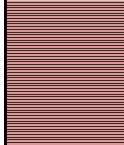
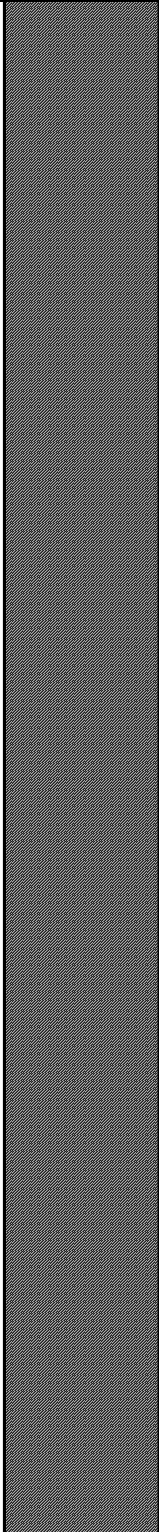

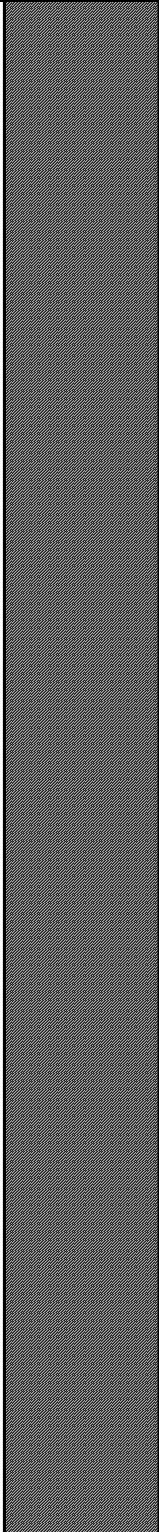
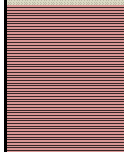
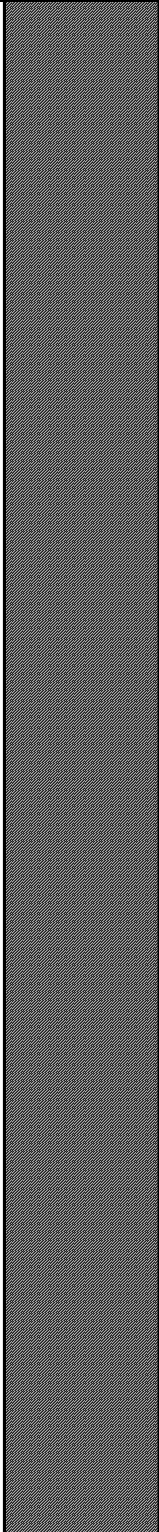

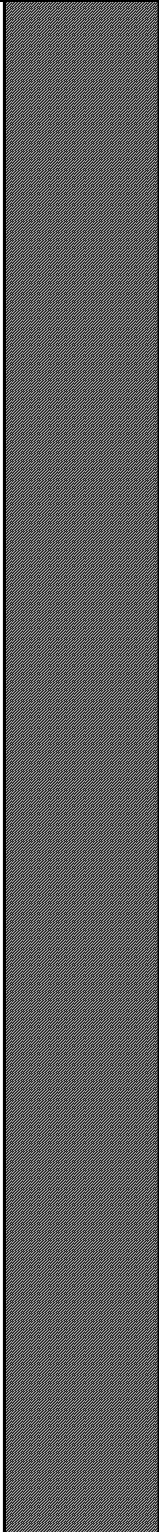
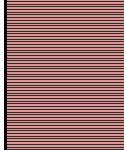
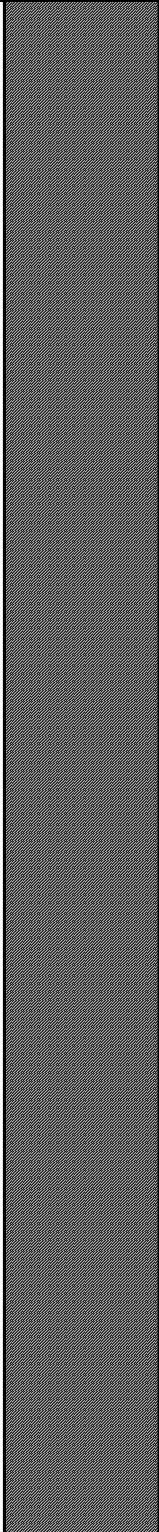

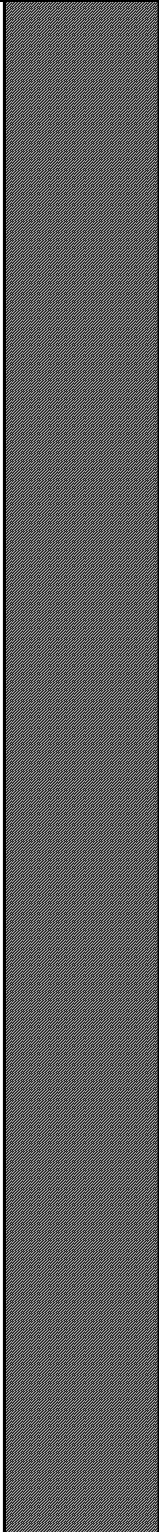

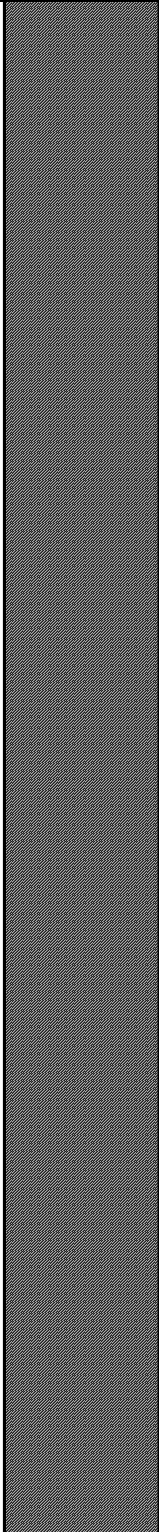
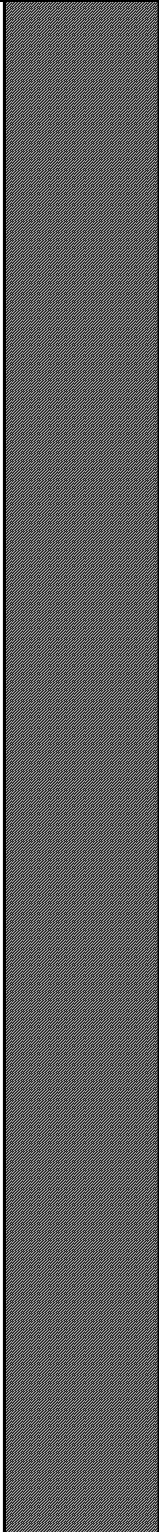
Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company: Rice Operating Company			
Start Date:	8/28/2018		Project Name: BD P-4 EOL			
End Date:	8/28/2018		Well ID: SB-5			
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-5 was drilled approximately 25' West of the source area. DRAFTED BY: Nick Kopiasz TD = 90' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416888 County: Lea Long: -103.161387 (NAD83) State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	58		0.0	SW-rust red, well graded sand, coarse caliche grains		
5 ft	1,113		0.6	SW-Same as above (SAA)		
10 ft	1,220		0.9	SW-SAA		
15 ft	2,789		1.1	SM-light tan, very fine sand, occasional caliche pebbles		
20 ft	2,006		1.2	SW-light tan, well graded sand, coarse caliche grains		
25 ft	2,533		1.7	SW-SAA		
30 ft	4,221	Cl=4,280	0.7	SW-SAA		
		GRO=<10				
		DRO=<10				
	EXT DRO=<10					
35 ft	1,986		0.1	SM-tan, very fine sand		
40 ft	1,324		0.8	SM-SAA		
45 ft	1,353		1.2	SM-SAA		

