

| | | | |
|--------------------------------|-----------|---------------------|------------------------------------|
| RECEIVED: <u>08/08/2018</u> | REVIEWER: | TYPE: <u>SWD</u> | APP NO: <u>PMAM 18220 56380</u> |
|--------------------------------|-----------|---------------------|------------------------------------|

ABOVE THIS TABLE FOR OCD DIVISION USE ONLY

NEW MEXICO OIL CONSERVATION DIVISION
 - Geological & Engineering Bureau -
 1220 South St. Francis Drive, Santa Fe, NM 87505

**ADMINISTRATIVE APPLICATION CHECKLIST**

THIS CHECKLIST IS MANDATORY FOR ALL ADMINISTRATIVE APPLICATIONS FOR EXCEPTIONS TO DIVISION RULES AND
 REGULATIONS WHICH REQUIRE PROCESSING AT THE DIVISION LEVEL IN SANTA FE

Applicant: Rice Operating Company **OGRID Number:** 019174
Well Name: D-24-N **API:** _____
Pool: San Andres **Pool Code:** 96121

**SUBMIT ACCURATE AND COMPLETE INFORMATION REQUIRED TO PROCESS THE TYPE OF APPLICATION
 INDICATED BELOW**

- 1) **TYPE OF APPLICATION:** Check those which apply for [A]
 A. Location – Spacing Unit – Simultaneous Dedication
☐ NSL ☐ NSP (PROJECT AREA) ☐ NSP (PRORATION UNIT) ☐ SD

B. Check one only for [I] or [II]

[I] Commingling – Storage – Measurement

☐ DHC ☐ CTB ☐ PLC ☐ PC ☐ OLS ☐ OLM

[II] Injection – Disposal – Pressure Increase – Enhanced Oil Recovery

☐ WFX ☐ PMX ☒ SWD ☐ IPI ☐ EOR ☐ PPR

- 2) **NOTIFICATION REQUIRED TO:** Check those which apply.

- A. ☒ Offset operators or lease holders
 B. ☐ Royalty, overriding royalty owners, revenue owners
 C. ☒ Application requires published notice
 D. ☒ Notification and/or concurrent approval by SLO
 E. ☐ Notification and/or concurrent approval by BLM
 F. ☒ Surface owner
 G. ☒ For all of the above, proof of notification or publication is attached, and/or,
 H. ☐ No notice required

FOR OCD ONLY

- ☐ Notice Complete
☐ Application
 Content
 Complete

- 3) **CERTIFICATION:** I hereby certify that the information submitted with this application for administrative approval is **accurate** and **complete** to the best of my knowledge. I also understand that **no action** will be taken on this application until the required information and notifications are submitted to the Division.

Note: Statement must be completed by an individual with managerial and/or supervisory capacity.

Hayden Holub

Print or Type Name

Signature

Hayden Holub

8-6-18

Date

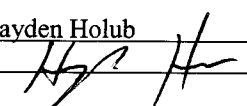
575-393-9174

Phone Number


hholub@riceswd.com

e-mail Address

APPLICATION FOR AUTHORIZATION TO INJECT

- I. PURPOSE: _____ Secondary Recovery _____ Pressure Maintenance ☒ Disposal _____ Storage
Application qualifies for administrative approval? _____ Yes _____ No
- II. OPERATOR: _____ Rice Operating Co. _____
ADDRESS: _____ 112 W Taylor Hobbs, Nm 88240 _____
CONTACT PARTY: _____ Hayden Holub _____ PHONE: _____ 575-393-9174 _____
- III. WELL DATA: Complete the data required on the reverse side of this form for each well proposed for injection.
Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? _____ Yes ☒ No
If yes, give the Division order number authorizing the project: _____
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
 2. Whether the system is open or closed;
 3. Proposed average and maximum injection pressure;
 4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and,
 5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- *VIII. Attach appropriate geologic data on the injection zone including appropriate lithologic detail, geologic name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such sources known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- *X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division, they need not be resubmitted).
- *XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification: I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- NAME: _____ Hayden Holub _____ TITLE: _____ Manager _____
SIGNATURE: _____  _____ DATE: _____ 08-06-2018 _____
E-MAIL ADDRESS: _____ hholub@riceswd.com _____
- * If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be resubmitted.
Please show the date and circumstances of the earlier submittal: _____

D-24-N

- I. Disposal
- II. Operator: Rice Operating Co. Address: 112 W Taylor, Hobbs, Nm 88240
Contact Party: Hayden Holub Phone: 575-393-9174
- III. Attached
- IV. No
- V. Attached
- VI. No wells penetrate inj. interval within .5 mi AoR
- VII.
 - 1. Average rate is 1100 bbls/hr (26,400/day) Maximum rate 1875 bbls/hr (45K/day)
 - 2. Closed
 - 3. Average pressure 0, maximum pressure 1000 PSI or the max allowed by the OCD.
 - 4. All fluid is oilfield produced water
 - 5. No known disposal zone formation water available within the one mile of the proposed swd well. Attached is analysis of closest known formation water location approx. 4.3 mi NE of swd well. The Rice Operating SWD well State E 27, located approx. 1.25miles East in ul-E - Sec 18 - 21S-37E, has been disposing millions of barrels of produced water into the San Andres formation per year since the early 2000s without problems.
- VIII. Lithology record attached. Disposal zone is San Andres (Top @3938', next formation top is Glorieta @ 5170'). Ogallala no deeper that 250'.
No known sources of drinking water underlying the injection zone
- IX. Acidize w/5,000 gal HCL 15% NEFE as needed
- X. New Drill
- XI. Analysis attached for two wells. Locations are H-23-T21S-R36E and G-23-T21S-R36E, both
Samples taken on 7-27-2018.
- XII. I, Hayden Holub, have examined all available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zones and any underground source of drinking water pertaining to this well. Geologic study attached.
- XIII. Attached
- XIV. Name: Hayden Holub Title: Manager
Signature:  Date: 8-6-18
Email: hholub@riceswd.com

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) 476-3460 Fax: (505) 476-3462

State of New Mexico
Energy, Minerals and Natural Resources Department

OIL CONSERVATION DIVISION

1220 South St. Francis Dr.
Santa Fe, New Mexico 87505

Form C-102

Revised August 1, 2011

Submit one copy to appropriate
District Office

WELL LOCATION AND ACREAGE DEDICATION PLAT

☐ AMENDED REPORT

| | | |
|---------------|---|--------------------|
| API Number | Pool Code | Pool Name |
| Property Code | Property Name D-24-N | Well Number 1 |
| OGRID No. | Operator Name RICE OPERATING COMPANY | Elevation 3538' |

Surface Location

| | | | | | | | | | |
|--------------------|---------------|------------------|---------------|---------|----------------------|---------------------------|----------------------|------------------------|---------------|
| UL or lot No. D | Section 24 | Township 21 S | Range 36 E | Lot Idn | Feet from the 263 | North/South line NORTH | Feet from the 630 | East/West line WEST | County LEA |
|--------------------|---------------|------------------|---------------|---------|----------------------|---------------------------|----------------------|------------------------|---------------|

Bottom Hole Location If Different From Surface

| | | | | | | | | | |
|-----------------|-----------------|--------------------|-----------|---------|---------------|------------------|---------------|----------------|--------|
| UL or lot No. | Section | Township | Range | Lot Idn | Feet from the | North/South line | Feet from the | East/West line | County |
| Dedicated Acres | Joint or Infill | Consolidation Code | Order No. | | | | | | |

NO ALLOWABLE WILL BE ASSIGNED TO THIS COMPLETION UNTIL ALL INTERESTS HAVE BEEN CONSOLIDATED
OR A NON-STANDARD UNIT HAS BEEN APPROVED BY THE DIVISION

| | | |
|--|--|---|
| <p>N: 537084.4 E: 882365.3 (NAD83)</p> <p>630'</p> <p>SURFACE LOCATION Lat - N 32.470933' Long - W 103.225491' NMSPCE- N 536829.9 E 882997.5 (NAD-83)</p> | <p>N: 537117.8 E: 884995.6 (NAD83)</p> | <p>OPERATOR CERTIFICATION I hereby certify that the information contained herein is true and complete to the best of my knowledge and belief, and that this organization either owns a working interest or unLEASED mineral interest in the land including the proposed bottom hole location or has a right to drill this well at this location pursuant to a contract with an owner of such a mineral or working interest, or to a voluntary pooling agreement or a compulsory pooling order heretofore entered by the division.</p> <p>Signature _____ Date _____</p> <p>Printed Name _____</p> <p>Email Address _____</p> |
| <p>SURVEYOR CERTIFICATION I hereby certify that the well location shown on this plat was plotted from field notes of actual surveys made by me or under my supervision and that the same is true and correct to the best of my belief.</p> <p>JUL 1 2012</p> <p>Date Surveyed _____</p> <p>Signature of Professional Surveyor _____</p> <p>Certificate of Accuracy and Baseline Survey 7977</p> <p>0' 500' 1000' 1500' 2000'</p> <p>SCALE: 1" = 1000'</p> <p>WO Num.: 33962</p> | | <p>NEW MEXICO 7977</p> |

INJECTION WELL DATA SHEET

OPERATOR: RICE OPERATING COMPANY

WELL NAME & NUMBER: D-24-N

WELL LOCATION: 263' FNL 630' FWL D 24 21S 36E

FOOTAGE LOCATION UNIT LETTER SECTION TOWNSHIP RANGE

WELLBORE SCHEMATIC

WELL CONSTRUCTION DATA

SURFACE CASING

Hole Size: 17 1/2" Casing Size: 13 3/8"

Cemented with: 850 sx. or ft3

Top of Cement: Surface Method Determined: Sight/Circ.

Intermediate Casing

Hole Size: Casing Size:

Cemented with: sx. or ft3

Top of Cement: Method Determined:

Production Casing

Hole Size: 12 1/4" Casing Size: 9 5/8"

Cemented with: 3300 sx. or ft3

Top of Cement: Circ Method Determined: Sight

Total Depth: 5100'

Injection Interval

4050' feet to 5100' perforated

(Perforated or Open Hole; indicate which)

INJECTION WELL DATA SHEET

Tubing Size: 5 1/2" Lining Material: IPC or Duoline

Type of Packer: Weatherford Casing Packer

Packer Setting Depth: 4045'

Other Type of Tubing/Casing Seal (if applicable): N/A

Additional Data

1. Is this a new well drilled for injection? X Yes No

If no, for what purpose was the well originally drilled?

