

**STATE OF NEW MEXICO  
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT  
OIL CONSERVATION COMMISSION**

**APPLICATIONS OF GOODNIGHT MIDSTREAM  
PERMIAN, LLC FOR APPROVAL OF  
SALTWATER DISPOSAL WELLS  
LEA COUNTY, NEW MEXICO**

**CASE NOS. 23614-23617**

**APPLICATION OF GOODNIGHT MIDSTREAM  
PERMIAN LLC TO AMEND ORDER NO. R-22026/SWD-2403  
TO INCREASE THE APPROVED INJECTION RATE  
IN ITS ANDRE DAWSON SWD #1,  
LEA COUNTY, NEW MEXICO.**

**CASE NO. 23775**

**APPLICATIONS OF EMPIRE NEW MEXICO LLC  
TO REVOKE INJECTION AUTHORITY,  
LEA COUNTY, NEW MEXICO**

**CASE NOS. 24018-24020, 24025**

**APPLICATION OF GOODNIGHT PERMIAN  
MIDSTREAM, LLC FOR APPROVAL OF A  
SALTWATER DISPOSAL WELL, LEA COUNTY,  
NEW MEXICO.**

**DIVISION CASE NO. 22626  
ORDER NO. R-22869-A  
COMMISSION CASE NO. 24123**

**SELF-AFFIRMED SUPPLEMENTAL STATEMENT OF PRESTON MCGUIRE**

1. My name is Preston McGuire. I work for Goodnight Midstream Permian, LLC (“Goodnight Midstream”), as the Geology and Reservoir Engineering Manager. I provided written direct and rebuttal testimony in these cases that were filed with the Commission on August 26, 2024, and February 10, 2025, respectively.

2. I am supplementing my previous testimony and opinions based on pressure survey data for the EME H-20 SWD well that was recently obtained from Rice Operating Co. ("Rice") and based on discussions with Rice's general manager, Scott Curtis.

**Summary of Supplemental Opinion**

- The Rice EME H-20 SWD well recorded a 0.36 PSI/ft reservoir pressure gradient in 1959, the earliest known measurement for the San Andres disposal zone. This confirms the zone was naturally under-pressured before EMSU water withdrawal operations began.
- The EME H-20 early pressure data refutes Empire's claim of pressure drawdown of the San Andres disposal zone from the Grayburg producing interval indicating communication. It is highly unlikely that the San Andres disposal zone about 1.5 miles outside the EMSU and more than 1,100 feet deeper than the Grayburg oil-water contact, where the EME H-20 pressure measurement was taken, was affected by Grayburg production. The San Andres disposal zone is naturally under-pressured.
- Empire misinterprets Goodnight's near-wellbore pressure calculations as a reservoir-wide change. These calculations of reservoir pressure increase per volume injected were to show that even the near well bore pressure increase is minimal. An update calculation, provided herein, shows that the pressure increase per volume injected over a larger reservoir area is significantly less than Empire's misconstrued claim.
- Despite more than 60 years of injection totaling hundreds of millions of barrels, the pressure gradient in the San Andres disposal zone has only slightly increased from 0.36 PSI/ft to approximately 0.38 PSI/ft. This disproves Empire's claims of rapid pressure build up in the disposal reservoir and their misinterpretation of near-wellbore pressure build, while also highlighting the zone's vast disposal capacity.

**RICE'S EME H-20 SWD 1959 WELL PRESSURE SURVEY**

3. The Rice EME H-20 SWD (API# 30-025-12800) was drilled in June 1959 as a San Andres disposal well [Pool: 96121 San Andres] and is located about 1.5 miles north of the EMSU. See Exhibit B-62, pg. 1 (EME H-20 SWD identified inside red box). According to Division well records, it has an open hole completion from 4,446-5,000 ft. Measured Depth (MD) (-924 to -1478 ft. Mean Sea Level (MSL)) that is being utilized as the disposal interval. The Rice EME H-20 disposes into the Goodnight-defined water management zone, the same zone utilized at the EMSU for water supply and disposal, including all four of Goodnight's disposal wells in the EMSU (Ernie Banks SWD, Ryno SWD, Andre Dawson SWD, and the Sosa SA 17 SWD #2).

4. Exhibit B-62 includes a line of cross-section from the EME H-20 SWD to the EMSU SWD #1. Page 2 of the exhibit is a stratigraphic cross-section flattened on the Grayburg and includes the Rice EME H-20 and the Empire EMSU 1 SWD, showing that the completion intervals of these wells are correlative.