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction		
50 ft	1,293		1.0	SM-SAA				
55 ft	1,319		1.0	SM-light tan, very fine sand, traces of sandstone pebbles				
60 ft	1,387		1.4	SM-light tan, very fine sand				
65 ft	1,185		0.9	SM-light tan, very fine sand, occasional caliche pebbles				
70 ft	1,161		0.2	SM-SAA				
75 ft	1,050		1.1	SM-SAA				
80 ft	1,168		1.4	SM-light tan, very fine sand, occasional caliche and sandstone pebbles				
85 ft	1,335		1.2	SM-tan, very fine sand				
90 ft	1,204	CI=1,440	1.0	SM-light tan, very fine sand, occasional caliche and sandstone pebbles				
		GRO=<10						
		DRO=<10						
	EXT DRO=<10							
	Total BTEX=<0.3							

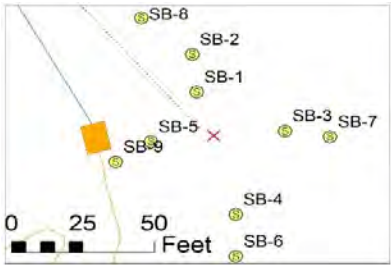

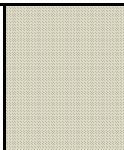
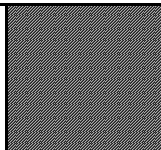
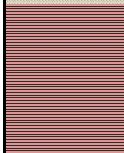
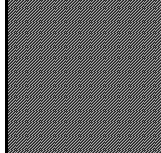
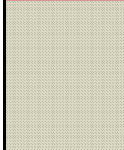
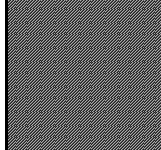

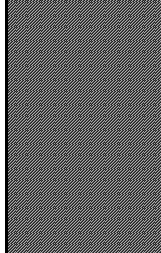
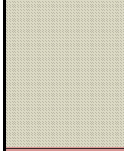
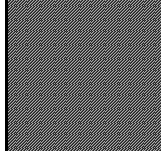
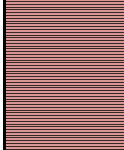
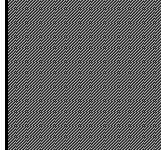

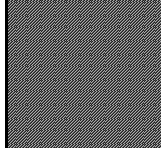
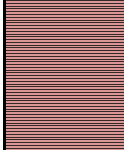
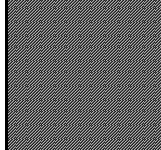
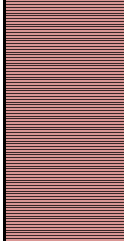
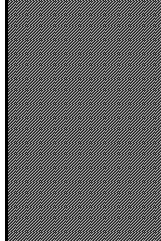
Logger:	Nick Kopiasz			
Driller:	HCI Drilling			
Drilling Method:	6" Air Rotary		Company: Rice Operating Company	
Start Date:	6/28/2019		Project Name: BD P-4 EOL	Well ID: SB-6
End Date:	6/28/2019			
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-6 was drilled approximately 15' South of SB-4. DRAFTED BY: Nick Kopiasz TD = 75' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416761 County: Lea Long: -103.161292 (NAD83) State: NM	

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	112		2.6	SW-reddish tan, well graded sands and silts		
5 ft	2,180		3.0	SW-tan, well graded sand, pebbles of caliche		
10 ft	1,289		2.6	SM-tan, silty sand		
15 ft	2,812		4.0	SW-tan, well graded sand with silt, pebbles of caliche		
20 ft	2,914	Cl=3,440 GRO=<10 DRO=<10 EXT DRO=<10 Total BTEX=<0.3	2.4	SW-Same As Above (SAA)		Bentonite Seal
25 ft	2,402		1.8	SM-reddish tan, silty sand		
30 ft	1,896		1.7	SM-SAA		
35 ft	1,534		2.2	SM-SAA		
40 ft	1,466		1.8	SM-SAA		

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology		Well Construction		
45 ft	1,389		2.2	SM-SAA				Bentonite Seal	
50 ft	1,403		2.5	SM-SAA					
55 ft	964		1.0	SM-SAA					
60 ft	995		0.0	SM-SAA					
65 ft	1,187		1.1	SM-SAA					
70 ft	1,019		1.3	SM-greenish tan, silty sand, some pebbles of sandstone					
75 ft	1,550	CI=1,890	1.0	SM-SAA					
		GRO=<10							
		DRO=<10							
	EXT DRO=<10								
	Total BTEX=<0.3								

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company: Rice Operating Company			
Start Date:	6/28/2019		Project Name: BD P-4 EOL			
End Date:	6/28/2019		Well ID: SB-7			
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-7 was drilled approximately 15' East of SB-3. DRAFTED BY: Nick Kopiasz TD = 40' GW = ~93'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416891 County: Lea Long: -103.161184 (NAD83) State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	85		0.2	SW-reddish tan, well graded sands		
5 ft	1,687		1.8	SW-tan, well graded sands, some pebbles of caliche		
10 ft	2,079	CI=1,520	0.0	SW-Same As Above (SAA)		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				
15 ft	1,215		1.7	SM-reddish tan, silty sand		
20 ft	861		2.0	SW-reddish tan, well graded sands, some pebbles of caliche		
25 ft	1,294		1.8	SM-reddish tan silty sand		
30 ft	1,101		0.1	SM-SAA		
35 ft	556		0.1	SM-SAA		
40 ft	333	CI=320	1.6	SM-SAA		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				

