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

APPLICATION OF EMPIRE NEW MEXICO TO REVOKE THE INJECTION AUTHORITY GRANTED UNDER ORDER NO. R-22026 FOR THE ANDRE DAWSON SWD #001 WELL OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO.

CASE NO. 24018

APPLICATION OF EMPIRE NEW MEXICO TO REVOKE THE INJECTION AUTHORITY GRANTED UNDER ORDER NO. R-22027 FOR THE ERNIE BANKS SWD NO. 1 WELL OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO,

CASE NO. 24019

APPLICATION OF EMPIRE NEW MEXICO TO REVOKE THE INJECTION AUTHORITY GRANTED BY ADMINSTRATIVE ORDER SWD-2307 FOR THE RYNO SWD #001 F/K/A/ SNYDER SWD WELL NO. 1 OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO,

CASE NO. 24020

APPLICATION OF EMPIRE NEW MEXICO TO REVOKE THE INJECTION AUTHORITY GRANTED UNDER ORDER NO. R-21190 FOR THE SOSA SA 12 NO, 2 WELL OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO.

CASE NO. 24025

GOODNIGHT MIDSTREAM PERMIAN 'S CONSOLIDATED MOTION FOR PARTIAL SUMMARY JUDGMENT

Goodnight Midstream Permian, LLC ("Goodnight") (OGRID No. 372311), through its undersigned attorneys, hereby submits the following Consolidated Motion for Partial Summary Judgment (the "Motion") in the above-referenced matters.

Intervenors Rice Operating Company, Permian Line Service, LLC, and Pilot Water Solutions SWD, LLC join in the Motion. Counsel for the Oil Conservation Division oppose the motion. Given the nature of the Motion, Empire is presumed to oppose the Motion.

I. Introduction

Through this Consolidated Motion, Goodnight seeks partial summary judgment on Empire New Mexico LLC's ("Empire") applications in Case Nos. 24018, 24019, 24020, and 24025. In Case No. 24018, Empire asks the Oil Conservation Commission (the "Commission") to revoke Order No. R-22026/SWD-2403 in Case No. 21569, which authorized Goodnight to operate the Andre Dawson SWD #1 to dispose produced water in the Eunice Monument South Unit ("EMSU" or the "Unit"). In Case Nos. 24019, 24020, and 24025, Empire similarly seeks to revoke Order Nos. R-22027, SWD-2307, and R-21190, respectively, which authorized Goodnight to operate the Ernie Banks SWD No. 1, Ryno SWD #001, and Sosa SA 17 SWD No. 2 wells as disposal wells in the EMSU.

All four of Empire's applications rest in part on the fact that the San Andres formation is included within the EMSU's unitized interval and the Eunice Monument Grayburg-San Andres special pool. Empire also alleges Goodnight's disposal of produced water into the San Andres impairs Empire's ability to recover hydrocarbons from the unitized interval and adversely affects its correlative rights and causes waste. Goodnight denies that its operations create waste or impair Empire's correlative rights and has presented extensive testimony and evidence to refute Empire's claims. Those are factually contested issues and are set for an evidentiary hearing before the Commission scheduled for February 24, 2025. In addition to contesting Empire's factual allegations, Goodnight disputes Empire's contentions based on a material legal defect

with the underlying unitization order that created the EMSU and included the San Andres within its unitized interval.

The material legal defect in the underlying unitization order is that the Commission improperly included the San Andres formation within the EMSU's unitized interval and the Eunice Monument Grayburg-San Andres special pool. The facts, evidence, and testimony presented to the Commission **at the time it created the EMSU** and Eunice Monument Grayburg-San Andres special pool were legally deficient as a matter of law. Goodnight is therefore entitled to partial summary judgment on Empire's applications because the San Andres should have never been included in the EMSU or the Eunice Monument Grayburg-San Andres special pool. The San Andres was not shown to be an oil-bearing formation at the time it was included in the EMSU and the Eunice Monument Grayburg-San Andres special pool. Nor was the San Andres shown to be reasonably defined by development, as required under the New Mexico Statutory Unitization Act. Each of these two fundamental legal infirmities gives rise to independent bases to grant this Motion to amend the EMSU and exclude the San Andres. **The evidence and testimony presented to the Commission under Order Nos. R-7765 and R-7767 (collectively, the "Orders") does not, as a matter of law, support inclusion of the San Andres formation in the unitized interval of the EMSU or in its special pool**.

As explained in detail below, the San Andres formation is a non-hydrocarbon bearing aquifer that was not a target for hydrocarbons at the time the Orders were issued. The Commission nevertheless included the San Andres formation in the unitized interval and the Eunice Monument Grayburg-San Andres special pool even though the express intent was to use the non-hydrocarbon bearing aquifer as a source of water for the waterflood operations in the overlying Grayburg and Penrose formations. The Commission is without statutory authority to

unitize such an aquifer or include an aquifer within the definition of a pool. Under the Statutory Unitization Act, NMSA 1978, § 70-7-1 *et seq*. (the "Act"), the Commission has authority to issue orders providing for unitization and unit operation "of a pool or part of a pool." *Id.* § 70-7-7. But as a non-hydrocarbon bearing aquifer, the San Andres does not qualify for inclusion in a "pool."

Moreover, being geologically distinct from the overlying Grayburg and Penrose formations, the San Andres formation cannot be unitized because it is not a "pool or part of a pool." The water-bearing San Andres lies below, and is geologically separate from, the oil-producing zones of the Grayburg and Penrose formations. The lower limit of the oil-producing zone, or "oil column," is within the Grayburg formation at -325 feet subsea whereas the upper limit of the San Andres is even deeper. Not only is the San Andres deeper than the lower limit of oil production, but the San Andres was known to be a distinct and geologically separate formation from the oil-bearing Grayburg. This physical separation between the two formations was a feature of the Unit, not a bug. It enabled the Unit operator, Gulf Oil Corporation ("Gulf"), to produce hundreds of millions of barrels of water from the San Andres for waterflood injection into the Grayburg and build the pressure needed in the Grayburg and Penrose to conduct waterflood operations. If the San Andres and Grayburg formations were not geologically distinct, pressure between the two would equilibrate, and oil recovery would be limited. The Commission lacked authority to include the San Andres in the unitized interval because the San Andres is geologically separate from the overlying Grayburg and Penrose formations and, therefore, does not meet the statutory definition of "pool or part of the pool" with the Grayburg and Penrose formations. NMSA 1978, § 70-7-7(A).

With respect to the San Andres, two other requirements for unitization under the Act were not met. To include a formation within a secondary recovery unit, the Statutory Unitization Act requires both that the area to be included within the unit (a) be reasonably defined by development and (b) that the proposed unitization of the formation will substantially increase recovery beyond the amount of hydrocarbons that would be recovered by primary recovery alone. Those requirements were not (and are not) met with respect to the San Andres formation because it has no history of producing hydrocarbons and it was not included in the unit interval to be a source of hydrocarbon recovery.

Finally, exclusion of the San Andres aquifer from the unitized interval of the EMSU will have **no impact** on past, present, or future EMSU operations. The San Andres within the EMSU has generated no production and serves only as a zone for water supply and produced water disposal. Stated simply, exclusion of the San Andres will not affect the accounting or operations of the EMSU. Even if the Commission determines the San Andres does contain an economic residual oil zone ("ROZ"), Empire is not authorized to develop a San Andres ROZ under the authority of the EMSU. The Statutory Unitization Act applies only to portions of pools that have been reasonably defined by development. Whether or not there is an ROZ in the San Andres, Empire will be required to develop those interests outside the legal construct of the EMSU. Importantly, Goodnight raises this legal defect only with respect to the EMSU. Concerns about any other statutory unit will need to be raised and evaluated on a case-by-case basis.

For each of these reasons, the Commission should grant Goodnight's Motion and modify the definition of the unitized interval within the EMSU under Order No. R-7765, as amended, to exclude the San Andres formation. Notwithstanding the fact that the undisputed facts support all

three grounds for this Motion, any one of the material deficiencies is independently sufficient to grant Goodnight's Motion.

II. Statement of Undisputed Material Facts

In support of the Motions, Goodnight submits the following Statement of Undisputed Material Facts ("UMFs"):

1. In 1984, Gulf filed three related applications that were consolidated for hearing before the Commission. In Case No. 8397, Gulf sought approval of the EMSU as a statutory waterflood unit pursuant to the Act, NMSA 1978, §§ 70-7-1 through 70-7-21. Ex. 1, Gulf Application in Case No. 8397. In Case No. 8398, Gulf sought approval for waterflood injection for purposes of secondary recovery in the Grayburg and Lower Penrose formations within the proposed Unit Area. Ex. 2, Gulf Application in Case No. 8398.
2. In Case No. 8399, Gulf sought to expand the vertical limits of the Eunice Monument Oil Pool upward within the Unit Area to include the top of the Grayburg formation or to a subsea datum of -100 feet, whichever is higher. Ex. 3, Gulf Application in Case No. 8399. Through this application, Gulf also sought to vertically contract the overlying Eumont Gas Pool upward within the same area to prevent Unit Area wells from having completion intervals overlapping the two pools. *Id.*
3. After public notice and hearing, the Commission entered Order No. R-7765 approving the EMSU as a statutory waterflood in the Eunice Monument Grayburg-San Andres special pool, as amended by Order No. R-7767, and establishing a unitized interval from 100 feet below mean sea level or at the top of the Grayburg formation, whichever is

higher, to a lower limit at the base of the San Andres formation. *See* Ex. 4, Order No. R-7765 in Case No. 8397, and Ex. 5, Order No. R-7767 in Case No. 8399.

4. The unitized interval mirrors the vertical and horizontal extent of the Eunice Monument Grayburg-San Andres special pool within the Unit Area, as amended by Order No. R-7767. Ex. 5, at 2.
5. The Commission amended Order No. R-7765 through a *nunc pro tunc* order to correct the Unit Area description. *See* Ex. 6.
6. The San Andres formation within and around the Unit Area is a geologically separate zone from the overlying Grayburg and Lower Penrose formations and does not share a common accumulation of crude petroleum oil or natural gas or both with either the Grayburg or Lower Penrose formations. Ex. 7, EMSU Topographic Map (depicting the lower limit of the oil-water contact at -325 feet subsea); Ex. 8, EMSU Generalized Cross Section at 11 (depicting the top of the San Andres below -325 feet subsea).
7. At the hearing in Case Nos. 8397-8399, Gulf presented testimony and exhibits demonstrating that the targeted, continuous oil column reasonably defined by development was limited to the Grayburg and Lower Penrose formations and does not extend into the San Andres. *See* Ex. 9, November 7-8, 1984, Commission Hearing Transcript at 53:1-4; Ex. 10, Technical Report, April 1, 1983 at 42 (reporting that "the oil column within and adjacent to the unit is continuous from approximately -325 feet to -100 feet subsea, and includes oil being classified as both Eumont (Penrose and Queen) and Eunice Monument (Grayburg) production.").

8. At the hearing in Case Nos. 8397-8399, Gulf also presented evidence and testimony that the oil-water contact around and within the Unit Area is at a depth of approximately -325 feet subsea, well above the top of the San Andres formation. Ex. 9 at 46:14-16.
9. No hydrocarbons have been reported in public records as having been produced from the San Andres formation within or around the Unit Area either before or after creation of the EMSU. *See* Ex. 11, EMSU Secondary Recovery Unit Royalty Owners Overview at 3; *see also* Ex. 12, Self-Affirmed Statement of William West at ¶ A.6; Exhibit I-4 ("no production was made from the San Andres interval"); Ex. 13, Geological Data Injection Zones in the EMSU; and Ex. 14, NMAC 19.27.26 (OSE Rule declaring lands within the EMSU to be within the Capitan Underground Water Basin).
10. At the hearing in Case Nos. 8397-8399, Gulf presented evidence and testimony that the proposed waterflood operations within the EMSU would target the oil column and, therefore, would be limited to the Grayburg and Lower Penrose formations and expressly excluded the San Andres from its proposed waterflood operations. Ex. 9 at 224:22-25.
11. At the hearing in Case Nos. 8397-8399, Gulf presented evidence and testimony that the San Andres formation is non-productive and would be used to provide the massive quantities of water required in the waterflood zone in the Grayburg and Lower Penrose formations for the initial fill-up period and, if needed, for makeup water in the future. Ex. 9 at 214:23-215:1; *see also* Ex. 11 at 3.
12. A various times between 2017 and 2022, the Commission authorized Goodnight to operate multiple produced water disposal wells in the EMSU that inject produced water into the San Andres formation. *See* Ex. 15, Order No. R-22026, Ex. 16, Order No. R-22027, Ex. 17, Order SWD-2307, and Ex. 18, Order No. R-21190.

13. In November 2023, Empire filed four applications to contest Goodnight's authority to operate its disposal wells in the EMSU. *See* Ex. 19, Application in Case No. 24018, Ex. 20, Application in Case No. 24019, Ex. 21, Application in Case No. 24020, and Ex. 22, Application in Case No. 24025.