2. Name of the Injection Formation: San Andres

3. Name of Field or Pool (if applicable):

4. Has the well ever been perforated in any other zone(s)? List all such perforated intervals and give plugging detail, i.e. sacks of cement or plug(s) used. N/A

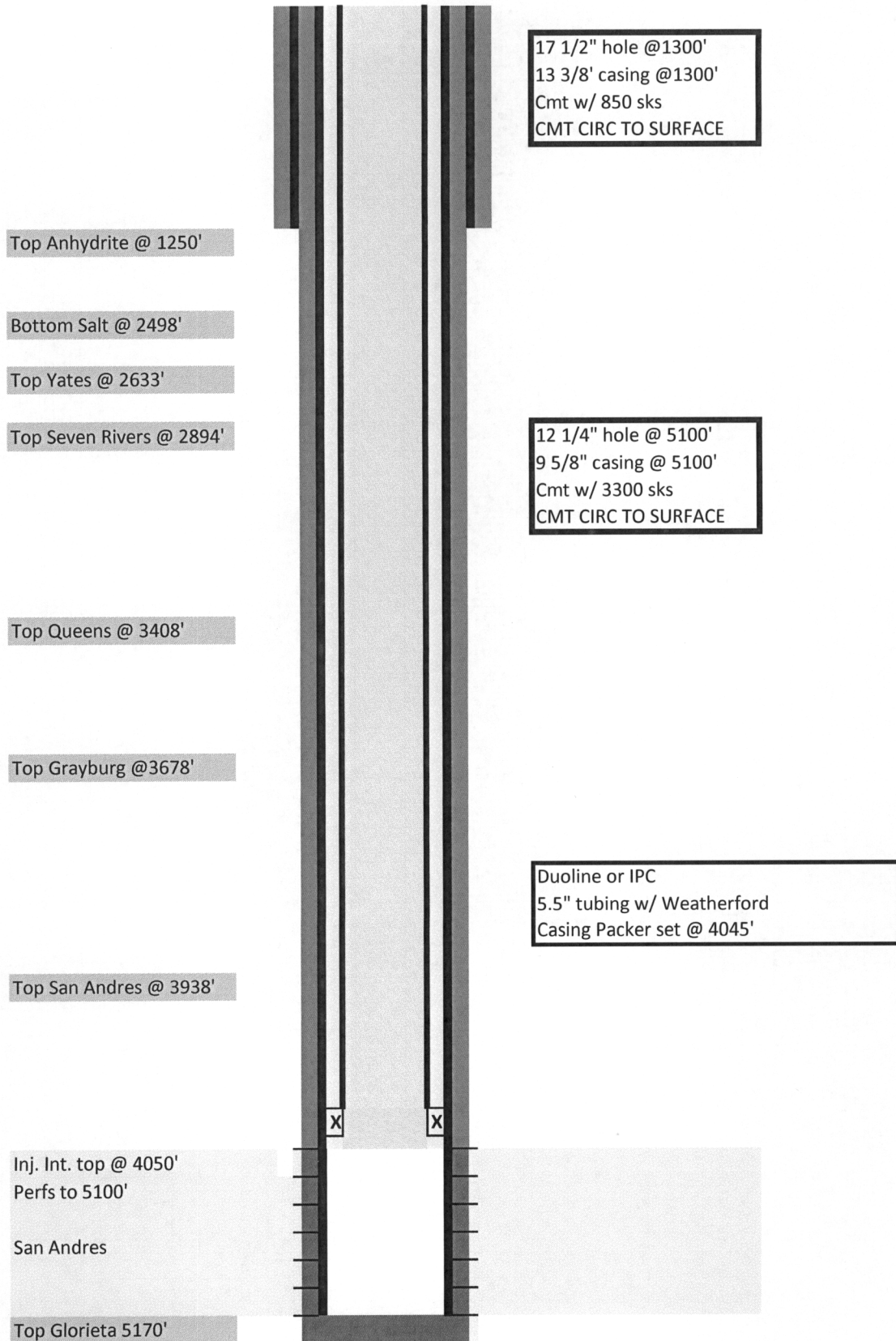
5. Give the name and depths of any oil or gas zones underlying or overlying the proposed

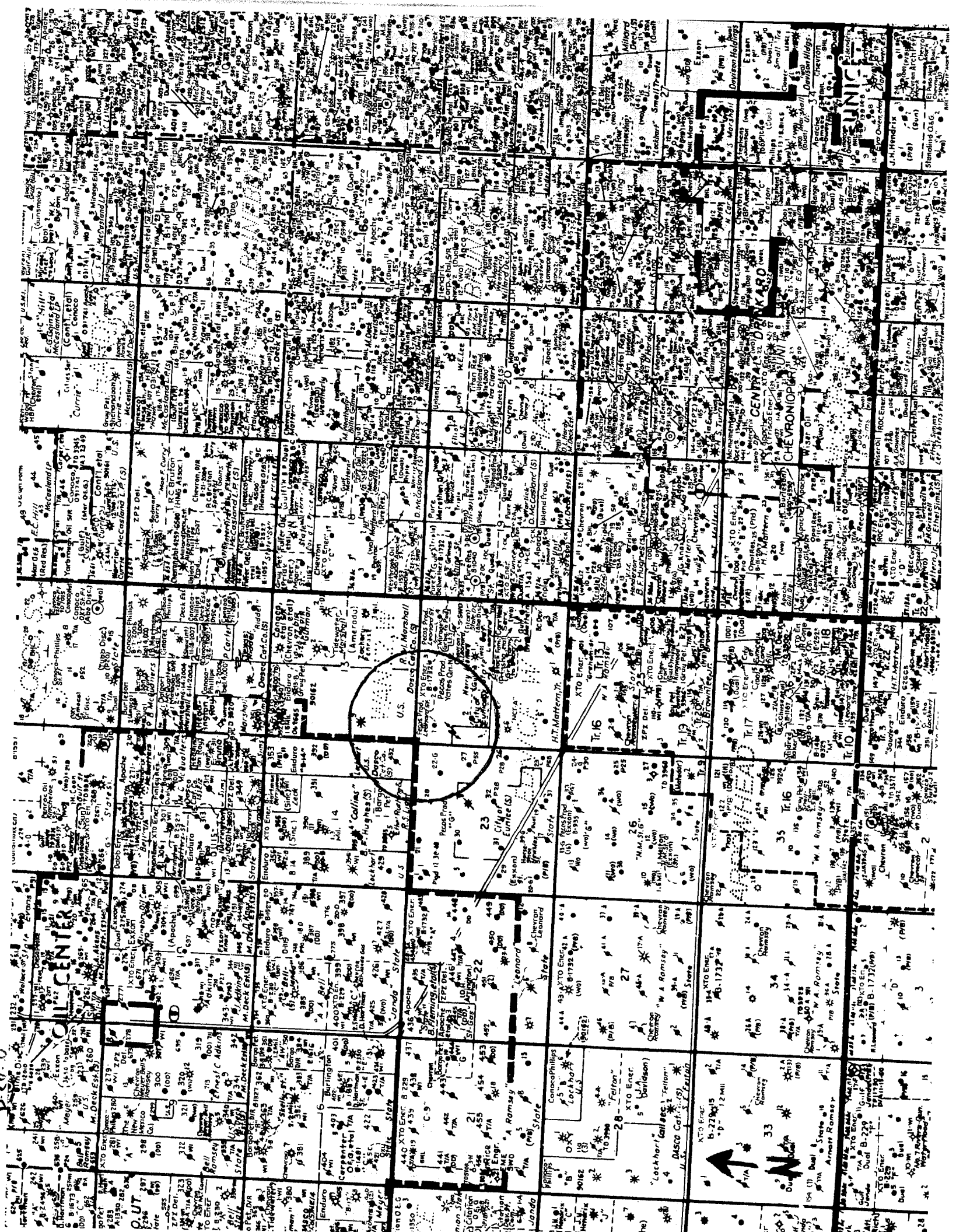
Injection zone in this area:

Grayburg 3678'

Glorieta 5170'

Rice Operating Co.
Drilled for Injection/SWD D-24-N
UL-D Sec. 24 T21S R36E
263' FNL 630' FWL





Submit To Appropriate District Office
State Lease - 6 copies
Fee Lease - 5 copies
District I
1625 N. French Dr., Hobbs, NM 88240
District II
1301 W. Grand Avenue, Artesia, NM 88210
District III
1000 Rio Brazos Rd., Aztec, NM 87410
District IV
1220 S. St. Francis Dr., Santa Fe, NM 87505

State of New Mexico
Energy, Minerals and Natural Resources

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

Form C-105
Revised June 10, 2003

WELL API NO.
30-025-37146

5. Indicate Type of Lease
STATE ☒ FEE ☐
State Oil & Gas Lease No. B11349

WELL COMPLETION OR RECOMPLETION REPORT AND LOG

1a. Type of Well:
OIL WELL ☒ GAS WELL ☐ DRY ☐ OTHER _____
b. Type of Completion:
NEW ☒ WORK ☐ DEEPEN ☐ PLUG ☐ DIFF. ☐
WELL OVER BACK RESVR. ☐ OTHER _____

2. Name of Operator
LEWIS B. BURLESON, INC.

3. Address of Operator
P.O. BOX 2479 MIDLAND, TEXAS 79702

4. Well Location
Unit Letter D : 467 Feet From The N Line and 467 Feet From The W Line
Section 10 Township 21S Range 37E NMPM LEA County _____

10. Date Spudded
05/25/2005

11. Date T.D. Reached
06/05/2005

12. Date Compl. (Ready to Prod.)
10/01/2005

13. Elevations (DF& RKB, RT, GR, etc.)
3469 GR

14. Elev. Casinghead

15. Total Depth
5510

16. Plug Back T.D.
4325

17. If Multiple Compl. How Many Zones?

18. Intervals Drilled By
CAP STAR X

19. Producing Interval(s), of this completion - Top, Bottom, Name

20. Was Directional Survey Made
YES

21. Type Electric and Other Logs Run
GRN

22. Was Well Cored

23. CASING RECORD (Report all strings set in well)

| CASING SIZE | WEIGHT LB./FT. | DEPTH SET | HOLE SIZE | CEMENTING RECORD | AMOUNT PULLED |
|-------------|----------------|-----------|-----------|------------------|---------------|
| 8-5/8 | 24# | 1284 | 12-1/4 | 595 C | |
| 5-1/2 | 15.5# | 5510 | 7-7/8 | 785 C | |
| | | | | | |
| | | | | | |
| | | | | | |

24. LINER RECORD

| SIZE | TOP | BOTTOM | SACKS CEMENT | SCREEN |
|------|-----|--------|--------------|--------|
| | | | | |
| | | | | |
| | | | | |

25. TUBING RECORD

| SIZE | DEPTH SET | PACKER SET |
|-------|-----------|------------|
| 2-3/8 | 4150 | |
| | | |
| | | |

26. Perforation record (interval, size, and number)
4011-4113 21 HOLES

27. ACID, SHOT, FRACTURE, CEMENT, SQUEEZE, ETC.

| DEPTH INTERVAL | AMOUNT AND KIND MATERIAL USED |
|----------------|-------------------------------|
| 4011-4113 | 10,000 GAL ACID |
| | |
| | |

28. PRODUCTION

Date First Production
10/01/2005

Production Method (Flowing, gas lift, pumping - Size and type pump)
PUMPING 2-1/2X2X16 RHBC

Well Status (Prod. or Shut-in)
PROD

Date of Test
10/01/2005

Hours Tested
24

Choke Size

Prod'n For Test Period

Oil - Bbl
10

Gas - MCF
40

Water - Bbl.
285

Gas - Oil Ratio
4000:1

Flow Tubing Press.
N/A

Casing Pressure
65

Calculated 24-Hour Rate

Oil - Bbl.
10

Gas - MCF
40

Water - Bbl.
285

Oil Gravity - API - (Corr.)
32

29. Disposition of Gas (Sold, used for fuel, vented, etc.)
SOLD

30. List Attachments

Test Witnessed By
STEVEN L. BURLESON

31. I hereby certify that the information shown on both sides of this form as true and complete to the best of my knowledge and belief

Signature
[Signature]

Printed Name
STEVEN L. BURLESON

Title
VICE-PRESIDENT

Date
10/20/2005

E-mail Address
GEOTTECH@PRODIGY.NET



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

June 26, 2018

HAYDEN HOLUB

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: O-34 SWD WELL

Enclosed are the results of analyses for samples received by the laboratory on 06/20/18 15:20.

