

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

APPLICATION OF GOODNIGHT MIDSTREAM PERMIAN, LLC TO AMEND ORDER NO. R-7767 TO EXCLUDE THE SAN ANDRES FORMATION FROM THE EUNICE MONUMENT OIL POOL WITHIN THE EUNICE MONUMENT SOUTH UNIT AREA, LEA COUNTY, NEW MEXICO.

CASE NO. 24277

APPLICATION OF GOODNIGHT MIDSTREAM PERMIAN, LLC TO AMEND ORDER NO. R-7765, AS AMENDED TO EXCLUDE THE SAN ANDRES FORMATION FROM THE UNITIZED INTERVAL OF THE EUNICE MONUMENT SOUTH UNIT, LEA COUNTY, NEW MEXICO.

CASE NO. 24278

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

CASE NOS. 23614-23617

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

CASE NOS. 24018-24027

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

APPLICATION OF GOODNIGHT PERMIAN MIDSTREAM, LLC FOR APPROVAL OF A SALTWATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO; ORDER NO. R-22869-A.

CASE NO. 24123

INTERVENOR PILOT WATER SOLUTIONS SWD, LLC'S PROPOSED FINDINGS OF FACT AND CONCLUSIONS OF LAW

In accordance with the Hearing Examiner's request at the May 21, 2025, hearing in Case Nos. 23614-23617, 24018-24027, 23775, and 24123, Pilot Water Solutions SWD, LLC ("Pilot") submits the following Proposed Findings of Fact and Conclusions of Law for inclusion in the New Mexico Oil Conservation Commission's ("Commission") order in this matter.

Findings of Fact

Background

1. Empire filed ten applications, including the four applications in Case Nos. 24018-20 and 24025, which went to hearing for almost four weeks before the Oil Conservation Commission (“Commission”) on February 20-28, 2025, April 7-25, 2025, and May 19-21, 2025.
2. In its four cases, Empire seeks a Commission order revoking the injection authority granted under Order Nos. T-22026/SWD-2403, R-22027, SWD-2307, and R-21190. These orders authorize Goodnight, as the operator, to inject disposal waters into the San Andres formation, a non-productive zone that has been recognized as a commercially viable wastewater disposal zone for over 50 years.
3. On June 17, 2024, Pilot intervened in these cases because any decision or order issued by the Commission in connection with the pending applications could adversely affect its injection permits into the San Andres formation.
4. On June 26, 2024, the Commission stayed Case No. 24432, until the resolution of these cases. Empire filed an Application to Revoke the Injection Authority Granted Under Administrative Order SWD-1750 for the P 15 #001 Well Operated by OWL SWD Operating, LLC, Lea County, New Mexico; OWL SWD Operating, LLC is an affiliate of Pilot.
5. On July 2, 2024, the Commission issued its Joint Order limiting the scope of this hearing to Empire case Nos. 24123, 23775, 23614-23617, 24018-20, and 24025, to hear evidence, testimony and argument “on the issue of the existence, extent of and possible interference with a residual oil zone [sic] the Eunice Monument South Unit (‘EMSU’) by produced water injection activities undertaken by Goodnight.”

6. A revised Joint Order was issued on February 2, 2025, directing the Commission to determine: whether granting Goodnight's applications would impair correlative rights or cause waste; and whether granting Empire's applications would prevent the impairment of correlative rights or cause waste.

7. These cases were heard as a special Commission hearing docket on February 20, 2025, February 24-28, 2025, April 7-11, 2025, April 21-25, 2025, and May 19-21, 2025, where parties presented witnesses and exhibits.

Historical Use and Characterization of the San Andres Formation

8. The San Andres has been used for water disposal since the 1950s. McGuire Tr. 5/19/2025 52:18-19.

9. The San Andres was declared an aquifer by the New Mexico State Engineer in 1965. Rankin Tr. 5/21/2025 57:2-24.

10. The San Andres was erroneously included in the unitized interval because OCD does not have the authority to unitize aquifers that are not defined by hydrocarbon development. McGuire Tr. 5/19/2025 216: 16-25; 217: 1-10.

11. Goodnight witness William Knights explained that the San Andres was included in the unitization of the EMSU as a water source and water disposal interval to make it an economic unit, not necessarily for the hydrocarbon production. Knights Tr. 4/23/2025 63: 9-17.