III. Argument

A. Summary Judgment Standard

"Summary judgment is appropriate when there are no genuine issues of material fact and the movant is entitled to judgment as a matter of law." *Montgomery v. Lomos Altos, Inc.*, 150 P.3d 971, 977-78 (N.M. 2006). On a summary judgment motion, "[t]he movant need only make a prima facie showing that he is entitled to summary judgment. Upon the movant making a prima facie showing, the burden shifts to the party opposing the motion to demonstrate the existence of specific evidentiary facts which would require a trial on the merits." *Roth v. Thompson*, 825 P.2d 1241, 1244-45 (N.M. 1992) (citations omitted).

B. The Commission Lacked Statutory Authority to Include the San Andres Formation in the Unitized Interval Within the EMSU.

1. Because the San Andres is an Aquifer Rather Than a Zone Productive of Hydrocarbons, the Commission Lacks Authority to Unitize That Formation or Include it in a Pool Pursuant to the Statutory Unitization Act.

The Commission, "is a creature of statute, expressly defined, limited and empowered by the laws creating it." *Cont'l Oil Co. v. Oil Conservation Comm'n*, 373 P.2d 809, 814 (N.M. 1962). Under the Statutory Unitization Act (the "Act") the Commission is authorized only to issue orders providing for unitization and unit operation "of a pool or part of a pool." NMSA 1978, § 70-7-7. As defined in the Act, a pool is "an underground reservoir containing a common accumulation of crude petroleum oil or natural gas or both." *Id*. at § 70-7-4(A). A pool is synonymous with a "common source of supply" and a "common reservoir" of crude petroleum

oil or natural gas or both. *Id.* The Act does not authorize the Commission to unitize formations or geologic intervals that are not a "pool or part of [a] pool." *Id*. at § 70-7-7. In particular, the Act does not vest the Commission with any authority to unitize non-hydrocarbon-bearing formations, such as aquifers. Unitization of an aquifer, geologically distinct from a pool, is not "reasonably necessary" to protect the correlative rights of owners with an interest in the oil and gas minerals. *Id*. at § 70-2-11(A); *see also* § 70-2-33(H) (providing that "correlative rights" are applicable only to oil and gas rights). An aquifer is not an oil and gas property, does not give rise to claims under the correlative rights doctrine,[1] and is not subject to statutory unitization.

The evidence presented to the Commission in Case Nos. 8397-8399 established that the San Andres formation is an aquifer geologically distinct from the oil-bearing Penrose and Grayburg formations. Gulf presented testimony that the oil column to be targeted by the proposed waterflood operation was limited to the Grayburg and Penrose formations, both of which lie above the San Andres formation. Ex. 9 at 52:6-7 ("[T]he oil column in this area thins from the Grayburg up into the lower part of the Penrose."); *id*. at 53:1-4 ("Q: When you look at the oil column in the unit area, that is included generally in the Grayburg and the lower portion of the Penrose, is that correct? A: That's correct."); *see also* Ex. 10 at 42 ("An evaluation of the few available logs, cross-sections and production data indicates that the oil column within and adjacent to the unit is continuous from approximately -325 feet to -100 feet subsea, and includes oil being classified as both Eumont (Penrose and Queen) and Eunice Monument (Grayburg) production.").

The evidence presented to the Commission in Case Nos. 8397-8399 also established that the oil-water contact area within the EMSU is at -325 feet subsea. Ex. 9 at 46:16-18 ("the dark

[1] *See* NMSA 1978, § 70-2-33(H).

dashed line [on the exhibit] indicates the oil-water contact at a -325 [feet subsea]"); *see also* Ex. 7 (depicting the oil-water contact location with a dark dashed line at -325 feet subsea). Gulf's petroleum geologist, Ray Hoffman, testified that oil-water contact "determines the lower limit of oil production in the area." Ex. 9 at 46:24-47:2. Because the oil-water contact is well above the top of the San Andres formation, the San Andres lies below the lower limit of oil production. Other evidence Gulf submitted to the Commission candidly acknowledged that the "San Andres contributes very little if any oil production to the field and serves primarily as a source for injection make-up water and as a zone for salt water disposal." Ex. 13 at 1. Indeed, there has never been any recorded production of hydrocarbons from the San Andres formation. Ex. 12 at ¶ A.6 ("No wells have produced from the San Andres at EMSU"); *id.* at Exhibit I-4 ("no production was made from the San Andres interval"); *see also* Ex. 11 at 3 (describing the San Andres as a "non-productive" formation).

Consistent with the understanding that the targeted oil column exists solely within the Penrose and Grayburg formations, Gulf's proposed waterflood operations were directed exclusively at those oil-producing formations. *See* Ex. 9 at 224:22-25 ("Q: Now I understand that you will be injecting only into the Grayburg and Penrose and not the San Andres, is that correct? A: That is correct."); *see also* Ex. 10 at 5 ("In this part of the field the oil producing formations are the Queen-Penrose and Grayburg, with the Grayburg being the major contributor to production"). Instead of targeting the San Andres for oil production, the evidence establishes that Gulf sought to include the San Andres within the unitized interval so the San Andres could be used as a water source for waterflood operations. *See* Ex. 9 at 214:23-215:1 ("There are currently plans to drill approximately nine water supply wells to provide make-up water from the San Andres formation. This make-up water will be used initially as the primary source of

injection water."); Ex. 10 at 29 ("The total water requirement will be provided by . . . make-up water provided by nine San Andres supply wells."); Ex. 23, Meeting Minutes of EMSU Technical Committee and Working Interest Owners' Committee, at 28 ("The bottom of the interval must be the base of the San Andres formations to include the area's most prolific water production zone").[2]

As an aquifer, the San Andres is not subject to unitization by the Commission for any purpose. Under the New Mexico Constitution, unappropriated groundwater within the state belongs to the public. *See* N.M. Const. Art. XVI, § 2; *see also McBee v. Reynolds*, 399 P.2d 110, 114 (N.M. 1965) (confirming that "waters of underground streams, channels, artesian basins, reservoirs and lakes, the boundaries of which may be reasonably ascertained, are public" and "included within the term 'water' as used in Art. XVI, §§ 1-3, of our Constitution."). To unitize the San Andres would foreclose appropriation and use of the San Andres aquifer by the public and conflict with the New Mexico Constitution. To avoid conflict over management and control of subsurface resources, the Legislature limited the Commission's authority under the Act to unitizing oil and gas pools. The Commission has no authority to unitize a public source of groundwater.[3]

[2] The intention to use the San Andres as a source of water for waterflood operations is consistent with the prevailing understanding of the San Andres as an aquifer. Even prior to the Commission's approval of Gulf's application, numerous saltwater disposal wells were actively disposing of produced water into the San Andres formation. *See* Ex. 24 (map showing date of first injection for salt water disposal wells in EMSU area).

[3] Given the absence of any prior production, any effort to obtain hydrocarbons from the San Andres through a waterflood would be a purely "exploratory" effort, which is expressly prohibited under the Act. *See* NMSA 1978, § 70-7-1 (noting that the Act does not apply to "what the industry understands as exploratory units."); *see also Santa Fe Exploration Co. v. Oil Conservation Comm'n*, 835 P.2d 819, 829 (N.M. 1992) ("[T]he [Act] is not applicable to fields in their primary production phase.").

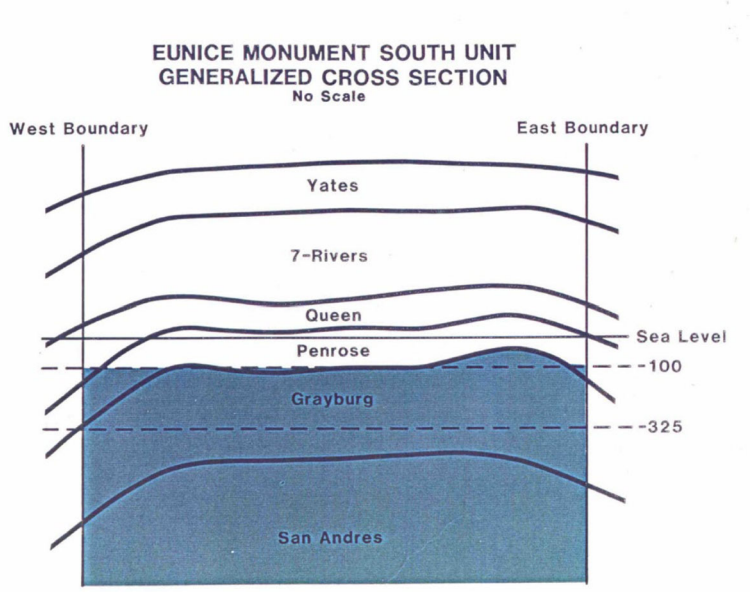
2. Because the San Andres is Geologically Separated From the Grayburg and Penrose, it Cannot be Included in the Pool.

The Commission lacked authority to include the San Andres aquifer in the pool for another independent reason: the San Andres is geologically separate from the overlying Grayburg and Penrose formations. As discussed above, the Commission is authorized only to issue orders providing for unitization and unit operation "of a pool or part of a pool." NMSA 1978, § 70-7-7. Under the Act, a pool is defined as "an underground reservoir containing a common accumulation of crude petroleum oil or natural gas or both" that "is completely separate from any other zone in the structure." NMSA 1978, § 70-7-4(A); *see also* § 70-2-33(B). Because the San Andres is a non-oil-bearing formation that is geologically separated from the Grayburg and Penrose formations, it does not meet the statutory definition of a pool or portion of a pool that is required to be subject to statutory unitization orders.

When Gulf sought to form the EMSU, it formed the EMSU to target only the oil column in the Grayburg and Penrose formations. Gulf specifically identified the San Andres as a water supply source for the waterflood operations in the EMSU, not as a hydrocarbon source. *See* Ex. 11 at 3 ("For this proposed unit, salt water from the non-productive San Andres formation, supplemented by the reinjection of produced water, was recommended for pressurized injection into the oil producing portions of the Grayburg and Lower Penrose formations."). Testimony and evidence presented to the Commission established that the San Andres was not part of an underground reservoir containing a common accumulation of crude petroleum oil or natural gas because the San Andres was the water source for the EMSU and necessarily separate from the Grayburg and Penrose formations, which were the productive horizons of the EMSU.

Gulf's petroleum geologist, Mr. Hoffman, testified at the Commission hearing in Case Nos. 8397-8399 that the oil-water contact was at -325 feet subsea. *See* Ex. 9 at 46:14-16.

Mr. Hoffman testified that the oil-water contact at -325 subsea represents the lower limit of the oil production in the Grayburg formation. *Id*. at 46:24-47:2. Mr. Hoffman also testified that the productive zone, or so-called "oil column," extended "from the Grayburg up into the lower part of the Penrose," i.e., from -325 feet subsea to -100 feet subsea. *Id*. at 52:6-7; *see also id*. at 53:1-4 ("Q: When you look at the oil column in the unit area, that is included generally in the Grayburg and the lower portion of the Penrose, is that correct? A: That's correct."). Mr. Hoffman's testimony was supported by exhibits depicting the oil column. For example, cross-sections of the geologic formations in the Unit area established that the oil column extends from -325 subsea to 100 feet subsea or at the top of the Grayburg formation, whichever is higher. Critically, the San Andres lies well below -325 subsea, which confirms that the San Andres is not part of the targeted oil column within the unitized interval.



Ex. 8 at 11 (depicting the San Andres below the oil column).

Gulf also submitted evidence on the history of oil production in the proposed unit. According to a pamphlet Gulf sent to royalty owners within the EMSU, hydrocarbon production in the field first began in 1929 with the completion of the Continental Lockhart "B-31" well. *See*

Ex. 11 at 2-3 (describing the history of oil and gas production in the area confirming the San Andres is non-productive and would serve as the source of water supply). Gulf also submitted well logs from within the EMSU, which showed that the Grayburg formation had a history of oil production. *See* Ex. 25 (well logs depicting oil production from the Grayburg formation within the EMSU). The well logs did not show any evidence of oil or gas production from the San Andres. *Id*. In fact, the well logs did not depict the San Andres at all. *Id*. Gulf's testimony and evidence presented at the hearing showed that the oil-producing zone of the unit was in the Grayburg and Penrose formations only, not in the San Andres.