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.

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

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

| | |
|------------------|---|
| Method SM 9223-B | Total Coliform and E. coli (Colilert MMO-MUG) |
| Method EPA 524.2 | Regulated VOCs and Total Trihalomethanes (TTHM) |
| Method EPA 552.2 | Total Haloacetic Acids (HAA-5) |

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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,

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: O-34 SWD WELL
Project Number: SEC. 34, T20S, R37E
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
26-Jun-18 11:00

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|----------------------------|---------------|------------|-----------------|-----------------|
| SAN ANDRES FORMATION WATER | H801687-01 | Wastewater | 19-Jun-18 17:30 | 20-Jun-18 15:20 |

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 or 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 damage 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

Analytical Results For:

 Rice Operating Company
 112 W. Taylor
 Hobbs NM, 88240

 Project: O-34 SWD WELL
 Project Number: SEC. 34, T20S, R37E
 Project Manager: HAYDEN HOLUB
 Fax To: (575) 397-1471

 Reported:
 26-Jun-18 11:00

SAN ANDRES FORMATION WATER
H801687-01 (Wastewater)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories
Inorganic Compounds

| | | | | | | | | | | |
|--------------------------|-------|--|-------|----------|-----|---------|----|-----------|-----------|--|
| Alkalinity, Bicarbonate | 2760 | | 5.00 | mg/L | 1 | 8061805 | AC | 22-Jun-18 | 310.1 | |
| Alkalinity, Carbonate | <1.00 | | 1.00 | mg/L | 1 | 8061805 | AC | 22-Jun-18 | 310.1 | |
| Chloride* | 9200 | | 4.00 | mg/L | 1 | 8062006 | AC | 21-Jun-18 | 4500-Cl-B | |
| Conductivity* | 26900 | | 1.00 | uS/cm | 1 | 8062108 | AC | 21-Jun-18 | 120.1 | |
| pH* | 7.96 | | 0.100 | pH Units | 1 | 8062108 | AC | 21-Jun-18 | 150.1 | |
| Resistivity | 0.372 | | | Ohms/m | 1 | 8062108 | AC | 21-Jun-18 | 120.1 | |
| Specific Gravity @ 60° F | 1.012 | | 0.000 | [blank] | 1 | 8062110 | AC | 22-Jun-18 | SM 2710F | |
| Sulfate* | 55.0 | | 25.0 | mg/L | 2.5 | 8062112 | AC | 22-Jun-18 | 375.4 | |
| | 17700 | | 5.00 | mg/L | 1 | 8062115 | AC | 25-Jun-18 | 160.1 | |
| Alkalinity, Total* | 2270 | | 4.00 | mg/L | 1 | 8061805 | AC | 22-Jun-18 | 310.1 | |

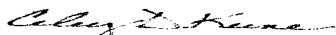
Green Analytical Laboratories
Total Recoverable Metals by ICP (E200.7)

| | | | | | | | | | | |
|------------|-------|--|------|------|----|---------|-----|-----------|----------|--|
| Barium* | 4.91 | | 2.50 | mg/L | 50 | B806183 | JDA | 22-Jun-18 | EPA200.7 | |
| Calcium* | 561 | | 5.00 | mg/L | 50 | B806183 | JDA | 22-Jun-18 | EPA200.7 | |
| Iron* | <2.50 | | 2.50 | mg/L | 50 | B806183 | JDA | 22-Jun-18 | EPA200.7 | |
| Magnesium* | 260 | | 5.00 | mg/L | 50 | B806183 | JDA | 22-Jun-18 | EPA200.7 | |
| Potassium* | 271 | | 50.0 | mg/L | 50 | B806183 | JDA | 22-Jun-18 | EPA200.7 | |
| Sodium* | 4950 | | 50.0 | mg/L | 50 | B806183 | JDA | 22-Jun-18 | EPA200.7 | |

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 or 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 damage 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

Analytical Results For:

 Rice Operating Company
 112 W. Taylor
 Hobbs NM, 88240

 Project: O-34 SWD WELL
 Project Number: SEC. 34, T20S, R37E
 Project Manager: HAYDEN HOLUB
 Fax To: (575) 397-1471

 Reported:
 26-Jun-18 11:00

Inorganic Compounds - Quality Control
Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--|--------|-----------------|----------|---|---------------|------|-------------|------|-----------|-------|
| Batch 8061805 - General Prep - Wet Chem | | | | | | | | | | |
| Blank (8061805-BLK1) | | | | Prepared: 18-Jun-18 Analyzed: 19-Jun-18 | | | | | | |
| Alkalinity, Carbonate | ND | 1.00 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate | 10.0 | 5.00 | mg/L | | | | | | | |
| Alkalinity, Total | 8.00 | 4.00 | mg/L | | | | | | | |
| LCS (8061805-BS1) | | | | Prepared: 18-Jun-18 Analyzed: 19-Jun-18 | | | | | | |
| Alkalinity, Carbonate | ND | 2.50 | mg/L | | | | 80-120 | | | |
| Alkalinity, Bicarbonate | 318 | 12.5 | mg/L | | | | 80-120 | | | |
| Alkalinity, Total | 260 | 10.0 | mg/L | 250 | | 104 | 80-120 | | | |
| LCS Dup (8061805-BSD1) | | | | Prepared: 18-Jun-18 Analyzed: 19-Jun-18 | | | | | | |
| Alkalinity, Carbonate | ND | 2.50 | mg/L | | | | 80-120 | | 20 | |
| Alkalinity, Bicarbonate | 318 | 12.5 | mg/L | | | | 80-120 | 0.00 | 20 | |
| Alkalinity, Total | 260 | 10.0 | mg/L | 250 | | 104 | 80-120 | 0.00 | 20 | |
| Batch 8062006 - General Prep - Wet Chem | | | | | | | | | | |
| Blank (8062006-BLK1) | | | | Prepared: 20-Jun-18 Analyzed: 21-Jun-18 | | | | | | |
| Chloride | ND | 4.00 | mg/L | | | | | | | |
| LCS (8062006-BS1) | | | | Prepared: 20-Jun-18 Analyzed: 21-Jun-18 | | | | | | |
| Chloride | 100 | 4.00 | mg/L | 100 | | 100 | 80-120 | | | |
| LCS Dup (8062006-BSD1) | | | | Prepared: 20-Jun-18 Analyzed: 21-Jun-18 | | | | | | |
| Chloride | 100 | 4.00 | mg/L | 100 | | 100 | 80-120 | 0.00 | 20 | |
| Batch 8062108 - General Prep - Wet Chem | | | | | | | | | | |
| LCS (8062108-BS1) | | | | Prepared & Analyzed: 21-Jun-18 | | | | | | |
| Conductivity | 97300 | | uS/cm | 100000 | | 97.3 | 80-120 | | | |
| pH | 7.09 | | pH Units | 7.00 | | 101 | 90-110 | | | |

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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
112 W. Taylor
Hobbs NM, 88240

Project: O-34 SWD WELL
Project Number: SEC. 34, T20S, R37E
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
26-Jun-18 11:00

Inorganic Compounds - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch 8062108 - General Prep - Wet Chem

Duplicate (8062108-DUP1)

Source: H801687-01

Prepared & Analyzed: 21-Jun-18

| | | | | | | | | | | |
|--------------|-------|-------|----------|--|-------|--|--|-------|----|--|
| pH | 8.00 | 0.100 | pH Units | | 7.96 | | | 0.501 | 20 | |
| Conductivity | 26800 | 1.00 | uS/cm | | 26900 | | | 0.298 | 20 | |
| Resistivity | 0.373 | | Ohms/m | | 0.372 | | | 0.298 | 20 | |

Batch 8062110 - General Prep - Wet Chem

Duplicate (8062110-DUP1)

Source: H801687-01

Prepared: 21-Jun-18 Analyzed: 22-Jun-18

| | | | | | | | | | | |
|--------------------------|-------|-------|---------|--|-------|--|--|-------|----|--|
| Specific Gravity @ 60° F | 1.011 | 0.000 | [blank] | | 1.012 | | | 0.131 | 20 | |
|--------------------------|-------|-------|---------|--|-------|--|--|-------|----|--|

Batch 8062112 - General Prep - Wet Chem

Blank (8062112-BLK1)

Prepared: 21-Jun-18 Analyzed: 22-Jun-18

| | | | | | | | | | | |
|---------|----|------|------|--|--|--|--|--|--|--|
| Sulfate | ND | 10.0 | mg/L | | | | | | | |
|---------|----|------|------|--|--|--|--|--|--|--|

LCS (8062112-BS1)

Prepared: 21-Jun-18 Analyzed: 22-Jun-18

| | | | | | | | | | | |
|---------|------|------|------|------|--|------|--------|--|--|--|
| Sulfate | 19.0 | 10.0 | mg/L | 20.0 | | 95.2 | 80-120 | | | |
|---------|------|------|------|------|--|------|--------|--|--|--|

LCS Dup (8062112-BSD1)

Prepared: 21-Jun-18 Analyzed: 22-Jun-18

| | | | | | | | | | | |
|---------|------|------|------|------|--|------|--------|------|----|--|
| Sulfate | 19.4 | 10.0 | mg/L | 20.0 | | 97.2 | 80-120 | 2.13 | 20 | |
|---------|------|------|------|------|--|------|--------|------|----|--|

Batch 8062115 - Filtration

Blank (8062115-BLK1)

Prepared: 20-Jun-18 Analyzed: 21-Jun-18

| | | | | | | | | | | |
|-----|----|------|------|--|--|--|--|--|--|--|
| TDS | ND | 5.00 | mg/L | | | | | | | |
|-----|----|------|------|--|--|--|--|--|--|--|

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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
112 W. Taylor
Hobbs NM, 88240

Project: O-34 SWD WELL
Project Number: SEC. 34, T20S, R37E
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
26-Jun-18 11:00

Inorganic Compounds - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|-----------------------------------|--------|--------------------|-------|----------------|------------------|------|----------------|-------|--------------|--|
| Batch 8062115 - Filtration | | | | | | | | | | |
| LCS (8062115-BS1) | | | | | | | | | | |
| TDS | 456 | 5.00 | mg/L | 527 | | 86.5 | 80-120 | | | Prepared: 20-Jun-18 Analyzed: 21-Jun-18 |
| Duplicate (8062115-DUP1) | | | | | | | | | | |
| TDS | 938 | 5.00 | mg/L | | 946 | | | 0.849 | 20 | Source: H801667-03 Prepared: 20-Jun-18 Analyzed: 21-Jun-18 |

