

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

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

**CASE NO. 24123  
ORDER NO. R-22869-A**

**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**

**AMENDED NOTICE OF REVISED TESTIMONY OF EMPIRE WITNESSES  
GALEN DILLEWYN AND JOE MCSHANE**

Empire New Mexico LLC (“Empire”) hereby provides notice that the revised direct written testimony of Galen Dillewyn was filed on December 4, 2024 (Revised Self-Affirmed Statement of Galen Dillewyn (Revised Exhibit F)), and the revised direct written testimony of Joe McShane was filed on December 5, 2024 (Revised Self-Affirmed Statement of Joseph A. McShane (Revised Exhibit G)). Empire provides this notice to identify the specific changes included in the revised testimony and to state the timing with respect to the same.

In light of direct testimony filed by Goodnight Midstream Permian LLC (“Goodnight”) in this matter, Empire requested NUTECH to rerun its analysis with different m and n values and to review the EMSU-679 core report on September 13, 2024. NUTECH analyzed the EMSU-679 core report and provided a report to Empire with results on October 14, 2024, which was provided

to Goodnight that same month. On November 20, 2024, Empire asked NUTECH to apply the analysis used for the EMSU-679 to the EMSU-628, -658, -660, -673, -713, -745, and the Ryno (Snyder) SWD #1. Empire received those results on November 21, 2024 and filed Mr. Dillewyn's revised testimony on December 4, 2024. The following day, Empire filed the revised testimony of Joe McShane as it relates to the revised testimony of Mr. Dillewyn. No party has been prejudiced by the revisions because the net effect reduced Empire's estimated oil saturations in the San Andres.

### **Revisions to Mr. Dillewyn's Testimony (Exhibit F)**

The revisions in Mr. Dillewyn's testimony reflect the analysis in the supplemental report included with Revised Exhibit F as Attachment 1 ("Supplemental Report"). Corresponding revisions were made to a related exhibit, Exhibit F-7. The Supplemental Report and revisions to Mr. Dillewyn's direct written testimony arose from Empire's request that NUTECH analyze core data and log data on the EMSU-679 well and consider variations in m and n values to match the water saturation values in the EMSU-679 core.

Revisions were made to page 5 of Exhibit F, as shown in the redlined text below:

The two formations analyzed at Eunice Monument were the Grayburg and the San Andres. An example of the work is in **Exhibit F-6**. For EMSU-673. The Resistivity of the Water (RW) used was 0.4 ohm @ 75 degF. This was balanced in the reservoir above the Grayburg and in the evaporite sequence above that. The San Andres and Grayburg are primarily a dolomitic rock with some interspersed limestones. Both formations show evidence of hydrocarbon saturation. The work done on the 2 wells with pulsed neutron data shows that hydrocarbon sweep has occurred in areas where the waterflood is active but that the sweep has not been 100% effective with intervals of no sweep having occurred. The curves presented on each track are labeled on **Exhibit F-5** and described on pages 3 and 4. Of the 10 wells, 7 covered substantial portions of the San Andres interval and in each of the seven wells there is evidence of hydrocarbon saturation in the San Andres as shown in **Exhibit F-7**. In the Exhibit the water saturation reaches as low as ~~20~~35% indicating a hydrocarbon saturation of ~~80~~65%. The oil saturation varies from ~~80~~65% down to ~~40~~1% wherever porosity develops in the reservoir.

The San Andres formation generally is made up of three characteristics that are commonly broken into three parts. The upper portion of the reservoir is generally where the porosity develops and has been the conventional target of large fields such as Slaughter field in Cochran County, Texas and Wasson Field in Yoakum County, Texas. Below the porosity section is generally a zone of increasing water saturation that shows both moveable hydrocarbon and moveable water. Below this zone is the third zone known as the residual oil zone, or ROZ. This is an area with extremely high water saturation that some operators such as Steward Energy have been successful in producing hydrocarbon from.

The m and n values were adjusted for this updated analysis with additional discussion in Attachment 1 at the end of this document.

### **Revisions to Mr. McShane's Testimony (Exhibit G)**

The revisions in Mr. McShane's testimony arose from the revisions to Mr. Dillewyn's testimony. Revisions were made to Paragraph 10 of Mr. McShane's testimony as reflected in the redlined text below. In addition, the exhibits identified in the revised Paragraph 10, including Exhibits G-3d through G-3j, were revised.

10. ~~The EMSU 658 (Exhibit G-3d) well covers approximately 400' logged 371' of the San Andres formation with 182' net oil interval (>0.1 md permeability which contains oil) and has multiple packages of pay identified and estimated OIP of 60.930.29 MMBO/640-acre section. The EMSU 673 (Exhibit G-3e) well had a Triple Combo (TCOM) OH log run in 2005 covering 362' approximately 400' of the San Andres reservoir with 75-100153' of hydrocarbons present and an estimated OIP of 61.431.68 MMBO/sec. The next well in the exhibit is EMSU 713 (Exhibit G-3f) which had an TCOM OH log run in 2005 covering approximately 200 125' of the San Andres reservoir with 40' net oil pay. Estimated OIP of 8.02 MMBO/sec is calculated but it is low due to the limited section of San Andres drilled and logged. From the log analysis we can see approximately 40' of hydrocarbons present and an estimated OIP of 13.6MMBO/sec. The next well, EMSU 660 (Exhibit G-3g) had a TCOM OH log from 2005 that was analyzed over approximately 400431' of the San Andres reservoir and shows 170313' of hydrocarbons present with an estimated OIP of 98.148.62 MMBO/sec. The next well, EMSU 746 (Exhibit G-3h) had a TCOM OH log run in 2005 that covers the entire unitized interval and all approximately 10001223' of the San Andres. The analysis shows over 200508' of hydrocarbons in the San Andres with an OIP of 174.562.18 MMBO/sec. Moving to the next well, the Goodnight's Ryno SWD #1 (formerly Snyder SWD #1 shown in Exhibit G-3i), one of Goodnight's SWD wells that is currently disposing water into the San Andres, which is part of Empire's unitized formation that again shows presence of hydrocarbons in the log analysis. This well is near the down-dip most portion of EMSU and has approximately 150220' of net oil zone pay identified with an~~

estimated OIP of ~~91.515.62~~ MMBO/sec. ~~The final well in the exhibit is the~~ EMSU 628 (Exhibit G-3j) which again had a modern TCOM OH log from 2005 that was analyzed over ~~greater than 500~~590' of the San Andres reservoir and has 266' net oil interval. ~~The Simandoux calculation indicates greater than 250' of hydrocarbons present within the San Andres with a~~An estimated OIP of ~~89.440.79~~ MMBO/sec is calculated. These log results show there is significant ROZ in the San Andres.

A minor correction was also made in the first line of Paragraph 15, as reflected in the redlined text below:

15. Based on the above analysis and data, ~~it's~~ indisputable that the San Andres formation within the EMSU contains a Residual Oil Zone that can be developed with enhanced oil recovery methodologies such as CO2 injection. As a result, Goodnight's proposal to inject produced water into the San Andres formation would result in the waste of hydrocarbons and thereby violate Empire's correlative rights.

Respectfully submitted,

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**CERTIFICATE OF SERVICE**

I hereby certify that a true and correct copy of the foregoing was served on the following by electronic mail on January 30, 2025.

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