5. Rice recently provided from its business records a bottom hole pressure survey for the EME H-20 SWD that was taken July 1959, prior to commencing injection, which is shown as Exhibit B-63. The exhibit indicates that the fluid level in this well was shown to be at 1050 feet from the surface and the pressure measured at 5000 feet was 1800 PSI. The exhibit establishes a reservoir pressure gradient of 0.36 PSI/ft for the San Andres disposal zone as of 1959. This is a significant datapoint because it is the earliest known measurement of the reservoir pressure for the San Andres disposal zone. It is also significant because the pressure survey was taken more than 25 years before the EMSU water supply wells were drilled and completed into the San Andres water management zone and well before they started producing substantial volumes of water for the EMSU Grayburg waterflood.

6. The EME H-20 SWD pressure survey refutes two of Empire's arguments.

7. First, Empire has claimed that San Andres disposal zone pressure was drawn down due to communication with the producing Grayburg zone. The data from the EME H-20 SWD refutes that claim because that well is about 1.5 miles outside of the EMSU and measured the San Andres at a depth of -1478 MSL (5,000 MD). This measurement was taken between 1,128 and 1,153 feet below the EMSU oil-water contact of -325 to -350 feet MSL. Given this substantial vertical offset, it is highly unlikely that the cumulative production from the Grayburg at the EMSU as of mid-1959 could affect the pressures in the San Andres disposal zone more than 1,100 feet deeper than the productive interval when there is known reservoir and pressure isolation that occurs in the Grayburg as shown by the well-documented conformance issues with the waterflood. The EME H-20 SWD data therefore confirms that the San Andres disposal interval was a naturally sub-normally pressured reservoir before the EMSU water supply wells were drilled in the area. As of 1959 only disposal had occurred in this interval. From this it can be inferred that the San Andres disposal zone original reservoir pressure was at or near a 0.36 PSI/ft gradient. The fact that the EMSU water supply wells lost circulation while drilling through the water management zone of the San Andres in the 1980s, as documented by Mitchell and Salvo in their 1991 SPE paper titled *The EMSU Waterflood Project: A Case History of Infill Drilling, Completions, and Workovers*, is further confirmation that an extensive and durable seal exists between the San Andres disposal zone and the Grayburg productive interval. It also is further confirmation that the San Andres is a naturally under-pressured reservoir.

8. As part of my review of the EME H-20 SWD pressure survey, I had a discussion on March 26, 2025, with Rice's general manager, Scott Curtis, who provided the pressure survey from Rice's business records. He confirmed that the San Andres SWDs Rice recently drilled in the EMSU—the N-11 (API No. 30-025-46577) and the P-15 (API No. 30-025-46579)—both

experienced complete loss of returns while drilling through the San Andres disposal zone but held circulation in the Grayburg interval. This matches Goodnight's experience drilling its SWDs. In addition, he confirmed that Rice has been able to operate its SWDs that dispose into the San Andres on vacuum without a pump and have not experienced any loss of injection capacity over a 60-year injection history. Mr. Curtis's review of Rice's drilling and operation experiences further confirms that there is an extensive geologic seal that effectively isolates the San Andres disposal zone from the Grayburg producing interval.

9. Second, the EME H-20 SWD data (0.36 PSI/ft gradient) shows that the reservoir pressure of the San Andres disposal zone is minimally increasing after hundreds of millions of barrels have been disposed of over the last 60-plus years when compared to current-day reservoir pressure. Goodnight Exhibit B-21 shows the average San Andres disposal zone reservoir pressure gradient at the Goodnight disposal wells is 0.381 PSI/ft as of July 2024. The 2024 gradient of 0.381 PSI/ft and the 1959 gradient of 0.36 PSI/ft compare favorably when considering the volume of water injected into the San Andres disposal zone.

10. The EME H-20 SWD data also establishes that Empire has misconstrued Goodnight's analysis regarding the extent to which the San Andres disposal zone is increasing in pressure. Goodnight Exhibit B-37 is a table showing how the San Andres aquifer pressure has increased over time at individual Goodnight disposal wells. Empire's witnesses have erroneously asserted that these values align with their interpretation that the pressure in the reservoir as a whole is increasing by about 4-10 PSI per 1 MM BW injected. This table instead shows that near well bore pressures are increasing minimally for the volume of water disposed into each well, individually, and not that the reservoir pressure is increasing by that amount over a large area. This 4-10 PSI increase per 1 MM BW injected is an incredibly low near well bore pressure increase

when compared to the majority of the disposal wells that operate in the Permian Basin.