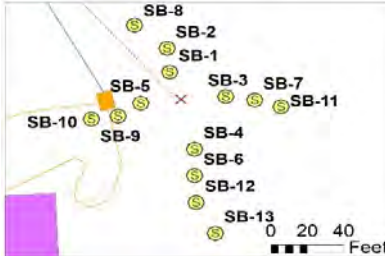

Released to Imaging: 1/2/2024 10:20:16 AM

Logger:		Nick Kopiasz					
Driller:		HCI Drilling					
Drilling Method:		6" Air Rotary					
Start Date:		6/28/2019					
End Date:		6/28/2019				Company: Rice Operating Company	
						Project Name: BD P-4 EOL	
						Well ID: SB-9	
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-9 was drilled approximately 10' West of SB-5. DRAFTED BY: Nick Kopiasz TD = 40' GW = ~93'						Location: Unit P, Section 4, T22S, R37E Lat: 32.416866 County: Lea Long: -103.161427 (NAD83) State: NM	
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction	
SS	56		0.0	SW-reddish brown, well graded sands			
5 ft	767		0.0	SM-reddish brown, silty sand			
10 ft	1,645		0.1	SW-tan, well graded sands, pebbles of caliche			
15 ft	1,897	CI=2,360	0.4	GM-tan, gravelly silt, cobbles of weathered caliche			
		GRO=<10					
		DRO=<10					
		EXT DRO=<10					
		Total BTEX=<0.3					
20 ft	1,589		0.0	SW-tan, well graded sands, pebbles of caliche			Bentonite Seal
25 ft	1,061		0.0	SM-tan, silty sand			
30 ft	635		0.0	SM-Same As Above (SAA)			
35 ft	562		0.1	SM-SAA			
40 ft	395	CI=320	0.1	SM-SAA			
		GRO=<10					
		DRO=<10					
		EXT DRO=<10					
		Total BTEX=<0.3					

Bentonite Seal

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company: Rice Operating Company			
Start Date:	11/14/2019		Project Name: BD P-4 EOL			
End Date:	11/14/2019		Well ID: SB-10			
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-10 was drilled approximately 15' West of SB-9. DRAFTED BY: Brian Cooper TD = 30' GW = 78'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416861 NAD83 County: Lea Long: -103.161475 State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	90		0.1	SW-rust red, weathered caliche and very fine sand		
5 ft	313		0.0	SP-rust red, very fine sand		
10 ft	1,062		0.0	SW-tan, well graded caliche chunks and fine sand		
15 ft	1,144	CI=1,260	0.0	SW-light tan, well graded with caliche and fine sand		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				
20 ft	897		0.0	GW-light tan well graded with gravels of caliche and fine sand		
25 ft	834		0.0	SW-light tan, well graded, weathered caliche, fine sands		
30 ft	266	CI=240	1.3	SW-light tan, well graded, weathered caliche, fine sands		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary		Company: Rice Operating Company			
Start Date:	11/14/2019		Project Name: BD P-4 EOL			
End Date:	11/14/2019		Well ID: SB-11			
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-11 was drilled East of SB-7. DRAFTED BY: Brian Cooper TD = 25' GW = 78'			Location: Unit P, Section 4, T22S, R37E Lat: 32.416880 NAD83 County: Lea Long: -103.161137 State: NM			
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	113		0.1	SW-rust red, weathered caliche and very fine sands		
5 ft	112		0.2	SP-rust red, very fine sands		
10 ft	688	CI=752	0.6	SW-light tan, well graded with caliche grains and very fine sands		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				
15 ft	489		0.7	SW-SAA		
20 ft	298		0.6	SW-SAA		
25 ft	258	CI=240	0.6	SW-SAA		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				

Logger:	Nick Kopiasz		
Driller:	HCI Drilling		
Drilling Method:	6" Air Rotary		
Start Date:	11/14/2019		
End Date:	11/14/2019		
		Company: Rice Operating Company	
		Project Name: BD P-4 EOL	Well ID: SB-12

Comments: Soil samples were collected from drill cuttings at specified intervals. SB-12 was drilled approximately 15' South of SB-6.

DRAFTED BY: Brian Cooper

TD = 75'

GW = 78'

Location:

Unit P, Section 4, T22S, R37E

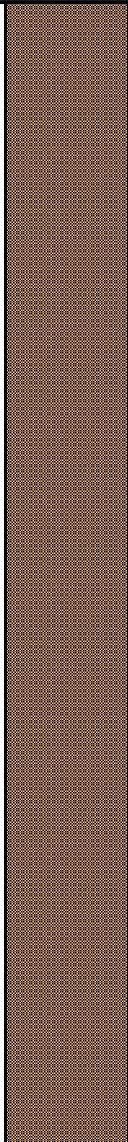
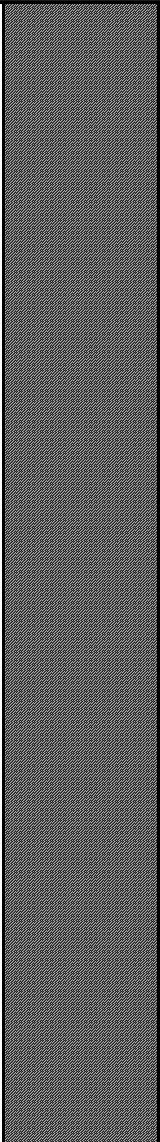
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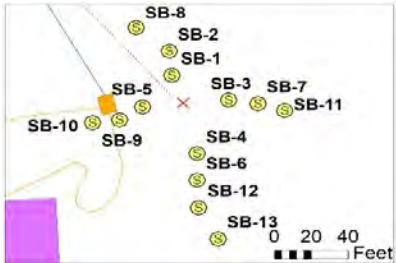

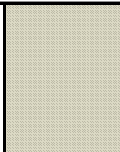
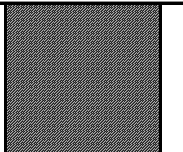
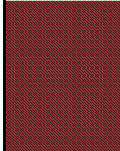
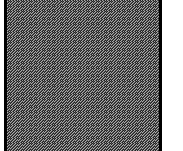
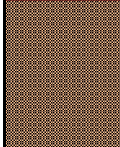
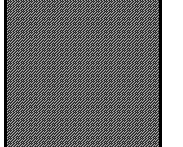
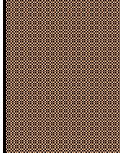
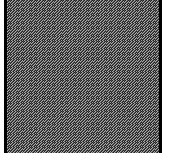
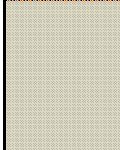
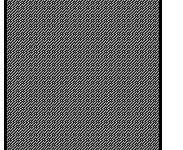
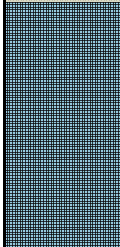
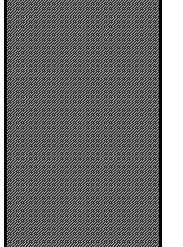
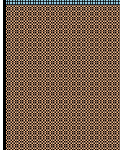
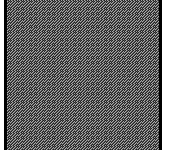
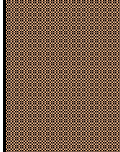
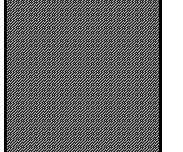
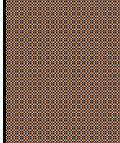
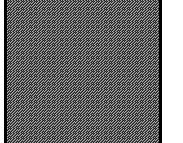
County: Lea

Long: -103.161290

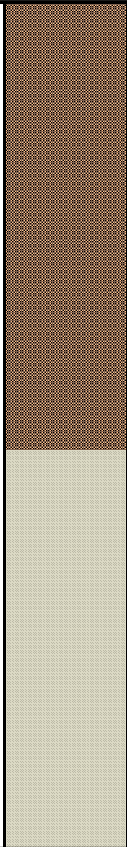
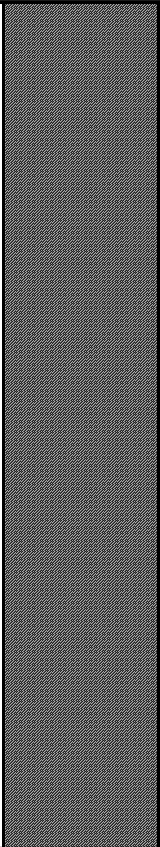