12. In Knights' view, the San Andres, due to "the amount of water that was withdrawn in the early days and the amount of water that was injected and the very limited changes in pressures would all point to just a very large aquifer." Knights Tr. 4/22/2025 211: 2-16.

Physical and Hydraulic Separation Between the San Andres and Grayburg

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13. Goodnight witness Dr. Larry Lake testified that while there is no single impermeable barrier between the San Andres and Grayburg, there is a collection of barriers that prevent communication between the formation. Lake Tr. 5/24/2025 182: 19-25.

14. Dr. Lake also testified that there is clear evidence of a separation between the San Andres and the Grayburg due to clear pressure differences between the formations. Lake Tr. 4/24/2024 162-165: 1-17.

15. Goodnight witness Thomas Tomastik examined Empire's testimony from Dr. Robert Lindsay and concluded that any "vertical fractures will hit a horizontal bedding plane that acts as a barrier to flow and then flow will go horizontal." Tomastik Tr. 4/22/2025 96: 24-25, 97: 1-2.

16. According to various witnesses at hearing, there is no communication between the San Andres and the Capitan Reef because they are hydrologically distinct. 2/20/2025 118: 12-22; Lindsay Tr. 2/24/2025 172: 2-8; Tomastik Tr. 4/25/2025 63:7-16; White Tr. 4/25/2025 137:9-21.

17. There is no communication between the Hobbs Channel and the Capitan Reef. Tomastik Tr. 4/25/2025 92: 9-12.

18. Goodnight witness William Knights identified that the San Andres is not experiencing changes in pressure despite all of the disposal that has occurred. Knights Tr. 4/23/2025 172: 3-13.

19. Mr. Knights also concluded that the evidence he has reviewed suggests that there is no communication between the Grayburg and the San Andres and that there are strong indications of a barrier separating the two formations. Knights Tr. 4/22/2025 218: 2-17.

Effectiveness of Goodnight's Confining Layer

20. Goodnight witness Preston McGuire demonstrated that the EMSU 679 core shows a 100-foot confining layer with low to zero permeability to a depth of 4,335 feet. McGuire Tr. 5/19/2025 65: 5-16.

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21. Goodnight witness John McBeath testified that there are “significant perm barriers to vertical flow. McBeath Tr. 4/23/2025 13: 9-23; 15:2-9.

22. Goodnight witness Dr. James Davidson testified that in his opinion, due to the anhydrite layers present in the San Andres, that there is isolation and likely no communication between the Grayburg and the San Andres. Davidson Tr. 4/21/2025 187: 21-25; 188: 1-20.

23. Dr. Davidson also affirmed that there is an interval within the San Andres that contains anhydrites that act as an impermeable barrier to vertical flow. Davidson Tr. 4/21/2025 218:1-10; 219:1-25.

24. Goodnight witness William Knights also testified that fluid migration from the San Andres into the Grayburg is significantly inhibited and is a barrier between fluid flow from the Goodnight injection zones and the Empire shallow production and the shallower potential ROZ. Knights Tr. 4/22/2025 100: 21-25; 101: 1-11.

25. Goodnight witness Dr. Lake affirmed that in his view, the pressure differences between the San Andres and Grayburg “are conclusive evidence of lack of communication” between the formations. Lake Tr. 4/24/2025 192:8-13.

26. Empire witness Ryan Bailey confirmed that the Grayburg and the San Andres are separate geologic intervals. Bailey Tr. 2/25/2025 311: 8-12.

Impact on Production and Alleged Waste

27. Empire witness William West made numerous claims that Goodnight’s injection of saltwater into the San Andres was impacting Empire’s ability to develop the ROZ. West Tr. 4/8/2025 113: 21-25; 114: 1-16; West Tr. 4/9/2025 177: 17-21; 179: 6-22; 198:21-25; 199:1-20; West Tr. 4-10/2025 84: 6-22.

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28. Mr. West also conceded that he does not know how many barrels of water are coming from a particular direction. West Tr. 4/11/2025 54: 8-21.

29. Goodnight witness William Knights testified that edge water encroachment along permeability barriers and horizontal bedding planes within the Grayburg explain how edge water encroaching into the EMSU could have caused high water production in wells in the central portion of the EMSU. Knights Tr. 45-46.