11. The fact that these pressures are near well bore pressures is demonstrated by the data associated with the Goodnight Piper 26 #2 SWD. This well was shut-in for two months prior to the last pressure measurement taken in the well. The reservoir pressure in the well dropped 165 PSI over the period since its last pressure measurement indicating that the near well bore pressure was able to dissipate into the reservoir over a relatively short period of time. Additionally, the last pressure measurement taken at the Piper 26 #2 SWD shows that this well is currently at a 0.352 PSI/ft gradient which is lower than the gradient measured in 1959 in the Rice EME H-20 SWD of 0.36 PSI/ft. It should be noted that the Piper SWD well has the largest cumulative volume disposed out of all the Goodnight SWDs. It appears that the San Andres disposal reservoir is not currently back to the original reservoir pressure due to the fluid withdrawal from the water supply wells in the area. Currently more water was taken out of the reservoir from the water supply wells than has been injected from disposal operations, which likely explains why the Piper 26 #2 SWD currently has a lower pressure gradient than the 1959 measurement from the EME H-20 SWD.

12. If the area of interest for this calculation is expanded to include more disposal volumes from additional SWDs beyond Section 17, then the resulting increase in reservoir pressure per 1MM BW will be substantially lower than 1.86 PSI. This is because the analysis must now account for the additional volumes from the newly included SWDs that contribute to the pressure increase over the larger area being analyzed. For instance, page two of Goodnight Exhibit B-64 presents the same calculation as the first page of the exhibit but now includes data from the next closest Goodnight SWD, Yaz 28 #1 SWD. The total volume disposed from all five wells listed are now taken into consideration in the calculation, now including the Yaz SWD. Since a greater volume is now being considered for the same measured increase in reservoir pressure at the wells,

the pressure increase per 1 MM BW decreases to 1.50 PSI/1 MM BW. Thus, if the area is further expanded to include more volumes from additional SWDs then the reservoir pressure increase per volume injected will calculate to be even lower.

13. The EME H-20 SWD pressure survey data corroborates this data and shows that Empire misconstrues Goodnight's analysis. It shows that the reservoir pressure of the San Andres disposal zone has increased minimally after hundreds of millions of barrels have been injected over more than 60 years, from the 1959 gradient of 0.36 PSI/ft to 2024 gradient of 0.381 PSI/ft. This data is contrary to Empire's claim that this reservoir will pressure out in the immediate future.

14. The 1959 Rice EME H-20 SWD bottomhole pressure survey is highly relevant in this case as it refutes Empire's claims about pressures within the San Andres disposal zone. It shows that the San Andres disposal zone pressures were not affected by Grayburg production in the EMSU and that the reservoir is naturally under pressured as this well is more than a mile outside of the EMSU and the pressure was taken about 1,100 feet below the producing reservoir in the Grayburg. The bottom hole pressure survey also confirms that the San Andres disposal zone has minimally increased from 0.36 PSI/ft gradient to 0.38 PSI/ft. This assumes that the 0.38 PSI/ft is the current static reservoir pressure and ignores the Piper 26 #2 SWD data of 0.352 PSI/ft, which indicates that the San Andres disposal zone has not yet returned to the reservoir pressure recorded at the EME H-20 SWD in 1959. Thus, to the extent the reservoir pressure has increased in the San Andres disposal zone since 1959, it has been a small increase. This small increase in pressure occurred over more than 60 years of disposal history with hundreds of millions of barrels having been injected. Taken together, this data shows that the San Andres is a world class disposal reservoir which has an enormous capacity to safely accommodate large volumes of water.

