

**RICE** *Operating Company*

112 West Taylor • Hobbs, New Mexico 88240

Phone: (575) 393-9174 • Fax: (575) 397-1471

**August 22, 2022****Bradford Billings**

New Mexico Energy, Minerals, &amp; Natural Resources

Oil Conservation Division, Environmental Bureau

1220 S. St. Francis Drive

Santa Fe, New Mexico 87505

**RE: Termination Request****Rice Operating Company – BD SWD System****BD L-36 EOL (1R426-278): UL/L, Sec. 36, T21S, R37E**

Mr. Billings:

RICE Operating Company (ROC) submits the following to address potential environmental concerns at the above referenced site in the BD Saltwater Disposal (SWD) system. 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.

**Background and Previous Work**

The site is located approximately 2 miles east of Eunice, New Mexico at UL/L, Sec. 36, T21S, R37E as shown on the Geographical Location Map and Area Map. Monitoring wells installed at the site confirmed groundwater is located at a depth of 45 feet below ground surface (bgs).

In 2010, ROC initiated work on the former L-36 EOL junction box. The site was delineated using a backhoe to form a 20x20x12-ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. A 4-wall composite sample and a bottom composite sample were collected from the excavation and sent to a commercial laboratory for analysis. The 4-wall composite returned a chloride reading of 896 mg/kg, a Gasoline Range Organics (GRO) reading of non-detect and a Diesel Range Organics (DRO) reading of 330 mg/kg. The bottom composite sample returned a chloride reading of 3,280 mg/kg, a GRO reading of non-detect and a DRO reading of 242 mg/kg. The excavated soil was blended on site and a representative sample was sent to a commercial laboratory for analysis. The sample returned a chloride reading of 560 mg/kg, a GRO reading of non-detect and a DRO reading of 69.5 mg/kg. The blended backfill was returned to the excavation up to 5 ft bgs. At 5–4 ft bgs, a 1 ft thick clay barrier was installed. The clay layer will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The remaining blended backfill soil was returned to the excavation, and clean, imported soil was used to backfill the excavation to the ground surface and to contour the site to the surrounding area. On April 29<sup>th</sup>, 2010, the site was seeded with a blend of native vegetation.

August 22<sup>nd</sup>, 2022

To further investigate the depth of chloride presence, a soil bore was drilled on June 11<sup>th</sup>, 2010. The soil bore was drilled 10 ft north of the former junction box site and was advanced to a depth of 39 ft bgs. Soil samples were collected every 3 ft between 15 and 39 ft and each sample was field titrated for chlorides and field screened for PIDs. The 36 ft and 39 ft sample were sent to a commercial laboratory for analysis, resulting in a 36 ft chloride concentration of 3,680 mg/kg and GRO and DRO concentrations of non-detect. The 39 ft sample resulted in a chloride concentration of 3,360 mg/kg and GRO and DRO concentrations of non-detect. The entire borehole was plugged with bentonite to the ground surface.

NMOCD was notified of potential groundwater impact on October 5<sup>th</sup>, 2010. A junction box disclosure report was submitted to NMOCD with all the 2010 junction box closures and disclosures.

### **Investigation and Characterization Plan (ICP)**

An ICP was submitted to NMOCD on April 24<sup>th</sup>, 2015 and was approved on May 7<sup>th</sup>, 2015. A total of three soil bores were drilled at the site on May 20<sup>th</sup>, 21<sup>st</sup> and July 10<sup>th</sup>, 2015. As the bores were advanced, soil samples were collected every 3 ft and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for confirmatory analysis. SB-2 returned a laboratory chloride reading of 5,280 mg/kg at 33 ft bgs, which decreased to 4,160 mg/kg at 42 ft bgs. SB-3 returned laboratory chloride readings of 7,040 mg/kg at 24 ft bgs and decreased to 4,240 mg/kg at 39 ft bgs. SB-4 returned a laboratory chloride reading of 304 mg/kg at 12 ft bgs, which decreased to 128 mg/kg at 15 ft bgs. GRO and DRO readings at all depth in all bores were non-detect, except for DRO at 33 ft in SB-2, which resulted in a concentration of 72.7 mg/kg. The northern edge of the site is defined by SB-4 with chloride concentrations decreasing to 128 mg/kg at 15 ft bgs. The eastern edge is defined by the 5 ft east vertical with a chloride concentration of 84 mg/kg at 12 ft bgs. The western edge is defined by the 15 ft west vertical with a chloride concentration of 119 mg/kg at 12 ft bgs. The 10 ft south vertical defined the southern edge of the site with a chloride concentration of 178 mg/kg. Each borehole was plugged with bentonite to ground surface.

### **ICP Report and Corrective Action Plan (CAP)**

An ICP Report and CAP was submitted on February 9<sup>th</sup>, 2017, which recommended the installation of a 42x31-ft, 20-mil reinforced poly liner at 5-3.5 ft bgs depending on the depth of the existing clay liner. NMOCD responded on February 23<sup>rd</sup>, 2017, requesting additional data to the south of the site.

### **Additional Investigation**

In accordance with the request from OCD, three additional soil bores (SB-5, SB-6, and SB-7) were drilled on September 18<sup>th</sup> and September 21<sup>st</sup>, 2017. As the bores were advanced, soil samples were collected every 3 ft and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for confirmatory analysis. SB-5 returned a laboratory chloride reading of 1,260 mg/kg at 33 ft bgs, which decreased to 1,040 mg/kg at 42 ft bgs. SB-6 returned laboratory chloride readings of 1,100 mg/kg at 24 ft bgs and decreased to 384 mg/kg at 42 ft bgs. SB-7 returned a laboratory chloride reading of 752 mg/kg at 36 ft bgs, which decreased to 32 mg/kg at 42 ft bgs. GRO and DRO

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readings at all depth in all bores were non-detect. Each bore was plugged with bentonite to ground surface.

### **CAP Addendum**

A CAP Addendum summarizing the additional investigation was submitted to NMOCD on October 26<sup>th</sup>, 2017. Based on the additional soil data, the Addendum recommended that ROC install a 91x31-ft (rather than a 42x31-ft), 20-mil reinforced poly liner at 5-3.5 ft bgs. The liner would inhibit the downward migration of residual constituents through the vadose zone and would cover the existing 20x20-ft clay liner. The soils placed above the liner would have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soils would be evaluated for use as backfill and any soils that do not meet requirements would be properly disposed of at a NMOCD approved facility.

The Addendum also recommended the installation of monitoring wells to determine groundwater quality beneath the site. NMOCD approved the Addendum on October 30<sup>th</sup>, 2017.

### **CAP Report and Soil Closure Request**

According to the CAP and CAP Addendum approval, a 91x31-ft area was excavated to a depth of 5 ft bgs. A total of 852 cubic yards of excavated soil were taken to a NMOCD approved facility for disposal. The bottom of the excavation was padded with 6 inches imported blow sand and a 20-mil reinforced liner was installed and properly seated at 4.5 ft bgs, which covered the previously installed 20x20-ft clay liner. The top of the liner was padded with 6 inches of imported blow sand, and the excavation was backfilled to ground surface with imported topsoil. A sample of the imported blow sand and a sample of the imported topsoil was sent to a commercial laboratory for analysis of chloride and returned a result of 16 mg/kg and 32 mg/kg, respectively. The soil samples were also analyzed for GRO and DRO resulting in <10 mg/Kg for all samples. The backfilled site was then seeded with a blend of native vegetation. Vegetation above the liner will also provide a natural infiltration barrier for the site, since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone. The backfilled site was prepared with soil amendments, as necessary, and seeded with a native vegetative mix. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone.

A CAP Report and Soil Closure Request was submitted to NMOCD on May 17<sup>th</sup>, 2018. NMOCD approved the report and granted 'soil closure' on June 20<sup>th</sup>, 2018. The report also included proposed monitoring well locations.

### **Groundwater Monitoring Results**

In order to determine what affect the residual chlorides may have had on the groundwater quality below the site, ROC installed a near-source monitoring well (MW-1) located approximately 40 ft southeast of the former junction box. The well was installed on June 27<sup>th</sup>, 2019. On November 13<sup>th</sup>, 2019, an up-gradient well (MW-2) and a down-gradient well (MW-3) were installed. Due to the location of a lease road and non-ROC facility directly north of the former L-36 EOL junction box, MW-2 was installed approximately 200 ft northwest of the source. The well was installed on the northwest corner of the non-ROC facility. The down-gradient well (MW-3) was

August 22<sup>nd</sup>, 2022

installed approximately 105 ft southeast of the source. The wells were installed on to NMOCD and EPA standards. The wells were developed and have been sampled regularly since installation.

Quarterly sampling of the near-source well (MW-1) has resulted in an average chloride concentration of 532 mg/L. The average chloride concentration in samples collected from the up-gradient well (MW-2) was 452 mg/L. The down-gradient well (MW-3) has resulted in an average chloride concentration of 549 mg/L.

### **Recommendations**

The quarterly groundwater monitoring results indicate there is a non-ROC source contributing to the degradation of groundwater up-gradient of the site. The most recent sampling event resulted in a chloride concentration of 600 mg/L in the up-gradient well (MW-2), while the near-source well (MW-1) returned a chloride concentration of 610 mg/L. The down-gradient well (MW-3) returned a chloride concentration of 530 mg/L in the same sampling event. This suggests that the impact of the former junction box was minimal as compared to that of the up-gradient source. A table summarizing the quarterly monitoring well data is included in the attachments. Also included in the attachments are historical aerial photos, which show other oil field activity in the area.

ROC has completed the vadose zone remediation as approved by NMOCD in the CAP and CAP Addendum. NMOCD granted 'soil closure' in the approval of the CAP Report and Soil Closure Request approved on June 20<sup>th</sup>, 2018. The 20-mil reinforced liner will inhibit the further migration of chloride through the vadose zone into groundwater.

As such, ROC respectfully requests termination of the regulatory file. ROC acknowledges they have met the requirements of 19.15.29 NMAC and a final C-141 is attached. Upon NMOCD approval of this Termination Request, the monitoring wells (MW-1, MW-2, and MW-3) will be plugged using a cement grout with 1 to 3% bentonite and a 3-ft cap of cement at the surface.

ROC appreciates the opportunity to work with you on this project. Please call me at (575) 393-9174 if you have any questions or wish to discuss the site.