State: NM

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	87		0.5	SW-rust red, well graded with caliche and very fine sands		
5 ft	2,131		1.0	SW-light tan, well graded with caliche and very fine sands		
10 ft	2,973	Cl=4,000	0.6	SW-SAA		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				
15 ft	2,298		0.5	SW-reddish tan, well graded, caliche and very fine sands		
20 ft	2,430		0.4	SP-reddish tan, poorly graded sands		Bentonite Seal
25 ft	2,316		0.5	SP-SAA		
30 ft	1,640		0.1	SP-tan, poorly graded sands		
35 ft	1,440		0.2	SP-SAA		
40 ft	819		0.0	SP-reddish tan, poorly graded fine sands		

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
45 ft	856		0.0	SP-SAA		 <div>Bentonite Seal</div>
50 ft	1,363		0.2	SP-SAA		
55 ft	774		0.5	SP-SAA		
60 ft	806		0.1	SP-tan, poorly graded fine sands		
65 ft	816		0.2	SP-tan, poorly graded fine sands, occasional chunks of caliche		
70 ft	672		0.1	SP-SAA		
75 ft	798	Cl=736	0.3	SP-SAA		
		GRO=<10				
		DRO=<10				
	EXT DRO=<10					
	Total BTEX=<0.3					

Logger:	Nick Kopiasz					
Driller:	HCI Drilling					
Drilling Method:	6" Air Rotary			Company: Rice Operating Company		
Start Date:	11/15/2019			Project Name: BD P-4 EOL		
End Date:	11/15/2019	Well ID: SB-13				
Comments: Soil samples were collected from drill cuttings at specified intervals. SB-13 was drilled approximately 15' South of SB-12. DRAFTED BY: Brian Cooper TD = 65' GW = 78'				Location: Unit P, Section 4, T22S, R37E Lat: 32.416659 NAD83 County: Lea Long: -103.161257 State: NM		
Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	118		0.2	SW-organish tan, well graded caliche and fine sands		
5 ft	n/a		0.0	SC-deep red, sand and clay cohesive chunks		
10 ft	642		0.0	SP-organish tan, poorly graded fine sands		
15 ft	1,074		0.0	SP-tan, poorly graded sands, occasional caliche grains		
20 ft	1,200		0.0	SW-tan, well graded, caliche and sandstone with fine sands		
25 ft	1,947	Cl=2,600	0.0	GW-tan, well graded with caluche and sandstone gravels, with fine sands		
		GRO=<10				
		DRO=<10				
	EXT DRO=<10					
	Total BTEX=<0.3					
30 ft	1,617		0.0	SP-tan, poorly graded fine sands with occasional sandstone		
35 ft	1,061		0.0	SP-SAA		
40 ft	630		0.0	SP-reddish tan, fine grained poorly graded sands		

Bentonite
Seal

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction	
45 ft	604		0.0	SP-SAA			
50 ft	588		0.0	SP-tan, poorly graded fine sands			
55 ft	789		0.0	SP-SAA			
60 ft	674		0.1	SW-tan, well graded caliche and standstone with fine sands			
65 ft	468	CI=528	0.1	SW-SAA			
		GRO=<10					
		DRO=<10					
	EXT DRO=<10						
	Total BTEX=<0.3						

Logger:	Becky Griffin			
Driller:	HCI Drilling		Company: Rice Operating Company Project Name: BD P-4 EOL Well ID: SB-14	
Drilling Method:	6" Air Rotary			
Start Date:	2/11/2021			
End Date:	2/11/2021			

Comments: Soil samples were collected from drill cuttings at specified intervals.
SB-14 was drilled approximately 10' South of SB-13.

DRAFTED BY: Kyle Norman

TD = 30'

GW = 100'

Location:

Unit P, Section 4, T22S, R37E

Lat: 32.416590

County: Lea

Long: -103.161197

State: NM

Depth (feet)	Chloride field tests	LAB (mg/kg)	PID (ppm)	Description	Lithology	Well Construction
SS	86		1.1	Deep red fine sand		
5 ft	586		0.8	Orangish red caliche and sand		
10 ft	860		1.1	Lt. orange tan caliche and sand		
15 ft	919	Cl=1,230	0.4	Lt. orange tan caliche and sand		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				
20 ft	683		0.5	Very Lt. orange tan caliche and sand		
25 ft	428		0.8	Lt. Reddish orange caliche and sand		
30 ft	284	Cl=176	0.4	Dark med red caliche and sand		
		GRO=<10				
		DRO=<10				
		EXT DRO=<10				
		Total BTEX=<0.3				

Bentonite
Seal

Appendix D

Certified Laboratory Analysis Reports

RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174



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

September 04, 2018

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD P-4 EOL

Enclosed are the results of analyses for samples received by the laboratory on 08/27/18 16:08.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive style with a large, stylized 'C' and 'K'.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 08/27/2018
 Reported: 09/04/2018
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 08/27/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SOIL BORE 1 @ 25' (H802402-01)**Chloride, SM4500Cl-B****mg/kg****Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3000	16.0	08/29/2018	ND	432	108	400	0.00	

TPH 8015M**mg/kg****Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					

Surrogate: 1-Chlorooctane 112 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	08/27/2018	Sampling Date:	08/27/2018
Reported:	09/04/2018	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOIL BORE 1 @ 90' (H802402-02)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/31/2018	ND	1.90	94.9	2.00	0.223		
Toluene*	<0.050	0.050	08/31/2018	ND	1.84	91.8	2.00	1.06		
Ethylbenzene*	<0.050	0.050	08/31/2018	ND	1.83	91.4	2.00	0.396		
Total Xylenes*	<0.150	0.150	08/31/2018	ND	5.52	92.0	6.00	0.169		
Total BTEx	<0.300	0.300	08/31/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.5 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1200	16.0	08/29/2018	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					

Surrogate: 1-Chlorooctane 114 % 41-142

Surrogate: 1-Chlorooctadecane 111 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	08/27/2018	Sampling Date:	08/27/2018
Reported:	09/04/2018	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOIL BORE 2 @ 10' (H802402-03)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/31/2018	ND	1.90	94.9	2.00	0.223		
Toluene*	<0.050	0.050	08/31/2018	ND	1.84	91.8	2.00	1.06		
Ethylbenzene*	<0.050	0.050	08/31/2018	ND	1.83	91.4	2.00	0.396		
Total Xylenes*	<0.150	0.150	08/31/2018	ND	5.52	92.0	6.00	0.169		
Total BTEx	<0.300	0.300	08/31/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 92.9 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1250	16.0	08/29/2018	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					

Surrogate: 1-Chlorooctane 112 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 08/27/2018
 Reported: 09/04/2018
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 08/27/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SOIL BORE 2 @ 25' (H802402-04)