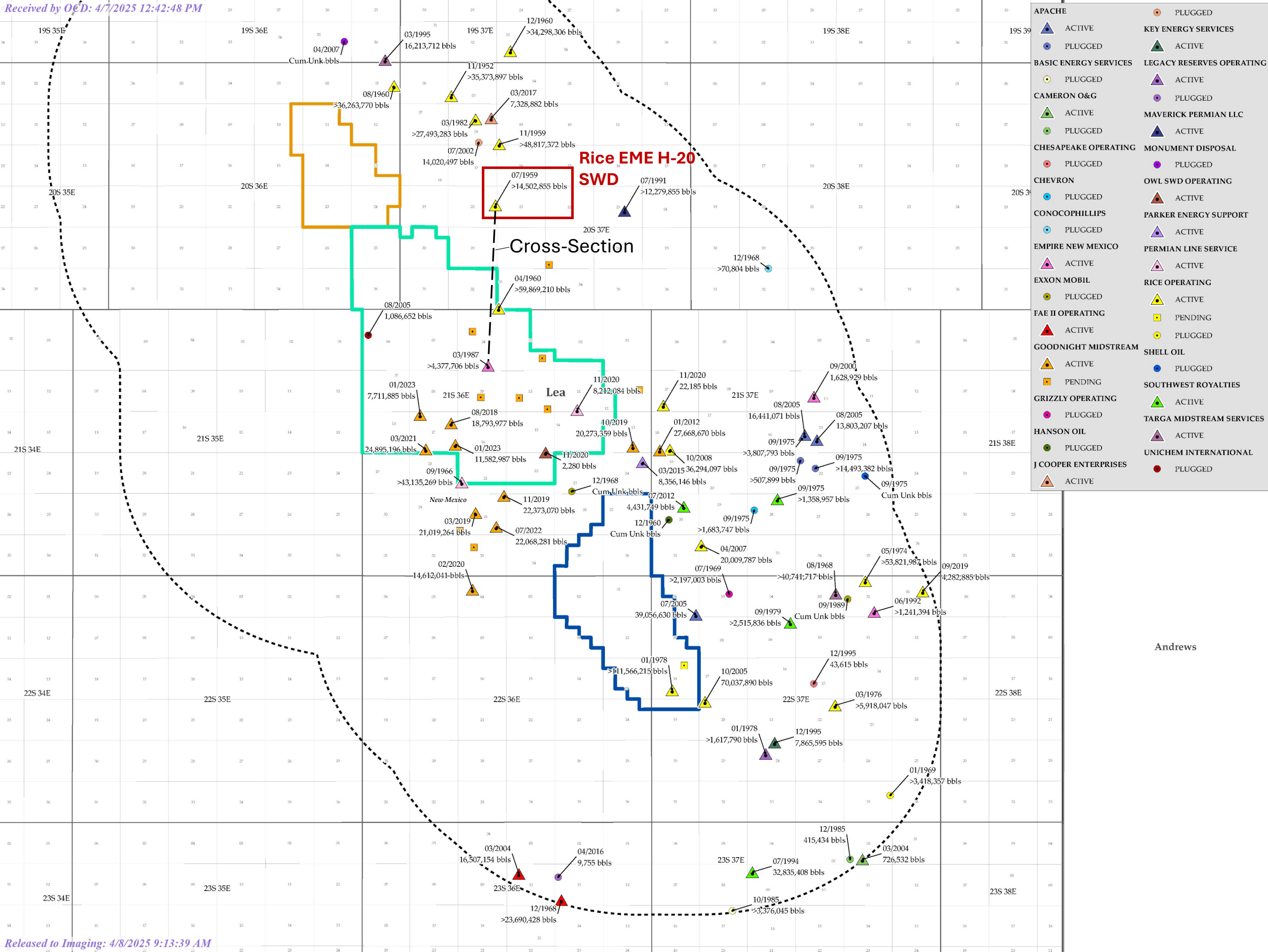
15. I affirm under penalty of perjury under the laws of the State of New Mexico that the foregoing statements are true and correct. I understand that this self-affirmed statement will be used as written testimony in this case. This statement is made on the date next to my signature below.

A handwritten signature in black ink, appearing to read "P. McGuire", written over a horizontal line.

Preston McGuire

4/6/2025

Date



# San Andres SWDs

- AGU Outline
- EMSU Outline
- EMSU -B
- 5 mile buffer

## Exhibit Goodnight B-62

Printed Date: January 14, 2025



Miles  
1 in = 1 miles  
1 inch = 5,220 feet

Coordinate System: GCS WGS 1984  
Datum: WGS 1984  
Units: Degree

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5910 N. CENTRAL EXPY SUITE 800 | DALLAS, TX 75206