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Cheryl D. Keene

Cheryl D. Keene, Lab Director/Quality Manager

Analytical Results For:

 Rice Operating Company
 112 W. Taylor
 Hobbs NM, 88240

 Project: O-34 SWD WELL
 Project Number: SEC. 34, T20S, R37E
 Project Manager: HAYDEN HOLUB
 Fax To: (575) 397-1471

 Reported:
 26-Jun-18 11:00

Total Recoverable Metals by ICP (E200.7) - Quality Control
Green Analytical Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---|--------|-----------------|-------|---|---------------|------|-------------|-------|-----------|-------|
| Batch B806183 - Total Rec. 200.7/200.8/200.2 | | | | | | | | | | |
| Blank (B806183-BLK1) | | | | | | | | | | |
| | | | | Prepared: 21-Jun-18 Analyzed: 22-Jun-18 | | | | | | |
| Iron | ND | 0.050 | mg/L | | | | | | | |
| Barium | ND | 0.050 | mg/L | | | | | | | |
| Potassium | ND | 1.00 | mg/L | | | | | | | |
| Magnesium | ND | 0.100 | mg/L | | | | | | | |
| Calcium | ND | 0.100 | mg/L | | | | | | | |
| Sodium | ND | 1.00 | mg/L | | | | | | | |
| LCS (B806183-BS1) | | | | | | | | | | |
| | | | | Prepared: 21-Jun-18 Analyzed: 22-Jun-18 | | | | | | |
| Sodium | 3.22 | 1.00 | mg/L | 3.24 | | 99.2 | 85-115 | | | |
| Potassium | 7.83 | 1.00 | mg/L | 8.00 | | 97.8 | 85-115 | | | |
| Magnesium | 19.1 | 0.100 | mg/L | 20.0 | | 95.6 | 85-115 | | | |
| Iron | 3.81 | 0.050 | mg/L | 4.00 | | 95.2 | 85-115 | | | |
| Calcium | 3.83 | 0.100 | mg/L | 4.00 | | 95.7 | 85-115 | | | |
| Barium | 2.01 | 0.050 | mg/L | 2.00 | | 100 | 85-115 | | | |
| LCS Dup (B806183-BSD1) | | | | | | | | | | |
| | | | | Prepared: 21-Jun-18 Analyzed: 22-Jun-18 | | | | | | |
| Magnesium | 19.4 | 0.100 | mg/L | 20.0 | | 96.8 | 85-115 | 1.30 | 20 | |
| Barium | 2.02 | 0.050 | mg/L | 2.00 | | 101 | 85-115 | 0.698 | 20 | |
| Potassium | 7.85 | 1.00 | mg/L | 8.00 | | 98.2 | 85-115 | 0.354 | 20 | |
| Calcium | 3.89 | 0.100 | mg/L | 4.00 | | 97.1 | 85-115 | 1.50 | 20 | |
| Sodium | 3.23 | 1.00 | mg/L | 3.24 | | 99.7 | 85-115 | 0.493 | 20 | |
| Iron | 3.82 | 0.050 | mg/L | 4.00 | | 95.6 | 85-115 | 0.400 | 20 | |

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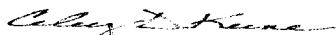
Celey D. Keene, Lab Director/Quality Manager

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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Celey D. Keene, Lab Director/Quality Manager



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Laboratories

RUSH!!

CHAIN-OF-CUSTODY AND ANALYSIS REQUEST

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

| | | | |
|--|--|---|--|
| Company Name: Rice Operating Company Project Manager: Hayden Hobbs Address: 112 W. Taylor City: Hobbs Phone #: 575-393-9174 State: NM Zip: 88240 Fax #: 575-353-1471 Project #: Project Name: O-34 Soud Well Project Location: Sec. 34 T 20S R 37E Sample Name: Hayden Hobbs | | P.O. #: Company: Attn: Address: City: State: Phone #: Zip: Fax #: | |
| FOR LAB USE ONLY Lab I.D.: H8D1687 Sample I.D.: San Andres formation water | | BILL TO ANALYSIS REQUEST | |
| (G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER: ACID/BASE: ICE / COOL OTHER: | | MATRIX PRESERV SAMPLING | |
| DATE 6/19 TIME 17:30 | | Complete Water Analysis scale | |
| Relinquished By: [Signature] Date: 6/20/18 Time: 13:20 Received By: [Signature] | | 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: Email results! h.hobbs@rice-soud.com scuths@rice-soud.com | |
| Delivered By: (Circle One) Sampler - UPS - Bus - Other: 3D.10 / 30.D50 | | Sample Condition Cool <input type="checkbox"/> Intact <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> CHECKED BY: [Signature] | |

CARDINAL LABORATORIES **SCALE INDEX WATER ANALYSIS REPORT**

| | |
|---|-----------------------------|
| Company : RICE OPERATING COMPANY | Date Sampled : 06/19/18 |
| Lease Name : O-34 SWD WELL | Company Rep. : HAYDEN HOLUB |
| Well Number : SAN ANDRES FORMATION WATER (H801687-01) | |
| Location : SEC 34, T20S, R37E | |

ANALYSIS

- | | | |
|---|--------|------------------------------------|
| 1. pH | 7.96 | |
| 2. Specific Gravity @ 60/60 F. | 1.0120 | |
| 3. CaCO ₃ Saturation Index @ 80 F. | +1.142 | 'Calcium Carbonate Scale Possible' |
| @ 140 F. | +2.012 | 'Calcium Carbonate Scale Possible' |

Dissolved Gasses

- | | | |
|---------------------|----|-----|
| 4. Hydrogen Sulfide | ND | PPM |
| 5. Carbon Dioxide | ND | PPM |
| 6. Dissolved Oxygen | ND | PPM |

Cations

- | | | / | Eq. Wt. | = | MEQ/L |
|---------------------|--------|---|---------|---|--------|
| 7. Calcium (Ca++) | 561.00 | / | 20.1 | = | 27.91 |
| 8. Magnesium (Mg++) | 260.00 | / | 12.2 | = | 21.31 |
| 9. Sodium (Na+) | 4,950 | / | 23.0 | = | 256.23 |
| 10. Barium (Ba++) | 4.910 | / | 68.7 | = | 0.07 |

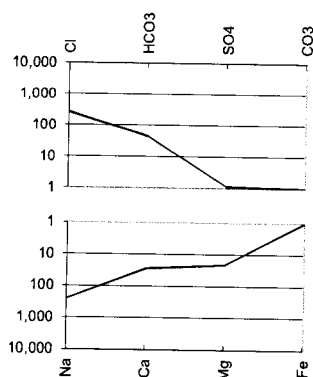
Anions

- | | | | | | |
|--------------------------------------|-------|---|------|---|--------|
| 11. Hydroxyl (OH-) | 0 | / | 17.0 | = | 0.00 |
| 12. Carbonate (CO ₃ =) | 0 | / | 30.0 | = | 0.00 |
| 13. Bicarbonate (HCO ₃ -) | 2,760 | / | 61.1 | = | 45.17 |
| 14. Sulfate (SO ₄ =) | 55 | / | 48.8 | = | 1.13 |
| 15. Chloride (Cl-) | 9,200 | / | 35.5 | = | 259.15 |

Other

- | | | | | | |
|---|---------|---|------------|------|-------------|
| 16. Total Iron (Fe) | 0.000 | / | 18.2 | = | 0.00 |
| 17. Total Hardness As CaCO ₃ | 2,471.0 | | | | |
| 19. Calcium Sulfate Solubility @ 90 F. | 2,821 | | | | |
| 20. Resistivity (Measured) | 0.372 | | Ohm/Meters | @ 77 | Degrees (F) |

Logarithmic Water Pattern



PROBABLE MINERAL COMPOSITION

| COMPOUND | Eq. Wt. | X | MEQ/L | = | mg/L |
|------------------------------------|---------|---|--------|---|--------|
| Ca(HCO ₃) ₂ | 81.04 | X | 27.91 | = | 2,262 |
| CaSO ₄ | 68.07 | X | 0.00 | = | 0 |
| CaCl ₂ | 55.50 | X | 0.00 | = | 0 |
| Mg(HCO ₃) ₂ | 73.17 | X | 17.26 | = | 1,263 |
| MgSO ₄ | 60.19 | X | 0.00 | = | 0 |
| MgCl ₂ | 47.62 | X | 4.05 | = | 193 |
| NaHCO ₃ | 84.00 | X | 0.00 | = | 0 |
| NaSO ₄ | 71.03 | X | 1.13 | = | 80 |
| NaCl | 58.46 | X | 255.10 | = | 14,913 |

ND = Not Determined

Attached for VII F on Application for Authorization to inject: Well located
1.75 miles NE of proposed well D-24-N INSTRUCTIONS [Well API 30-025-27529]

This form is to be filed with the appropriate District Office of the Commission not later than 20 days after the completion of any newly-drilled or deepened well. It shall be accompanied by one copy of all electrical and radio-activity logs run on the well and a summary of all special tests conducted, including drill stem tests. All depths reported shall be measured depths. In the case of directionally drilled wells, true vertical depths shall also be reported. For multiple completions, Items 30 through 34 shall be reported for each zone. The form is to be filed in quintuplicate except on state land, where six copies are required. See Rule 1105.

INDICATE FORMATION TOPS IN CONFORMANCE WITH GEOGRAPHICAL SECTION OF STATE

Southeastern New Mexico

Northwestern New Mexico

| | | | | |
|--------------------|------|------------------|-----------------------|-------------------|
| T. Anhy | 1250 | T. Canyon | T. Ojo Alamo | T. Penn. "B" |
| T. Salt | 1343 | T. Strawn | T. Kirtland-Fruitland | T. Penn. "C" |
| B. Salt | 2498 | T. Atoka | T. Pictured Cliffs | T. Penn. "D" |
| T. Yates | 2633 | T. Miss | T. Cliff House | T. Leadville |
| T. 7 Rivers | 2894 | T. Devonian | T. Menefee | T. Madison |
| T. Queen | 3408 | T. Silurian | T. Point Lookout | T. Elbert |
| T. Grayburg | 3678 | T. Montoya | T. Mancos | T. McCracken |
| T. San Andres | 3938 | T. Simpson | T. Gallup | T. Ignacio Qtzite |
| T. Glorieta | 5170 | T. McKee | Base Greenhorn | T. Granite |
| T. Paddock | | T. Ellenburger | T. Dakota | |
| T. Blinberry | 5508 | T. Gr. Wash | T. Morrison | |
| T. Tubb | 6220 | T. Granite | T. Todilto | |
| T. Drinkard | 6545 | T. Delaware Sand | T. Entrada | |
| T. Abo | | T. Bone Springs | T. Wingate | |
| T. Wolfcamp | | | T. Chinle | |
| T. Penn. | | | T. Permian | |
| T. Cisco (Bough C) | | | T. Penn. "A" | |

OIL OR GAS SANDS OR ZONES

No. 1, from 6686 to 6760 No. 4, from to
No. 2, from to
No. 3, from to No. 5, from to
No. 6, from to

OL B-18-21537E
see

IMPORTANT WATER SANDS

Include data on rate of water inflow and elevation to which water rose in hole.