Sincerely,



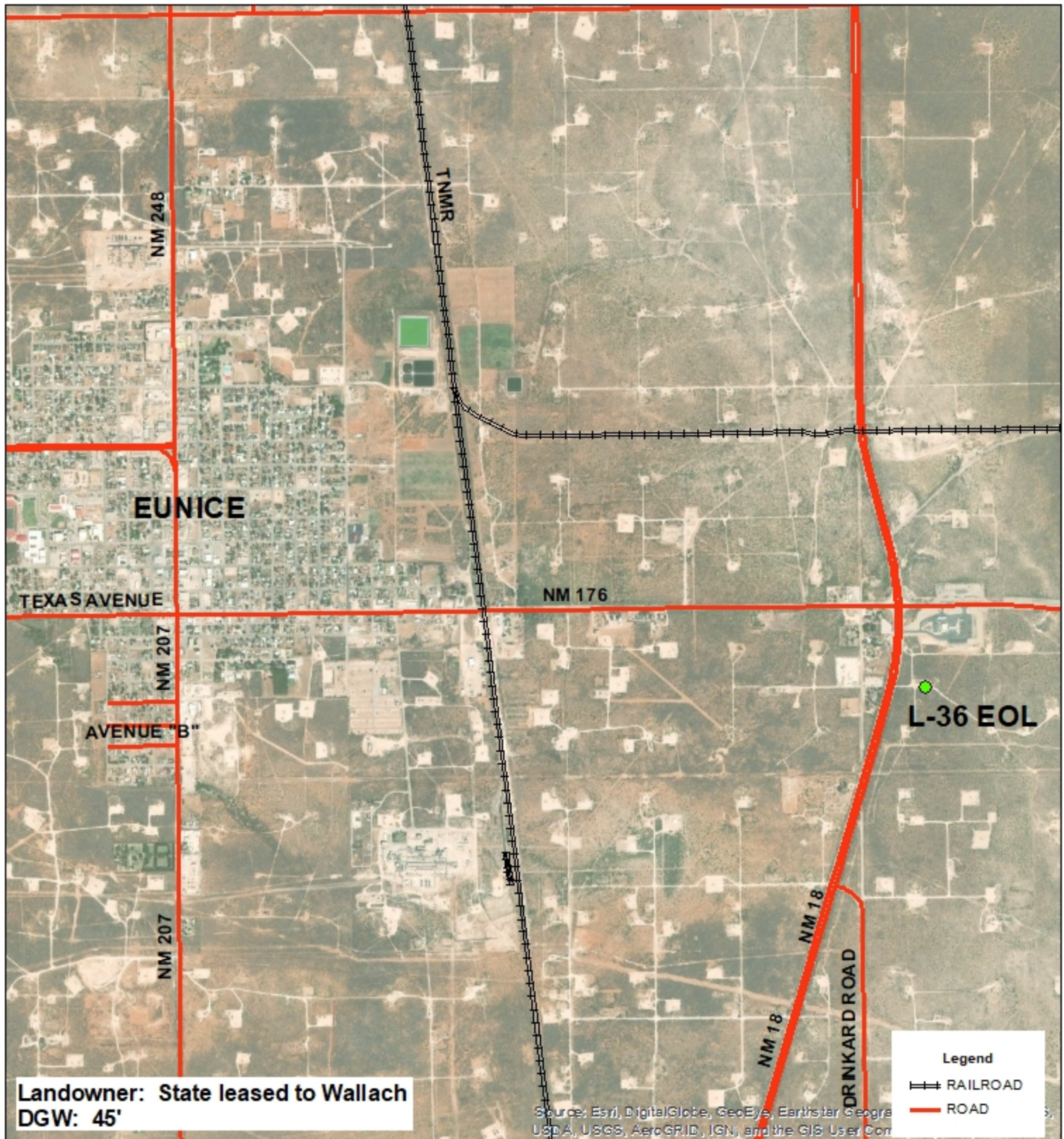
Katie Davis  
Environmental Manager  
RICE Operating Company

Appendix



# Figures

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



**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

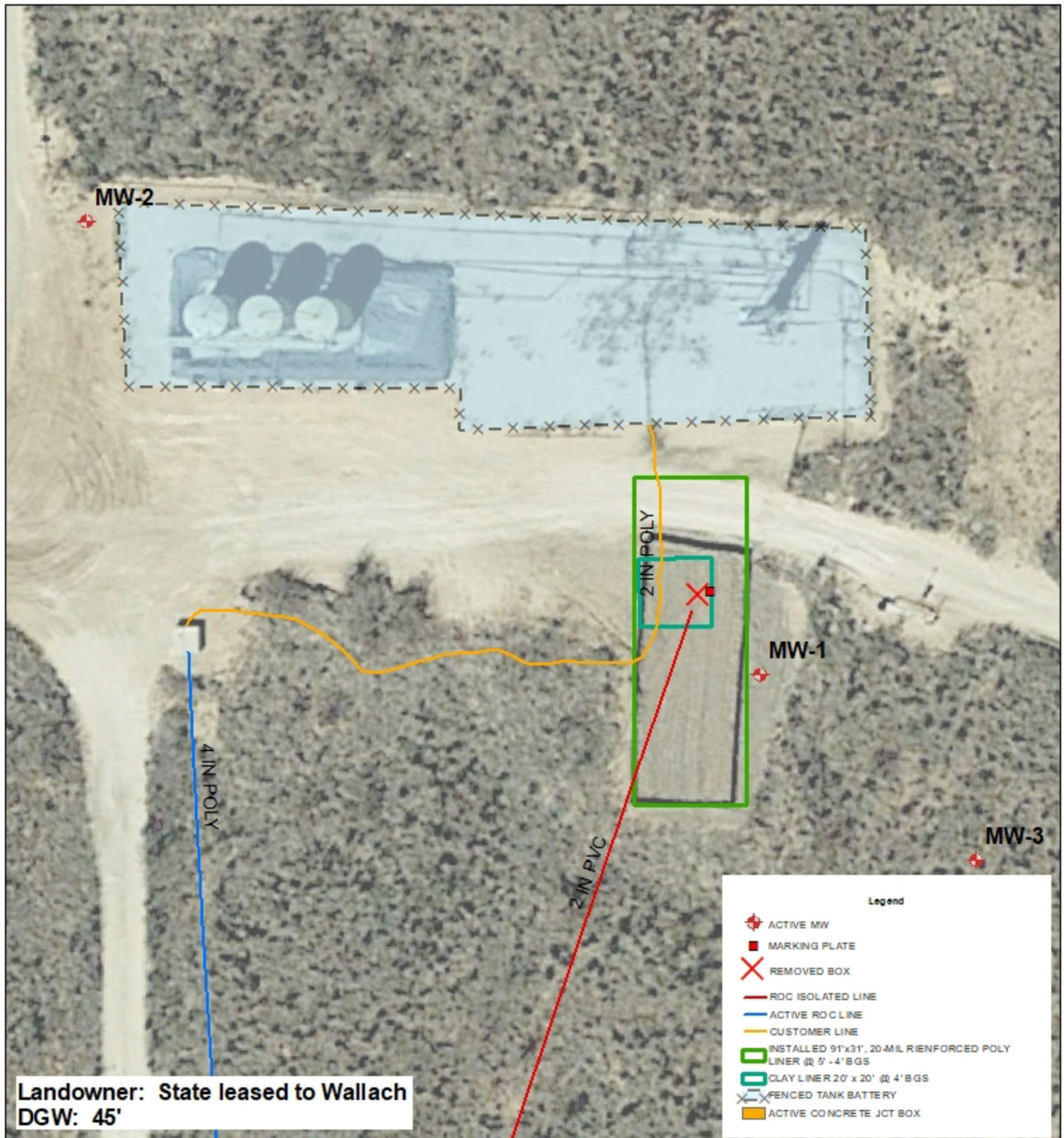
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NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 1,000 2,000  
Feet

GPS Date: 7/10/15 CF, 7/1/19 TG  
Drawing date: 3/6/20  
Drafted by: T. Grieco







**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

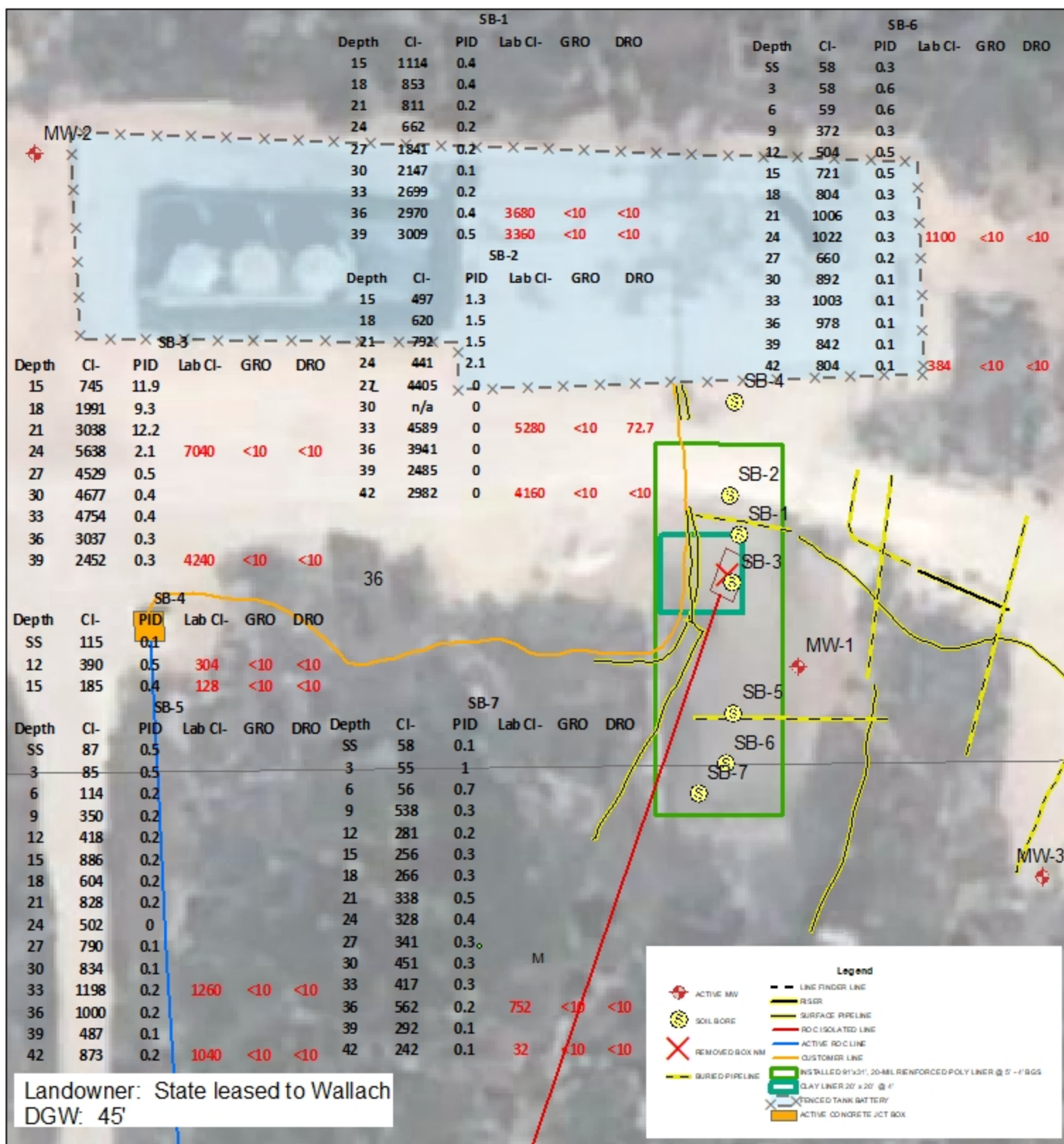
GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 25 50  
Feet

GPS Date: 7/10/15 CF, 7/1/19 TG  
Drawing date: 3/6/20  
Drafted by: T. Grieco







**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJ

0 20 40  
Feet

Drawing date: 8/16/22  
Drafted by: T. Grieco



# Monitoring Well Sampling

**RICE Operating Company**  
112 West Taylor, Hobbs, NM 88240  
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**ROC - BD L-36 EOL (1R426-278)****Unit Letter L, Section 36, T21S, R37E**