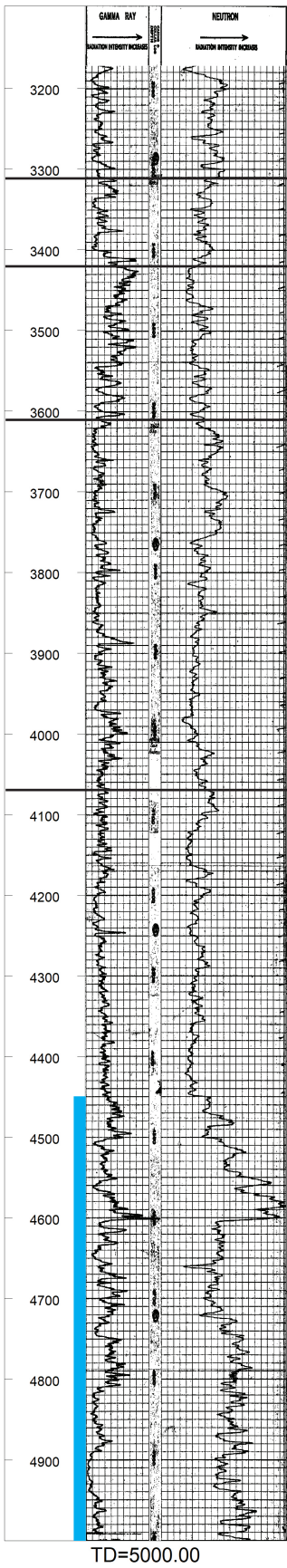
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20608 ft

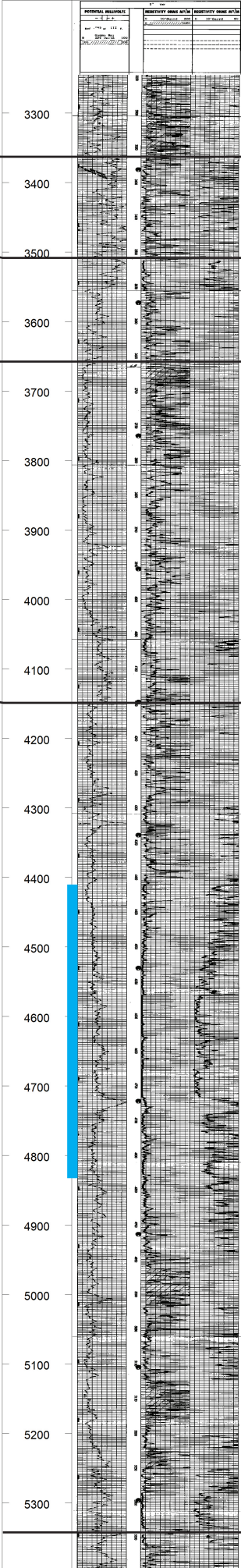
Alt ID=04484

RICE OPERATING COMPANY  
E M E SWD 020  
TWP: 20 S - Range: 37 E - Sec. 20  
Datum = 3522.00

Empire New Mexico LLC  
EMSU 1  
TWP: 21 S - Range: 36 E - Sec. 4  
Datum = 3595.00