No. 1, from to feet
No. 2, from to feet
No. 3, from to feet
No. 4, from to feet

FORMATION RECORD (Attach additional sheets if necessary)

| From | To | Thickness in Feet | Formation | From | To | Thickness in Feet | Formation |
|------|------|----------------------|---------------|------|----|----------------------|-----------|
| 0 | 1250 | 1250 | Red Bed | | | | |
| 1250 | 2633 | 1383 | Salt & Anhy | | | | |
| 2633 | 3678 | 1045 | lm, Dol, Sand | | | | |
| 3678 | 6814 | 3136 | Dol | | | | |

3000 1982
MAR 1982
SPEL 1982



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

August 06, 2018

HAYDEN HOLUB

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: D-24-N

Enclosed are the results of analyses for samples received by the laboratory on 07/27/18 16:55.

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

| | |
|------------------|---|
| Method SM 9223-B | Total Coliform and E. coli (Colilert MMO-MUG) |
| Method EPA 524.2 | Regulated VOCs and Total Trihalomethanes (TTHM) |
| Method EPA 552.2 | Total Haloacetic Acids (HAA-5) |

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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

Analytical Results For:Rice Operating Company
112 W. Taylor
Hobbs NM, 88240Project: D-24-N
Project Number: D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471Reported:
06-Aug-18 12:29

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|--------------------------------|---------------|--------|-----------------|-----------------|
| WATER WELL TEST - 1MILE FROM I | H802056-01 | Water | 27-Jul-18 15:10 | 27-Jul-18 16:55 |

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: D-24-N
Project Number: D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:29

WATER WELL TEST - 1MILE FROM D-24-N
H802056-01 (Water)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories
Inorganic Compounds

| | | | | | | | | | | |
|-------------------------|-------|--|-------|----------|---|---------|----|-----------|-----------|--|
| Alkalinity, Bicarbonate | 356 | | 5.00 | mg/L | 1 | 8071613 | AC | 30-Jul-18 | 310.1 | |
| Alkalinity, Carbonate | <1.00 | | 1.00 | mg/L | 1 | 8071613 | AC | 30-Jul-18 | 310.1 | |
| Chloride* | 100 | | 4.00 | mg/L | 1 | 8073008 | AC | 30-Jul-18 | 4500-Cl-B | |
| Conductivity | 876 | | 1.00 | uS/cm | 1 | 8073011 | AC | 30-Jul-18 | 120.1 | |
| pH* | 7.54 | | 0.100 | pH Units | 1 | 8073011 | AC | 30-Jul-18 | 9045 | |
| Sulfate* | 74.8 | | 10.0 | mg/L | 1 | 8073014 | AC | 31-Jul-18 | 375.4 | |
| TDS* | 502 | | 5.00 | mg/L | 1 | 8073010 | AC | 01-Aug-18 | 160.1 | |
| Alkalinity, Total* | 292 | | 4.00 | mg/L | 1 | 8071613 | AC | 30-Jul-18 | 310.1 | |

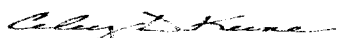
Green Analytical Laboratories
Total Recoverable Metals by ICP (E200.7)

| | | | | | | | | | | |
|------------|-------|--|------|------|----|---------|-----|-----------|----------|--|
| Calcium* | 73.6 | | 1.00 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |
| Magnesium* | 19.5 | | 1.00 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |
| Potassium* | <10.0 | | 10.0 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |
| Sodium* | 86.7 | | 10.0 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: D-24-N
Project Number: D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:29

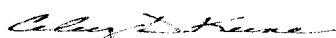
Inorganic Compounds - Quality Control
Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|--|--------|-----------------|-------|---|---------------|------|-------------|------|-----------|-------|
| Batch 8071613 - General Prep - Wet Chem | | | | | | | | | | |
| Blank (8071613-BLK1) | | | | Prepared & Analyzed: 16-Jul-18 | | | | | | |
| Alkalinity, Carbonate | ND | 1.00 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate | ND | 5.00 | mg/L | | | | | | | |
| Alkalinity, Total | ND | 4.00 | mg/L | | | | | | | |
| LCS (8071613-BS1) | | | | Prepared & Analyzed: 16-Jul-18 | | | | | | |
| Alkalinity, Carbonate | ND | 2.50 | mg/L | | | | 80-120 | | | |
| Alkalinity, Bicarbonate | 355 | 12.5 | mg/L | | | | 80-120 | | | |
| Alkalinity, Total | 290 | 10.0 | mg/L | 250 | | 116 | 80-120 | | | |
| LCS Dup (8071613-BSD1) | | | | Prepared & Analyzed: 16-Jul-18 | | | | | | |
| Alkalinity, Carbonate | ND | 2.50 | mg/L | | | | 80-120 | | 20 | |
| Alkalinity, Bicarbonate | 318 | 12.5 | mg/L | | | | 80-120 | 11.2 | 20 | |
| Alkalinity, Total | 260 | 10.0 | mg/L | 250 | | 104 | 80-120 | 10.9 | 20 | |
| Batch 8073008 - General Prep - Wet Chem | | | | | | | | | | |
| Blank (8073008-BLK1) | | | | Prepared & Analyzed: 30-Jul-18 | | | | | | |
| Chloride | ND | 4.00 | mg/L | | | | | | | |
| LCS (8073008-BS1) | | | | Prepared & Analyzed: 30-Jul-18 | | | | | | |
| Chloride | 92.0 | 4.00 | mg/L | 100 | | 92.0 | 80-120 | | | |
| LCS Dup (8073008-BSD1) | | | | Prepared & Analyzed: 30-Jul-18 | | | | | | |
| Chloride | 100 | 4.00 | mg/L | 100 | | 100 | 80-120 | 8.33 | 20 | |
| Batch 8073010 - Filtration | | | | | | | | | | |
| Blank (8073010-BLK1) | | | | Prepared: 30-Jul-18 Analyzed: 01-Aug-18 | | | | | | |
| TDS | ND | 5.00 | mg/L | | | | | | | |

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: D-24-N
Project Number: D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:29

Inorganic Compounds - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 8073010 - Filtration

LCS (8073010-BS1)

Prepared: 30-Jul-18 Analyzed: 01-Aug-18

| | | | | | | | | | | |
|-----|-----|------|------|-----|--|-----|--------|--|--|--|
| TDS | 532 | 5.00 | mg/L | 527 | | 101 | 80-120 | | | |
|-----|-----|------|------|-----|--|-----|--------|--|--|--|

Duplicate (8073010-DUP1)

Source: H802054-01

Prepared: 30-Jul-18 Analyzed: 01-Aug-18

| | | | | | | | | | | |
|-----|-------|------|------|--|-------|--|--|------|----|--|
| TDS | 11100 | 5.00 | mg/L | | 10900 | | | 1.46 | 20 | |
|-----|-------|------|------|--|-------|--|--|------|----|--|

Batch 8073011 - General Prep - Wet Chem

LCS (8073011-BS1)

Prepared & Analyzed: 30-Jul-18

| | | | | | | | | | | |
|--------------|------|--|----------|------|--|------|--------|--|--|--|
| Conductivity | 484 | | uS/cm | 500 | | 96.8 | 80-120 | | | |
| pH | 7.07 | | pH Units | 7.00 | | 101 | 90-110 | | | |

Duplicate (8073011-DUP1)

Source: H802054-01

Prepared & Analyzed: 30-Jul-18

| | | | | | | | | | | |
|--------------|-------|-------|----------|--|-------|--|--|-------|----|--|
| pH | 7.70 | 0.100 | pH Units | | 7.65 | | | 0.651 | 20 | |
| Conductivity | 14700 | 1.00 | uS/cm | | 14800 | | | 0.475 | 20 | |

Batch 8073014 - General Prep - Wet Chem

Blank (8073014-BLK1)

Prepared: 30-Jul-18 Analyzed: 31-Jul-18

| | | | | | | | | | | |
|---------|----|------|------|--|--|--|--|--|--|--|
| Sulfate | ND | 10.0 | mg/L | | | | | | | |
|---------|----|------|------|--|--|--|--|--|--|--|

LCS (8073014-BS1)

Prepared & Analyzed: 31-Jul-18

| | | | | | | | | | | |
|---------|------|------|------|------|--|-----|--------|--|--|--|
| Sulfate | 20.6 | 10.0 | mg/L | 20.0 | | 103 | 80-120 | | | |
|---------|------|------|------|------|--|-----|--------|--|--|--|

LCS Dup (8073014-BSD1)

Prepared: 30-Jul-18 Analyzed: 31-Jul-18

| | | | | | | | | | | |
|---------|------|------|------|------|--|-----|--------|-------|----|--|
| Sulfate | 20.7 | 10.0 | mg/L | 20.0 | | 104 | 80-120 | 0.678 | 20 | |
|---------|------|------|------|------|--|-----|--------|-------|----|--|

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: D-24-N
Project Number: D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:29

Total Recoverable Metals by ICP (E200.7) - Quality Control
Green Analytical Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch B808003 - Total Rec. 200.7/200.8/200.2
Blank (B808003-BLK1)

Prepared & Analyzed: 01-Aug-18

| | | | | | | | | | | |
|-----------|----|-------|------|--|--|--|--|--|--|--|
| Magnesium | ND | 0.100 | mg/L | | | | | | | |
| Sodium | ND | 1.00 | mg/L | | | | | | | |
| Calcium | ND | 0.100 | mg/L | | | | | | | |
| Potassium | ND | 1.00 | mg/L | | | | | | | |

LCS (B808003-BS1)

Prepared: 01-Aug-18 Analyzed: 02-Aug-18

| | | | | | | | | | | |
|-----------|------|-------|------|------|--|------|--------|--|--|--|
| Sodium | 3.01 | 1.00 | mg/L | 3.24 | | 93.0 | 85-115 | | | |
| Potassium | 8.31 | 1.00 | mg/L | 8.00 | | 104 | 85-115 | | | |
| Calcium | 4.17 | 0.100 | mg/L | 4.00 | | 104 | 85-115 | | | |
| Magnesium | 20.4 | 0.100 | mg/L | 20.0 | | 102 | 85-115 | | | |

LCS Dup (B808003-BSD1)

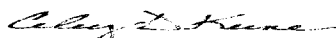
Prepared: 01-Aug-18 Analyzed: 02-Aug-18

| | | | | | | | | | | |
|-----------|------|-------|------|------|--|------|--------|-------|----|--|
| Potassium | 8.22 | 1.00 | mg/L | 8.00 | | 103 | 85-115 | 1.12 | 20 | |
| Calcium | 4.14 | 0.100 | mg/L | 4.00 | | 103 | 85-115 | 0.891 | 20 | |
| Sodium | 2.99 | 1.00 | mg/L | 3.24 | | 92.2 | 85-115 | 0.902 | 20 | |
| Magnesium | 20.3 | 0.100 | mg/L | 20.0 | | 102 | 85-115 | 0.634 | 20 | |

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Celey D. Keene, Lab Director/Quality Manager

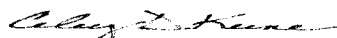
Notes and Definitions

| | |
|-----|--|
| 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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Celey D. Keene, Lab Director/Quality Manager

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

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



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

August 06, 2018

HAYDEN HOLUB

Rice Operating Company

112 W. Taylor

Hobbs, NM 88240

RE: P-15/D-24-N

Enclosed are the results of analyses for samples received by the laboratory on 07/27/18 16:55.