30. Yet, Goodnight witness William Knights identified that the San Andres is not experiencing changes in pressure despite all of the disposal that has occurred from water withdrawal. Knights Tr. 4/23/2025 172: 3-13.

31. Goodnight witness John McBeath corroborated Knights' claim that saltwater disposal wells had not caused significant changes in reservoir pressure and is in fact under-pressured. McBeath Tr. 4/23/2025 221: 6-18. This was further confirmed by Goodnight witness James Davidson. Davidson Tr. 4/21/2025 207: 5-7.

32. Empire Senior Geologist, Joseph McShane, admitted that high volumes of water injected by Goodnight could damage the reservoir, but provided no specific modeling data that this was, in fact, occurring as part of his testimony. McShane Tr. 4/8/2025 99: 3-11; 117:4-12.

33. When asked whether in his opinion Goodnight's injection was impairing Empire's correlative rights or causing waste, Goodnight witness McBeath stated that he didn't see how correlative rights could be impaired and that he saw no evidence of waste. McBeath Tr. 4/1/2025 161: 18-25; 162: 1-10.

34. Goodnight witness Dr. Lake believes that Empire can develop a ROZ above the disposal zone in the EMSU while Goodnight continues to dispose of produced water. Lake Tr. 4/24/2025 179: 7-11.

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35. Goodnight witness McBeath testified that there is no evidence that leads to the conclusion that Goodnight cannot continue its disposal operations in the San Andres while Empire attempts to develop a ROZ in the Grayburg because they are separate reservoirs. McBeath Tr. 4/11/2025 161: 3-17.

Nature and Economic Viability of Empire's ROZ Claims

36. Empire witness Dr. Robert Lindsay contends that a ROZ is defined as having 20%-40% of residual oil. Lindsay Tr. 2/24/2025 185: 14-25; 185: 1-3.

37. Empire claims that the San Andres contains a commercial ROZ with 912 million barrels of oil based on an Exxon sales brochure. Wheeler: Tr. 4/8/2025 171: 1-14; 4/9/2025: 45: 4-23; Wehmeyer Tr. 5/21/2025 26:8-12.

38. While there may be hydrocarbons in the San Andres, it has not been conclusively established that a ROZ exists in the San Andres. McShane Tr. 4/7/2025 118: 2-8.

39. Empire witness Michael Bailey, though certain that a ROZ exists in the San Andres, acknowledged that oil requires 30%-50% percent saturation to be mobile, yet failed to provide the Commission any data on the mobility of that oil. Bailey Tr. 2/25/2025 339: 4-21; 480:60-25.

40. Goodnight established that oil saturations in the San Andres disposal zone are under 11%, (far below the 20% threshold for a commercial ROZ) with 350 million barrels of water produced over more than 4,000 days with no oil produced. McGuire Tr. 5/19/2025 86:16-25 87:1-5.

41. Empire witness Joseph McShane acknowledges that he is unable to determine how much of Empire's estimated oil in place is actually recoverable. McShane Tr. 4/8/2025 109: 13-21.

42. Goodnight witness McGuire acknowledged that even if there exists a ROZ in the San Andres, they exist in very low oil saturations. McGuire Tr. 5/20/2025 119:1-15.

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43. Empire witness Dr. Trentham is not aware of any ROZ where there was a high volume of water injected into the ROZ that resulted in oil recovery. Birkhead Tr. 2/26/2025 668: 6-25; 669: 1-7. Trentham Tr. 2/27/2025 825: 18-25.

44. Goodnight witness James Davidson testified that while there may be a ROZ in the upper San Andres, he found no evidence of a ROZ in the lower San Andres. Davidson Tr. 4/21/2025 232:6-25; 258:18-25; 259: 1-5.

45. Empire's witness, Galen Dillewyn, acknowledged that his analysis of the core for the EMSU 679 well did not make corrections for water losses. Dillewyn Tr. 4/7/2025 185:15-19; 186:9- 23.

46. Goodnight's witness William Knights testified that if there was any oil in the San Andres, it would probably already be depleted. Knights Tr. 4/22/2025 57:1-4.