TD=5000.00



TD=6350.00

Queen

Penrose

Grayburg

San Andres

Glorieta

Disposal Interval

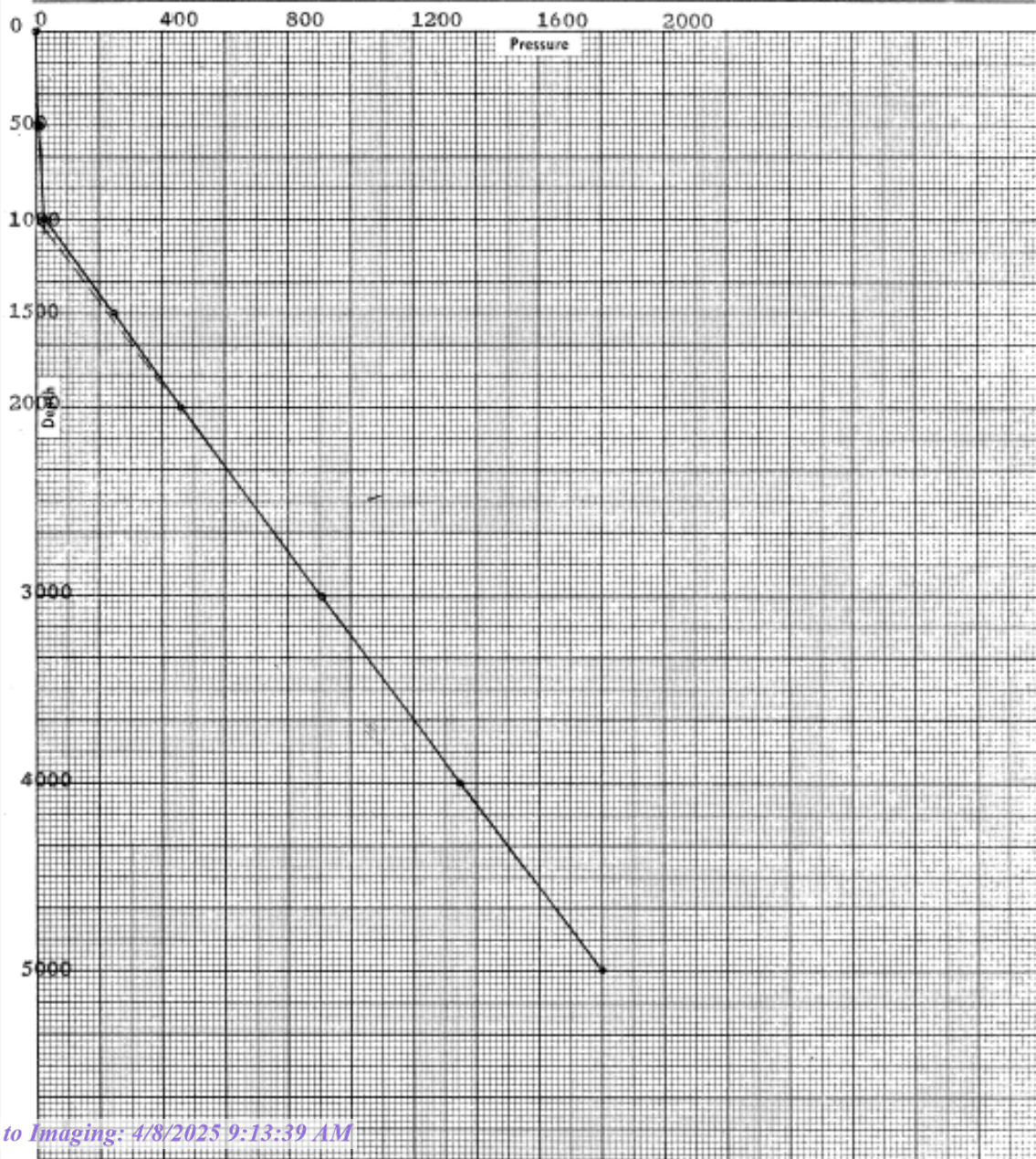
JOHN W. WEST ENGINEER & COMPANY  
412 NORTH DAL PASO, HOBBS, NEW MEXICO

TELEPHONE 3-3742  
3-6770

## BOTTOM HOLE PRESSURE SURVEY REPORT

OPERATOR Rice Engineering & Operating Inc.  
LEASE \_\_\_\_\_  
WELL NO. E. M. E. H-20 (Before injection)  
FIELD \_\_\_\_\_  
DATE July 15, 59 TIME 2:50 P. M.  
STATUS Shut in TEST DEPTH 5000  
TIME S.I. \_\_\_\_\_ LAST TEST DATE Initial test  
CAS. PRES. \_\_\_\_\_ BHP LAST TEST \_\_\_\_\_  
TUB. PRES. 0 BHP CHANGE \_\_\_\_\_  
ELEV. \_\_\_\_\_ FLUID TOP 1050  
DATUM \_\_\_\_\_ WATER TOP \_\_\_\_\_  
TEMP \_\_\_\_\_ RUN BY B. T.  
CLOCK NO. 2547 GAUGE NO. 12434  
ELEMENT NO. 14659-N

| DEPTH | PRESSURE | GRADIENT |
|-------|----------|----------|
| 000   | 0        |          |
| 500   | 7        | .014     |
| 1000  | 26       | .038     |
| 1500  | 247      | .442     |
| 2000  | 462      | .430     |
| 3000  | 905      | .443     |
| 4000  | 1347     | .442     |
| 5000  | 1800     | .453     |