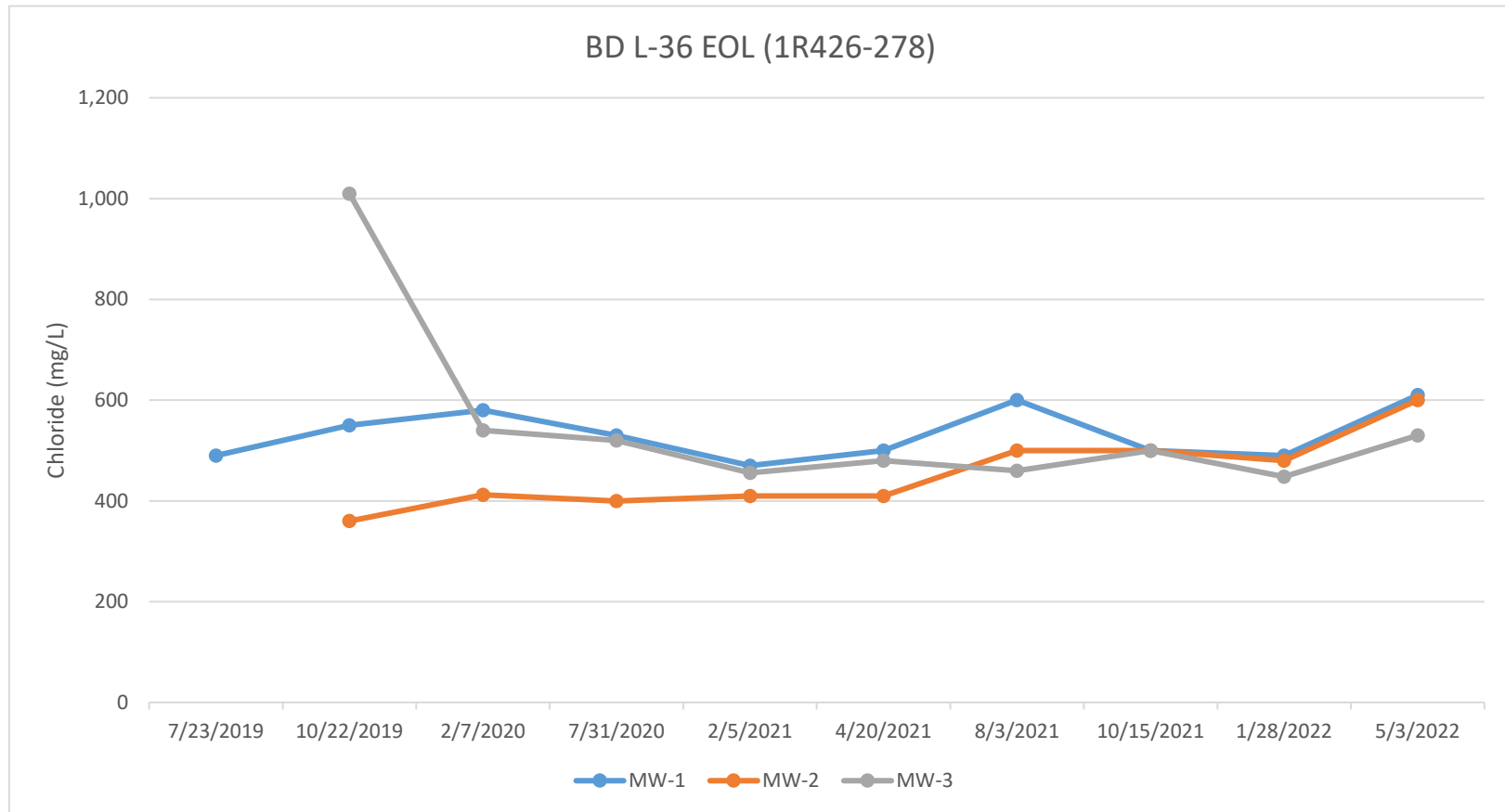
MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
1	45.58	88.6	28	100	7/23/2019	490	2,010	<0.001	<0.001	<0.001	<0.003	560	Clear No odor
1	45.53	88.6	28	100	10/22/2019	550	1,840	<0.001	<0.001	<0.001	<0.003	602	Clear No odor
1	45.41	88.6	28	90	2/7/2020	580	2,180	<0.001	<0.001	<0.001	<0.003	536	Clear No odor
1	45.35	88.6	28	90	7/31/2020	530	2,080	<0.001	<0.001	<0.001	<0.003	407	Clear No odor
1	45.36	88.6	28	90	2/5/2021	470	1,930	<0.001	<0.001	<0.001	<0.003	521	Clear No odor
1	45.3	88.6	28	90	4/20/2021	500	1,990	<0.001	<0.001	<0.001	<0.003	468	Clear No odor
1	45.27	88.6	28	90	8/3/2021	600	2,160	<0.001	<0.001	<0.001	<0.003	679	Clear No odor
1	45.23	88.6	28	90	10/15/2021	500	1,960	<0.001	<0.001	<0.001	<0.003	435	Clear No odor
1					1/28/2022	490	1,930	<0.001	<0.001	<0.001	<0.003	625	
1					5/3/2022	610	2,120	<0.001	<0.001	<0.001	<0.003	516	

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	CI	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
2	47.78	63.75	2.6	10	12/16/2019	360	1,690	<0.001	<0.001	<0.001	<0.003	510	Clear No odor
2	47.72	63.75	2.6	10	2/7/2020	412	1,680	<0.001	<0.001	<0.001	<0.003	480	Clear No odor
2	47.69	63.75	2.6	10	7/31/2020	400	1,790	<0.001	<0.001	<0.001	<0.003	319	Clear No odor
2	47.73	63.75	2.6	10	2/5/2021	410	1,750	<0.001	<0.001	<0.001	<0.003	521	Clear No odor
2	47.63	63.75	2.6	10	4/20/2021	410	1,440	<0.001	<0.001	<0.001	<0.003	475	Clear No odor
2	47.62	63.75	2.6	10	8/3/2021	500	1,930	<0.001	<0.001	<0.001	<0.003	624	Clear No odor
2	47.58	63.75	2.6	10	10/15/2021	500	1,900	<0.001	<0.001	<0.001	<0.003	357	Clear No odor
2					1/28/2022	480	1,850	<0.001	<0.001	<0.001	<0.003	618	
2					5/3/2022	600	2,100	<0.001	<0.001	<0.001	<0.003	560	



**ROC - BD L-36 EOL (1R426-278)****Unit Letter L, Section 36, T21S, R37E**

MW	Depth to Water	Total Depth	Well Volume	Volume Purged	Sample Date	Cl	TDS	Benzene	Toluene	Ethyl Benzene	Total Xylenes	Sulfate	Comments
3	43.94	63.93	3.2	10	12/16/2019	1,010	2,940	<0.001	<0.001	<0.001	<0.003	557	Clear No odor
3	43.9	63.93	3.2	10	2/7/2020	540	2,100	<0.001	<0.001	<0.001	<0.003	552	Clear No odor
3	43.88	63.93	3.2	10	7/31/2020	520	2,000	<0.001	<0.001	<0.001	<0.003	324	Clear No odor
3	43.84	63.93	3.2	12	2/5/2021	456	1,880	<0.001	<0.001	<0.001	<0.003	522	Clear No odor
3	43.78	63.93	3.2	12	4/20/2021	480	1,830	<0.001	<0.001	<0.001	<0.003	464	Clear No odor
3	43.77	63.93	3.2	12	8/3/2021	460	1,920	<0.001	<0.001	<0.001	<0.003	639	Clear No odor
3	43.72	63.93	3.2	12	10/15/2021	500	1,960	<0.001	<0.001	<0.001	<0.003	406	Clear No odor
3					1/28/2022	448	1,910	<0.001	<0.001	<0.001	<0.003	640	
3					5/3/2022	530	1,960	<0.001	<0.001	<0.001	<0.003	532	





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

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May 12, 2022

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 05/05/22 15:06.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. 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](http://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:	05/05/2022	Sampling Date:	05/03/2022
Reported:	05/12/2022	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #1 (H221895-01)**

BTEX 8021B		mg/L		Analyzed By: MS\					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/11/2022	ND	0.020	101	0.0200	1.15	
Toluene*	<0.001	0.001	05/11/2022	ND	0.020	99.0	0.0200	1.80	
Ethylbenzene*	<0.001	0.001	05/11/2022	ND	0.019	97.2	0.0200	1.32	
Total Xylenes*	<0.003	0.003	05/11/2022	ND	0.062	103	0.0600	0.785	
Total BTEX	<0.006	0.006	05/11/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.1 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	610	4.00	05/08/2022	ND	104	104	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	516	125	05/11/2022	ND	18.2	91.0	20.0	10.2	

TDS 160.1		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2120	5.00	05/10/2022	ND	486	97.2	500	0.164	

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\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Rice Operating Company  
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 Fax To: (575) 397-1471

Received:	05/05/2022	Sampling Date:	05/03/2022
Reported:	05/12/2022	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #2 (H221895-02)**

BTEX 8021B		mg/L		Analyzed By: MS\					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/11/2022	ND	0.020	101	0.0200	1.15	
Toluene*	<0.001	0.001	05/11/2022	ND	0.020	99.0	0.0200	1.80	
Ethylbenzene*	<0.001	0.001	05/11/2022	ND	0.019	97.2	0.0200	1.32	
Total Xylenes*	<0.003	0.003	05/11/2022	ND	0.062	103	0.0600	0.785	
Total BTEX	<0.006	0.006	05/11/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 97.7 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	600	4.00	05/08/2022	ND	104	104	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	560	125	05/11/2022	ND	18.2	91.0	20.0	10.2		

TDS 160.1		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2100	5.00	05/10/2022	ND	486	97.2	500	0.164	

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

Celey D. Keene, Lab Director/Quality Manager



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**Analytical Results For:**

Rice Operating Company  
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Received:	05/05/2022	Sampling Date:	05/03/2022
Reported:	05/12/2022	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Shalyn Rodriguez
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #3 (H221895-03)**

BTEX 8021B		mg/L		Analyzed By: MS\					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	05/11/2022	ND	0.020	101	0.0200	1.15	
Toluene*	<0.001	0.001	05/11/2022	ND	0.020	99.0	0.0200	1.80	
Ethylbenzene*	<0.001	0.001	05/11/2022	ND	0.019	97.2	0.0200	1.32	
Total Xylenes*	<0.003	0.003	05/11/2022	ND	0.062	103	0.0600	0.785	
Total BTEX	<0.006	0.006	05/11/2022	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	530	4.00	05/08/2022	ND	104	104	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	532	125	05/11/2022	ND	18.2	91.0	20.0	10.2		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1960	5.00	05/10/2022	ND	486	97.2	500	0.164		

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\*=Accredited Analyte

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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, Inc.

### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # 1221895

## ANALYSIS REQUEST

(Circle or Specify Method No.)

[illegible]

Page 6 of 6

Released to Imaging: 3/1/2024 2:47:12 PM



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

---

February 07, 2022

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 02/02/22 11:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. 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](http://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:	02/02/2022	Sampling Date:	01/28/2022
Reported:	02/07/2022	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #1 (H220393-01)**

BTEX 8021B		mg/L		Analyzed By: MS/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	02/04/2022	ND	0.020	102	0.0200	0.853		
Toluene*	<0.001	0.001	02/04/2022	ND	0.019	96.8	0.0200	1.65		
Ethylbenzene*	<0.001	0.001	02/04/2022	ND	0.019	95.1	0.0200	1.09		
Total Xylenes*	<0.003	0.003	02/04/2022	ND	0.060	101	0.0600	1.61		
Total BTEX	<0.006	0.006	02/04/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	490	4.00	02/02/2022	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	625	125	02/04/2022	ND	18.5	92.4	20.0	2.72		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1930	5.00	02/03/2022	ND	519	104	500	3.07		

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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:	02/02/2022	Sampling Date:	01/28/2022
Reported:	02/07/2022	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #2 (H220393-02)**

BTEX 8021B		mg/L		Analyzed By: MS/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	02/04/2022	ND	0.020	102	0.0200	0.853		
Toluene*	<0.001	0.001	02/04/2022	ND	0.019	96.8	0.0200	1.65		
Ethylbenzene*	<0.001	0.001	02/04/2022	ND	0.019	95.1	0.0200	1.09		
Total Xylenes*	<0.003	0.003	02/04/2022	ND	0.060	101	0.0600	1.61		
Total BTEX	<0.006	0.006	02/04/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 102 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	480	4.00	02/02/2022	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	618	125	02/04/2022	ND	18.5	92.4	20.0	2.72		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1850	5.00	02/03/2022	ND	519	104	500	3.07		

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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:	02/02/2022	Sampling Date:	01/28/2022
Reported:	02/07/2022	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #3 (H220393-03)**

BTEX 8021B		mg/L		Analyzed By: MS/						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	02/04/2022	ND	0.020	102	0.0200	0.853		
Toluene*	<0.001	0.001	02/04/2022	ND	0.019	96.8	0.0200	1.65		
Ethylbenzene*	<0.001	0.001	02/04/2022	ND	0.019	95.1	0.0200	1.09		
Total Xylenes*	<0.003	0.003	02/04/2022	ND	0.060	101	0.0600	1.61		
Total BTEX	<0.006	0.006	02/04/2022	ND						

Surrogate: 4-Bromofluorobenzene (PID) 103 % 77.1-124

Chloride, SM4500CI-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	448	4.00	02/02/2022	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	640	125	02/04/2022	ND	18.5	92.4	20.0	2.72		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1910	5.00	02/03/2022	ND	519	104	500	3.07		

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Celey D. Keene, Lab Director/Quality Manager





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### 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.