The San Andres was included in the unit interval as a water supply source, rather than a hydrocarbon source. First, Gulf submitted testimony that the San Andres would be the water supply source for the EMSU. Gulf's reservoir engineer, Alan Bohling, testified that Gulf planned to drill "nine water supply wells to provide . . . water from the San Andres formation," which would "be used initially as the primary source of injection water." Ex. 9 at 214:23-215:1; *see also id*. at 106:2-5 (Gulf's representative on the Technical Committee, Tom Wheeler, testified that "the Technical Committee has estimated that we would drill and equip nine water supply wells to handle the water injection requirements for the unit."). Second, Gulf presented evidence that the San Andres had no history of hydrocarbon production and acknowledged that the San Andres would not be part of the productive zone of the unit interval. Ex. 11 at 3 (explaining that salt water for the proposed unit would come "from the non-productive San Andres formation"); *see also* Ex. 9 at 91:17-20 (Mr. Wheeler explaining that the San Andres "is well below known [hydrocarbon] production limits"). Gulf submitted geological data, which reported "[t]he San Andres contributes very little if any oil production to the field and serves primarily as a source for injection make-up water and as a zone for saltwater disposal." Ex. 13 at

1. Gulf even sent a pamphlet to royalty owners within the EMSU, which confirmed Gulf planned to use the non-productive San Andres as a water source to conduct waterflood operations in the oil producing formations:

> After the various company geologists and engineers completed their laboratory and reservoir studies, they concluded that a unit should be formed to inject water into the oil producing formations to force oil trapped in the rocks to the pumping units of the producing wells. This method of recovery is being successfully employed in many of the older oil fields in the area. For this proposed unit, salt water **from the non-productive San Andres formation**, supplemented by the reinjection of produced water, was recommended for pressurized injection **into the oil producing portions of the Grayburg and Lower Penrose formations**.

Ex. 11 at 3 (emphases added).

With the Grayburg and Penrose formations as the oil producing zones and the San Andres formation as the water supply zone, it follows that the San Andres is necessarily geologically separate from the Grayburg and Penrose. The geologic data Gulf submitted to the Commission establish that the formations are geologically separate. For example, Gulf submitted an acoustic velocity log prepared by Continental Oil Company for the Meyer B-4 #23 well in the EMSU area and reported "there are no known faults cutting through the San Andres and Grayburg which would act as a conduit for gas, oil or injection water to seep into fresh water horizons above the injection zones in the Grayburg and San Andres." Ex. 13 at 1 & 2. More importantly, Gulf's entire EMSU waterflood proposal was based on a foundational engineering precept: the San Andres must be geologically separate from the Grayburg and Penrose formations, otherwise the proposed waterflood would not work. Secondary recovery through water injection "requires pressurized injection of water through selected wells into [an] oil-bearing reservoir." Ex. 11 at 4. It would not be possible to re-pressurize the oil-bearing reservoirs by injecting water from the San Andres if there was migration or communication between the Grayburg and San Andres

formations. But for the geologic seal between the two formations, pressures in the Grayburg and San Andres would equilibrate, and it would not be possible to re-pressurize or fill the Grayburg with water to extract oil.

Accordingly, the Commission lacked authority to include the San Andres in the unitized interval because the San Andres is geologically separate from the overlying Grayburg and Penrose formations and, therefore, does not meet the statutory definition of "a pool or part of a pool." NMSA 1978, § 70-7-7.

3. Because the San Andres is Not "Reasonably Defined by Development" That Formation is Statutorily Ineligible for Inclusion in a Waterflood Unit.

Importantly, the Act requires the proposed pool be reasonably defined by development and the proposed secondary recovery operations must substantially increase the recovery of oil over primary recovery operations. To be considered "reasonably defined by development," the proposed pool must have a history of primary recovery of oil and/or gas. NMSA 1978, §70-7-5(B); *see also* 6 Williams & Meyers, OIL AND GAS LAW, § 913.8 (explaining that non-productive lands should not be included in a unit).

The San Andres is not "reasonably defined by development" because it never produced oil and/or gas. Without a history of primary hydrocarbon recovery, inclusion of the San Andres formation in the EMSU violated the purpose of the Act. The Legislature's intent in passing the Act was that it be used as a tool to facilitate recovery of additional hydrocarbons from an established pool. *See* NMSA 1978, § 70-7-1 (explaining that operations under the Act are meant to facilitate the "greater ultimate recovery" of hydrocarbons beyond the amount "that would be recovered by primary recovery alone"); *see also* 6 Williams & Meyers, OIL AND GAS LAW, § 913.8 ("Only so much of a common source of supply as has been defined and determined to be productive of oil and gas by actual drilling operations may be so included within the unit area.").

The Legislature expressly disclaimed any intention that the Act may be used as an "exploratory" vehicle for the primary development of hydrocarbons. NMSA 1978, § 70-7-1.

Gulf included a perfunctory statement in its applications that the "portion of the Unitized Formation . . . has been reasonably defined by development," because it was a statutory prerequisite; however, the evidence and testimony Gulf presented to the Commission contradicted the assertion because the San Andres had no history of hydrocarbon development at the time—and still does not. Ex. 1 at 2, ¶ 4; *see also* Ex. 12 at ¶ A.6 ("No wells have produced from the San Andres at EMSU"); *id.* at Exhibit I-4 ("no production was made from the San Andres interval"). Plainly stated, the San Andres has no history as a hydrocarbon source; instead, it has a long history as an established water supply source. In 1965, the Office of the State Engineer declared the portion of the EMSU with the water supply wells as an underground water basin called the Capitan Underground Water Basin. *See* Ex. 14. As noted above, the San Andres formation has never been recognized as a zone productive of hydrocarbons and no hydrocarbons have been documented as having been produced from the San Andres formation at the EMSU. Ex. 11 at 3; Ex. 12 at ¶ A.6. The San Andres formation has been exclusively utilized for water management—either as a water supply source or water disposal zone. Ex. 13 at 1.

Including the San Andres in the Unit was also improper because including the non-hydrocarbon-producing aquifer would not yield more recovery than primary recovery alone. Gulf never intended to produce oil from the San Andres. Ex. 9 at 53:23-54:2 (explaining that the unit interval was defined to target the "entire oil column in the Grayburg," without mentioning the San Andres). Gulf merely sought to include the aquifer in the Unit to supply water for its waterflood operations. Ex. 10 at 29 ("The total water requirement will be provided by . . . make-up water provided by nine San Andres supply wells."); Ex. 23 at 28 ("The bottom of the interval

must be the base of the San Andres formations to include the area's most prolific water production zone"). Such inclusion was improper because it would not increase hydrocarbon production from the San Andres as there has never been production from the San Andres in the EMSU.

*C. Exclusion of the San Andres Will **Not Impact** EMSU Operations.*

Modifying the definition of the unitized interval within the EMSU to exclude the San Andres formation will not impact oil or gas production—or EMSU operations more generally—now or going forward.

The San Andres has generated no hydrocarbon production and serves only as a zone for water supply and produced water disposal for the EMSU. At best, Empire may have water rights in one remaining water supply well—the EMSU-459. That well is permitted under the authority of the New Mexico Office of the State Engineer ("NMOSE"). *See* Ex. 26 (reflecting Chevron's application for a water supply well, designated water right file CP-697 by the NMOSE associated with the EMSU-459 well, and Empire's change of ownership for the well and associated water right). Exclusion of the San Andres will have no impact on those water rights because those rights are unrelated to the definition of the unitized interval or the Commission's order approving the EMSU. Similarly, Empire has separate authority to operate its saltwater disposal well, the EMSU SWD #1 well, that Empire has used to manage and dispose of excess produced water associated with EMSU operations into the San Andres. NMOCD approval for that well is unrelated to the EMSU unit orders or the definition of the unitized interval. Empire's EMSU-459 and the EMSU SWD #1 well are the only uses of the San Andres in EMSU operations. Those wells and their operation will remain unaffected if the Commission grants this Motion because they operate under separate NMOCD authorizations.

Even if the Commission determines the San Andres contains an economic residual oil zone ("ROZ") in the related proceedings, Empire is not authorized to develop a San Andres ROZ under the auspices of the EMSU. The Statutory Unitization Act applies only to portions of pools that have been reasonably defined by development. It is undisputed that the San Andres does not meet that precondition—either now or at the time the EMSU was created under the Statutory Unitization Act. *See* Ex. 12. If a San Andres ROZ exists, Empire must develop it through a **voluntary** unit agreement or some other **voluntary** plan of development.

Finally, Goodnight raises this legal defect only with respect to the EMSU. A decision to exclude the San Andres from the EMSU will not set a precedent for any other statutory unit currently in operation, because potential defects with other statutory units must be raised and evaluated on a case-by-case basis.

CONCLUSION

For the reasons stated above, each of which is an independent basis sufficient to find the Commission acted ultra vires when it included the San Andres formation in the EMSU, the Commission should grant Goodnight's Motion for Partial Summary Judgment in Case Nos. 24018, 24019, 24020, and 24025 and modify the definition of the unitized interval within the EMSU under Order No. R-7765, as amended, to exclude the San Andres formation.

Respectfully submitted,

HOLLAND & HART LLP

By: */s/ Adam G. Rankin*

Michael H. Feldewert
Adam G. Rankin
Nathan R. Jurgensen
Paula M. Vance
Post Office Box 2208
Santa Fe, NM 87504
505-988-4421
505-983-6043 Facsimile
mfeldewert@hollandhart.com
agrankin@hollandhart.com
nrjurgensen@hollandhart.com
pmvance@hollandhart.com

ATTORNEYS FOR GOODNIGHT MIDSTREAM PERMIAN, LLC

CERTIFICATE OF SERVICE

I hereby certify that on January 23, 2025, I served a copy of the foregoing document to the following counsel of record via Electronic Mail to:

Ernest L. Padilla
Padilla Law Firm, P.A.
Post Office Box 2523
Santa Fe, New Mexico 87504
(505) 988-7577
padillalawnm@outlook.com

Dana S. Hardy
Jaclyn M. McLean
HINKLE SHANOR LLP
P.O. Box 2068
Santa Fe, NM 87504-2068
(505) 982-4554
dhardy@hinklelawfirm.com
jmclean@hinklelawfirm.com

Sharon T. Shaheen
Daniel B. Goldberg
Spencer Fane LLP
Post Office Box 2307
Santa Fe, New Mexico 87504-2307
(505) 986-2678
sshaheen@spencerfane.com
dgoldberg@spencerfane.com
ec: dortiz@spencerfane.com

Attorneys for Empire New Mexico, LLC

Miguel A. Suazo
BEATTY & WOZNIAK, P.C.
500 Don Gaspar Ave.
Santa Fe, NM 87505
Tel: (505) 946-2090
msuazo@bwenergylaw.com

Attorneys for Pilot Water Solutions SWD, LLC

Jesse Tremaine
Chris Moander
Assistant General Counsels
New Mexico Energy, Minerals, and Natural Resources Department
1220 South St. Francis Drive
Santa Fe, New Mexico 87505
(505) 741-1231
(505) 231-9312
jessek.tremaine@emnrd.nm.gov
chris.moander@emnrd.nm.gov

Attorneys for New Mexico Oil Conservation Division

Matthew M. Beck
PEIFER, HANSON, MULLINS & BAKER, P.A.
P.O. Box 25245
Albuquerque, NM 87125-5245
Tel: (505) 247-4800
mbeck@peiferlaw.com

Attorneys for Rice Operating Company and Permian Line Service, LLC

Adam G. Rankin
Adam G. Rankin

EXHIBIT 1

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION DIVISION

RECEIVED
OCT 3 1984
OIL CONSERVATION DIVISION

APPLICATION OF GULF OIL CORPORATION FOR STATUTORY UNITIZATION, EUNICE MONUMENT SOUTH UNIT, LEA COUNTY, NEW MEXICO.

Case No. 8392

A P P L I C A T I O N

Gulf Oil Corporation hereby applies to the New Mexico Oil Conservation Commission for an order pursuant to the New Mexico Statutory Unitization Act (70-7-1 through 70-7-21 NMSA 1978) providing for the unitized management, operation and further development of the area and formation known as the Eunice Monument South Unit, Lea County, New Mexico, and in support of its application states:

1. Gulf Oil Corporation (Gulf) is a Pennsylvania corporation authorized to transact business in the State of New Mexico, and is engaged in the business of, among other things, producing and selling oil and gas as defined by the New Mexico Statutory Unitization Act (70-7-1 through 70-7-21 NMSA 1978, hereinafter referred to as the "Act".)

2. The proposed area for which application is made for unitized operations pursuant to the Act is known as the Eunice Monument South Unit, Lea County, New Mexico (the "Unit Area"), and consists of 14,189.84 acres, more or less, in Lea County, New Mexico, being more particularly described in Exhibit "B" attached hereto and incorporated herein by reference. A map of the Unit Area is attached hereto and incorporated herein by reference as Exhibit "A".

3. "Unitized Formation" shall mean that interval underlying the Unit Area, the vertical limits of which extend from an upper limit described as 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit at the base of the San Andres formation; the geologic markers having been previously found to occur at 3,666 feet and 5,283 feet, respectively, in Continental Oil Company's Meyer B-4 Well No. 23 (located at 660 feet FSL and 1,980 feet FEL of Section 4, T-21-S, R-36-E, Lea County, New Mexico) and as recorded on the Welex Acoustic Velocity Log taken on October 30, 1962, said log being measured from a kelly drive bushing elevation of 3,595 feet above sea level. A copy of the Welex Acoustic Velocity Log for said well on said date is attached hereto and incorporated herein by reference as Exhibit "C".