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

Cardinal Laboratories is accredited through the State of New Mexico Environment Department for:

| | |
|------------------|---|
| Method SM 9223-B | Total Coliform and E. coli (Colilert MMO-MUG) |
| Method EPA 524.2 | Regulated VOCs and Total Trihalomethanes (TTHM) |
| Method EPA 552.2 | Total Haloacetic Acids (HAA-5) |

Accreditation applies to public drinking water matrices for State of Colorado and New Mexico.

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,

Celey D. Keene

Lab Director/Quality Manager



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

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: P-15/D-24-N
Project Number: P-15/D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:49

| Sample ID | Laboratory ID | Matrix | Date Sampled | Date Received |
|--------------------------------|---------------|--------|-----------------|-----------------|
| WATER WELL TEST - 1MILE FROM F | H802058-01 | Water | 27-Jul-18 14:10 | 27-Jul-18 16:55 |

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: P-15/D-24-N
Project Number: P-15/D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:49

WATER WELL TEST - 1MILE FROM P-15 & D-24-N
H802058-01 (Water)

| Analyte | Result | MDL | Reporting Limit | Units | Dilution | Batch | Analyst | Analyzed | Method | Notes |
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|
|---------|--------|-----|-----------------|-------|----------|-------|---------|----------|--------|-------|

Cardinal Laboratories
Inorganic Compounds

| | | | | | | | | | | |
|-------------------------|-------|--|-------|----------|-----|---------|----|-----------|-----------|--|
| Alkalinity, Bicarbonate | 346 | | 5.00 | mg/L | 1 | 8071613 | AC | 30-Jul-18 | 310.1 | |
| Alkalinity, Carbonate | <1.00 | | 1.00 | mg/L | 1 | 8071613 | AC | 30-Jul-18 | 310.1 | |
| Chloride* | 88.0 | | 4.00 | mg/L | 1 | 8073008 | AC | 30-Jul-18 | 4500-Cl-B | |
| Conductivity | 828 | | 1.00 | uS/cm | 1 | 8073011 | AC | 30-Jul-18 | 120.1 | |
| pH* | 8.02 | | 0.100 | pH Units | 1 | 8073011 | AC | 30-Jul-18 | 9045 | |
| Sulfate* | 102 | | 25.0 | mg/L | 2.5 | 8073014 | AC | 31-Jul-18 | 375.4 | |
| TDS* | 538 | | 5.00 | mg/L | 1 | 8073010 | AC | 01-Aug-18 | 160.1 | |
| Alkalinity, Total* | 284 | | 4.00 | mg/L | 1 | 8071613 | AC | 30-Jul-18 | 310.1 | |

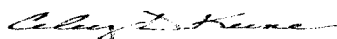
Green Analytical Laboratories
Total Recoverable Metals by ICP (E200.7)

| | | | | | | | | | | |
|------------|-------|--|------|------|----|---------|-----|-----------|----------|--|
| Calcium* | 48.4 | | 1.00 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |
| Magnesium* | 22.6 | | 1.00 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |
| Potassium* | <10.0 | | 10.0 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |
| Sodium* | 93.1 | | 10.0 | mg/L | 10 | B808003 | AES | 02-Aug-18 | EPA200.7 | |

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: P-15/D-24-N
Project Number: P-15/D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:49

Inorganic Compounds - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 8071613 - General Prep - Wet Chem

Blank (8071613-BLK1)

Prepared & Analyzed: 16-Jul-18

| | | | | | | | | | | |
|-------------------------|----|------|------|--|--|--|--|--|--|--|
| Alkalinity, Carbonate | ND | 1.00 | mg/L | | | | | | | |
| Alkalinity, Bicarbonate | ND | 5.00 | mg/L | | | | | | | |
| Alkalinity, Total | ND | 4.00 | mg/L | | | | | | | |

LCS (8071613-BS1)

Prepared & Analyzed: 16-Jul-18

| | | | | | | | | | | |
|-------------------------|-----|------|------|-----|--|-----|--------|--|--|--|
| Alkalinity, Carbonate | ND | 2.50 | mg/L | | | | 80-120 | | | |
| Alkalinity, Bicarbonate | 355 | 12.5 | mg/L | | | | 80-120 | | | |
| Alkalinity, Total | 290 | 10.0 | mg/L | 250 | | 116 | 80-120 | | | |

LCS Dup (8071613-BSD1)

Prepared & Analyzed: 16-Jul-18

| | | | | | | | | | | |
|-------------------------|-----|------|------|-----|--|-----|--------|------|----|--|
| Alkalinity, Carbonate | ND | 2.50 | mg/L | | | | 80-120 | | 20 | |
| Alkalinity, Bicarbonate | 318 | 12.5 | mg/L | | | | 80-120 | 11.2 | 20 | |
| Alkalinity, Total | 260 | 10.0 | mg/L | 250 | | 104 | 80-120 | 10.9 | 20 | |

Batch 8073008 - General Prep - Wet Chem

Blank (8073008-BLK1)

Prepared & Analyzed: 30-Jul-18

| | | | | | | | | | | |
|----------|----|------|------|--|--|--|--|--|--|--|
| Chloride | ND | 4.00 | mg/L | | | | | | | |
|----------|----|------|------|--|--|--|--|--|--|--|

LCS (8073008-BS1)

Prepared & Analyzed: 30-Jul-18

| | | | | | | | | | | |
|----------|------|------|------|-----|--|------|--------|--|--|--|
| Chloride | 92.0 | 4.00 | mg/L | 100 | | 92.0 | 80-120 | | | |
|----------|------|------|------|-----|--|------|--------|--|--|--|

LCS Dup (8073008-BSD1)

Prepared & Analyzed: 30-Jul-18

| | | | | | | | | | | |
|----------|-----|------|------|-----|--|-----|--------|------|----|--|
| Chloride | 100 | 4.00 | mg/L | 100 | | 100 | 80-120 | 8.33 | 20 | |
|----------|-----|------|------|-----|--|-----|--------|------|----|--|

Batch 8073010 - Filtration

Blank (8073010-BLK1)

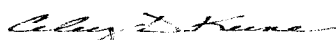
Prepared: 30-Jul-18 Analyzed: 01-Aug-18

| | | | | | | | | | | |
|-----|----|------|------|--|--|--|--|--|--|--|
| TDS | ND | 5.00 | mg/L | | | | | | | |
|-----|----|------|------|--|--|--|--|--|--|--|

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*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

Rice Operating Company
112 W. Taylor
Hobbs NM, 88240

Project: P-15/D-24-N
Project Number: P-15/D-24-N
Project Manager: HAYDEN HOLUB
Fax To: (575) 397-1471

Reported:
06-Aug-18 12:49

Inorganic Compounds - Quality Control

Cardinal Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|
|---------|--------|-----------------|-------|-------------|---------------|------|-------------|-----|-----------|-------|

Batch 8073010 - Filtration

LCS (8073010-BS1)

Prepared: 30-Jul-18 Analyzed: 01-Aug-18

| | | | | | | |
|-----|-----|------|------|-----|-----|--------|
| TDS | 532 | 5.00 | mg/L | 527 | 101 | 80-120 |
|-----|-----|------|------|-----|-----|--------|

Duplicate (8073010-DUP1)

Source: H802054-01

Prepared: 30-Jul-18 Analyzed: 01-Aug-18

| | | | | | | |
|-----|-------|------|------|-------|------|----|
| TDS | 11100 | 5.00 | mg/L | 10900 | 1.46 | 20 |
|-----|-------|------|------|-------|------|----|

Batch 8073011 - General Prep - Wet Chem

LCS (8073011-BS1)

Prepared & Analyzed: 30-Jul-18

| | | | | | | |
|--------------|-----|--|-------|-----|------|--------|
| Conductivity | 484 | | uS/cm | 500 | 96.8 | 80-120 |
|--------------|-----|--|-------|-----|------|--------|

| | | | | | | |
|----|------|--|----------|------|-----|--------|
| pH | 7.07 | | pH Units | 7.00 | 101 | 90-110 |
|----|------|--|----------|------|-----|--------|

Duplicate (8073011-DUP1)

Source: H802054-01

Prepared & Analyzed: 30-Jul-18

| | | | | | | |
|----|------|-------|----------|------|-------|----|
| pH | 7.70 | 0.100 | pH Units | 7.65 | 0.651 | 20 |
|----|------|-------|----------|------|-------|----|

| | | | | | | |
|--------------|-------|------|-------|-------|-------|----|
| Conductivity | 14700 | 1.00 | uS/cm | 14800 | 0.475 | 20 |
|--------------|-------|------|-------|-------|-------|----|

Batch 8073014 - General Prep - Wet Chem

Blank (8073014-BLK1)

Prepared: 30-Jul-18 Analyzed: 31-Jul-18

| | | | |
|---------|----|------|------|
| Sulfate | ND | 10.0 | mg/L |
|---------|----|------|------|

LCS (8073014-BS1)

Prepared & Analyzed: 31-Jul-18

| | | | | | | |
|---------|------|------|------|------|-----|--------|
| Sulfate | 20.6 | 10.0 | mg/L | 20.0 | 103 | 80-120 |
|---------|------|------|------|------|-----|--------|

LCS Dup (8073014-BSD1)

Prepared: 30-Jul-18 Analyzed: 31-Jul-18

| | | | | | | | | |
|---------|------|------|------|------|-----|--------|-------|----|
| Sulfate | 20.7 | 10.0 | mg/L | 20.0 | 104 | 80-120 | 0.678 | 20 |
|---------|------|------|------|------|-----|--------|-------|----|

Cardinal Laboratories

*=Accredited Analyte

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Celey D. Keene, Lab Director/Quality Manager

Analytical Results For:

 Rice Operating Company
 112 W. Taylor
 Hobbs NM, 88240

 Project: P-15/D-24-N
 Project Number: P-15/D-24-N
 Project Manager: HAYDEN HOLUB
 Fax To: (575) 397-1471

 Reported:
 06-Aug-18 12:49

Total Recoverable Metals by ICP (E200.7) - Quality Control
Green Analytical Laboratories

| Analyte | Result | Reporting Limit | Units | Spike Level | Source Result | %REC | %REC Limits | RPD | RPD Limit | Notes |
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|
|---------|--------|--------------------|-------|----------------|------------------|------|----------------|-----|--------------|-------|

Batch B808003 - Total Rec. 200.7/200.8/200.2
Blank (B808003-BLK1)

Prepared & Analyzed: 01-Aug-18

| | | | | | | | | | | |
|-----------|----|-------|------|--|--|--|--|--|--|--|
| Magnesium | ND | 0.100 | mg/L | | | | | | | |
| Sodium | ND | 1.00 | mg/L | | | | | | | |
| Calcium | ND | 0.100 | mg/L | | | | | | | |
| Potassium | ND | 1.00 | mg/L | | | | | | | |