Chloride, SM4500Cl-B			mg/kg							
			Analyzed By: AC							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	208	16.0	08/29/2018	ND	432	108	400	0.00		
TPH 8015M			mg/kg							
			Analyzed By: MS							
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84		
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7		
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND						
Surrogate: 1-Chlorooctane	110 %	41-142								
Surrogate: 1-Chlorooctadecane	104 %	37.6-147								

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	08/27/2018	Sampling Date:	08/27/2018
Reported:	09/04/2018	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOIL BORE 3 @ 20' (H802402-05)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	08/31/2018	ND	1.90	94.9	2.00	0.223	
Toluene*	<0.050	0.050	08/31/2018	ND	1.84	91.8	2.00	1.06	
Ethylbenzene*	<0.050	0.050	08/31/2018	ND	1.83	91.4	2.00	0.396	
Total Xylenes*	<0.150	0.150	08/31/2018	ND	5.52	92.0	6.00	0.169	
Total BTEx	<0.300	0.300	08/31/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 92.4 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	3600	16.0	08/29/2018	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					

Surrogate: 1-Chlorooctane 111 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	08/27/2018	Sampling Date:	08/27/2018
Reported:	09/04/2018	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOIL BORE 3 @ 90' (H802402-06)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1180	16.0	08/29/2018	ND	432	108	400	0.00	QM-07
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					
Surrogate: 1-Chlorooctane	108 %	41-142							
Surrogate: 1-Chlorooctadecane	104 %	37.6-147							

Sample ID: SOIL BORE 4 @ 25' (H802402-07)

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3000	16.0	08/29/2018	ND	432	108	400	0.00	
TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					
Surrogate: 1-Chlorooctane	116 %	41-142							
Surrogate: 1-Chlorooctadecane	111 %	37.6-147							

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	08/27/2018	Sampling Date:	08/27/2018
Reported:	09/04/2018	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOIL BORE 4 @ 90' (H802402-08)

BTEX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	08/31/2018	ND	1.90	94.9	2.00	0.223		
Toluene*	<0.050	0.050	08/31/2018	ND	1.84	91.8	2.00	1.06		
Ethylbenzene*	<0.050	0.050	08/31/2018	ND	1.83	91.4	2.00	0.396		
Total Xylenes*	<0.150	0.150	08/31/2018	ND	5.52	92.0	6.00	0.169		
Total BTEX	<0.300	0.300	08/31/2018	ND						

Surrogate: 4-Bromofluorobenzene (PID) 91.9 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1230	16.0	08/29/2018	ND	432	108	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	08/28/2018	ND	206	103	200	1.84	
DRO >C10-C28*	<10.0	10.0	08/28/2018	ND	196	98.0	200	10.7	
EXT DRO >C28-C36	<10.0	10.0	08/28/2018	ND					

Surrogate: 1-Chlorooctane 112 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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Notes and Definitions

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

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A handwritten signature in black ink, appearing to read "Caley D. Keene".

Caley D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

[illegible]

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Relinquished By: <i>Kyle N.</i>		Date: <i>8/27/18</i>		Received By: <i>Wendi Benson</i>		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Phone #:	
		Time: <i>16:08</i>				Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Fax #:	
Relinquished By:		Date:		Received By:		REMARKS: email results: kjones@riceswd.com knorman@tasman-geo.com tony@etechenv.com nkopiasz@tasman-geo.com			
		Time:							
Delivered By: (Circle One)				Sample Condition		CHECKED BY:			
Sampler - UPS - Bus - Other: <i>0.6c #97</i>				Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/>		<i>GA</i>			
				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					
				<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No					

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



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

September 06, 2018

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD P-4 EOL

Enclosed are the results of analyses for samples received by the laboratory on 08/31/18 16:30.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene". The signature is written in a cursive, flowing style.

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 08/31/2018
 Reported: 09/06/2018
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 08/28/2018
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Jodi Henson

Sample ID: SOIL BORE 5 @ 30' (H802486-01)**Chloride, SM4500Cl-B****mg/kg****Analyzed By: AC**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4280	16.0	09/05/2018	ND	416	104	400	0.00	

TPH 8015M**mg/kg****Analyzed By: MS**

Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/04/2018	ND	194	96.9	200	0.137	
DRO >C10-C28*	<10.0	10.0	09/04/2018	ND	188	94.2	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	09/04/2018	ND					

Surrogate: 1-Chlorooctane 89.2 % 41-142

Surrogate: 1-Chlorooctadecane 80.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	08/31/2018	Sampling Date:	08/28/2018
Reported:	09/06/2018	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Jodi Henson
Project Location:	NONE GIVEN		

Sample ID: SOIL BORE 5 @ 90' (H802486-02)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	09/05/2018	ND	2.11	106	2.00	0.309	
Toluene*	<0.050	0.050	09/05/2018	ND	2.07	104	2.00	0.461	
Ethylbenzene*	<0.050	0.050	09/05/2018	ND	2.04	102	2.00	0.412	
Total Xylenes*	<0.150	0.150	09/05/2018	ND	5.84	97.4	6.00	0.0760	
Total BTEx	<0.300	0.300	09/05/2018	ND					

Surrogate: 4-Bromofluorobenzene (PID) 96.9 % 69.8-142

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1440	16.0	09/05/2018	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	09/04/2018	ND	194	96.9	200	0.137	
DRO >C10-C28*	<10.0	10.0	09/04/2018	ND	188	94.2	200	10.8	
EXT DRO >C28-C36	<10.0	10.0	09/04/2018	ND					

Surrogate: 1-Chlorooctane 96.2 % 41-142

Surrogate: 1-Chlorooctadecane 88.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Notes and Definitions

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

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A handwritten signature in black ink, appearing to read "Celey D. Keene".

Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating				BILL TO				ANALYSIS REQUEST													
Project Manager: Katie Jones / Kyle Norman				P.O. #:				<div style="display: flex; flex-direction: column; align-items: center;"> <div>Chlorides</div> <div>TPH 8015 M</div> <div>BTEX</div> <div>Texas TPH</div> <div>Complete Cations/Anions</div> <div>TDS</div> </div>													
Address:				Company:																	
City:		State:		Zip:		Attn:															
Phone #:		Fax #:		Address:																	
Project #:		Project Owner:		City:																	
Project Name:				State:																Zip:	
Project Location: BD P-4 EOL				Phone #:																	
Sampler Name: Kyle Norman				Fax #:																	
FOR LAB USE ONLY																					
Lab I.D.		Sample I.D.		(G) RAB OR (C) OMP.		# CONTAINERS		MATRIX				PRESERV.		SAMPLING							
								GROUNDWATER													
								WASTEWATER													
								SOIL													
								OIL													
								SLUDGE													
								OTHER :													
								ACID/BASE:													
								ICE / COOL													
								OTHER :													
								DATE				TIME									
H802486		1		1		1		✓				✓		8/28/18 0830		✓					
2		2		1		1		✓				✓		8/28/18 0849		✓					

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Relinquished By:		Date: 8/31/18		Received By:		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Phone #:	
Time: 16:00		Time: 16:30		Time: 16:30		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Add'l Fax #:	
REMARKS:									
email results: kjones@riceswd.com knorman@tasman-geo.com tgrieco@basinenv.com									
Relinquished By:		Date: 8/31/18		Received By:					
Time: 16:30		Time: 16:30		Time: 16:30					
Delivered By: (Circle One)		Sample Condition		CHECKED BY:					
Sampler - UPS - Bus - Other: 4.30 / #97		Cool Intact		(Initials)					
		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No					

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



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

July 08, 2019

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD P-4 EOL

Enclosed are the results of analyses for samples received by the laboratory on 06/28/19 16:06.