4. The portion of the Unitized Formation included within the Unit Area has been reasonably defined by development.

5. Gulf proposes to institute a project for the secondary recovery of oil and gas from the Unitized Formation within the Unit Area.

6. The proposed plan of unitization is embodied in the Unit Agreement, a true and correct copy of which is attached hereto and incorporated herein by reference as Exhibit "D", and said plan is fair, reasonable and equitable.

7. The proposed operating plan covering the manner in which the unit will be supervised and managed and costs allocated and paid is embodied in the Unit Operating Agreement, a true and correct copy of which is attached hereto and incorporated herein by reference as Exhibit "E".

8. Gulf projects that the unitized management, operation and further development of the Unitized Formation will increase production by approximately 64.2 million barrels of oil from 133.2 million to approximately

197.4 million barrels, will improve the producing rate, and will extend the producing life of the formation beyond the year 2010. It is therefore evident that the unitized management, operation and further development of the Unitized Formation is reasonably necessary in order to effectively carry on pressure maintenance and secondary recovery operations to substantially increase the ultimate recovery of oil and gas from the Unitized Formation within the Unit Area.

9. The method of operation which is proposed in the Unit Operating Agreement is feasible, will prevent waste and will result with reasonable probability in the increased recovery of substantially more oil and gas from the Unitized Formation than would otherwise be recovered.

10. The estimated additional costs of conducting unitized operations will not exceed the estimated value of the additional oil and gas to be recovered plus a reasonable profit.

11. The proposed unitization and adoption of the methods of operation embodied in the Unit Operating Agreement will benefit the working interest owners and royalty owners of the oil and gas rights within the Unitized Formation of the Unit Area.

12. Gulf has made a good faith effort to secure voluntary unitization within the Unitized Formation of the Unit Area.

13. The participation formula contained in the Unit Agreement allocates the produced and saved unitized hydrocarbons to the separately owned tracts in the Unit Area on a fair, reasonable and equitable basis, and protects the correlative rights of all owners of interest within the Unit Area.

14. The statutory unitization of the Unitized Formation within the Unit Area in accordance with the plan embodied in the Unit Agreement and Unit Operating Agreement will prevent waste and protect correlative rights.

WHEREFORE, Gulf respectfully requests that this application be set for hearing before the Oil Conservation Commission at the earliest practicable date and that the Commission enter its order approving the Unit Agreement and Unit Operating Agreement and providing for the unitized management, operation and further development of the Unitized Formation and the Unit Area in accordance with the Act.

KELLAHIN & KELLAHIN

By _____
W. Thomas Kellahin
P. O. Box 2265
Santa Fe, New Mexico 87501

Attorneys for Gulf Oil Company

EXHIBIT 2

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION DIVISION

RECEIVED
OCT 3 - 1984
OIL CONSERVATION DIVISION

APPLICATION OF GULF OIL CORPORATION FOR AUTHORITY TO INSTITUTE A WATERFLOOD PROJECT FOR THE EUNICE MONUMENT SOUTH UNIT LEA COUNTY, NEW MEXICO

Case No. 8398

A P P L I C A T I O N

Gulf Oil Corporation hereby applies to the New Mexico Oil Conservation Commission for an order authorizing Gulf to institute a waterflood project for the Eunice Monument South Unit, Lea County, New Mexico, and in support of its application states:

1. Gulf Oil Corporation (Gulf) is a Pennsylvania corporation authorized to transact business in the State of New Mexico, and is engaged in the business of, among other things, producing and selling oil and gas.

2. The proposed area (the "Project Area") for which application is made is known as the Eunice Monument South Unit and consists of 14,189.84 acres, more or less, in Lea County, New Mexico, and is more particularly shown in Exhibit No. 1 attached hereto and incorporated herein by reference. Gulf proposes to seek an order pursuant to the New Mexico Statutory Unitization Act providing for the unitized management, operation and further development of the Project Area.

3. By converting certain presently producing wells to water injection wells and by drilling new water injection wells, Gulf proposes to inject fluids into the producing interval which shall include the formations which extend from an upper limit described as 100 feet below

mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit at the base of the San Andres formation. The geologic markers have been previously found by the Oil Conservation Division to occur at 3,666 feet and 5,283 feet, respectively, in Continental Oil Company's Meyer B-4 Well No. 23 (located at 660 feet FSL and 1,980 feet FEL of Section 4, T-21-S, R-36-E, Lea County, New Mexico) and as recorded on the Welex Acoustic Velocity Log taken on October 30, 1962, said log being measured from a kelly drive bushing elevation of 3,595 feet above sea level. A copy of the Welex Acoustic Velocity Log for said well on said date is attached hereto and incorporated herein by reference as Exhibit No. 2. Also attached hereto and incorporated herein by reference as Exhibit No. 3 is a Well Status Map of the Eunice Monument South Unit Area showing the location and current status of all wells and leasses located within the project area as well as those that are located within a two mile radius of the Unit Area. It also shows the proposed well numbering system within the Unit. Also attached hereto and incorporated herein by reference is Exhibit No. 4 which is a Well Status Map of the Eunice Monument South Unit which also shows the proposed well numbering system and the proposed Unit injection wells. Regarding both Exhibit No. 3 and Exhibit No. 4 and attached hereto and incorporated herein by reference as Exhibit No. 5 is a computer printout relating current and proposed well data on each individual well within the Unit Area. Diagrammatic sketches illustrating the wellbore configurations typical of the majority of the proposed injection wells and showing the manner in which the wells will be equipped for injection are attached hereto and incorporated herein by reference as Exhibit No. 6. All the available well logs of the proposed

injection wells are currently on file with the Oil Conservation Division. Attached hereto and incorporated herein by reference as Exhibit No. 7 is a list of those injection wells for which well logs are not available.

4. Well data sheets and schematic diagrams on all wells located within one-half mile radius of the proposed injection wells showing all casing strings, setting depths, sacks of cement used, cement tops, total depth, producing interval, well identification, and location are attached hereto and incorporated herein by reference as Exhibit No. 8. Included in this attachment are schematics of all plugged and abandoned wells located within a one-half mile radius of the proposed injection wells.

5. Initially, water to be used for injection for the waterflood project will come from the San Andres formation. As production increases, and the number of injection wells, it is expected that produced water will become the primary source of injected water supplemented by water from the San Andres formation.

6. Water is to be injected at a surface pressure not to exceed 0.2 psi per foot of depth to the top of the injection zone provided that surface pressure in excess of 0.2 psi per foot of depth to injection zone may be applied upon administrative approval of the Director of the Oil Conservation Division after showing that such higher pressure will not result in fracturing of the confining strata.

7. Furthermore, filed with this application is Division Form C-108 with attachments, which is incorporated herein by reference as Exhibit No. 9.

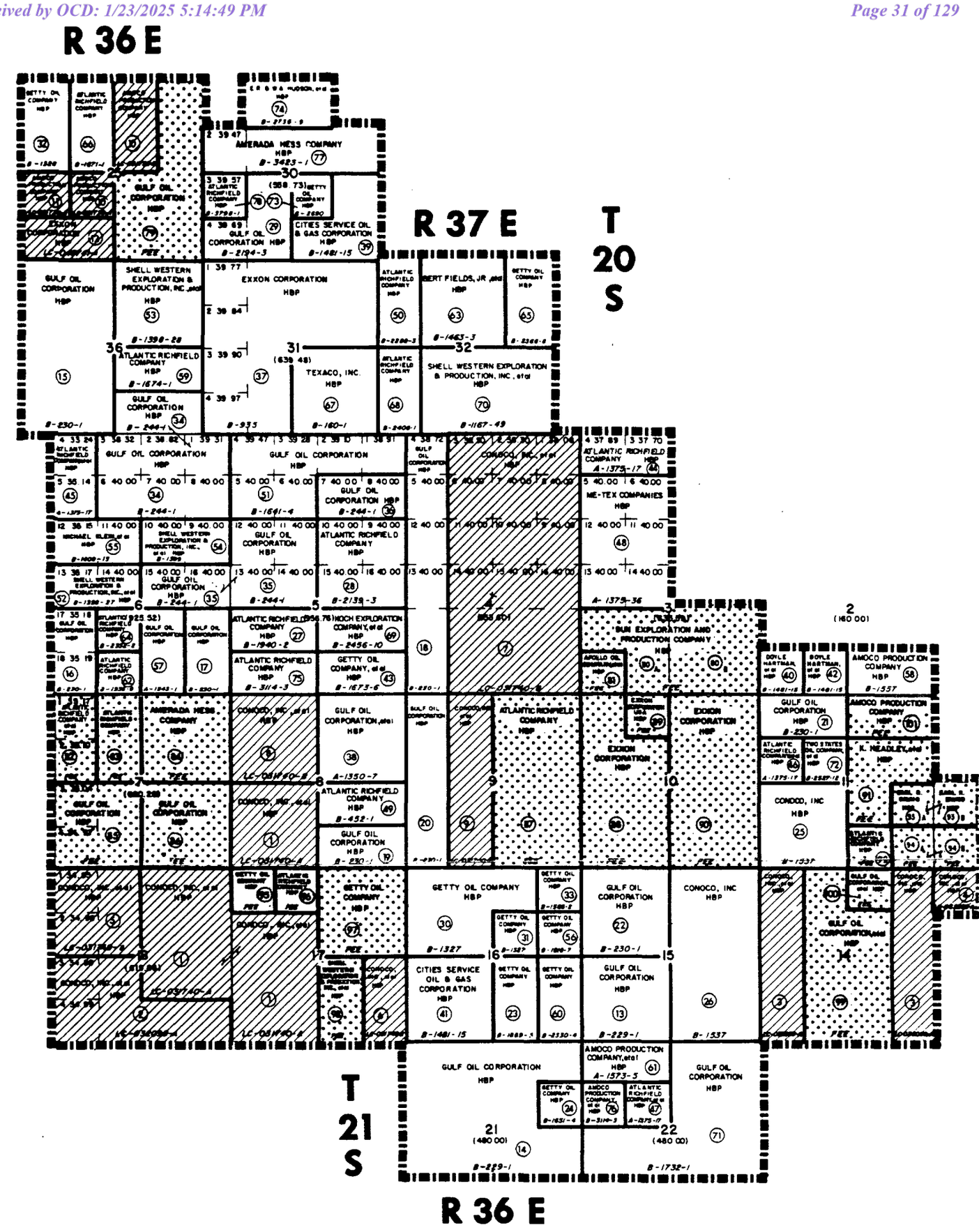
8. Approval of this application for the Eunice Monument South Unit waterflood project will substantially increase recoverable reserves thereby preventing waste.

WHEREFORE, Gulf respectfully requests that this application be set for hearing before the Oil Conservation Commission at the earliest practicable date and that the Commission enter its order approving the waterflood project for the Eunice Monument South Unit.

Kellahin & Kellahin

By _____
W. Thomas Kellahin
P. O. Box 2265
Santa Fe, New Mexico 87501

Attorneys for Gulf Oil Corporation



	ACREAGE	PERCENTAGE
FEDERAL LANDS	2,734.76	19.27 %
STATE LANDS	8,274.80	58.32 %
PATENTED LANDS	3,180.28	22.41 %
TOTAL	14,189.84	100.00 %

UNIT OUTLINE ③ TRACT NUMBER

1 1/2 0 1

SCALE IN MILES

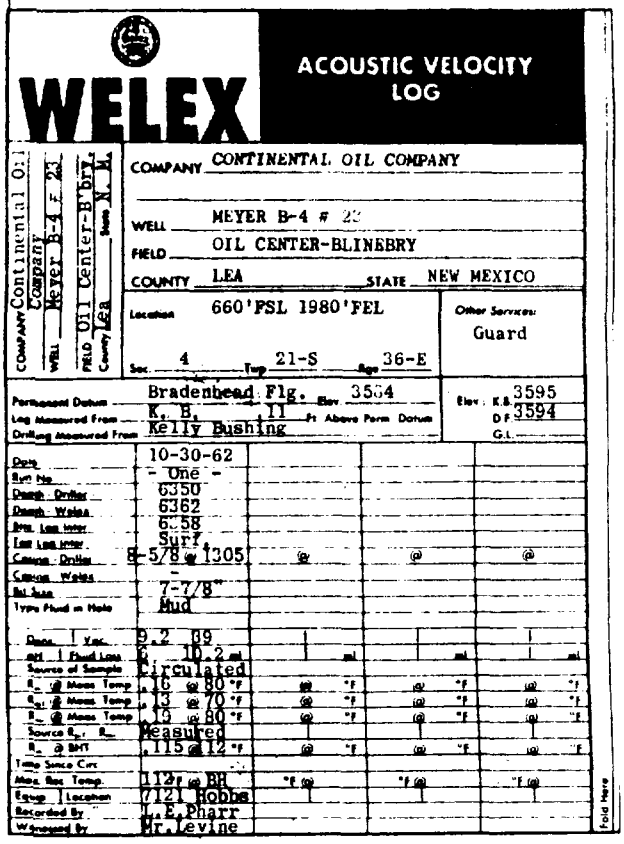
NOTE UNLESS OTHERWISE INDICATED, THE VARIOUS SECTIONS ON THIS PLAT CONTAIN 640.00 ACRES

EXHIBIT "1"

EUNICE MONUMENT SOUTH UNIT AREA

LEA COUNTY, NEW MEXICO

GULF OIL CORPORATION
MIDLAND, TEXAS



WELEX

ACOUSTIC VELOCITY LOG

COMPANY CONTINENTAL OIL COMPANY

WELL MEYER B-4 # 22

FIELD OIL CENTER-BLINEBRY

COUNTY LEA STATE NEW MEXICO

Location 660'FSL 1980'FEL

Other Services: Guard

Sec. 4 Twp. 21-S Rge. 36-E

Company Continental Oil Company | Well Meyer B-4 # 22 | Field Oil Center-Blinebry | County Lea | State N. M.