47. The range of saturations identified by Empire Witness Dr. Robert Lindsay evidences a range of saturations between 38 percent at the high end and one percent at the low end, determining that it would be economic to produce oil is unlikely. Lindsay Tr. 2/24/2025 24:1-6.

48. Dr. Lindsay further admitted that we don't know how much oil there is in the San Andres. Lindsay Tr. 2/24/2025 37:4-7.

49. Further, Empire's own ROZ expert, Dr. Robert Trentham, despite significant experience with ROZs in the Permian Basin, acknowledged that he's not aware of fields in the Permian Basin that have undergone high volume water injection having recoverable ROZs, and that this would be the first instance of such a project. Trentham Tr. 2/27/2025 825: 18-25; 826: 1-4.

50. Goodnight witness Thomas Tomastik also testified that XTO attempted to produce oil from wells drilled in the San Andres that resulted in wells that were not economic. Tomastik Tr. 4/25/2025 62:5-14. Mr. Tomastik went on to affirm that "none of the six water supply wells that

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Chevron drilled that were swapped and pumped any oil...no oil has been reported or documented during the withdrawal of at least 340 million barrels of makeup water from the San Andres since the 1980s.” *Id.* 15-21.

51. Goodnight witness William West confirmed that there has been no primary production from the San Andres in the EMSU. West Tr. 4/9/25 218:7-12.

52. At bottom, after questioning by Commissioner Ampomah, Empire’s case presented evidence confirming that the presence of oil in the San Andres is highly uncertain. Dillewyn Tr. 4/7/2025 220: 1-16.

53. Goodnight witness Knights testified that the oil staining in the San Andres does not indicate a continuous interval that can be classified as a ROZ. Knights Tr. 4/22/2025 220-222.

54. Goodnight witness Dr. Lake stated that he does not believe that Empire will make money attempting to develop a ROZ in the EMSU. Lake Tr. 4/24/2025 177: 15-24.

55. Goodnight witness McBeath testified that based on his analysis, he hasn’t “seen any credible or direct measurement evidence of a viable economic ROZ project.” McBeath Tr. 4/11/2025 159: 9-20.

56. It would cost Goodnight between \$40-\$120 million to move its four existing saltwater disposal wells in the EMSU two miles outside of the EMSU unit boundary. McGuire Tr. 5/19/2025 50:3-24.

Empire’s Motives and Conduct

57. Empire witness Jack Wheeler acknowledged that the acquisition of the EMSU, EMSU-B, and AGU from XTO at a price of \$89.8 million resulted in \$56 million in plugging an abandonment liability and \$16 million in surface remediation liability. Wheeler Tr. 4/8/2025 144: 11-25.

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58. Mr. Wheeler acknowledged that Empire's due diligence of the EMSU acquisition in 2020 was heavily reliant on Exxon's representations that there was a 350-foot-thick ROZ with 912 million barrels of oil in place. Wheeler Tr. 4/8/2025 145: 5-19; 147:3-11.

59. According to Mr. Wheeler, Empire only became aware of the saltwater injection in the San Andres in 2023 following a field visit. Wheeler Tr. 4/9/2025 8: 23-25; 9: 9-20.

60. Empire, according to Mr. Wheeler, did not request a site visit be made by Elk Mesa Energy as part of the 2020 due diligence process. Wheeler Tr. 4/9/2025 32: 3-23.

61. Mr. Wheeler acknowledges that Empire would not have purchased the EMSU assets if it could not "cure the issue with commercial disposal wells that were injecting into the San Andres." Wheeler Tr. 4/9/2025 31: 9-17.

62. Following a question by Commissioner Ampomah as to whether Empire is trying to use the Commission to "more or less right some wrongs that Empire should have probably known better," Mr. Wheeler admitted that he's "done 6 to 700 acquisitions in my career, and every single time my approach to the due diligence was significantly different than what I've been able to determine that Empire did back in 2021." Wheeler Tr. 4/9/2025 33: 3-11.

63. Even if Empire is allowed to perform all of the studies it claims are necessary to prove that there exists a ROZ in the San Andres, it has not furnished the Commission evidence that it will be able to contain the CO2 necessary for its tertiary recovery that will not in and of itself impair correlative rights. McShane Tr. 4/8/2025 124: 24-25; 125: 1-7.