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

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 6 @ 20' (H902240-01)

BTEX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/02/2019	ND	1.67	83.3	2.00	2.97	
Toluene*	<0.050	0.050	07/02/2019	ND	1.76	87.9	2.00	5.82	
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.65	82.7	2.00	5.25	
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.02	83.6	6.00	4.67	
Total BTEX	<0.300	0.300	07/02/2019	ND					

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	3440	16.0	07/03/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 65.5 % 41-142

Surrogate: 1-Chlorooctadecane 64.3 % 37.6-147

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 6 @ 75' (H902240-02)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/02/2019	ND	1.67	83.3	2.00	2.97		
Toluene*	<0.050	0.050	07/02/2019	ND	1.76	87.9	2.00	5.82		
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.65	82.7	2.00	5.25		
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.02	83.6	6.00	4.67		
Total BTEx	<0.300	0.300	07/02/2019	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1890	16.0	07/03/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 79.2 % 41-142

Surrogate: 1-Chlorooctadecane 77.0 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 7 @ 10' (H902240-03)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/02/2019	ND	1.67	83.3	2.00	2.97		
Toluene*	<0.050	0.050	07/02/2019	ND	1.76	87.9	2.00	5.82		
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.65	82.7	2.00	5.25		
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.02	83.6	6.00	4.67		
Total BTEX	<0.300	0.300	07/02/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1520	16.0	07/03/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 70.1 % 41-142

Surrogate: 1-Chlorooctadecane 68.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 7 @ 40' (H902240-04)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/02/2019	ND	1.67	83.3	2.00	2.97		
Toluene*	<0.050	0.050	07/02/2019	ND	1.76	87.9	2.00	5.82		
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.65	82.7	2.00	5.25		
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.02	83.6	6.00	4.67		
Total BTEX	<0.300	0.300	07/02/2019	ND						

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

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	320	16.0	07/03/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 72.0 % 41-142

Surrogate: 1-Chlorooctadecane 69.5 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 8 @ 10' (H902240-05)

BTEx 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/02/2019	ND	1.86	92.9	2.00	0.117		
Toluene*	<0.050	0.050	07/02/2019	ND	1.95	97.3	2.00	1.14		
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.89	94.4	2.00	0.587		
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.71	95.1	6.00	0.319		
Total BTEx	<0.300	0.300	07/02/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 97.8 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	288	16.0	07/03/2019	ND	400	100	400	3.92		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 71.1 % 41-142

Surrogate: 1-Chlorooctadecane 68.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 8 @ 15' (H902240-06)

BTX 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/02/2019	ND	1.86	92.9	2.00	0.117	
Toluene*	<0.050	0.050	07/02/2019	ND	1.95	97.3	2.00	1.14	
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.89	94.4	2.00	0.587	
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.71	95.1	6.00	0.319	
Total BTX	<0.300	0.300	07/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	128	16.0	07/03/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 91.0 % 41-142

Surrogate: 1-Chlorooctadecane 89.8 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 9 @ 15' (H902240-07)

BTX 8021B		mg/kg		Analyzed By: ms						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	07/02/2019	ND	1.86	92.9	2.00	0.117		
Toluene*	<0.050	0.050	07/02/2019	ND	1.95	97.3	2.00	1.14		
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.89	94.4	2.00	0.587		
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.71	95.1	6.00	0.319		
Total BTX	<0.300	0.300	07/02/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	2360	16.0	07/03/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 79.8 % 41-142

Surrogate: 1-Chlorooctadecane 82.4 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 06/28/2019
 Reported: 07/08/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 06/28/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 9 @ 40' (H902240-08)

BTEx 8021B		mg/kg		Analyzed By: ms					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	07/02/2019	ND	1.86	92.9	2.00	0.117	
Toluene*	<0.050	0.050	07/02/2019	ND	1.95	97.3	2.00	1.14	
Ethylbenzene*	<0.050	0.050	07/02/2019	ND	1.89	94.4	2.00	0.587	
Total Xylenes*	<0.150	0.150	07/02/2019	ND	5.71	95.1	6.00	0.319	
Total BTEx	<0.300	0.300	07/02/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.3 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	320	16.0	07/03/2019	ND	400	100	400	3.92	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	07/03/2019	ND	204	102	200	1.56	
DRO >C10-C28*	<10.0	10.0	07/03/2019	ND	207	103	200	6.29	
EXT DRO >C28-C36	<10.0	10.0	07/03/2019	ND					

Surrogate: 1-Chlorooctane 90.1 % 41-142

Surrogate: 1-Chlorooctadecane 93.7 % 37.6-147

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Celey D. Keene, Lab Director/Quality Manager

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

Notes and Definitions

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

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A handwritten signature in black ink, appearing to read "Celey D. Keene", is written over a horizontal line.

Celey D. Keene, Lab Director/Quality Manager



CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



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

November 25, 2019

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD P-4 EOL

Enclosed are the results of analyses for samples received by the laboratory on 11/18/19 10:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-19-12. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Mike Snyder". The signature is fluid and cursive, with the first name "Mike" and last name "Snyder" clearly distinguishable.

Mike Snyder For Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/14/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 10 @ 15' (H903901-01)

BTEX 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37		
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44		
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24		
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79		
Total BTEX	<0.300	0.300	11/20/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.7 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	1260	16.0	11/22/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 109 % 37.6-147

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



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Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/14/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 10 @ 30'; (H903901-02)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37		
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44		
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24		
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79		
Total BTEx	<0.300	0.300	11/20/2019	ND						

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	11/22/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 104 % 41-142

Surrogate: 1-Chlorooctadecane 110 % 37.6-147

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



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/14/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 11 @ 10' (H903901-03)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37	
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44	
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24	
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79	
Total BTX	<0.300	0.300	11/20/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 73.3-129

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	752	16.0	11/22/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 106 % 37.6-147

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



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Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/14/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 11 @ 25' (H903901-04)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37		
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44		
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24		
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79		
Total BTEx	<0.300	0.300	11/20/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.5 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	240	16.0	11/22/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 110 % 41-142

Surrogate: 1-Chlorooctadecane 115 % 37.6-147

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



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Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/14/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 12 @ 10' (H903901-05)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37	
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44	
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24	
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79	
Total BTX	<0.300	0.300	11/20/2019	ND					

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

Chloride, SM4500CI-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	4000	16.0	11/22/2019	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 102 % 41-142

Surrogate: 1-Chlorooctadecane 108 % 37.6-147

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



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/14/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 12 @ 75' (H903901-06)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37		
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44		
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24		
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79		
Total BTEX	<0.300	0.300	11/20/2019	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.6 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	736	16.0	11/22/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 112 % 41-142

Surrogate: 1-Chlorooctadecane 118 % 37.6-147

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



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/15/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 13 @ 25' (H903901-07)