Permanent Datum: Bradenhead Flg. Elev. 3564

Log Measured From: K. B. 11 Ft. Above Perm. Datum

Drilling Measured From: Kelly Bushing

Elev.: K.B. 3595 D.F. 3594 G.L.

Date	10-30-62			
Run No.	- One -			
Depth-Driller	6350			
Depth-Wireline	6362			
Btm. Log Inter.	6358			
Top Log Inter.	Surf.			
Casing-Driller	8-5/8 @ 1305	@	@	@
Casing-Wireline	-			
Bit Size	7-7/8"			
Type Fluid in Hole	Mud			
Dens. / Visc.	9.2 / 39			
pH / Fluid Loss	8 / 10.2 ml	ml	ml	ml
Source of Sample	Circulated			
R_m @ Meas. Temp.	.16 @ 80 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.13 @ 70 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	.19 @ 80 °F	@ °F	@ °F	@ °F
Source R_{mf} R_{mc}	Measured			
R_m @ BHT	.115 @ 112 °F	@ °F	@ °F	@ °F
Time Since Circ.	-			
Max. Rec. Temp.	112°F @ BH	°F @	°F @	°F @
Equip. / Location	7121 Hobbs			
Recorded By	L. E. Pharr			
Witnessed By	Mr. Levine			

Fold Here

Reproduced By

West Texas Electrical Log Service

Dallas 9, Texas

REFERENCE W2483M

ELSI

16 COMPLETION RECORD

EXHIBIT "2"

Application For
WATERFLOOD PROJECT

EUNICE MONUMENT SOUTH UNIT
Lea County, New Mexico

GULF OIL CORPORATION
Midland, Texas

EXHIBIT 3

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION DIVISON

RECEIVED
OCT 3 - 1984
OIL CONSERVATION DIVISION

APPLICATION OF GULF OIL CORPORATION FOR EXTENSION OF THE VERTICAL LIMITS OF THE EUNICE-MONUMENT OIL POOL UNDERLYING THE EUNICE MONUMENT SOUTH UNIT LEA COUNTY, NEW MEXICO.

Case No. 8399

A P P L I C A T I O N

Gulf Oil Corporation hereby applies to the New Mexico Oil Conservation Commission for an order providing for the extension of the vertical limits of the Eunice-Monument Oil Pool under the Eunice Monument South Unit, Lea County, New Mexico, and in support of its application states:

1. Gulf Oil Corporation (Gulf) is a Pennsylvania corporation authorized to transact business in the State of New Mexico, and is engaged in the business of, among other things, producing and selling oil and gas.

2. The proposed area (the "Unit Area") for which application is made is known as the Eunice Monument South Unit and consists of 14,189.84 acres, more or less, in Lea County, New Mexico and is more particularly shown in Exhibit No. 1 attached hereto and incorporated herein by reference.

3. The southern portion of the Eunice-Monument Oil Pool was formerly designated the Eunice (Penrose, Grayburg, San Andres) Pool. The Eunice Pool was discovered March 21, 1929 upon completion of the Continental Oil Company's Lockhart B-31 Well No. 1 in Section 31, Township 21 South, Range 36 East, Lea County, New Mexico. All oil

wells within the Unit Area were classified as Eunice oil wells until the New Mexico Oil Conservation Division created the Eumont Gas Pool overlying the Eunice and Monument Oil Pools by Order No. R-264, effective February 17, 1953. The Eumont Gas Pool vertical limits were then defined as extending from the top of the Yates formation to a point 200 feet below the top of the Queen formation thereby including all of the Seven Rivers formation. Order No. R-264-A, effective November 10, 1953, and Order No. R-1670, effective May 20, 1960, both amend the vertical limits of the Eumont Gas Pool to "extend from the top of the Yates formation to the top of the Grayburg formation, thereby including all of the Yates, Seven Rivers and Queen formations". This contracted the vertical limits of the Eunice and Monument oil pools to contain only the Grayburg and San Andres formations. This created a situation in which wells within the Unit Area had completion intervals overlapping the two pools.

4. To rectify the aforesaid would require workover operations on the subject wells within the Unit Area which would be expensive and would likely endanger the productivity of the subject wells, and would not allow for effective and manageable secondary recovery operations which is the purpose for the Unit.

5. A reasonable solution to the problem is to contract the vertical limits of the Eumont Gas Pool and to expand the vertical limits of the Eunice-Monument Oil Pool, upward, so as to be at a subsea datum of -100 feet or the top of the Grayburg formation, whichever is higher. This new vertical limits definition to the Eunice-Monument Oil Pool would apply only to the area underlying the Eunice Monument South Unit, Lea County, New Mexico. This adjustment will allow for a more manageable

Unit Area and a more effective waterflood of the entire oil column underlying the Unit Area which will prevent waste and should not impair correlative rights.

WHEREFORE, Gulf respectfully requests that this application be set for hearing before the Oil Conservation Commission at the earliest practicable date and that the Commission enter its order approving the extension of the vertical limits of the Eunice Monument Oil Pool underlying the Eunice Monument South Unit.

Kellahin & Kellahin

By _____
W. Thomas Kellahin
P. O. Box 2265
Santa Fe, New Mexico 87501

Attorneys for Gulf Oil Corporation

EXHIBIT 4

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

CASE No. 8397
Order No. R-7765

APPLICATION OF GULF OIL CORPORATION
FOR STATUTORY UNITIZATION, EUNICE
MONUMENT SOUTH UNIT, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 A.M. on November 7, 1984, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission".

NOW, on this 27th day of December, 1984, the Commission, a quorum having been present, having considered the testimony and the record and being otherwise fully advised in the premises:

FINDS THAT:

(1) Due public notice has been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Gulf Oil Corporation (hereinafter called Gulf), seeks the statutory unitization, pursuant to the "Statutory Unitization Act," Sections 70-7-1 through 70-7-21, NMSA-1978, of 14,189.84 acres, more or less, being a portion of the Eunice Monument Pool, Lea County, New Mexico, as more specifically defined in Commission Case 8397, said portion to be known as the Eunice Monument South Unit; that applicant further seeks approval of the Unit Agreement and the Unit Operating Agreement which were submitted in evidence as Gulf's Exhibits Nos. 3 and 4.

(3) The proposed unit area should be designated the Eunice Monument South Unit Area, (hereinafter called unit) and the horizontal limits of said unit area should be comprised of the following described lands:

TOWNSHIP 20 SOUTH, RANGE 36 EAST, NMPM

Section 25: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM

Section 30: S/2, S/2 N/2, NE/4 NW/4 and NW/4 NE/4
Section 31: All
Section 32: All

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM

Section 2: S/2 S/2
Section 3: Lots 3, 4, 5, 6, 11, 12, 13, and 14 and S/2
Section 4 through 11: All
Section 12: W/2 SW/4
Section 13: NW/4 NW/4
Section 14 through 18: All
Section 21: N/2 and N/2 S/2
Section 22: N/2 and N/2 S/2

(4) The subject Commission Case 8397 was consolidated for hearing with Commission Cases 8398 and 8399.

(5) Said unit has been approved by the Bureau of Land Management and the Commissioner of Public Lands of the State of New Mexico subject to the approval of statutory unitization by the Oil Conservation Commission.

(6) No interested party has opposed the horizontal limits of the said unit.

(7) The horizontal limits of said unit are reasonably defined by development and have a reasonable geologic relationship to the proposed unitized formations.

(8) The vertical limits of said unit should comprise that interval underlying the unit area, the vertical limits of which extend from an upper limit described at 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit at the base of the San Andres formation; the geologic markers

having been previously found to occur at 3,666 feet and 5,283 feet, respectively, in Continental Oil Company's Meyer B-4 Well No. 23 (located at 660 feet from the South line and 1,980 feet from the East line of Section 4, Township 21 South, Range 36 East, Lea County, New Mexico) and as recorded on the Welex Acoustic Velocity Log taken on October 30, 1962, said log being measured from a kelly drive bushing elevation of 3,595 feet above sea level.

(9) The establishment of said vertical limits requires the amendment of the vertical limits of the Eumont Gas Pool and the Eunice Monument Pool under the unit area as is the subject of Commission Case 8399 and Order No. R-7767.

(10) The "unitized formation" will include the entire oil column under the unit area permitting the efficient and effective recovery of secondary oil therefrom.

(11) No interested party has objected to the vertical interval proposed to be unitized.

(12) The unit area contains 101 separate tracts owned by 41 different working interests.

(13) As of the date of the hearing, over 90 percent of working interest owners and royalty interest owners were effectively committed to the unit.

(14) Gulf proposes to institute a waterflood project for the secondary recovery of oil and associated gas, condensate, and all associated liquifiable hydrocarbons within and to be produced from the proposed unit area, all as shown in Commission Case 8398.

(15) A technical committee was formed by the owners within the proposed unit to evaluate aspects of unitization and operation of the proposed secondary recovery operation (waterflood).

(16) The technical committee concluded that the probable range of recovery from the proposed waterflood is from 25 percent to 100 percent of ultimate primary production.

(17) Said committee further concluded that based upon response to waterflooding in similar reservoirs, 48 percent of ultimate primary or 64.2 million barrels of additional (secondary) oil would be recovered by institution of the proposed waterflood.

(18) The unitized management, operation, and further development of the unit, as proposed, is reasonable and necessary to effectively and efficiently carry on secondary recovery operations and will substantially increase the ultimate recovery of oil and gas from the unitized formations.

(19) The proposed unitized method of operation as applied to the Unit Area is feasible and will result with reasonable probability in the increased recovery of substantially more oil from the unitized portion of the pool than would otherwise be recovered without unitization.

(20) The estimated additional investment costs of the proposed supplemental recovery operations are $60.6 million.

(21) The additional recovery to be derived from the proposed supplemental recovery operations will have a resultant net profitability over the aforesaid additional costs and after taxes of $1.186 billion with unitized water flooding versus $226.7 million without unitized waterflooding.

(22) The estimated additional costs of the proposed operations (as described in Finding No. (18) above) will not exceed the estimated value of the additional oil and gas (as described in Finding No. (19) above) plus a reasonable profit.

(23) The applicant, the designated unit operator, pursuant to the Unit Agreement and the Unit Operating Agreement, has made a good faith effort to secure voluntary unitization within the unit area.

(24) Bruce Wilbanks and other interest owners in Unit Tract 55, have declined to voluntarily join the unit.

(25) Exxon Company, USA, (hereinafter "Exxon") has declined to voluntarily join the unit and has opposed the application of Gulf in this case on the basis that the participation formula contained in the Unit Agreement fails to give sufficient weight to the cumulative oil production and further that the method of providing a wellbore contribution incentive is not to Exxon's economic advantage.

(26) Exxon has a working interest of 4.86% of the unit which consists of 100% working interest in Unit Tracts 12, 37, 88, 90 and a 50% working interest in Unit Tract 89.

(27) The participation formula proposed allocates unit production to the various tracts in accordance with the following:

Tract Participation = 50% A/B + 40% C/D + 10% E/F

Where:

A = the tract cumulative oil production from the unitized formation as of September 30, 1982.

B = the unit total cumulative oil production from the unitized formation as of September 30, 1982.

C = the remaining primary oil reserves from the unitized formation for the tract, beginning October 1, 1982, as determined by the Technical Committee on February 25, 1983.

D = the remaining primary oil reserves from the unitized formation for all unit tracts, beginning October 1, 1982, as determined by the Technical Committee on February 25, 1983.

E = the amount of oil produced from the unitized formation by the tract from January 1, 1982, through September 30, 1982.

F = the amount of oil produced from the unitized formation by all unit tracts from January 1, 1982, through September 30, 1982.

(28) The proposed formula does not take into account calculations of estimated secondary production from each tract in that insufficient cores, well logs, and reservoir data are not available to make such calculations.