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Celey D. Keene, Lab Director/Quality Manager

# Cardinal Laboratories, Inc.

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # \_\_\_\_\_

## ANALYSIS REQUEST

(Circle or Specify Method No.)

[illegible][illegible]

Relinquished by: <i>Rozanne Johnson</i>	Date: <i>2-2-2022</i>	Time: <i>11:40</i>	Received by: <i>Rozanne Johnson</i>	Date: <i>2-2-22</i>	Time: <i>1140</i>
Relinquished by:	Date:	Time:	Received By: (Laboratory Staff)	Date:	Time:
Delivered By: (Circle One)	Sample Condition		CHECKED BY:		
<input checked="" type="radio"/> UPS <input type="radio"/> Bus <input type="radio"/> Other:	Yes	<input checked="" type="checkbox"/> Cool <input checked="" type="checkbox"/> Intact	(Initials) <i>YD</i>		
	No	<input type="checkbox"/> Yes <input type="checkbox"/> No			

Phone Results	Yes	No
Fax Results	Yes	No
Additional Fax Number:		
REMARKS:		
Email Results: <u>kjones@riceswd.com</u> <u>rozanne@sdacres.com</u>		



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

---

October 26, 2021

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 10/20/21 14:40.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-21-14. 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](http://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:	10/20/2021	Sampling Date:	10/15/2021
Reported:	10/26/2021	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #1 (H212954-01)**

BTEX 8021B		mg/L		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	10/25/2021	ND	0.022	108	0.0200	2.42	
Toluene*	<0.001	0.001	10/25/2021	ND	0.020	101	0.0200	0.962	
Ethylbenzene*	<0.001	0.001	10/25/2021	ND	0.021	105	0.0200	3.84	
Total Xylenes*	<0.003	0.003	10/25/2021	ND	0.064	107	0.0600	2.67	
Total BTEX	<0.006	0.006	10/25/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 98.0 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	500	4.00	10/21/2021	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	435	83.3	10/22/2021	ND	19.1	95.6	20.0	4.85		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1960	5.00	10/21/2021	ND	868	86.8	1000	2.48		

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\*=Accredited Analyte

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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:	10/20/2021	Sampling Date:	10/15/2021
Reported:	10/26/2021	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #2 (H212954-02)**

BTEX 8021B		mg/L		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	10/25/2021	ND	0.022	108	0.0200	2.42		
Toluene*	<0.001	0.001	10/25/2021	ND	0.020	101	0.0200	0.962		
Ethylbenzene*	<0.001	0.001	10/25/2021	ND	0.021	105	0.0200	3.84		
Total Xylenes*	<0.003	0.003	10/25/2021	ND	0.064	107	0.0600	2.67		
Total BTEX	<0.006	0.006	10/25/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 100 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	500	4.00	10/21/2021	ND	100	100	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	357	83.3	10/22/2021	ND	19.1	95.6	20.0	4.85	

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1900	5.00	10/21/2021	ND	868	86.8	1000	2.48		

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:	10/20/2021	Sampling Date:	10/15/2021
Reported:	10/26/2021	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #3 (H212954-03)**

BTEX 8021B		mg/L		Analyzed By: MS						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Benzene*	<0.001	0.001	10/25/2021	ND	0.022	108	0.0200	2.42		
Toluene*	<0.001	0.001	10/25/2021	ND	0.020	101	0.0200	0.962		
Ethylbenzene*	<0.001	0.001	10/25/2021	ND	0.021	105	0.0200	3.84		
Total Xylenes*	<0.003	0.003	10/25/2021	ND	0.064	107	0.0600	2.67		
Total BTEX	<0.006	0.006	10/25/2021	ND						

Surrogate: 4-Bromofluorobenzene (PID) 98.6 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Chloride*	500	4.00	10/21/2021	ND	100	100	100	0.00		

Sulfate 375.4		mg/L		Analyzed By: AC						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	406	83.3	10/22/2021	ND	19.1	95.6	20.0	4.85		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1960	5.00	10/21/2021	ND	868	86.8	1000	2.48		

Cardinal Laboratories

\*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager



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---

### Notes and Definitions

QR-04	The RPD for the BS/BSD was outside of historical limits.
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

101 East Marland - Hobbs, NM 88240  
Tel (575) 393-2326  
Fax (575) 393-2476

# Cardinal Laboratories, Inc.

## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

LAB Order ID # \_\_\_\_\_

### ANALYSIS REQUEST

(Circle or Specify Method No.)

Company Name: **RICE Operating Company**  
Project Manager: **Katie Jones**  
Address: (Street, City, Zip)  
**122 W Taylor Street ~ Hobbs, New Mexico 88240**  
Phone #: **(575) 393-9174**  
Fax #: **(575) 397-1471**

BILL TO Company: **RICE Operating Company**  
PO#  
Address: (Street, City, Zip)  
**122 W Taylor Street ~ Hobbs, New Mexico 88240**  
Phone#: **(575) 393-9174**  
Fax#: **(575) 397-1471**

Project #: \_\_\_\_\_ Project Name: **BD L-36 EOL**

Project Location: **T21S R37E Sec36 L ~ Lea County New Mexico**  
Sampler Signature: *Rozanne Johnson* (575) 631-9310

LAB # ( LAB USE ONLY )		FIELD CODE	(G)rab or (C)omp	# CONTAINERS	MATRIX				PRESERVATIVE METHOD					SAMPLING		
					WATER	SOIL	AIR	SLUDGE	HCL (4 - 40ml VOA)	HNO <sub>3</sub>	NaHSO <sub>4</sub>	H <sub>2</sub> SO <sub>4</sub>	ICE (1-1Liter HDPE)	NONE	DATE (2021)	TIME
1		Monitor Well #1	G	5	X				4				1		10/15	13:50
2		Monitor Well #2	G	5	X				4				1		10/15	10:00
3		Monitor Well #3	G	5	X				4				1		10/15	11:45

Relinquished by: *Rozanne Johnson*  
Date: *10/20/21* Time: *14:40*

Received by: *Samuel Oldak*  
Date: *10-20-21* Time: *1440*

Delivered By: (Circle One)

Sample Condition

Cool Intact  
Yes ☒ Yes ☒  
No ☐ No ☐

CHECKED BY:

(Initials)

Sampler - UPS - Bus - Other:

Phone Results: Yes ☐ No ☐  
Fax Results: Yes ☐ No ☐ Additional Fax Number:

REMARKS:

Email Results: [kjones@riceswd.com](mailto:kjones@riceswd.com)  
[rozanne@sdacres.com](mailto:rozanne@sdacres.com)



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

---

August 11, 2021

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 08/06/21 14:40.

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](http://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



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**Analytical Results For:**

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

Received:	08/06/2021	Sampling Date:	08/03/2021
Reported:	08/11/2021	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #1 (H212104-01)**

BTEX 8021B		mg/L		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/10/2021	ND	0.019	94.2	0.0200	1.06	
Toluene*	<0.001	0.001	08/10/2021	ND	0.020	101	0.0200	0.583	
Ethylbenzene*	<0.001	0.001	08/10/2021	ND	0.020	101	0.0200	0.0447	
Total Xylenes*	<0.003	0.003	08/10/2021	ND	0.063	104	0.0600	0.312	
Total BTEX	<0.006	0.006	08/10/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	600	4.00	08/09/2021	ND	104	104	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Sulfate*	679	125	08/10/2021	ND	21.0	105	20.0	0.427	

TDS 160.1		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
TDS*	2160	5.00	08/10/2021	ND	542	108	500	1.76	

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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:	08/06/2021	Sampling Date:	08/03/2021
Reported:	08/11/2021	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #2 (H212104-02)**

BTEX 8021B		mg/L		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/10/2021	ND	0.019	94.2	0.0200	1.06	
Toluene*	<0.001	0.001	08/10/2021	ND	0.020	101	0.0200	0.583	
Ethylbenzene*	<0.001	0.001	08/10/2021	ND	0.020	101	0.0200	0.0447	
Total Xylenes*	<0.003	0.003	08/10/2021	ND	0.063	104	0.0600	0.312	
Total BTEX	<0.006	0.006	08/10/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 99.7 % 77.1-124

Chloride, SM4500CI-B		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	500	4.00	08/09/2021	ND	104	104	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	624	125	08/10/2021	ND	21.0	105	20.0	0.427		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1930	5.00	08/11/2021	ND	542	108	500	1.76		

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**Analytical Results For:**

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

Received:	08/06/2021	Sampling Date:	08/03/2021
Reported:	08/11/2021	Sampling Type:	Water
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	T21S R37E SEC 36 L ~ LEA COUNTY NM		

**Sample ID: MONITOR WELL #3 (H212104-03)**

BTEX 8021B		mg/L		Analyzed By: MS					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Benzene*	<0.001	0.001	08/10/2021	ND	0.019	94.2	0.0200	1.06	
Toluene*	<0.001	0.001	08/10/2021	ND	0.020	101	0.0200	0.583	
Ethylbenzene*	<0.001	0.001	08/10/2021	ND	0.020	101	0.0200	0.0447	
Total Xylenes*	<0.003	0.003	08/10/2021	ND	0.063	104	0.0600	0.312	
Total BTEX	<0.006	0.006	08/10/2021	ND					

Surrogate: 4-Bromofluorobenzene (PID) 101 % 77.1-124

Chloride, SM4500Cl-B		mg/L		Analyzed By: GM					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride*	460	4.00	08/09/2021	ND	104	104	100	0.00	

Sulfate 375.4		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
Sulfate*	639	125	08/10/2021	ND	21.0	105	20.0	0.427		

TDS 160.1		mg/L		Analyzed By: GM						
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier	
TDS*	1920	5.00	08/10/2021	ND	542	108	500	1.76		

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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.
BS-3	Blank spike recovery outside of lab established statistical limits, but still within method limits. Data is not adversely affected.
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".

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Celey D. Keene, Lab Director/Quality Manager

## Cardinal Laboratories, Inc.

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

## ANALYSIS REQUEST

(Circle or Specify Method No.)

Page 6 of 6

# CAP Report and Soil Closure Request and NMOCD Approval

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





PO Box 2948 | Hobbs, NM 88241 | Phone 575.393.2967

**May 17, 2018**

**Bradford Billings**

New Mexico Energy, Minerals, & Natural Resources  
Oil Conservation Division, Environmental Bureau  
1220 S. St. Francis Drive  
Santa Fe, New Mexico 87505

**RE: Corrective Action Plan (CAP) Report and Soil Closure Request  
Rice Operating Company – BD SWD System  
BD L-36 EOL (1R426-278): UL/L, Sec. 36, T21S, R37E**

Mr. Billings:

RICE Operating Company (ROC) has retained Basin Environmental Service Technologies (Basin) to address potential environmental concerns at the above-referenced site in the BD Salt Water Disposal (SWD) system. 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.