# Exhibit Goodnight B-64

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| Well                   | FL Date | All Four Well |            |         |              |          |          |           | BHP at   |          | Res PSI<br>Increase per<br>1MMBBL<br>Injected | SW Gradient |
|------------------------|---------|---------------|------------|---------|--------------|----------|----------|-----------|----------|----------|-----------------------------------------------|-------------|
|                        |         | Cum Vol       | SI Time    | SITP    | FL (from SL) | Top Perf | Mid Perf | Base Perf | Mid Perf | Gradient |                                               |             |
| Dawson #1              | *       | 12/29/2022    | 21,856,480 | NA      | 0            | 1000     |          |           | 1836     | 0.371    |                                               |             |
| Dawson #1              |         | 6/13/2023     | 28,435,245 | 18-days | -13          | 960      | 4370     | 4948      | 1841     | 0.372    |                                               | 0.465       |
| Dawson #1              |         | 12/18/2023    | 40,572,092 | ~20-min | -13          | 868      |          | 5525      | 1884     | 0.381    |                                               |             |
| Dawson #1              |         | 7/20/2024     | 51,788,865 | 72-min  | -13          | 894      |          |           | 1872     | 0.378    | 1.21                                          |             |
| * FL during completion |         |               |            |         |              |          |          |           |          |          |                                               |             |
| Ernie Banks #1         | *       | 1/17/2023     | 22,631,916 | NA      | 0            | 1000     |          |           | 1839     | 0.371    |                                               |             |
| Ernie Banks #1         |         | 6/13/2023     | 28,435,245 | ~20-min | -13          | 961      | 4490     | 4955      | 1844     | 0.372    |                                               |             |
| Ernie Banks #1         |         | 12/18/2023    | 40,572,092 | ~20-min | -13          | 849      |          | 5420      | 1896     | 0.383    |                                               |             |
| Ernie Banks #1         |         | 7/20/2024     | 51,788,865 | 110-min | -13          | 860      |          |           | 1891     | 0.382    | 1.79                                          |             |
| * FL during completion |         |               |            |         |              |          |          |           |          |          |                                               |             |
| Ryno 17 #1             |         | 4/7/2022      | 14,033,807 | ~20-min | -9           | 1069     |          |           | 1805     | 0.363    |                                               |             |
| Ryno 17 #1             |         | 11/11/2022    | 19,702,142 | ~20-min | -10          | 993      |          |           | 1839     | 0.370    |                                               |             |
| Ryno 17 #1             |         | 6/13/2023     | 28,435,245 | ~20-min | -10          | 969      | 4380     | 4970      | 1850     | 0.372    |                                               |             |
| Ryno 17 #1             |         | 12/18/2023    | 40,572,092 | ~20-min | -12          | 849      |          |           | 1904     | 0.383    |                                               |             |
| Ryno 17 #1             |         | 7/20/2024     | 51,788,865 | 95-min  | -13          | 868      |          |           | 1894     | 0.381    | 2.37                                          |             |
| Sosa 17 #2             |         | 4/7/2022      | 14,033,807 | ~20-min | -11          | 1074     |          |           | 1796     | 0.362    |                                               |             |
| Sosa 17 #2             |         | 11/11/2022    | 19,702,142 | ~20-min | -10          | 1003     |          |           | 1830     | 0.369    |                                               |             |
| Sosa 17 #2             |         | 6/13/2023     | 28,435,245 | ~20-min | -12          | 986      | 4592     | 4961      | 1836     | 0.370    |                                               |             |
| Sosa 17 #2             |         | 12/18/2023    | 40,572,092 | ~20-min | -13          | 897      |          | 5330      | 1877     | 0.378    |                                               |             |
| Sosa 17 #2             |         | 7/20/2024     | 51,788,865 | 126-min | -13          | 901      |          |           | 1875     | 0.378    | 2.08                                          |             |
|                        |         |               |            |         |              |          |          |           |          |          | 1.86                                          |             |
|                        |         |               |            |         |              |          |          |           |          |          | Avg. BHP                                      |             |
|                        |         |               |            |         |              |          |          |           |          |          | Increase per                                  |             |
|                        |         |               |            |         |              |          |          |           |          |          | 1MM BW                                        |             |
|                        |         |               |            |         |              |          |          |           |          |          | Injected                                      |             |