(29) The proposed formula does give substantial weight to remaining primary reserves in that such reserves can be measured, that the owners of such reserves have agreed to the terms and conditions of the unit and will be deferring income therefrom to support the costs and risks of implementing secondary recovery operations in the unit.

(30) The proposed allocation formula does give owners without remaining primary reserves or with very low volumes of remaining primary reserves, such as Exxon, a disproportionately large share of the income from the production of remaining primary production during the early life of the project.

(31) During unit negotiations, a cutoff date must be established in order to make necessary calculations of the allocation of unit costs and benefits.

(32) The adoption of the September 30, 1982, date in the subject case was necessary for such calculations and is not unreasonable.

(33) Giving consideration to the lack of technical data for estimates of secondary recovery, the reallocation of primary production in the early life of the unit, the greater risk being accepted by the owners of remaining primary reserves and the reasonableness of the September 30, 1982, cutoff date; the proposed participation formula will allocate unit production on a fair, reasonable, and equitable basis during the period that the estimated 64.2 million barrels of secondary oil is produced.

(34) During said period, it is expected that the unit operator will develop reservoir data from cores, well logs, tests and production which might be used to better allocate production to the unit during any period of recovery of secondary and tertiary oil in excess of 64.2 million barrels.

(35) The proposed formula should not apply to the allocation of secondary or tertiary oil production in excess of a total of 64.2 million barrels.

(36) Before distributing the proceeds from production of such oil in excess of 64.2 million barrels, the unit operator should be required to appear and demonstrate that the formula approved by this order continues to allocate proceeds from unit operations in a fair and equitable manner or, in the alternative, present a new allocation formula prepared on the basis of new and/or enhanced reservoir data which new formula better allocates said proceeds.

(37) Gulf proposed a Wellbore Assessment Method in the Unit Operating Agreement as an incentive to encourage the working interest owners in the unit to contribute the maximum number of existing useable wellbores to the unit.

(38) This assessment method, though not common, is used in other unit agreements.

(39) Any proration unit within the unit which is to participate in the proposed waterflood operation must have a wellbore useable for production or injection in the unitized interval.

(40) It is not unreasonable to penalize the owners of proration units upon which there is no such wellbore and upon which the unit operator must drill a well.

(41) The proposed method of wellbore assessment is fair and reasonable.

(42) Exxon admits that each of its tracts is still reasonably profitable should the Commission approve the participation formula and the wellbore assessment method proposed by Gulf as unit operator.

(43) Unitization and the adoption of the proposed unitized method of operation will benefit the working interest owners and royalty owners of the oil and gas rights within the unit area.

(44) The Eunice Monument South Unit Agreement and Unit Operating Agreement provide for unitization and unit operation of the unit area upon terms and conditions that are fair, reasonable and equitable and which include:

(a) an allocation to the separately owned tracts in the unit area of all oil and gas that is produced from the unit area and which is saved, being the production that is not used in the conduct of unit operations or not unavoidably lost;

(b) a provision for the credits and charges to be made in the adjustment among the owners in the unit area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operations;

(c) a provision governing how the costs of unit operations, including capital investments, shall be determined and charged to the separately owned tracts and how said costs shall be paid, including a provision providing when, how, and by whom, the unit production allocated to an owner who does not pay his share of the costs of unit operations shall be charged to such owners, of the interest of such owners, and how his interest may be sold and the proceeds applied to the payment of his costs;

(d) a provision for carrying any working interest owner on a limited, carried or net-profits basis, payable out of production, upon such terms and conditions which are just and reasonable, and which allow an appropriate charge for interest for such service payable out of production, upon such terms and conditions

determined by the Commission to be just and reasonable, and allowing an appropriate charge for interest for such service payable out of such owner's share of production, providing that any nonconsenting working interest owner being so carried shall be deemed to have relinquished to the unit operator all of his operating rights and working interests in and to the unit until his share of the costs, service charge and interest are repaid to the Unit Operator;

(e) a provision designating the unit operator and providing for the supervision and conduct of the unit operations, including the selection, removal or substitution of an operator from among the working interest owners to conduct the unit operations;

(f) a provision for a voting procedure for the decision of matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to his unit participation; and

(g) the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination;

(45) The statutory unitization of the Eunice Monument South Unit Area is in conformity with the above findings, and will prevent waste and protect the correlative rights of all owners of interest within the proposed unit area, and should be approved.

IT IS THEREFORE ORDERED THAT:

(1) The Eunice Monument South Unit Area, comprising 14, 189.84 acres, more or less, in the Eunice Monument Oil Pool, as amended by Order R-7767, Lea County, New Mexico, is hereby approved effective December 1, 1984, for statutory unitization pursuant to the Statutory Unitization Act, Sections 70-7-1 through 70-7-21 NMSA 1978.

(2) The lands included within the Eunice Monument South Unit Area shall comprise:

TOWNSHIP 20 SOUTH, RANGE 26 EAST, NMPM

Section 25: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM

Section 30: S/2, S/2 N/2, NE/4 NW/4, and NW/4 NE/4
Section 31: All
Section 32: All

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM

Section 2: S/2 S/2
Section 3: Lots 3, 4, 5, 6, 11, 12, 13, and 14 and S/2
Section 4 through 11: All
Section 12: W/2 SW/4
Section 13: NW/4 NW/4
Sections 14 through 18: All
Section 21: N/2 and N/2 S/2
Section 22: N/2 and N/2 S/2

and that the above described lands shall be designated as the Eunice Monument South Unit Area.

(3) The vertical limits of said unit shall comprise that interval underlying the unit area, the vertical limits of which extend from an upper limit described as 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit at the base of the San Andres formation; the geologic markers having been previously found to occur at 3,666 feet and 5,283 feet, respectively, in Continental Oil Company's Meyer B-4 Well No. 23 (located at 660 feet from the South line and 1,980 feet from the East line of Section 4, Township 21 South, Range 36 East, Lea County, New Mexico) and as recorded on the Welex Acoustic Velocity Log taken on October 30, 1962, said log being measured from a kelly drive bushing elevation of 3,595 feet above sea level.

(4) The applicant is hereby authorized to institute a secondary recovery project for the recovery of oil and all associated and constituent liquid or liquified hydrocarbons within the unit area, pursuant to the provisions set forth in Commission Order No. R-7766.

(5) The Eunice Monument South Unit Agreement and the Eunice Monument South Unit Operating Agreement presented by the applicant as Exhibits 3 and 4, respectively, in this case are hereby incorporated by reference into this order.

(6) The Eunice Monument South Unit Agreement and the Eunice Monument Unit Operating Agreement provide for

unitization and unit operation of the subject portion of the Eunice Monument Pool upon terms and conditions that are fair, reasonable and equitable and include:

an allocation to the separately owned tracts in in the unit area of all the oil and gas that is produced from the unit area and is saved, being the production that is not used in the conduct of operations on the unit area or not unavoidably lost;

a provision for the credits and charges to be made in the adjustment among the owners in the unit area for their respective investments in wells, tanks, pumps, machinery, materials and equipment contributed to the unit operations;

a provision for governing how the costs of unit operations including capital investments shall be determined and charged to the separately owned tracts and how said costs shall be paid including a provision providing when, how, and by whom the unit production allocated to an owner who does not pay the share of the costs of unit operations charged to such owner, or in the interest of such owner, may be sold and the proceeds applied to the payment of such costs;

a provision for carrying any working interest owner on a limited, carried or net-profits basis, payable out of production, upon such terms and conditions determined by the Commission to be just and reasonable, and allowing an appropriate charge for interest for such service payable out of such owner's share of production, provided that any non-consenting working interest owner being so carried shall be deemed to have relinquished to the unit operator all of its operating rights and working interest in and to the unit until his share of the costs, service charge and interest are repaid to the unit operator;

a provision designating the unit operator and providing for the supervision and conduct of the unit operations, including the selection, removal or substitution of an operator from among the working interest owners to conduct the unit operations;

a provision for voting procedure for the decision of matters to be decided by the working interest owners in respect to which each working interest owner shall have a voting interest equal to its unit participation; and

the time when the unit operation shall commence and the manner in which, and the circumstances under which, the operations shall terminate and for the settlement of accounts upon such termination;

and are therefore hereby adopted.

(7) This order shall not become effective unless and until the appropriate ratification provisions of Section 70-7-8 NMSA, 1978 Compilation, are complied with.

(8) If the persons owning the required percentage of interest in the unit area as set out in Section 70-7-8 NMSA, 1978 Compilation, do not approve the plan for unit operations within a period of six months from the date of entry of this order, this order shall cease to be of further force and effect and shall be revoked by the Commission, unless the Commission shall extend the time for ratification for good cause shown.

(9) When the persons owning the required percentage of interest in the unit area have approved the plan for unit operations, the interests of all persons in the unit are unitized whether or not such persons have approved the plan of unitization in writing.

(10) Prior to distribution of the proceeds from secondary and tertiary production in excess of 64.2 million barrels, the operator shall appear at a hearing and demonstrate that the formula approved by this order continues to allocate the proceeds from unit production in a fair and equitable manner or, in the alternative, present for approval a new formula prepared on the basis of new or enhanced reservoir data which new formula better allocates said proceeds.

(11) Jurisdiction of cause is retained for the entry of such further orders as the Commission may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Jim Baca, Member

Ed Kelley, Member

R. L. Stamets, Chairman
and Secretary

S E A L

EXHIBIT 5

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING CALLED
BY THE OIL CONSERVATION COMMISSION
FOR THE PURPOSE OF CONSIDERING:

CASE 8399
Order No. R-7767

NOMENCLATURE

APPLICATION OF GULF OIL CORPORATION
FOR POOL EXTENSION AND CONTRACTION,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This case came on for hearing at 9:00 A.M. on November 7, 1984, at Santa Fe, New Mexico, before the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission."

NOW, on this 27th day of December, 1984, the Commission, a quorum having been present, having considered the testimony and the record and being otherwise fully advised in the premises,

FINDS THAT:

(1) Due public notice has been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) The applicant, Gulf Oil Corporation, is the operator of the Eunice Monument South Unit with horizontal limits including that acreage described on Exhibit "A" attached to this order.

(3) The applicant, seeks the upward extension of the vertical limits of the Eunice-Monument Pool to include either the top of the Grayburg formation or to a subsea datum of minus 100 feet, whichever is higher, and the concomitant amendment of the vertical limits of the Eumont

Gas Pool by contracting its lower limits to either the base of the Queen formation or to a subsea datum of minus 100 feet, whichever is higher, underlying said unit.

(4) The proposed amendment of pool vertical limits is necessary to permit the applicant to successfully carry out secondary recovery operations within the full oil column underlying said unit.

(5) No party appeared and objected to the proposed amendment of vertical limits.

(6) Granting this application will serve to prevent waste and will not violate correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) Within the area designated as the Eunice Monument South Unit Area, as shown on Exhibit "A" attached hereto, the vertical limits of the Eumont Gas Pool are hereby amended to be from the top of the Yates formation to a lower unit described as the base of the Queen formation or 100 feet below mean sea level, whichever is higher; the geologic markers having been previously found to occur at 2747 feet and 3666 feet, respectively, in Continental Oil Company's No. 23 Meyer B-4 Well (located at 660 feet from the South line and 1980 feet from the East line of Section 4, Township 21 South, Range 36 East, Lea County, New Mexico) as recorded on the Welex Acoustic Velocity Log taken on October 30, 1962, said log being measured from a kelly drive bushing elevation of 3,595 feet above sea level.

(2) Within the area designated as the Eunice Monument South Unit Area, as shown on Exhibit "A" attached hereto, the vertical limits of the Eunice Monument Oil Pool are hereby amended to be from an upper limit described as 100 feet below mean sea level or at the top of the Grayburg formation, whichever is higher, to a lower limit at the base of the San Andres formation; the geologic markers having been previously found to occur at 3666 feet and 5283 feet, respectively, in Continental Oil Company's No. 23 Meyer B-4 well (located at 660 feet from the South line and 1980 feet from the East line of Section 4, Township 21 South, Range 36 East, Lea County, New Mexico) as recorded on the Welex Acoustic Velocity Log taken on October 30, 1962, said log being measured from a kelly drive bushing elevation of 3,595 feet above sea level.

(3) The effective date of this order and the changes to vertical limits included herein shall be January 1, 1985.