LCS (B808003-BS1)

Prepared: 01-Aug-18 Analyzed: 02-Aug-18

| | | | | | | | | | | |
|-----------|------|-------|------|------|--|------|--------|--|--|--|
| Sodium | 3.01 | 1.00 | mg/L | 3.24 | | 93.0 | 85-115 | | | |
| Potassium | 8.31 | 1.00 | mg/L | 8.00 | | 104 | 85-115 | | | |
| Calcium | 4.17 | 0.100 | mg/L | 4.00 | | 104 | 85-115 | | | |
| Magnesium | 20.4 | 0.100 | mg/L | 20.0 | | 102 | 85-115 | | | |

LCS Dup (B808003-BSD1)

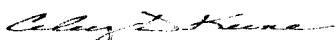
Prepared: 01-Aug-18 Analyzed: 02-Aug-18

| | | | | | | | | | | |
|-----------|------|-------|------|------|--|------|--------|-------|----|--|
| Potassium | 8.22 | 1.00 | mg/L | 8.00 | | 103 | 85-115 | 1.12 | 20 | |
| Calcium | 4.14 | 0.100 | mg/L | 4.00 | | 103 | 85-115 | 0.891 | 20 | |
| Sodium | 2.99 | 1.00 | mg/L | 3.24 | | 92.2 | 85-115 | 0.902 | 20 | |
| Magnesium | 20.3 | 0.100 | mg/L | 20.0 | | 102 | 85-115 | 0.634 | 20 | |

Cardinal Laboratories

*=Accredited Analyte

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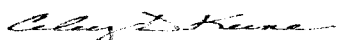
Celey D. Keene, Lab Director/Quality Manager

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**

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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

| | | | | | | | | | | | | | | | | | | | |
|--|--|--|--|---|--|---|--|---|--|-----------------------------------|--|--|--|--|--|--|--|--|--|
| Company Name: <i>Rice Operations Co.</i> Project Manager: <i>Hayden Holub</i> Address: <i>112 W Taylor</i> City: <i>Hobbs</i> State: <i>NM</i> Zip: <i>88240</i> Phone #: <i>575-393-9174</i> Fax #: <i>575-393-1471</i> Project #: <i>P-15/D-24-N</i> Project Owner: Project Name: <i>P-15/D-24-N</i> Project Location: <i>P-15/D-24-N</i> Sampler Name: <i>Hayden Holub</i> | | BILL TO P.O. #: Company: Attn: Address: City: State: Zip: Phone #: Fax #: | | ANALYSIS REQUEST | | | | | | | | | | | | | | | |
| Lab I.D. <i>A02058</i> | | Sample I.D. <i>Water Well Test</i> <i>1 in; new from</i> <i>proposed wells</i> <i>between P-15 &</i> <i>D-24-N</i> <i>Cow well N. golf c.</i> | | FOR LAB USE ONLY (G)RAB OR (C)OMP. # CONTAINERS GROUNDWATER WASTEWATER SOIL OIL SLUDGE OTHER: ACID/BASE: ICE / COOL OTHER: | | MATRIX PRESERV. SAMPLING | | DATE TIME | | Major cations & anions | | | | | | | | | |
| Relinquished By: <i>[Signature]</i> Date: <i>7-27-18</i> Time: <i>4:55</i> Received By: <i>[Signature]</i> Date: <i>7-27-18</i> Time: <i>4:55</i> | | Delivered By: (Circle One) Sampler - UPS - Bus - Other: <i>Cardinal</i> | | Sample Condition Cool <input checked="" type="checkbox"/> Intact <input checked="" type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> | | CHECKED BY: (Initials) <i>70.425</i> | | REMARKS: <i>Final results</i> <i>Khalida@ricecardinal.com</i> <i>SVT@ricecardinal.com</i> <i>Flush</i> | | | | | | | | | | | |



August 6, 2018

Scott Curtis
Rice Operating Company
122 W Taylor St.
Hobbs, New Mexico 88240

RE: Rice Operating Company D-24-N SWD Well Permit

Mr. Curtis:

Tasman Geosciences, Inc. (Tasman) conducted a hydrogeologic investigation on behalf of Rice Operating Company (Rice) related to the proposed injection well D-24-N SWD well permit located in Lea County, New Mexico (Site [Figure 1]). The scope of the investigation was to determine if there is a hydrologic connection between the proposed injection interval and local sources of underground drinking water. The basis of the investigation was in response to the well permit requirement that the applicant makes the following statement:

XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water.

During the investigation Tasman utilized three main sources to determine if there was evidence of open faults or other hydrologic connection between the injection zone, which is between 4,050 and 5,100 feet below ground surface (bgs) in the Permian-Guadalupe San Andreas Formation, and local sources of drinking water estimated to be between 50 and 150 feet bgs within the Tertiary Ogallala Formation (High Plains aquifer).

The sources utilized in the investigation are listed below and are included as attachments:

- Geologic Map of New Mexico (Anderson et al., 1996);
- Regional Cross Sections – Central Basin Platform, West Texas (Bebout et al., 1985); and
- Geohydrology of the High Plains Aquifer in Southeastern New Mexico (Hart et al., 1985).

HYDROGEOLOGIC EVALUATION AND RESULTS

Based on a review of these sources and information provided by Rice, the following lines of evidence indicates that there is not a “hydrologic connection between the disposal zone and underground sources of drinking water”.

- Approximately 4,000 feet of bedrock between the top of the injection interval and the base of the High Plains aquifer;



- Geologic map of New Mexico illustrates no major regional faults or structural features indicating a connection between the San Andreas Formation and the Ogallala Formation (High Plains aquifer);
- Cross section B-B' at points 1, 2 and 3, which are near the injection Site, indicates there are no major faults that trend vertically between the Permian San Andreas Formation and the Tertiary Ogallala Formation; and
- Plate 1 – Geohydrology of the High Plains aquifer illustrates the contact between the base of the High Plains aquifer and the underlying bedrock is approximately 65 feet bgs in the location of the injection Site.

SUMMARY

Based on these lines of evidence and as a licensed Professional Geologist, I am confident that Rice Operating Company can provide the affirmative statement:

“that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground sources of drinking water”.

Please feel free to contact me with any questions or comments at (970) 317-0130.

Sincerely,

Brent Everett, PG
Tasman Geosciences, Inc.

Enclosures:

- Figure 1 – Site Location Map
- Geologic Map of New Mexico
- Cross Section Overview – Central Basin Platform, West Texas
- Regional Cross Section (B-B') – Central Basin Platform, West Texas
- Geohydrology of the High Plains Aquifer Southeast New Mexico

References:

Anderson, O.J., Jones, G.E., and Green, G.N., 1996, Geologic Map of New Mexico, Scale 1:500,000.

Bebout, D.G., and Meador, K.J., 1985, Regional Cross Sections – Central Basin Platform, West Texas: The University of Texas at Austin, Bureau of Economic Geology.

Hart, D.L., and McAda, D.P., 1985, Geohydrology of the High Plains Aquifer in Southeastern New Mexico, Hydrologic Atlas 679.

Affidavit of Publication

STATE OF NEW MEXICO
COUNTY OF LEA


I, Daniel Russell, Publisher of the Hobbs News-Sun, a newspaper published at Hobbs, New Mexico, solemnly swear that the clipping attached hereto was published in the regular and entire issue of said newspaper, and not a supplement thereof for a period of 1 issue(s).

Beginning with the issue dated
August 03, 2018
and ending with the issue dated
August 03, 2018.



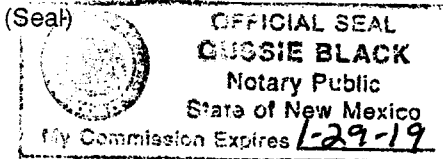
Publisher

Sworn and subscribed to before me this
3rd day of August 2018.



Business Manager

My commission expires
January 29, 2019



This newspaper is duly qualified to publish legal notices or advertisements within the meaning of Section 3, Chapter 167, Laws of 1937 and payment of fees for said

LEGAL NOTICE August 3, 2018

Public Notice for State D-24-N SWD (API:--) Rice Operating Company, 122 West Taylor, Hobbs, NM 88240 (575) 393-9174 Contact Party: Hayden Holub (575) 393-9174. The intended purpose of this injection well is for disposal of produced water associated with oil and gas production activities. This well is a permitted disposal well into the San Andres formation. This application is made to utilize the well for commercial use. The location of the well is 263 feet from the North Line and 630 feet from the West Line of Section 24, Township 21S, Range 36E, which is in the NW/4 of the NW/4 of the aforementioned section, Lea county. The formation name is the San Andres; injection intervals to be between a depth of 4,050' to 5,100'; a maximum injection rate of 45,000 barrels per day with maximum pressure of 1000 PSI, or maximum allowed by the NMOC. Interested parties must file objections or request a hearing with the Oil Conservation Division, 1220 South St. Francis Dr., Santa Fe, New Mexico 87505, within 15 days, by Friday the 17th of August. #33070

01104367

00216026

BEGIE BONDS
RICE OPERATING COMPANY
112 WEST TAYLOR
HOBBS, NM 88240

SURFACE OWNER, GRAZING LESSEE, LEASE OWNER,

AND OFFSET OPERATORS

D-24-N SWD

263' FNL AND 630' FWL, SEC. 24, T21S, R36E

LEA COUNTY, NM

Surface Owner of Well Site

State of New Mexico
Commissioner of Public Lands
Attention: Faith Crosby
PO Box 1148
Santa Fe, NM 87504

City of Eunice
PO Box 147
Eunice, NM 88231

Dasco Cattle Co
PO Box 727
Hobbs, NM 88241

Grazing Lessee of Well Site

Lease #GS-2121-0100
Bruton Cattle Company
HC 69, Box 64
Monument, NM 88265

Operators of Record

Horseshoe Operating Inc.
Attention: Colby Welch
110 W. Louisiana
Midland, TX 79701

XTO Energy, Inc.
Attention: DeeAnn Kemp
6401 Holiday Hill Rd., #5
Midland, TX 79707

Penroc Oil Corp
Attention: Mohammed Merchant
PO Box 2769
Hobbs, NM 88241

Oil & Gas Lessees of Record

Chevron USA, Inc.
Attention: Linda McMurry
6301 Deauville Blvd.
Midland, TX 79706

RICE Operating Company

112 West Taylor • Hobbs, New Mexico 88240

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

AUGUST 6, 2018

State of New Mexico
Commissioner of Public Lands
PO Box 1148
Santa Fe, NM 87504

RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

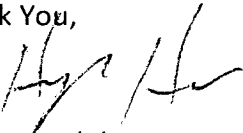
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| State of New Mexico Commissioner of Public Lands Attention: Faith Crosby PO Box 1148 Santa Fe, NM 87504 | |
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To Whom it May Concern:

In accordance with the Rules and Regulations of the Oil Conservation Division of the State of New Mexico, you are being provided a copy of the C-108 Application for Authorization to Inject into the above captioned well.

Any questions about the permit can be directed to Hayden Holub at 575-393-9174. Any objections or request for hearing must be filed with the Oil Conservation Division within fifteen (15) days from the date received. The OCD address is 1220 S. St. Francis Dr., Santa Fe, NM 87505.