**Background and Previous Work**

The site is located approximately 2 miles east of Eunice, New Mexico at UL/L, Sec. 36, T21S, R37E as shown on the Geographical Location Map and Area Map. NM OSE records indicate that groundwater will likely be encountered at a depth of approximately 47 feet below ground surface (bgs).

In 2010, ROC initiated work on the former L-36 EOL junction box. The site was delineated using a backhoe to form a 20 ft x 20 ft x 12 ft deep excavation and soil samples were screened at regular intervals for both hydrocarbons and chlorides. From the excavation, a 4-wall composite sample and a bottom composite sample were sent to a commercial laboratory for analysis. The 4-wall composite returned a chloride reading of 896 mg/kg, a Gasoline Range Organics (GRO) reading non-detect and a Diesel Range Organics (DRO) reading of 330 mg/kg. The bottom composite sample returned a chloride reading of 3,280 mg/kg, a GRO reading of non-detect and a DRO reading of 242 mg/kg. The excavated soil was blended on site and a representative sample was sent to a commercial laboratory for analysis. The sample returned a chloride reading of 560 mg/kg, a GRO reading of non-detect and a DRO reading of 69.5 mg/kg. The blended backfill was returned to the excavation up to 5 ft bgs. At 5 – 4 ft bgs, a 1 ft thick clay barrier was installed. The clay layer will provide a barrier that will inhibit the downward migration of chlorides to groundwater. The remaining blended backfill soil was returned to the excavation,



May 17, 2018

and clean, imported soil was used to backfill the excavation to the ground surface and to contour the site to the surrounding area. On April 29<sup>th</sup>, 2010, the site was seeded with a blend of native vegetation.

To further investigate the depth of chloride presence, a soil bore was installed on June 11<sup>th</sup>, 2010. The soil bore was installed 10 ft north of the former junction box site and was advanced to a depth of 39 ft bgs. Soil samples were collected every 3 ft between 15 and 39 ft and each sample was field titrated for chlorides and field screened for PIDs. The 36 ft and 39 ft sample were sent to a commercial laboratory for analysis, resulting in a 36 ft chloride concentration of 3,680 mg/kg and GRO and DRO concentrations of non-detect. The 39 ft sample resulted in a chloride concentration of 3,360 mg/kg and GRO and DRO concentrations of non-detect. The entire borehole was plugged with bentonite to the ground surface.

NMOCD was notified of potential groundwater impact on October 5<sup>th</sup>, 2010. A junction box disclosure report was submitted to NMOCD with all the 2010 junction box closures and disclosures.

#### **Investigation and Characterization Plan (ICP)**

An ICP was submitted on April 24<sup>th</sup>, 2015, and approved on May 7<sup>th</sup>, 2015. A total of 3 soil bores were installed at the site on May 20<sup>th</sup>, 21<sup>st</sup> and July 10<sup>th</sup>, 2015. As the bores were advanced, soil samples were taken every 3 ft and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for confirmatory analysis. SB-2 returned a laboratory chloride reading of 5,280 mg/kg at 33 ft bgs, which decreased to 4,160 mg/kg at 42 ft bgs. SB-3 returned laboratory chloride readings of 7,040 mg/kg at 24 ft bgs and decreased to 4,240 mg/kg at 39 ft bgs. SB-4 returned a laboratory chloride reading of 304 mg/kg at 12 ft bgs, which decreased to 128 mg/kg at 15 ft bgs. GRO and DRO readings at all depth in all bores were non-detect, with the exception of DRO at 33 ft in SB-2, which resulted in a concentration of 72.7 mg/kg. The northern edge of the site is defined by SB-4 with chloride concentrations decreasing to 128 mg/kg at 15 ft bgs. The eastern edge is defined by the 5 ft east vertical with a chloride concentration of 84 mg/kg at 12 ft bgs. The western edge is defined by the 15 ft west vertical with a chloride concentration of 119 mg/kg at 12 ft bgs. The 10 ft south vertical defined the southern edge of the site with a chloride concentration of 178 mg/kg.

#### **Corrective Action Plan**

A CAP was submitted on February 9<sup>th</sup>, 2017, which recommended the installation of a 42 ft x 31 ft, 20-mil reinforced poly liner at 5-3.5 ft bgs depending on the depth of the existing clay liner. NMOCD responded on February 23<sup>rd</sup>, 2017, requesting additional data to the south of the site.

#### **Additional Investigation**

In accordance with the request from OCD, three additional soil bores (SB-5, SB-6 and SB-7) were installed at the site on September 18<sup>th</sup> and September 21<sup>st</sup>, 2017. As the bores were



May 17, 2018

advanced, soil samples were taken every 3 ft and field tested for chlorides and hydrocarbons. Representative samples from each bore were taken to a commercial laboratory for confirmatory analysis. SB-5 returned a laboratory chloride reading of 1,260 mg/kg at 33 ft bgs, which decreased to 1,040 mg/kg at 42 ft bgs. SB-6 returned laboratory chloride readings of 1,100 mg/kg at 24 ft bgs and decreased to 384 mg/kg at 42 ft bgs. SB-7 returned a laboratory chloride reading of 752 mg/kg at 36 ft bgs, which decreased to 32 mg/kg at 42 ft bgs. (The sample at 42 ft bgs in SB-7 originally resulted in a chloride concentration of 928 mg/Kg from the laboratory. Since this relatively high concentration did not coincide with the field chloride test result for that sample and the lower chloride results at 36 ft and 39 ft bgs, ROC ordered a re-analysis of the sample. ROC believes that there was some human error with the sample originally.) GRO and DRO readings at all depth in all bores were non-detect. Each bore was plugged with bentonite to ground surface.

#### **Corrective Action Plan Addendum**

Based on the additional soil data, Basin recommended that ROC install a 91 ft x 31 ft (rather than a 42 ft x 31 ft), 20-mil reinforced poly liner at 5 – 3.5 ft bgs, depending on the actual depth of the existing clay liner. The liner will inhibit the downward migration of residual constituents through the vadose zone, and will cover the existing 20x20-ft clay liner. The soils placed above the liner will have a laboratory chloride reading no greater than 500 mg/kg and a field PID measurement below 100 ppm. Excavated soils was evaluated for use as backfill and any soils that do not meet requirements was properly disposed of at a NMOCD approved facility. The excavation was backfilled to ground surface and contoured to the surrounding location.

The soils over and surrounding the site was prepared with soil amendments as necessary and seeded with a native vegetative mix. Vegetation above the liner will also provide a natural infiltration barrier for the site since plants capture water through their roots thereby reducing the volume of water moving through the vadose zone.

#### **CAP Report and Soil Closure Request**

According to the Corrective Action Plan (CAP) and CAP Addendum, which was approved by the NMOCD on the October 30<sup>th</sup>, 2017, ROC installed a 20-mil reinforced poly liner across the site with the dimensions of 91 x 31 ft at a depth of 4.5 ft bgs, which covered the previously installed 20 x 20 ft clay liner. A total of 852 cubic yards of excavated soil were taken to a NMOCD approved facility for disposal. The bottom of the excavation was padded with 6 inches imported blow sand and a 20-mil reinforced liner was installed and properly seated at 4.5 ft bgs. The top of the liner was padded with 6 inches of imported blow sand, and the excavation was backfilled to ground surface with imported top soil. A sample of the imported blow sand and a sample of the imported top soil were sent to a commercial laboratory for analysis of chloride and returned a result of 16 mg/kg and 32 mg/kg, respectively. The soil samples were also analyzed for GRO and DRO resulting in <10 mg/Kg for all samples. The backfilled site was then seeded with a blend of native vegetation. Vegetation above the liner will also provide a natural infiltration barrier for the site, since plants capture water through their roots thereby reducing the

May 17, 2018

volume of water moving through the vadose zone. Documentation of this work is included in the Appendix.

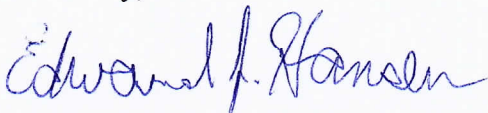
### **Groundwater Monitoring Plan**

In order to determine what affect the residual chlorides may have had on the groundwater quality below the site, BEST recommends that ROC install a near-source monitor well (MW-1) located approximately 45 feet down-gradient of the former junction box. To determine if there is an up-gradient source of contaminants coming onto the site, MW-2 will be installed approximately 75 feet up-gradient of the former junction box. Also, an additional monitoring well (MW-3) will be installed approximately 100 feet down-gradient of the former junction box (see Proposed Monitoring Wells). Additional monitoring wells may be required to fully delineate groundwater quality. The monitor wells will be installed to NMOCD and EPA standards and then sampled quarterly. Once groundwater quality has been determined, ROC will either submit a groundwater remedy to NMOCD to address groundwater quality at the site or submit a termination request for site closure.

ROC has completed the vadose zone remediation as approved by NMOCD in the CAP. The 20-mil reinforced liner will inhibit the further migration of chlorides through the vadose zone in to groundwater. Therefore, ROC requests "Soil Closure" or similar closure status.

Basin appreciates the opportunity to work with you on this project. Please call Katie Jones Davis at (575) 393-9174 or me if you have any questions or wish to discuss the site.

Sincerely,



Edward J. Hansen  
Senior Hydrologist  
Basin Environmental Service Technologies

### **Attachments:**

- Geographical Location Map
- Area Map
- Installed Liner Plat
- Proposed Monitoring Wells Plat
- Appendix – Liner Installation Documentation