(4) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, Member

ED KELLEY, MEMBER

R. L. STAMETS, Chairman
and Secretary

S E A L

LEA COUNTY, NEW MEXICO

TOWNSHIP 20 SOUTH, RANGE 36 EAST, NMPM

Section 25: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM

Section 30: S/2, S/2 N/2, NE/4 NW/4 and NW/4 NE/4

Section 31: All
Section 32: All

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM

Section 2: S/2 S/2
Section 3: Lots 3, 4, 5, 6, 11, 12, 13, and 14 and S/2
Section 4 through 11: All
Section 12: W/2 SW/4
Section 13: NW/4 NW/4
Sections 14 through 18: All
Section 21: N/2 and N/2 S/2
Section 22: N/2 and N/2 S/2

CASE NO. 8399
ORDER NO. R-7767
EXHIBIT "A"

EXHIBIT 6

STATE OF NEW MEXICO
DEPARTMENT OF ENERGY AND MINERALS
OIL CONSERVATION COMMISSION

IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION FOR THE PURPOSE OF
CONSIDERING:

CASE NO. 8397
Order No. R-7765-A

APPLICATION OF GULF OIL CORPORATION
FOR STATUTORY UNITIZATION, EUNICE
MONUMENT SOUTH UNIT, LEA COUNTY,
NEW MEXICO.

NUNC PRO TUNC

BY THE COMMISSION:

It appearing to the Commission that Order No. R-7765, dated December 27, 1984, does not correctly state the intended order of the Commission due to error,

IT IS THEREFORE ORDERED THAT:

(1) Ordering Paragraph (2) on Pages 8 and 9 of Commission Order No. R-7765, Case No. 8397, be and the same is hereby corrected to read in its entirety as follows:

"(2) The lands included within the Eunice Monument South Unit Area shall comprise:

TOWNSHIP 20 SOUTH, RANGE 36 EAST, NMPM
Section 25: All
Section 36: All

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM
Section 30: S/2, S/2 N/2, NE/4 NW/4, and NW/4 NE/4
Section 31: All
Section 32: All

TOWNSHIP 21 SOUTH, RANGE 36 EAST, NMPM
Section 2: S/2 S/2
Section 3: Lots 3, 4, 5, 6, 11, 12, 13, and 14 and S/2
Section 4 through 11: All
Section 12: W/2 SW/4
Section 13: NW/4 NW/4
Sections 14 through 18: All
Section 21: N/2 and N/2 S/2
Section 22: N/2 and N/2 S/2

and that the above described lands shall be designated as the Eunice Monument South Unit Area."

(2) The corrections set forth in this order be entered nunc pro tunc as of December 27, 1984.

DONE at Santa Fe, New Mexico, on this 28th day of December, 1984.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

JIM BACA, Member

ED KELLEY, Member

R. L. STAMETS, Chairman
and Secretary

S E A L

dr/

EXHIBIT 7

EXHIBIT NO. 14
Case No. 8397
November 7, 1984

Gulf Oil E&P Co.
Proposed Eunice-Monument South Unit
Lea County, New Mexico
Structure T/Grayburg
C.I. 20'
0 1/4 1/2mi.
R.E.H. 8/84

T. 20 S.
R. 36 E.

EXHIBIT 8

PROPOSED EUNICE MONUMENT SOUTH UNIT
LEA COUNTY, NEW MEXICO

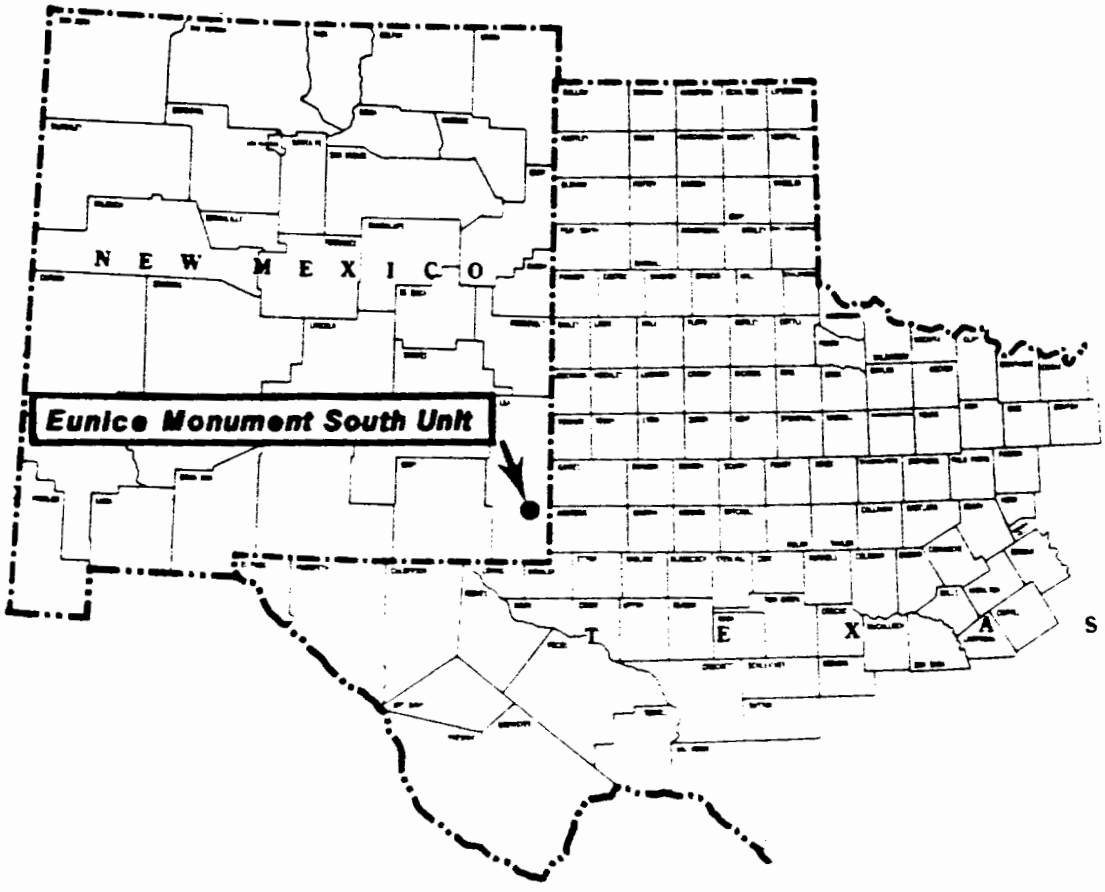


EXHIBIT NO. 24
Case No. 8397
November 7, 1984

EUNICE MONUMENT SOUTH UNIT
GENERALIZED CROSS SECTION
No Scale

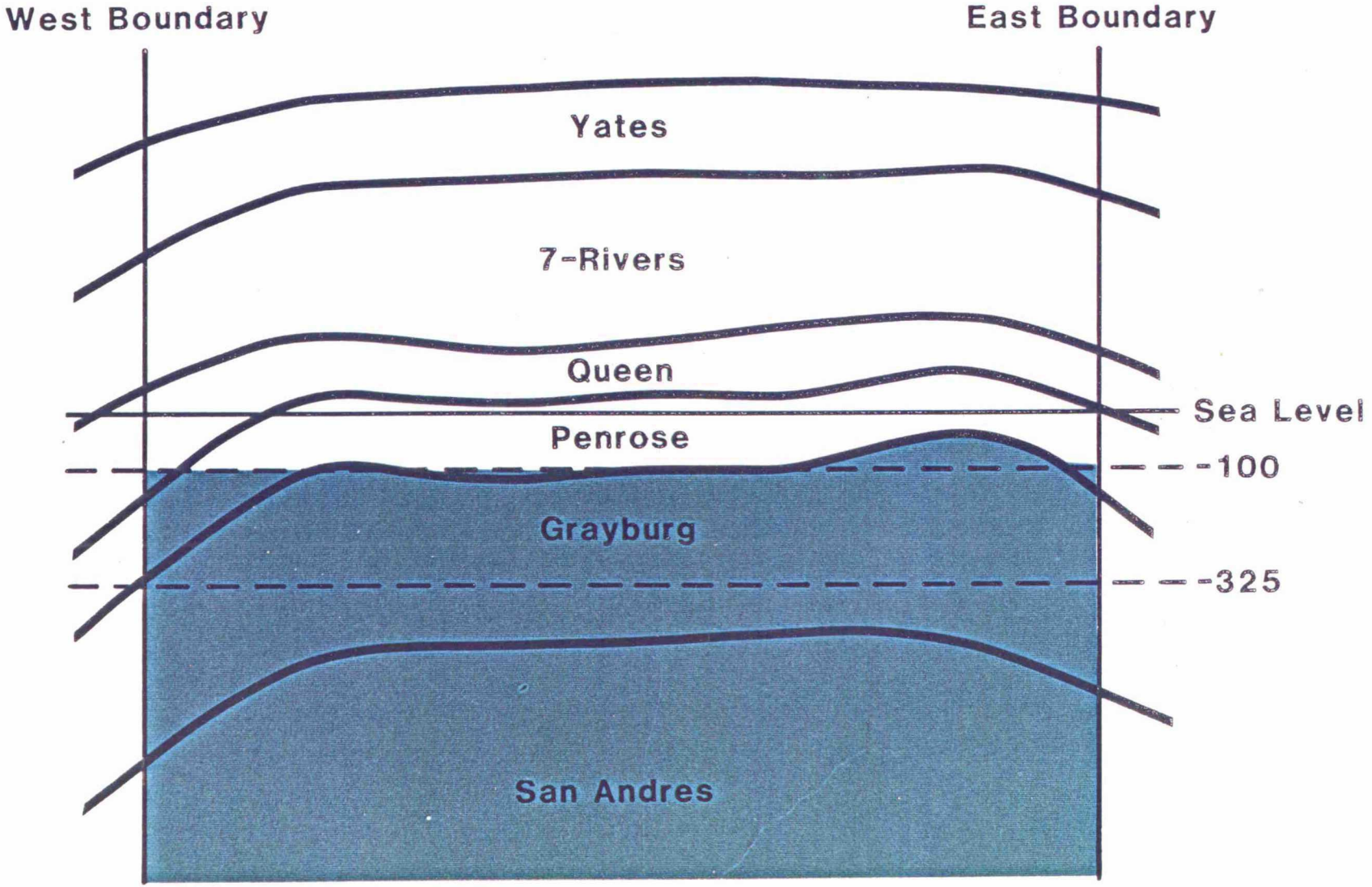


EXHIBIT 9

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

7 November 1984

COMMISSION HEARING

VOLUME I OF II VOLUMES

IN THE MATTER OF:

Application of Gulf Oil Corporation for statutory unitization, Lea County, New Mexico.	CASE 8397
Application of Gulf Oil Corporation for a waterflood project, Lea County, New Mexico.	CASE 8398
Application of Gulf Oil Corporation for pool extension and contraction, Lea County, New Mexico.	CASE 8399

BEFORE: Richard L. Stamets, Chairman
Commissioner Ed Kelley

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

A P P E A R A N C E S

For Gulf Oil Corp.: W. Thomas Kellahin
Attorney at Law
KELLAHIN & KELLAHIN
P. O. Box 2265
Santa Fe, New Mexico 87501

Ken M. Brown
Attorney at Law
Gulf Oil Corporation

For Exxon: James M. Sperling
Attorney at Law
MODRALL, SPERLING, ROEHL,
HARRIS & SISK
Post Office Box 2168
Albuquerque, New Mexico 87103

For Tract 55 Owners: Ernest L. Padilla
Attorney at Law
P. O. Box 2523
Santa Fe, New Mexico 87501

I N D E X

I N D E X CONT'D

hibit. That will be Exhibit Number Fourteen, and what is that, sir?

A Exhibit Fourteen is the structure top of the Grayburg map.

Q All right. Mr. Hoffman, does this structure map represent your geologic interpretation of the structure --

A Yes.

Q -- on top of the Grayburg?

A Yes, it does.

Q This is your work product?

A Yes, it is.

Q All right, sir. Would you describe for us what conclusions you made from examining the data and the information from the structure map?

A Yes. On the western and southern boundaries of the field the dark dashed line indicates the oil-water contact at a -325, and on the eastern, eastern edge of the field the Grayburg porosity pinches out, and on the northern --northern edge of the field, bounded by the Texaco Monument Unit.

Q All right, would you describe for us the lithology that you found in this area?

A Yes. It's a dolomite with intercrystalline porosity interspersed with some sands.

Q What does the oil/water contact determine for you as a geologist, Mr. Hoffman?

A It determines the lower limit of oil production in the area.

Q And when you talk about area, you're talking about the Grayburg-San Andres?

A Yes.

Q In your opinion does the oil/water contact generally conform to the unit boundary on the western and southern edges of the unit?

A Yes, it does.

Q Do you see as a geologist a reasonable geologic justification for the unit boundary as proposed by the working interest owners in this unit?

A Yes, I do.

Q All right, sir, and your next exhibit will be Exhibit Number Fifteen?

A Yes.

Q And what is that, sir?

A It is a structure map of the Penrose formation.

Q All right, we've looked at the structure on the lower end of the oil zone in the Grayburg and now we're going to look at the structure in the Penrose, which is above that.

A Yes.

Q All right. Is Exhibit Number Fifteen a structure map that you've also prepared?

A Yes, it is.

At the top of this summary is another number. It says "well" and as an example "14-4". That would indicate that it's cross section 14 and the well is at location number 4, and that is from the west.