Thank You,



Hayden Holub
Manager
Rice Operating Company

RICE Operating Company

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

AUGUST 6, 2018

Bruton Cattle Company
HC 69, Box 64
Monument, NM 88265

RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

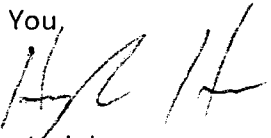
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| HC 69, Box 64 | |
| Monument, NM 88265 | |
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| See Reverse for Instructions | |

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Thank You,


Hayden Holub
Manager
Rice Operating Company

RICE Operating Company

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

AUGUST 6, 2018

City of Eunice
PO Box 147
Eunice, NM 88231

RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

025 679 1000 0001 6619 5760

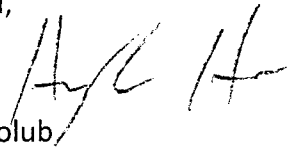
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| City of Eunice | |
| PO Box 147 | |
| Eunice, NM 88231 | |
| PS Form 3800, August 2006 | |
| See Reverse for Instructions | |

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Thank You,


Hayden Holub
Manager
Rice Operating Company

RICE Operating Company

112 West Taylor • Hobbs, New Mexico 88240

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

AUGUST 6, 2018

Dasco Cattle Company
PO Box 727
Hobbs, NM 88241

RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

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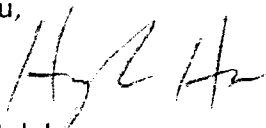
7009 1680 0001 6619 5777

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Thank You,


Hayden Holub
Manager
Rice Operating Company

RICE Operating Company

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

AUGUST 6, 2018

Horseshoe Operating, Inc.
Attention: Colby Welch
110 W. Louisiana
Midland, TX 79701

RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

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Attention: Colby Welch
110 W. Louisiana
Midland, TX 79701

See Reverse for Instructions

To Whom it May Concern:

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Thank You,

Hayden Holub
Manager

Rice Operating Company

RICE Operating Company

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

AUGUST 6, 2018

Chevron USA, Inc.
Attention: Linda McMurry
6301 Deauville Blvd.
Midland, TX 79706

RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

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Thank You,


Hayden Holub
Manager
Rice Operating Company

RICE Operating Company

112 West Taylor • Hobbs, New Mexico 88240

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

AUGUST 6, 2018

Penroc Oil Corp.
Attention: Mohammed Merchant
PO Box 2769
Hobbs, NM 88241

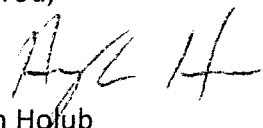
RE: D-24-N SWD
U/L D, Section 24, T21S, R36E
263' FNL and 630' FWL
Lea County, NM

To Whom it May Concern:

In accordance with the Rules and Regulations of the Oil Conservation Division of the State of New Mexico, you are being provided a copy of the C-108 Application for Authorization to Inject into the above captioned well.

Any questions about the permit can be directed to Hayden Holub at 575-393-9174. Any objections or request for hearing must be filed with the Oil Conservation Division within fifteen (15) days from the date received. The OCD address is 1220 S. St. Francis Dr., Santa Fe, NM 87505.

Thank You,


Hayden Holub
Manager
Rice Operating Company

| U.S. Postal Service™ | |
|--|---------|
| CERTIFIED MAIL™ RECEIPT | |
| (Domestic Mail Only; No Insurance Coverage Provided) | |
| For delivery information visit our website at www.usps.com | |
| OFFICIAL USE | |
| Postage | \$ 2.47 |
| Certified Fee | 3.45 |
| Return Receipt Fee (Endorsement Required) | 2.75 |
| Restricted Delivery Fee (Endorsement Required) | |
| Total Postage & Fees | \$ 8.67 |
| Postmark Here | |
| Penroc Oil Corp. Attention: Mohammed Merchant PO Box 2769 Hobbs, NM 88241 | |
| Reverse for Instructions | |

7009 1680 0001 6619 5807

Rice Operating Company

112 West Taylor • Hobbs, New Mexico 88240

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

AUGUST 6, 2018

XTO Energy, Inc.

Attention: DeeAnn Kemp

6401 Holiday Hill Rd., Bldg. #5

Midland, TX 79707

RE: D-24-N SWD

U/L D, Section 24, T21S, R36E

263' FNL and 630' FWL

Lea County, NM

| U.S. Postal Service™ | |
|--|---------|
| CERTIFIED MAIL™ RECEIPT | |
| (Domestic Mail Only; No Insurance Coverage Provided) | |
| For delivery information visit our website at www.usps.com | |
| 7009 1680 0001 6619 5791 | |
| Postage | \$ 2.47 |
| Certified Fee | 3.45 |
| Return Receipt Fee (Endorsement Required) | 2.75 |
| Restricted Delivery Fee (Endorsement Required) | |
| Total Postage & Fees | 8.67 |
| Postmark Here | |
| XTO Energy, Inc. | |
| Attention: DeeAnn Kemp | |
| 6401 Holiday Hill Rd. | |
| Building #5 | |
| Midland, TX 79707 | |
| See Reverse for Instructions | |

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Thank You,

Hayden Holub

Manager

Rice Operating Company

| wellname | api | township | range | formation | tds_mgL |
|---------------------------------|------------|----------|-------|------------------------|----------|
| EUNICE MONUMENT SOUTH UNIT #260 | 3002504463 | 21S | 36E | GRAYBURG/SAN ANDRES | 13534 |
| A J ADKINS #008 | 3002520700 | 21S | 36E | BLINEBRY | 147118 |
| ANTELOPE RIDGE UNIT #003 | 3002521082 | 23S | 34E | DEVONIAN | 80187 |
| BELL LAKE UNIT #009 | 3002520261 | 23S | 34E | BONE SPRING | 204652 |
| NORTHEAST DRINKARD UNIT #306 | 3002506507 | 21S | 37E | BLINEBRY/TUBB/DRINKARD | 19094.4 |
| BELLOQ 2 STATE #002H | 3001542895 | 23S | 31E | WOLFCAMP | 119471.8 |
| NORTH PURE GOLD 5 FEDERAL #003H | 3001535892 | 23S | 31E | DELAWARE-BRUSHY CANYON | 278201.6 |
| WASHINGTON 33 STATE #024 | 3001530334 | 17S | 28E | GLORIETA/YESO | 206471 |



FORM C-108 Technical Review Summary [Prepared by reviewer and included with application; V16.2]

DATE RECORD: First Rec: _____ Admin Complete: _____ or Suspended: _____ Add. Request/Reply: _____

ORDER TYPE: WFX / PMX / SWD Number: _____ Order Date: _____ Legacy Permits/Orders: _____

Well No. 1 Well Name(s): D-24-N

API: 30-0 25-Pending Spud Date: TBID New or Old (EPA): N (UIC Class II Primacy 03/07/1982)

Footages 263FNL 630FNL Lot _____ or Unit _____ Sec 24 Tsp 21S Rge 36E County LEC

General Location: 2.3 miles NW of Equice Pool: Sand, San Andres Pool No.: 96121

BLM 100K Map: JAI Operator: Rice Operations OGRID: 09174 Contact: 170446 operations mgl

COMPLIANCE RULE 5.9: Total Wells: _____ Inactive: _____ Fincl Assur: _____ Compl. Order? _____ IS 5.9 OK? _____ Date: _____

WELL FILE REVIEWED ☐ Current Status: Propose

WELL DIAGRAMS: NEW: Proposed ☒ or RE-ENTER: Before Conv. ☐ After Conv. ☐ Logs in Imaging: _____

Planned Rehab Work to Well: _____

| Well Construction Details | Sizes (in) | Setting | Cement | Cement Top and |
|---|--------------------------|-------------|------------|---------------------------|
| | Borehole / Pipe | Depths (ft) | Sx or Cf | Determination Method |
| Planned ___ or Existing ___ Surface | <u>17 1/2" / 13 3/4"</u> | <u>1300</u> | <u>850</u> | <u>Surface / Vis. Sec</u> |
| Planned ___ or Existing ___ Interm/Prod | <u>12 1/4" / 9 5/8"</u> | | | |
| Planned ___ or Existing ___ Interm/Prod | | | | |
| Planned ___ or Existing ___ Prod/Liner | | | | |
| Planned ___ or Existing ___ Liner | | | | |
| Planned ___ or Existing ___ OH / PERF | <u>4050 / 5100</u> | | | |

| Injection Lithostratigraphic Units: | Depths (ft) | Injection or Confining Units | Tops | Completion/Operation Details: |
|-------------------------------------|-------------|------------------------------|------|--|
| Adjacent Unit: Litho. Struc. Por. | | | | |
| Confining Unit: Litho. Struc. Por. | | | | Drilled TD _____ PBTD _____ |
| Proposed Inj Interval TOP: | | | | NEW TD _____ NEW PBTD _____ |
| Proposed Inj Interval BOTTOM: | | | | NEW Open Hole <input type="radio"/> or NEW Perfs <input type="radio"/> |
| Confining Unit: Litho. Struc. Por. | | | | Tubing Size <u>5 1/2</u> in. Inter Coated? _____ |
| Adjacent Unit: Litho. Struc. Por. | | | | Proposed Packer Depth <u>4045</u> ft |
| | | | | Min. Packer Depth _____ (100-ft limit) |
| | | | | Proposed Max. Surface Press. _____ psi |
| | | | | Admin. Inj. Press. _____ (0.2 psi per ft) |

AOR: Hydrologic and Geologic Information

POTASH: R-111-P NA Noticed? _____ BLM Sec Ord ☐ WIPP ☐ Noticed? _____ Salt/Salado T: 1350B-249 NW: Cliff House fm

FRESH WATER: Aquifer Quaternary Max Depth 205 HYDRO AFFIRM STATEMENT By Qualified Person ☒

NMOSE Basin: Capitan CAPITAN REEF: thru _____ adj NA No. GW Wells in 1-Mile Radius? _____ FW Analysis? ☒

Disposal Fluid: Formation Source(s) _____ Analysis? _____ On Lease ☐ Operator Only ☐ or Commercial ☐

Disposal Interval: Inject Rate (Avg/Max BWPD): 2.110K Protectable Waters? NA Source: _____ System: Closed or Open

HC Potential: Producing Interval? _____ Formerly Producing? _____ Method: Logs/DST/P&A/Other _____ 2-Mi Radius Pool Map ☐

AOR Wells: 1/2-M Radius Map and Well List? _____ No. Penetrating Wells: _____ [AOR Horizontals: _____ AOR SWDs: _____]

Penetrating Wells: No. Active Wells 0 Num Repairs? _____ on which well(s)? _____ Diagrams? _____

Penetrating Wells: No. P&A Wells _____ Num Repairs? _____ on which well(s)? _____ Diagrams? _____

NOTICE: Newspaper Date Aug 3, 2018 Mineral Owner NMSLO Surface Owner NMSLO N. Date 08-06-2018

RULE 26.7(A): Identified Tracts? _____ Affected Persons: Chewon, Penaboe, XTO, Hunschke N. Date 08-06-2018

Order Conditions: Issues: Regr casing thru injection interval

Additional COAs: _____