# Figures

*Basin Environmental Service Technologies (BEST)*

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967





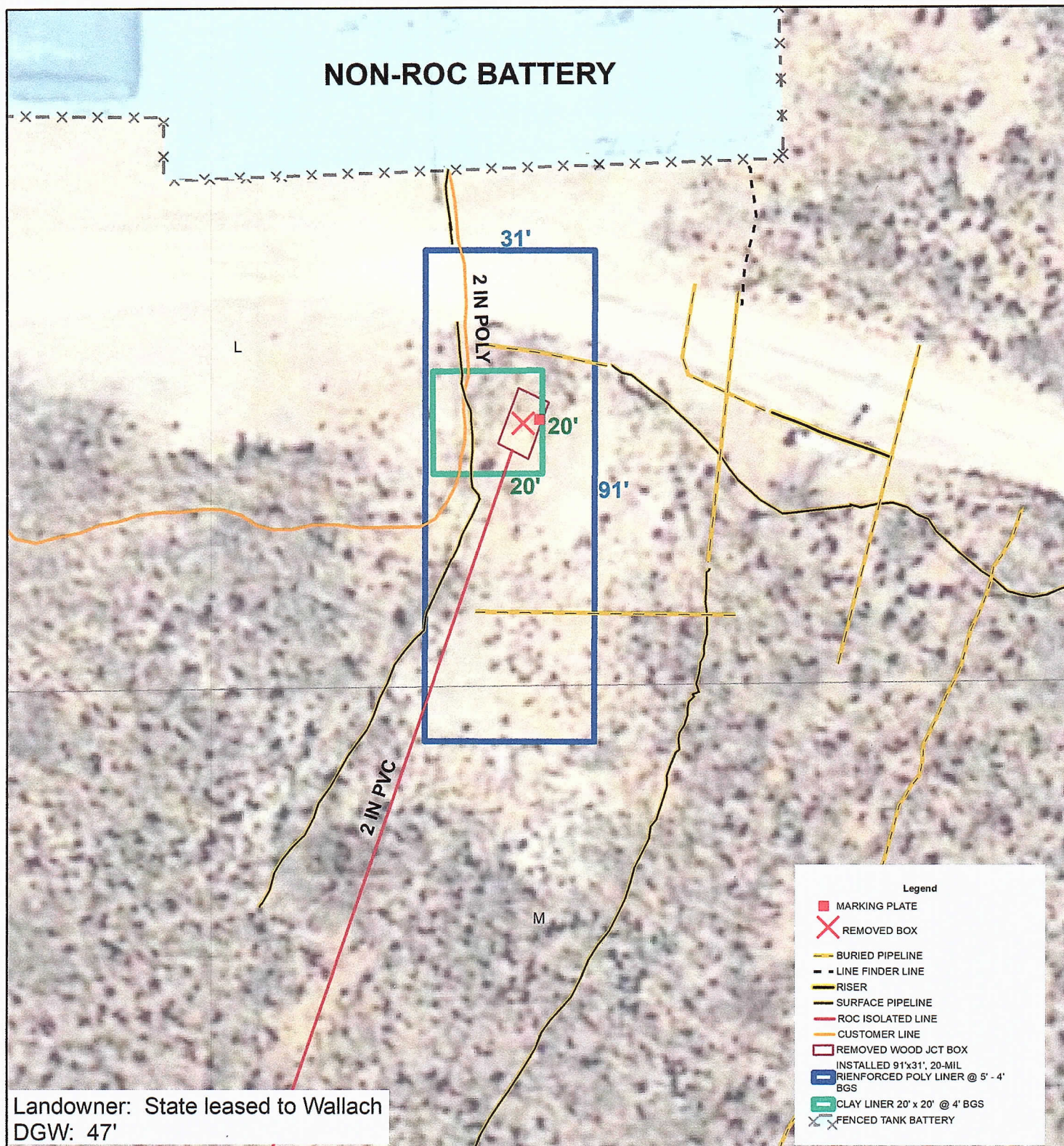


## Area Map





## Liner Installation



**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049

0 10 20

HHH Feet

GPS Date: 7/10/15 CF

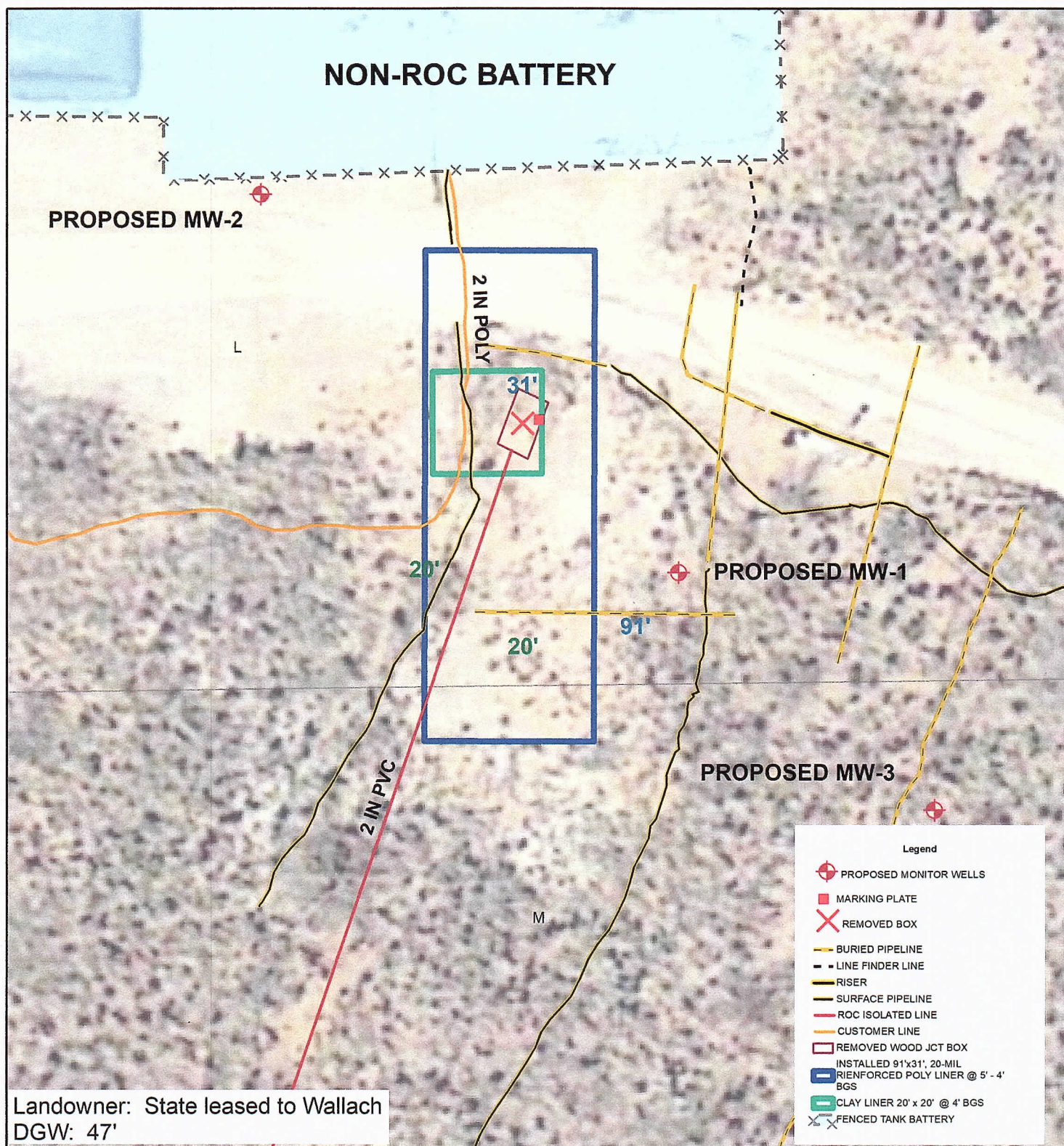
Drawing date: 4/20/18

Drafted by: T. Grieco





# Proposed Monitor Wells



**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049

0 10 20  
HHH Feet  
GPS Date: 7/10/15 CF  
Drawing date: 4/18/18  
Drafted by: T. Grieco





# Appendix

*Basin Environmental Service Technologies (BEST)*

P.O. Box 2948, Hobbs, NM 88241

Phone: 575-393-2967



# BD L-36 EOL

Unit L, Section 36, T21S, R37E



Spotting lines with hydrovac,  
facing southwest

12/13/2017



Excavating the site to 5 ft bgs,  
facing north

12/18/2017



Exporting excavated soil,  
facing northeast

12/19/2017



Importing blow sand,  
facing south

12/19/2017



Installing 20-mil, reinforced liner at 4.5 ft bgs,  
facing north

12/19/2017



Padding the 20-mil, reinforced liner with imported  
soil, facing northeast

12/19/2017





Backfilling and contouring the site with imported soil, facing west  
12/27/2017



Tilling and seeding backfilled site, facing southwest  
12/28/2017



Seeding site, completing silt net fencing, facing northeast  
12/28/2017



Site complete, facing north



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

December 28, 2017

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 12/19/17 16:30.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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](http://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:	12/19/2017	Sampling Date:	12/19/2017
Reported:	12/28/2017	Sampling Type:	Soil
Project Name:	BD L-36 EOL	Sampling Condition:	Cool & Intact
Project Number:	NONE GIVEN	Sample Received By:	Tamara Oldaker
Project Location:	NOT GIVEN		

**Sample ID: IMPORTED BACKFILL (H703512-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	16.0	16.0	12/21/2017	ND	432	108	400	3.77	
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	12/27/2017	ND	213	107	200	0.274	
DRO >C10-C28*	<10.0	10.0	12/27/2017	ND	208	104	200	0.493	
Surrogate: 1-Chlorooctane	107 %	28.3-164							
Surrogate: 1-Chlorooctadecane	102 %	34.7-157							

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

---

Celey D. Keene, Lab Director/Quality Manager





## CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

[illegible]

**PLEASE NOTE:** Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: 		Date: 12/12/12 Time: 4:50		Received By: 		Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Phone #: Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Add'l Fax #: REMARKS:	
Relinquished By:		Date:		Received By:		Send results to Katie Jones K.jones@nrcsund.com Kyle Norman Tony Greene tgreene@basementv.com	
Delivered By: (Circle One) 5.02		Sample Condition Cool Intact <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Yes <input type="checkbox"/> No		CHECKED BY: (Initials) TO-#25			
Sampler - UPS - Bus - Other: Corrected 5.25							

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 393-2326.





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

December 29, 2017

KATIE JONES

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: BD L-36 EOL

Enclosed are the results of analyses for samples received by the laboratory on 12/20/17 16:00.

Cardinal Laboratories is accredited through Texas NELAP under certificate number T104704398-17-10. 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](http://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 fluid and cursive, with the first name "Celey" being more prominent.

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: 12/20/2017  
Reported: 12/29/2017  
Project Name: BD L-36 EOL  
Project Number: NONE GIVEN  
Project Location: NOT GIVEN

Sampling Date: 12/20/2017  
Sampling Type: Soil  
Sampling Condition: Cool & Intact  
Sample Received By: Tamara Oldaker

**Sample ID: BACKFILL FROM PIT (H703561-01)**

Chloride, SM4500Cl-B		mg/kg		Analyzed By: AC					
Analyte	Result	Reporting Limit	Analyzed	Method Blank	BS	% Recovery	True Value QC	RPD	Qualifier
Chloride	32.0	16.0	12/27/2017	ND	416	104	400	3.77	
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	12/27/2017	ND	204	102	200	6.53	
DRO >C10-C28*	<10.0	10.0	12/27/2017	ND	188	94.1	200	2.22	
Surrogate: 1-Chlorooctane	86.9 %	28.3-164							
Surrogate: 1-Chlorooctadecane	85.3 %	34.7-157							

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

---

Cardinal Laboratories

\*=Accredited Analyte

PLEASE NOTE: Liability and Damages. Cardinal's liability and client's exclusive remedy for any claim arising, whether based in contract or tort, shall be limited to the amount paid by client for analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within thirty (30) days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including, without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of the services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise. Results relate only to the samples identified above. This report shall not be reproduced except in full with written approval of Cardinal Laboratories.

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

---

Celey D. Keene, Lab Director/Quality Manager





**CARDINAL**  
Laboratories

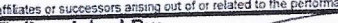
### CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

101 East Marland, Hobbs, NM 88240  
(575) 393-2326 FAX (575) 393-2476

Company Name:		Project Manager:		Address:		City:		State:		Zip:		Phone #:		Fax #:		Project #:		Project Owner:		Project Name:		Project Location:		Sampler Name:			
KICE		Katie Jones																									
BD L-36 EOL		Tony																									
FOR LAB USE ONLY		Lab I.D.		Sample I.D.		(G)RAB OR (C)OMP.		# CONTAINERS		GROUNDWATER		WASTEWATER		SOIL		OIL		SLUDGE		OTHER		ACID/BASE		ICE / COOL		OTHER	
11/13/17		Backfill from Pit		Backfill from Pit		G-1		1						✓										✓			

PLEASE NOTE: Liability and Damages, Cardinal's liability and client's exclusive remedy for any claim arising whether based in contract or tort, shall be limited to the amount paid by the client for the analyses. All claims, including those for negligence and any other cause whatsoever shall be deemed waived unless made in writing and received by Cardinal within 30 days after completion of the applicable service. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by client, its subsidiaries, affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Analyses: All claims including incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by users, are hereby disclaimed. In no event shall Cardinal be liable for incidental or consequential damages, including without limitation, business interruptions, loss of use, or loss of profits incurred by users, are hereby disclaimed. affiliates or successors arising out of or related to the performance of services hereunder by Cardinal, regardless of whether such claim is based upon any of the above stated reasons or otherwise.