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| Well           | FL Date                | All Five Well |            |         |              |          |          |           | BHP at   |          | Res PSI<br>Increase per<br>1MMBBL<br>Injected  | SW Gradient |
|----------------|------------------------|---------------|------------|---------|--------------|----------|----------|-----------|----------|----------|------------------------------------------------|-------------|
|                |                        | Cum Vol       | SI Time    | SITP    | FL (from SL) | Top Perf | Mid Perf | Base Perf | Mid Perf | Gradient |                                                |             |
| Dawson #1      | *                      | 12/29/2022    | 33,406,193 | NA      | 0            | 1000     |          |           | 1836     | 0.371    |                                                |             |
| Dawson #1      |                        | 6/13/2023     | 41,543,712 | 18-days | -13          | 960      | 4370     | 4948      | 1841     | 0.372    |                                                | 0.465       |
| Dawson #1      |                        | 12/18/2023    | 56,664,305 | ~20-min | -13          | 868      |          | 5525      | 1884     | 0.381    |                                                |             |
| Dawson #1      |                        | 7/20/2024     | 70,394,738 | 72-min  | -13          | 894      |          |           | 1872     | 0.378    | 0.98                                           |             |
|                | * FL during completion |               |            |         |              |          |          |           |          |          |                                                |             |
| Ernie Banks #1 | *                      | 1/17/2023     | 34,613,977 | NA      | 0            | 1000     |          |           | 1839     | 0.371    |                                                |             |
| Ernie Banks #1 |                        | 6/13/2023     | 41,543,712 | ~20-min | -13          | 961      | 4490     | 4955      | 1844     | 0.372    |                                                |             |
| Ernie Banks #1 |                        | 12/18/2023    | 56,664,305 | ~20-min | -13          | 849      |          | 5420      | 1896     | 0.383    |                                                |             |
| Ernie Banks #1 |                        | 7/20/2024     | 70,394,738 | 110-min | -13          | 860      |          |           | 1891     | 0.382    | 1.46                                           |             |
|                | * FL during completion |               |            |         |              |          |          |           |          |          |                                                |             |
| Ryno 17 #1     |                        | 4/7/2022      | 22,891,909 | ~20-min | -9           | 1069     |          |           | 1805     | 0.363    |                                                |             |
| Ryno 17 #1     |                        | 11/11/2022    | 30,724,384 | ~20-min | -10          | 993      |          |           | 1839     | 0.370    |                                                |             |
| Ryno 17 #1     |                        | 6/13/2023     | 41,543,712 | ~20-min | -10          | 969      | 4380     | 4970      | 1850     | 0.372    |                                                |             |
| Ryno 17 #1     |                        | 12/18/2023    | 56,664,305 | ~20-min | -12          | 849      |          |           | 1904     | 0.383    |                                                |             |
| Ryno 17 #1     |                        | 7/20/2024     | 70,394,738 | 95-min  | -13          | 868      |          |           | 1894     | 0.381    | 1.88                                           |             |
| Sosa 17 #2     |                        | 4/7/2022      | 22,891,909 | ~20-min | -11          | 1074     |          |           | 1796     | 0.362    |                                                |             |
| Sosa 17 #2     |                        | 11/11/2022    | 30,724,384 | ~20-min | -10          | 1003     |          |           | 1830     | 0.369    |                                                |             |
| Sosa 17 #2     |                        | 6/13/2023     | 41,543,712 | ~20-min | -12          | 986      | 4592     | 4961      | 1836     | 0.370    |                                                |             |
| Sosa 17 #2     |                        | 12/18/2023    | 56,664,305 | ~20-min | -13          | 897      |          | 5330      | 1877     | 0.378    |                                                |             |
| Sosa 17 #2     |                        | 7/20/2024     | 70,394,738 | 126-min | -13          | 901      |          |           | 1875     | 0.378    | 1.65                                           |             |
| Yaz 28 #1      |                        | 11/11/2022    | 30,724,384 | ~2-days | -9           | 935      |          |           | 1888     | 0.376    |                                                |             |
| Yaz 28 #1      |                        | 6/13/2023     | 41,543,712 | ~3-days | -8           | 903      | 4650     | 5014      | 1904     | 0.380    |                                                |             |
| Yaz 28 #1      |                        | 12/18/2023    | 56,664,305 | ~20-min | -10          | 798      |          | 5378      | 1950     | 0.389    |                                                |             |
| Yaz 28 #1      |                        | 7/20/2024     | 70,394,738 | 90-min  | -10          | 801      |          |           | 1949     | 0.389    | 1.55                                           |             |
|                |                        |               |            |         |              |          |          |           |          |          | 1.50                                           |             |
|                |                        |               |            |         |              |          |          |           |          |          | Avg. BHP<br>Increase per<br>1MM BW<br>Injected |             |