BTX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37	
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44	
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24	
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79	
Total BTX	<0.300	0.300	11/20/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	2600	16.0	11/22/2019	ND	416	104	400	0.00		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 103 % 41-142

Surrogate: 1-Chlorooctadecane 107 % 37.6-147

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



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 11/18/2019
 Reported: 11/25/2019
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 11/15/2019
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 13 @ 65' (H903901-08)

BTEx 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	11/20/2019	ND	1.80	90.1	2.00	2.37	
Toluene*	<0.050	0.050	11/20/2019	ND	1.78	89.1	2.00	2.44	
Ethylbenzene*	<0.050	0.050	11/20/2019	ND	1.82	90.8	2.00	2.24	
Total Xylenes*	<0.150	0.150	11/20/2019	ND	5.46	91.0	6.00	2.79	
Total BTEX	<0.300	0.300	11/20/2019	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	528	16.0	11/22/2019	ND	416	104	400	0.00	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	11/19/2019	ND	190	95.1	200	0.292	
DRO >C10-C28*	<10.0	10.0	11/19/2019	ND	193	96.4	200	1.89	
EXT DRO >C28-C36	<10.0	10.0	11/19/2019	ND					

Surrogate: 1-Chlorooctane 112 % 41-142

Surrogate: 1-Chlorooctadecane 117 % 37.6-147

Cardinal Laboratories

*=Accredited Analyte

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



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

Notes and Definitions

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

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*=Accredited Analyte

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A handwritten signature in black ink, appearing to read "Mike Snyder", is written over a horizontal line.

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

**ARDINAL LABORATORIES**

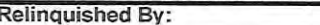

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603

(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325)673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

[illegible]

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Relinquished By: 	Date: 11/18/19	Received By: 	Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
	Time: 10:55		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Relinquished By:	Date:	Received By:	REMARKS:	
	Time:		email results: kjones@riceswd.com; knorman@tasman-geo.com tgrieco@riceswd.com; nkopiasz@tasman-geo.com	
Delivered By: (Circle One) -12.4°C #97	Sample Condition	CHECKED BY:		
Sampler - UPS - Bus - Other: Corrected -12.0°C	Cool <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Intact <input type="checkbox"/> Yes <input type="checkbox"/> No	(Initials) TO		

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476



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

February 12, 2021

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD P-4 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/11/21 13:55.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-20-13. Accreditation applies to drinking water, non-potable water and solid and chemical materials. All accredited analytes are denoted by an asterisk (*). For a complete list of accredited analytes and matrices visit the TCEQ website at www.tceq.texas.gov/field/qa/lab_accred_certif.html.

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

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

Accreditation applies to public drinking water matrices.

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

Sincerely,

A handwritten signature in black ink that reads "Celey D. Keene".

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received: 02/11/2021
 Reported: 02/12/2021
 Project Name: BD P-4 EOL
 Project Number: NONE GIVEN
 Project Location: NONE GIVEN

Sampling Date: 02/11/2021
 Sampling Type: Soil
 Sampling Condition: Cool & Intact
 Sample Received By: Tamara Oldaker

Sample ID: SB - 14 @ 15' (H210370-01)

BTEX 8021B		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.050	0.050	02/12/2021	ND	2.08	104	2.00	4.64	
Toluene*	<0.050	0.050	02/12/2021	ND	2.03	102	2.00	5.29	
Ethylbenzene*	<0.050	0.050	02/12/2021	ND	1.99	99.4	2.00	5.16	
Total Xylenes*	<0.150	0.150	02/12/2021	ND	5.84	97.3	6.00	4.83	
Total BTEX	<0.300	0.300	02/12/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.9 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	1230	16.0	02/12/2021	ND	400	100	400	7.69	

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/11/2021	ND	212	106	200	2.29	
DRO >C10-C28*	<10.0	10.0	02/11/2021	ND	222	111	200	0.305	
EXT DRO >C28-C36	<10.0	10.0	02/11/2021	ND					

Surrogate: 1-Chlorooctane 113 % 44.3-144

Surrogate: 1-Chlorooctadecane 117 % 42.2-156

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
 KATIE JONES
 112 W. Taylor
 Hobbs NM, 88240
 Fax To: (575) 397-1471

Received:	02/11/2021	Sampling Date:	02/11/2021
Reported:	02/12/2021	Sampling Type:	Soil
Project Name:	BD P-4 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NONE GIVEN		

Sample ID: SB - 14 @ 30' (H210370-02)

BTEx 8021B		mg/kg		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.050	0.050	02/12/2021	ND	2.08	104	2.00	4.64		
Toluene*	<0.050	0.050	02/12/2021	ND	2.03	102	2.00	5.29		
Ethylbenzene*	<0.050	0.050	02/12/2021	ND	1.99	99.4	2.00	5.16		
Total Xylenes*	<0.150	0.150	02/12/2021	ND	5.84	97.3	6.00	4.83		
Total BTEX	<0.300	0.300	02/12/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 99.8 % 73.3-129

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride	176	16.0	02/12/2021	ND	400	100	400	7.69		

TPH 8015M		mg/kg		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
GRO C6-C10*	<10.0	10.0	02/11/2021	ND	212	106	200	2.29	
DRO >C10-C28*	<10.0	10.0	02/11/2021	ND	222	111	200	0.305	
EXT DRO >C28-C36	<10.0	10.0	02/11/2021	ND					

Surrogate: 1-Chlorooctane 110 % 44.3-144

Surrogate: 1-Chlorooctadecane 117 % 42.2-156

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

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

Notes and Definitions

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

Cardinal Laboratories

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A handwritten signature in cursive script, appearing to read "Celey D. Keene", written in black ink.

Celey D. Keene, Lab Director/Quality Manager



CARDINAL LABORATORIES

101 East Marland, Hobbs, NM 88240 2111 Beechwood, Abilene, TX 79603
(505) 393-2326 FAX (505) 393-2476 (325) 673-7001 FAX (325) 673-7020

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

Company Name: Rice Operating				P.O. #:				ANALYSIS REQUEST																					
Project Manager: Katie Jones / Kyle Norman				Company:				Chloride 4500 TPH 8015 M BTEX Texas TPH Complete Cations/Anions TDS																					
Address:				Attn:																									
City:		State:		Zip:		Address:																							
Phone #: 575-318-5017		Fax #:		City:																									
Project #:		Project Owner:		State:														Zip:											
Project Name: BD P-4 EOL				Phone #:																									
Project Location:				Fax #:																									
Sampler Name: Becky Griffin																													
FOR LAB USE ONLY		Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.	# CONTAINERS	MATRIX				PRESERV.	SAMPLING																
								GROUNDWATER	WASTEWATER	SOIL	OIL	SLUDGE	OTHER:	ACID/BASE:	ICE / COOL	OTHER:	DATE	TIME											
		H210370																											
		1 SB - 14 @ 15'					1			✓				✓			2/11/21		✓	✓	✓								
		2 SB - 14 @ 30'					1			✓				✓			2/11/21		✓	✓	✓								