Relinquished By: 	Date: 12/20/17 Time: 4:00	Received By: Brandon Oldaker	Phone Result: <input type="checkbox"/> Yes <input type="checkbox"/> No Fax Result: <input type="checkbox"/> Yes <input type="checkbox"/> No REMARKS: email to kjones @ riceswd.com tgrice @ basimenu.com Kyle Norman
Relinquished By:	Date: Time:	Received By:	
Delivered By: (Circle One)		Sample Condition Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/>	CHECKED BY: (Initials)
Sampler - UPS - Bus - Other: 54°C			

+ Cardinal cannot accept verbal changes. Please fax written changes to (575) 303-2326



112 West Taylor  
Hobbs, NM 88240  
Phone: (575) 393-9174  
Fax: (575) 397-1471

## VEGETATION FORM

### 1. General Information

Site name: BD L-36 EOL						
U/L L	Section 36	Township 21S	Range 37E	County Lea	Latitude 32.431908	Longitude -103.122049
Contact Name: Katie Jones Davis						
Email: kjones@riceswd.com						
Site size: 2,500 square feet						

### 2. Soils

*\*Do not rip caliche subsoils; caliche rocks brought to the surface by ripping shall be removed.*

Salvaged from site	<input type="checkbox"/>	Bioremediated	<input type="checkbox"/>	Imported	<input type="checkbox"/>	X	Blended	<input type="checkbox"/>	Depth (in)	<input type="checkbox"/>	<input type="checkbox"/>
Texture: sandy		Describe soil & subsoil: top soil and blow sand									
Soil prep methods:		Rip	<input type="checkbox"/>	Depth (in)	<input type="checkbox"/>	Disc	X	Depth (in)	3	Rollerpack	<input type="checkbox"/>
Date completed: 12/27/2017											

### 3. Bioremediation

Fertilizer	<input type="checkbox"/>	Hay	<input type="checkbox"/>	Other	<input type="checkbox"/>
Type:	<input type="checkbox"/>	Describe:	<input type="checkbox"/>		
Lbs/acre:	<input type="checkbox"/>	Describe:			<input type="checkbox"/>

### 4. Seeding

*\*Attach seed bag tags to this form. Seed bag tags shall contain the site name and S-T-R.*

Custom Seed Mix	X	Prescribed Mix	<input type="checkbox"/>	Seed Mix Name: 5 lbs Lea County Mix & 50 lbs Winter Wheat Seed Mix	Date: 12/28/2017
Method: broadcast with seeder					
Soil conditions during seed:		Dry	X	Damp	<input type="checkbox"/>
Wet		<input type="checkbox"/>	<input type="checkbox"/>		
Observations: Seed was tilled into the soil					

### 5. Certification I hereby certify that the information in this form and attachments is true and complete to the best of my knowledge and belief.

Name: Katie Jones Davis	Title: Environmental Manager	Date: 12/28/2017
Signature: <i>Katie Jones Davis</i>		



**From:** [Billings, Bradford, EMNRD](#)  
**To:** [Katie Jones](#); [Edward Hansen](#); [Yu, Olivia, EMNRD](#); [Hernandez, Christina, EMNRD](#)  
**Subject:** CAP and Soil Closure Request for ROC BD-SWD System, BD L-36 EOL (1R 426-278)  
**Date:** Wednesday, June 20, 2018 1:21:04 PM

---

June 20, 2018

Katie Jones – ROC  
Ed Hansen – Basin

Re: Corrective Action Plan (CAP) and Soil Closure Request for ROC-BD SWD System, BD L-36 EOL (1R 426-278)

Following submitted report, data review and discussions, the following:

As has been mentioned, this is not a typical CAP and is considered to be a work plan for ground water delineation. Also, as has been noted in other Oil Conservation Division (OCD) responses recently, please be sure and include extended range (GRO, DRO and MRO) for TPH analysis.

OCD agrees that required soil remediation work based on previous approvals has been met and as such no additional soil remediation is required. This does not mean site/location is closed.

OCD also approves the nominal ground water investigation plan with the following conditions:

1. Please insure that top of casing for monitor wells is surveyed to the nearest 100<sup>th</sup> of a foot.
2. Monitor wells will be placed as per State Engineer protocol. OCD prefers, at minimum, that ten (10) feet of screen be placed into water table and five foot of screen be located above air/water interface. OCD can discuss this with ROC/Basin if needed. Ground water to be sampled for Chloride, and at least initially for BTEX, benzene and TPH.
3. OCD requests that proposed monitor well identified as MW-1 be located as near as practicable to the ESE edge of the larger soil excavation area. In general, moving the proposed location to the East to as near the edge of previous soil excavation as can be done.

OCD appreciates all efforts to this time by ROC and Basin for this circumstance.

If there are any questions please contact this office.

Please keep this electronic communication as NO paper copy will follow.

Sincerely,

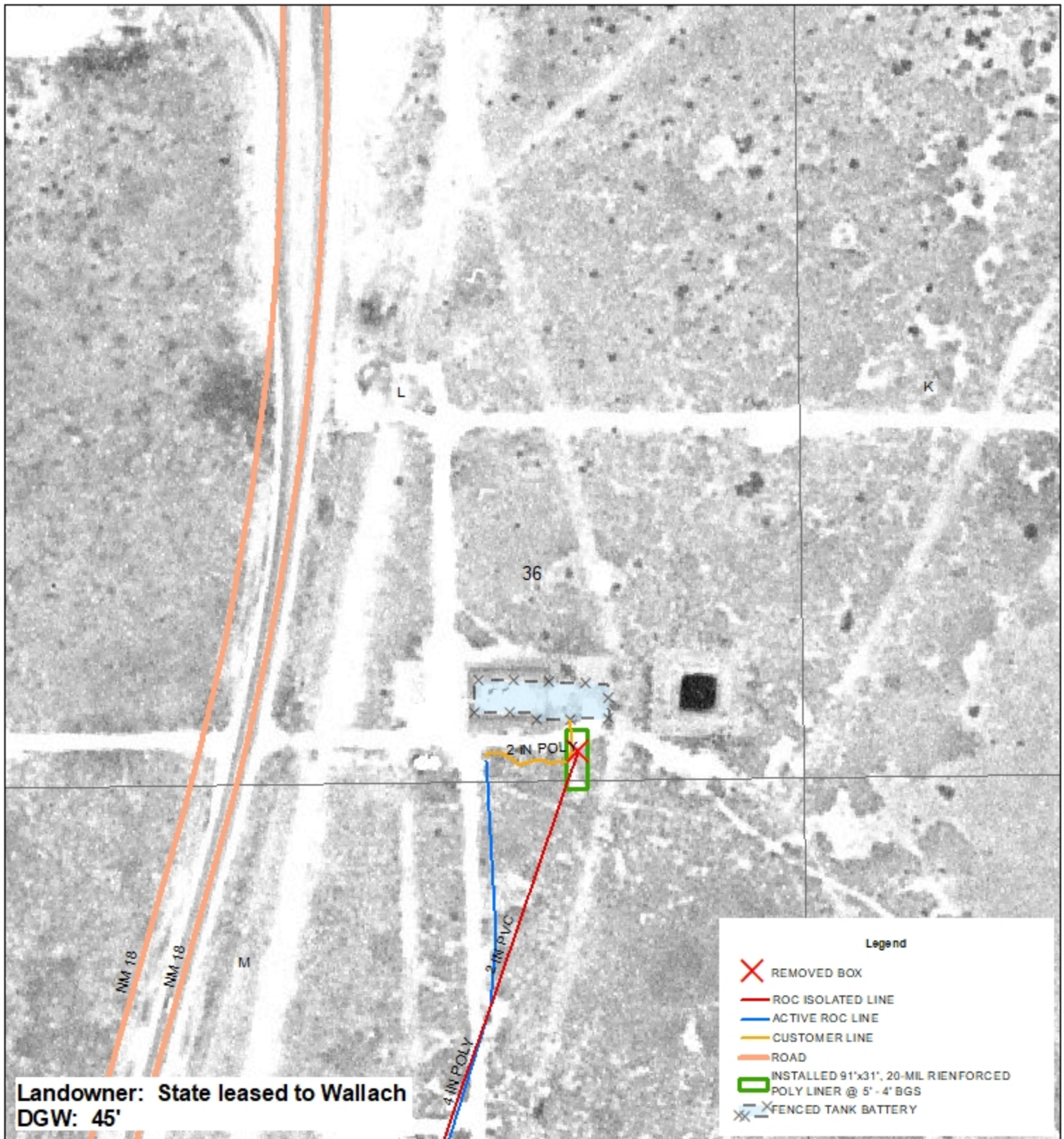
Bradford Billings  
EMNRD/OCD

Santa Fe

OCD approval does not relieve the operator of liability should their operations fail to adequately investigate and remediate contamination that may pose a threat to ground water, surface water, human health or the environment. In addition, OCD approval does not relieve the operator of responsibility for compliance with any other federal, state, local laws and/or regulations.

# Historical Photos

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



**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

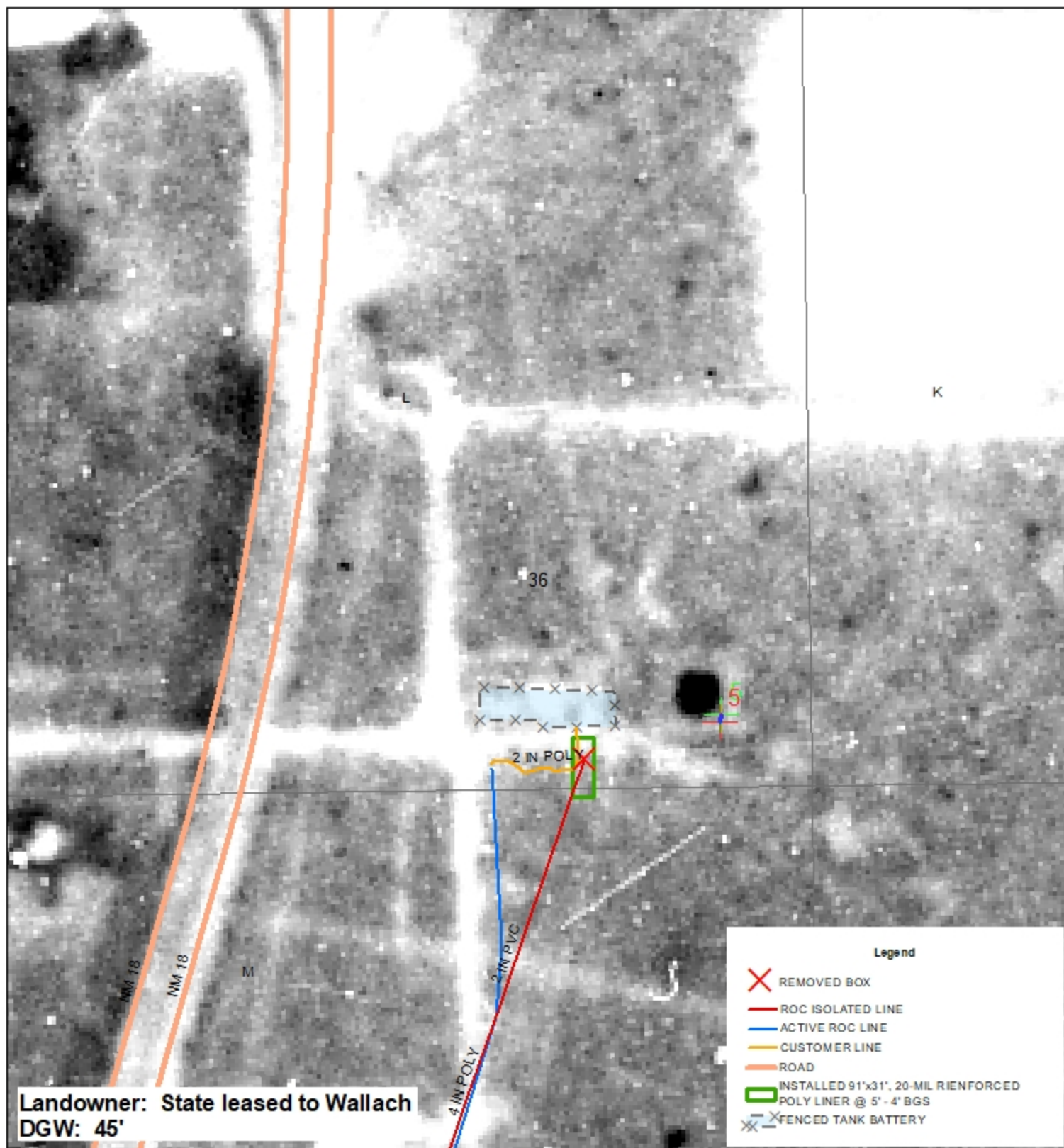
GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 100 200  
Feet