64. Empire compares a potential EOR project in the EMSU to another project in the Tall Cotton fields, however, such an EOR project in the EMSU will likely require two to three times the amount of CO2 because while the Tall Cotton fields had continuous intervals of ROZ, the EMSU does not. McBeath Tr. 4/23/2025 203: 5-24.

Conclusions of Law

65. The Commission has the duty to prevent waste and protect correlative rights pursuant to NMSA 1978, § 70-2-11(A).

66. “Waste” is defined under NMSA 1978, § 70-2-3(A) as “the inefficient, excessive or improper, use or dissipation of the reservoir energy, including gas energy and water drive, of any pool, and the locating, spacing, drilling, equipping, operating or producing, of any well or wells in a manner to reduce or tend to reduce the total quantity of crude petroleum oil or natural gas ultimately recovered from any pool.”

67. “Correlative Rights” are defined pursuant to NMSA 1978, § 70-2-33(H) as the opportunity afforded, so far as it is practicable to do so, to the owner of each property in a pool to produce without waste the owner's just and equitable share of the oil or gas or both in the pool, being an amount, so far as can be practicably determined and so far as can be practicably obtained without waste, substantially in the proportion that the quantity of recoverable oil or gas or both under the property bears to the total recoverable oil or gas or both in the pool and, for such purpose, to use the owner's just and equitable share of the reservoir energy.”

68. The “prevention of waste” necessarily requires that hydrocarbons be recoverable to the fullest extent practicable so that a failure by the Commission to prevent waste would impair the ability of an owner to recover their just an equitable share of hydrocarbons and thereby causing infringement of that owner’s correlative rights.

69. Empire has failed to prove that the Commission granting Goodnight’s applications will impair its correlative rights or cause waste. FoF Nos. 33 and 65.

70. Empire failed to carry its burden of proof to establish the existence of a ROZ within the injection interval or to demonstrate that wastewater from the San Andres is migrating beyond the

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confines of Goodnight's injection zone. FoF Nos. 13-16, 18-26, 28-30, 32-35, 38-39, 45, 52-55, and 57.

71. Even if a ROZ exists, Empire failed to establish that it is economically producible. FoF Nos. 27, and 36-57.

72. There is no communication between the San Andres and the Grayburg. FoF Nos. 13-15, 18-19, 20-26, and 30-32.

73. There is no communication between the San Andres and the Capitan Reef because they are hydrologically distinct. FoF No. 16

74. There is no communication between the Hobbs Channel and the Capitan Reef. FoF No. 17.

75. The San Andres and Grayburg are separate geologic intervals and reservoirs. FoF Nos. 13-15, 18-19, 20-26, and 30-32.

76. While there may be hydrocarbons in the San Andres, it has not been conclusively established that a ROZ exists in the San Andres. FoF Nos. 36-57

77. Empire does not know how much oil in place actually exists in the San Andres. FoF Nos. 39-41, 46, 48-49, 52, 54, and 56.

78. Empire did not conduct sufficient due diligence to determine that a producible ROZ might exist before acquiring its interest in the EMSU. FoF Nos. 59-66.

79. Empire has not proved that Goodnight's operations cause waste or impair correlative rights. FoF Nos. 27-33.

80. Goodnight's injection into the San Andres is not impairing Empire's correlative rights. FoF Nos. 8, 9 12, 13-19, 20-26, and 27-34.

81. The San Andres should be excluded from the EMSU unitized interval of the EMSU. FoF Nos. 8-12.

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82. Goodnight's applications in Case Nos. 23614-17, 23775, 24123, & 24278 are approved because they are in the public's interest.

83. Empire's applications in Case Nos. 24018-24020, & 224025 to revoke Goodnight's permits are denied.

WHEREFORE, Pilot respectfully requests that the Commission DENY Empire's applications in Case Nos. 24018-24020, & 24025 and grant Goodnight's applications in Case Nos. 23614-17, 23775 and adopt these Proposed Findings of Fact and Conclusions of Law as its own.

Respectfully submitted,

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CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the forgoing was served to counsel of record by electronic mail this 3rd day of July 2025, as follows:

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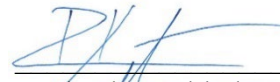
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