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Relinquished By:		Date: 2-11-21	Received By:		Phone Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Phone #:
Relinquished By:		Time: 1:55	Received By:		Fax Result: <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Add'l Fax #:
Delivered By: (Circle One) Sampler - UPS - Bus - Other: 1.30 #113		Sample Condition Cool Intact <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		CHECKED BY: (Initials) JO	REMARKS: email results: kjones@riceswd.com knorman@tasman-geo.com tgrieco@riceswd.com bgriffin@tasman-geo.com	

† Cardinal cannot accept verbal changes. Please fax written changes to 505-393-2476

Appendix E

NMOCD Correspondence

RICE Operating Company
112 West Taylor, Hobbs, NM 88240
Phone 575.393.9174

Incident ID	nAPP2110241347
District RP	1R426-06
Facility ID	fEEM0432439763
Application ID	pEEM0432442356

Site Assessment/Characterization

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

What is the shallowest depth to groundwater beneath the area affected by the release?	<u>93</u> (ft bgs)
Did this release impact groundwater or surface water?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a continuously flowing watercourse or any other significant watercourse?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 200 feet of any lakebed, sinkhole, or playa lake (measured from the ordinary high-water mark)?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of an occupied permanent residence, school, hospital, institution, or church?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 500 horizontal feet of a spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 1000 feet of any other fresh water well or spring?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Are the lateral extents of the release within incorporated municipal boundaries or within a defined municipal fresh water well field?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within 300 feet of a wetland?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying a subsurface mine?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release overlying an unstable area such as karst geology?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Are the lateral extents of the release within a 100-year floodplain?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Did the release impact areas not on an exploration, development, production, or storage site?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No

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

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

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

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

Incident ID	nAPP2110241347
District RP	1R426-06
Facility ID	fEEM0432439763
Application ID	pEEM0432442356

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

Printed Name: Katie Davis Title: Environmental Manager

Signature:  Date: 9/11/2023

email: kjones@riceswd.com Telephone: (575) 393-9174

OCD Only

Received by: _____ Date: _____

Incident ID	nAPP2110241347
District RP	1R426-06
Facility ID	fEEM0432439763
Application ID	pEEM0432442356

Remediation Plan

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

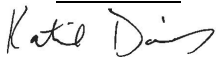
- ☒ Detailed description of proposed remediation technique
- ☒ Scaled sitemap with GPS coordinates showing delineation points
- ☒ Estimated volume of material to be remediated
- ☒ Closure criteria is to Table 1 specifications subject to 19.15.29.12(C)(4) NMAC
- ☒ Proposed schedule for remediation (note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

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

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

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

Printed Name: Katie Davis Title: Environmental Manager

Signature:  Date: 12/20/2023

email: kjones@riceswd.com Telephone: (575) 393-9174

OCD Only

Received by: _____ Date: _____

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

Signature: _____ Date: _____

BD P-4 EOL (1R426-06)
Unit P, Section 4, T22S, R37E



Facing West

5/15/2019

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 296778

QUESTIONS

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID: 19174
	Action Number: 296778
	Action Type: [C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

QUESTIONS

Prerequisites	
Incident ID (n#)	nAPP2110241347
Incident Name	NAPP2110241347 RICE BD P-4 EOL @ 0
Incident Type	Produced Water Release
Incident Status	Remediation Plan Received
Incident Facility	[fEEM0432439763] RICE BD BRUNSON EOL

Location of Release Source	
Please answer all the questions in this group.	
Site Name	RICE BD P-4 EOL
Date Release Discovered	04/14/2003
Surface Owner	Private

Incident Details	
Please answer all the questions in this group.	
Incident Type	Produced Water 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	Not answered.
Produced Water Released (bbls) Details	Cause: Other Fitting Produced Water Released: 0 BBL (Unknown Released Amount) Recovered: 0 BBL Lost: 0 BBL.
Is the concentration of chloride in the produced water >10,000 mg/l	No
Condensate Released (bbls) Details	Not answered.
Natural Gas Vented (Mcf) Details	Not answered.
Natural Gas Flared (Mcf) Details	Not answered.
Other Released Details	Cause: Other (Specify) Released: 0 (Unknown Released Amount) Recovered: 0 Lost: 0
Are there additional details for the questions above (i.e. any answer containing Other, Specify, Unknown, and/or Fire, or any negative lost amounts)	Historical site being worked under case number 1R426-06. Initial investigation conducted according to the NMOCD approved Junction Box Workplan. A Disclosure Report was submitted with all the 2003 junction box reports.

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, Page 2

Action 296778

QUESTIONS (continued)

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID:	19174
	Action Number:	296778
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

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: Begie Sharp Title: Executive Assistant Email: bbonds@riceswd.com Date: 12/20/2023
--	--

District I

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Oil Conservation Division
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QUESTIONS, Page 3

Action 296778

QUESTIONS (continued)

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID:	19174
	Action Number:	296778
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

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 75 and 100 (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	Greater than 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 1000 (ft.) and ½ (mi.)
A spring or a private domestic fresh water well used by less than five households for domestic or stock watering purposes	Between 500 and 1000 (ft.)
Any other fresh water well or spring	Between 500 and 1000 (ft.)
Incorporated municipal boundaries or a defined municipal fresh water well field	Between 1 and 5 (mi.)
A wetland	Greater than 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	None
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)	4280
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	01/08/2024
On what date will (or did) the final sampling or liner inspection occur	02/19/2024
On what date will (or was) the remediation complete(d)	03/25/2024
What is the estimated surface area (in square feet) that will be reclaimed	7440
What is the estimated volume (in cubic yards) that will be reclaimed	29760
What is the estimated surface area (in square feet) that will be remediated	7440
What is the estimated volume (in cubic yards) that will be remediated	0

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, Page 4

Action 296778

QUESTIONS (continued)

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID:	19174
	Action Number:	296778
	Action Type:	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)

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	Sundance Services, Inc [fKJ1600527371]
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)	No
(In Situ) Soil Vapor Extraction	No
(In Situ) Chemical processing (i.e. Soil Shredding, Potassium Permanganate, etc.)	No
(In Situ) Biological processing (i.e. Microbes / Fertilizer, etc.)	No
(In Situ) Physical processing (i.e. Soil Washing, Gypsum, Disking, etc.)	No
Ground Water Abatement pursuant to 19.15.30 NMAC	No
OTHER (Non-listed remedial process)	No

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: Begie Sharp Title: Executive Assistant Email: bbonds@riceswd.com Date: 12/20/2023
--	--

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, Page 5

Action 296778

QUESTIONS (continued)

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID:	19174
	Action Number:	296778
	Action Type:	
	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

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, Page 6

Action 296778

QUESTIONS (continued)

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID:	19174
	Action Number:	296778
	Action Type:	
	[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

QUESTIONS

Sampling Event Information	
Last sampling notification (C-141N) recorded	{Unavailable.}

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	No

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CONDITIONS

Action 296778

CONDITIONS

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID:
	19174
	Action Number:
	296778
Action Type:	
[C-141] Site Char./Remediation Plan C-141 (C-141-v-Plan)	

CONDITIONS

Created By	Condition	Condition Date
nvelez	Variance request approved. Closure standard accepted. Remediation plan approved as a result. Remediation Due date updated to March 28, 2024.	12/21/2023