Drawing date: 8/16/20  
Drafted by: T. Grieco








***BD***  
***L-36 EOL***  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0      100      200

 Feet



Drawing date: 8/16/20  
Drafted by: T. Grieco



**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

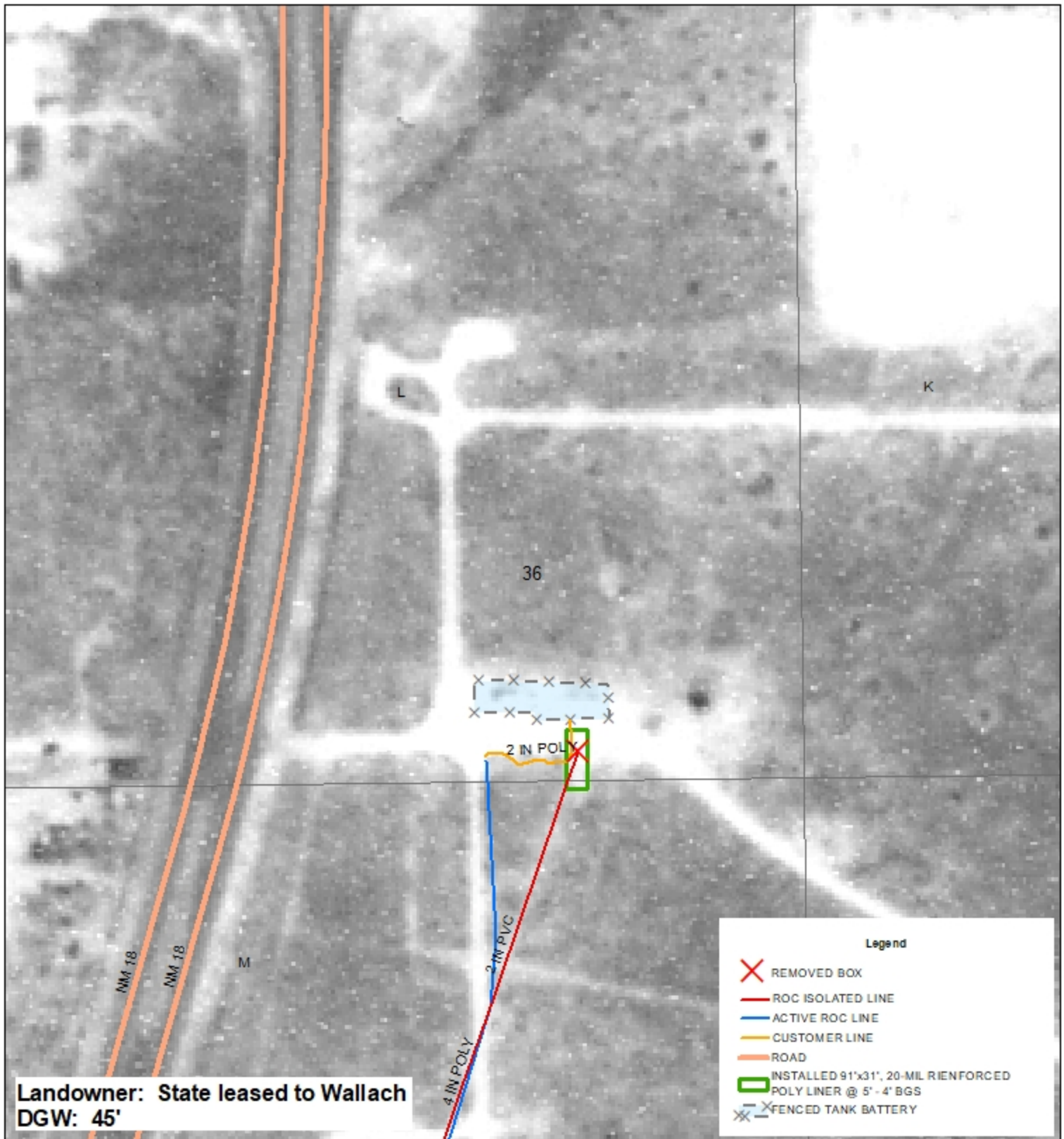
GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 100 200  
Feet

Drawing date: 8/16/20  
Drafted by: T. Grieco







**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

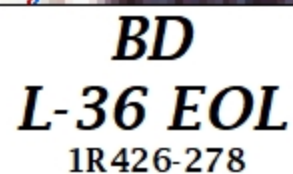
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NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 100 200  
Feet

Drawing date: 8/16/20  
Drafted by: T. Grieco

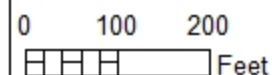




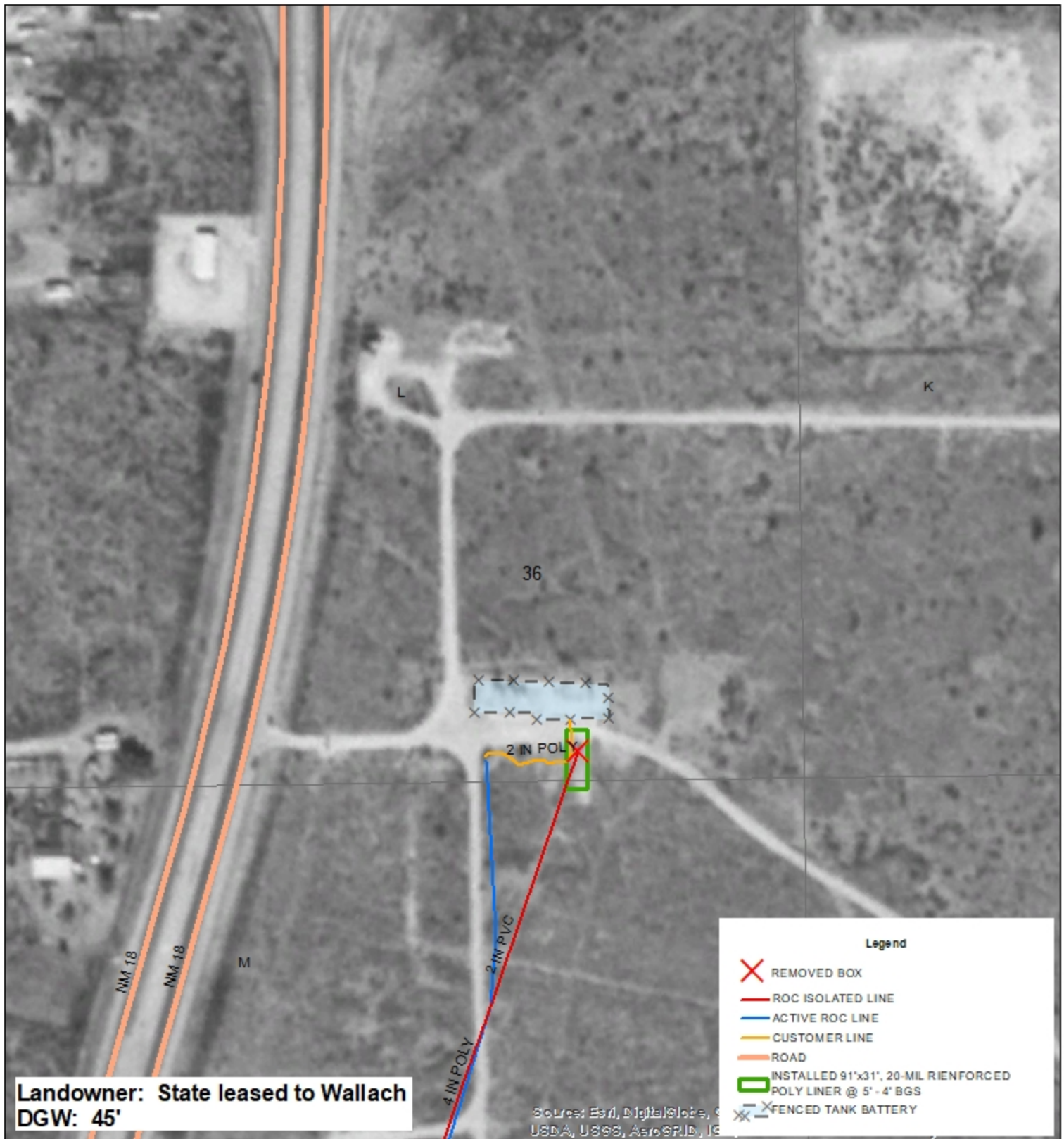


UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE



Drawing date: 8/16/20  
Drafted by: T. Grieco



**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 100 200  
Feet

Drawing date: 8/16/20  
Drafted by: T. Grieco







**BD**  
**L-36 EOL**  
1R426-278

UL L SECTION 36  
T-21-S R-37-E  
LEA COUNTY, NM

GPS: 32.431908, -103.122049  
NAD 83 STATE PLANE PROJECTION  
NM EAST ZONE

0 100 200  
Feet

Drawing date: 8/16/20  
Drafted by: T. Grieco





# Final C-141 and Current Photos

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

Incident ID	
District RP	1R426-278
Facility ID	
Application ID	pEJH1110154100

## Closure

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

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

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

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

Printed Name: Katie Davis Title: Environmental Manager

Signature:  Date: 8/22/2022

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

### OCD Only

Received by: \_\_\_\_\_ Date: \_\_\_\_\_

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

Closure Approved by: Michael Buchanan Date: 03/01/2024

Printed Name: Mike Buchanan Title: Environmental Specialist

**BD L-36 EOL (1R426-278)**  
**Unit L, Section 36, T21S, R37E**



Facing North

11/22/2021



Facing West

11/22/2021



**District I**  
1625 N. French Dr., Hobbs, NM 88240  
Phone:(575) 393-6161 Fax:(575) 393-0720  
**District II**  
811 S. First St., Artesia, NM 88210  
Phone:(575) 748-1283 Fax:(575) 748-9720  
**District III**  
1000 Rio Brazos Rd., Aztec, NM 87410  
Phone:(505) 334-6178 Fax:(505) 334-6170  
**District IV**  
1220 S. St Francis Dr., Santa Fe, NM 87505  
Phone:(505) 476-3470 Fax:(505) 476-3462

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

CONDITIONS  
  
Action 136521

CONDITIONS

Operator: RICE OPERATING COMPANY 122 W Taylor Hobbs, NM 88240	OGRID: 19174
	Action Number: 136521
	Action Type: [C-141] Release Corrective Action (C-141)

CONDITIONS

Created By	Condition	Condition Date
michael.buchanan	Closure Report Approved. All revegetation activities will need to be documented and included in the revegetation report. The revegetation report will need to include: An executive summary of the revegetation activities including: Seed mix, Method of seeding, dates of when the release area was reseeded, information pertinent to inspections, information about any amendments added to the soil, information on how the vegetative cover established meets the life-form ratio of plus or minus fifty percent of pre-disturbance levels and a total percent plant cover of at least seventy percent of pre-disturbance levels, excluding noxious weeds per 19.15.29.13 D.(3) NMAC, and any additional information; a scaled Site Map including area that was revegetated in square feet; and pictures of the revegetated areas during reseeding activities, inspections, and final pictures when revegetation is achieved.	3/1/2024