The Penrose in this area, the lower part of the Penrose, the oil column in this area thins from the Grayburg up into the lower part of the Penrose. The middle Penrose is usually tight across the whole area except for the southern western edge of the field and this provides a pretty effective barrier between the oil column and the Penrose sand.

The Penrose sand is -- is that sand in the very top of the Penrose and generally found over the whole field.

On the western and southern edges of the field the sand, which is a dolomitic sand, changes into dolomite by a facies change or is cemented tight with dolomitic cement, with a corresponding loss of porosity and permeability along the edge of the unit.

Q All right, sir, when you look at Exhibit Number Eighteen, which is the line of cross section east to west on the southern portion of the unit, would you describe what you see in that cross section?

A Basically it's the same as you see -- basically it's the same as our cross section 14 as to tops and datums and it shows the same as cross section 14 (not clearly audible).

Q When you look at the oil column in the unit area, that is included generally in the Grayburg and the lower portion of the Penrose, is that correct?

A That's correct.

Q The upper portion of the Penrose is that sand that is gas productive.

A Yes, it is.

Q When you talked about the dense dolomites, are the dense dolomites between the oil column and the gas column?

A Yes, they are. The base of the sand is the top of the Penrose.

Q Within the Penrose section, then, there's a dolomite interval that separates the oil and the gas?

A Yes, sir, dolomite stringers, long sand stringers. The dolomite in the area is tight.

Q In your opinion is that an effective barrier between the oil and the gas in the area?

A Yes, it is, over most of the field.

Q All right, when we look at the top of the Grayburg and the base of the Penrose do we see any formational barrier between the top of the Grayburg and the base of the Penrose in the oil column?

A No, we don't.

Q Are you familiar with what Gulf proposes to use as the definition for the formation or the unit interval?

A Yes, that would be the entire oil column in the Grayburg.

Q When we're looking at a definition to use in the unitization process and you're trying to include the oil column, all right?

A Yes, sir.

Q What will that oil column consist of?

A That will consist of the Grayburg and San Andres formations and that portion of the oil column would extend to the base of the Penrose.

Q Do you see, based upon your study of the geology, a reasonable geologic justification for the proposed unitized interval vertically to include all of the oil column?

A Yes.

Q And will that definition exclude the gas column?

A Yes, it will.

Q When we look at your geology in terms of the horizontal boundary for the unit, do you have an opinion as a geologist as to whether or not that horizontal boundary has a reasonable geologic justification?

A Yes, it does. It runs between the oil-/water contact at -320 and the porosity pinchout on the eastern portion of the unit generally defines the unit boundary.

Q All right, sir. When we look at the type

that most of the wells here are classified as Eunice Monument oil wells, either historically or currently, except for Well No. 21-1, which is the far left well on your paper. It is a producing Eumont oil well and you can see that the productive interval is actually into the Penrose and up into the Queen.

Well 21-7, which is seven lines in from the western edge, is Shell's No. 1 Coleman A, which is a producing Eumont oil well, and you'll note that it was not drilled quite as deep as some of the other wells and the interval opened is basically right at the top of the Grayburg.

Well 21-10 is the No. 3 Cities Service State "C". That is a TA'd Eumont oil well which has been plugged back and is now a Eumont gas well.

What we discovered when we used the geological information and the completion interval information was that we had to come up with some possibilities for defining the vertical limits.

Looking first toward the lower limit that we might propose, we could see that the most appropriate limit would be the base of the San Andres because it is well below known production limits. It is the statutory base of the Eunice Monument Oil Pool, easily identifiable on electrical logs. It is the logical location for the lower limit.

For the upper limit, however, we began to consider a number of possibilities. Specifically, we de-

sales facilities, and things of that nature.

The Technical Committee has estimated that we would drill and equip nine water supply wells to handle the water injection requirements for the unit. You see the cost associated with those wells.

We'd estimated that we would drill and equip nineteen producers, sixteen injectors as replacements for P&A'd locations; possibly some vacant locations.

These are -- these cost estimates are shown in page one, also.

We believe that there will be a considerable remedial effort to be undertaken in the unit area on existing wellbores and that cost is roughly $10,000,000 worth of tangible equipment and $9,000,000 worth of intangible costs associated with that.

We anticipate coring a number of wells and we've included in the cost of coring and analyzing core on twenty wells to help us to gather reservoir data, and we anticipate as the flood begins to respond that we'll need to replace much of the existing equipment in the field and the item pumping and replacements is for that new equipment to upgrade the size of units.

You can see that the grand total here, which is a gross cost, is $60.6-million we expect to invest to get the unit installation.

Page two is a detail of those costs by year and we expect to spend the money which we've talked

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

8 November 1984

COMMISSION HEARING

VOLUME II OF II VOLUMES

IN THE MATTER OF:

Application of Gulf Oil Corporation for statutory unitization, Lea County, New Mexico.	CASE 8397
Application of Gulf Oil Corporation for a waterflood project, Lea County, New Mexico.	CASE 8398
Application of Gulf Oil Corporation for pool extension and contraction, Lea County, New Mexico.	CASE 8399

BEFORE: Richard L. Stamets, Chairman
Commissioner Ed Kelley

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

Q In addition to distributing in this package of exhibits Exhibit Thirty-two, I've also distributed the next exhibit, which is 33-A.

A Yes, sir.

Q All right, would you identify that for us?

A It lists data on the proposed operation of the injection system for the waterflood project in the Eunice Monument South Unit.

Q All right, sir, would you describe for us what the proposed method of operation is for the unit?

A Okay. As shown on Exhibit Number Thirty-three-A, our average daily rates and maximum daily rates are 400 and 500 barrels of water per day, respectively. The system is going to be a closed system. The proposed average and maximum injection pressures will be 350 psi and 740 psi, respectively.

This will be until we can determine a fracture gradient and obtain proper approval from the OCD Director for possibly injecting at higher injection pressures.

To monitor and control the rates and pressures at the wellhead, our plans are to install pressure rate controllers on each injection well.

There are currently plans to drill approximately nine water supply wells to provide make-up water from the San Andres formation. This make-up water will be

used initially as the primary source of injection water and once we have the unit fully developed, we will be switching over to using produced water as our primary source of injection water.

Q Do you have any estimates now of the percentages between make-up water and produced water that will be used by the project?

A Not at this time. Our present plans are that initially we'll be using approximately 60,000 barrels of water per day for 133 injection wells.

Q And what is the source of produced water in the unit?

A It will be from the unitized intervals, the Grayburg formation, principally.

Q Do you anticipate that the maximum injection pressure at any individual injection well will be based upon the .2 psi per foot of depth gradient established as matter of practice by the Commission until you have other data available to justify a higher rate?

A Yes, sir, that's our plan.

Q All right, sir, it you'll turn to Exhibit Number Thirty-three-B, I believe, is the next one, and describe that one for us.

A Thirty-three-B is a water compatibility analysis performed on the make-up water and the produced water and it illustrates that there is no incompatibility evident by the mixing of these two waters.

ation. We can plug a lot of that into the computer to check you to see that -- on your reports -- to see that you're really following that. That's a lot of calculations for all of us to try and figure out what individual pressure limits are.

I'm wondering if it would be possible to establish groupings of pressures in this reservoir, say perhaps all the wells on the two sections on the west side would have the same pressure limit, and the three down in the middle, the same pressure limit, and so on, let's say, for the east side, so that we wouldn't have, what, 149 different pressures; we might have, say, five or six different pressure limits within the limits of the pool we would have to process.

A With the installation of those pressure rate controllers we'd be able to control pressures and rates on an individual injection well basis.

Where we may want a well to take -- take more water, inject more water into a well, it might require different pressures, other situations.

Q It's just a suggestion. We can look into it and if it works out, we'll try and do it.

A Okay, sir.

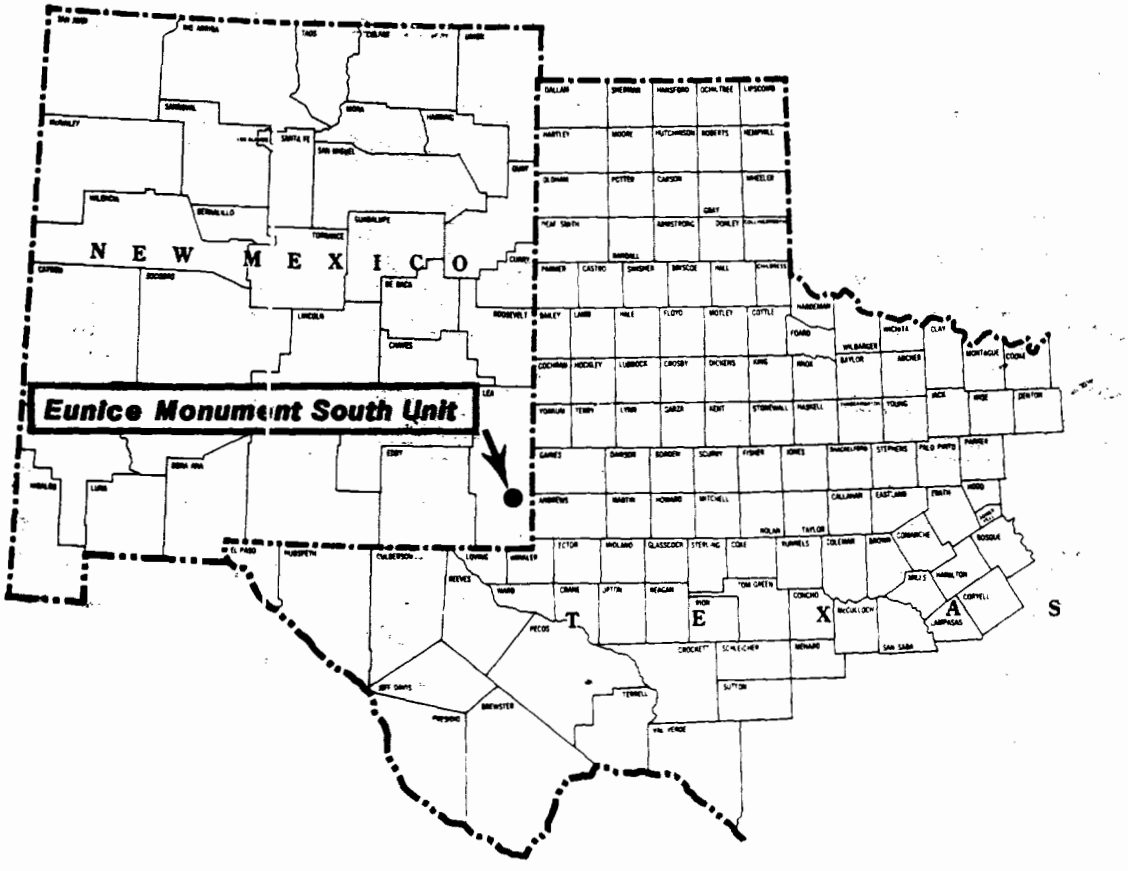
Q Now I understand that you will be injecting only into the Grayburg and the Penrose and not the San Andres, is that correct?

A That is correct.

EXHIBIT 10

PROPOSED EUNICE MONUMENT SOUTH UNIT

LEA COUNTY, NEW MEXICO



TECHNICAL COMMITTEE REPORT
APRIL 1983

TABLE OF CONTENTS

INTRODUCTION

This report summarizes a study of the feasibility of unitizing and waterflooding leases in the southern portion of the Eunice Monument oil pool, and fulfills the charges given to the Technical Committee in a meeting of the Working Interest Owners on May 10, 1979. As outlined in Figure 1, the proposed unit will include 14,280 acres which lie in Township 20 South, Ranges 36 and 37 East, and Township 21 South, Range 36 East, in Lea County, New Mexico. This waterflood will unitize all oil production from the lower Penrose, Grayburg, and San Andres formations within the vertical limits described in the Recommendations section of this report.

Twenty-three companies have current or historical operations within the proposed unit area. Table 1 is a summary of the 101 tracts comprising the unit.

CONCLUSIONS

1. Potential secondary reserves are present in sufficient quantity to justify unitizing properties in the southern portion of the Eunice Monument field to install a waterflood.

2. Secondary recovery factors of 48% and 18% were calculated for an optimum and minimum recovery cases, respectively. The optimum recovery case would produce 63.2 MM barrels of oil over a 30 year flood life, while the minimum recovery case would yield 23.7 MM barrels over the same time period.

3. The proposed unit is an economically attractive project. The optimum case yields a rate of return of 37.2% with a P/I ratio of 17.5, and the minimum case provides a rate of return of 23.4% with a P/I ratio of 5.

4. The proposed unit area contained an estimated OOIP of 671.5 MM STB. This solution gas drive reservoir has produced 119.8 MM barrels of oil to October 1, 1982, with ultimate primary production expected to reach 134.3 MM STB.

5. A total investment of approximately $62.5 MM will be required to install the surface facilities described in this report, drill and equip new wells to complete the waterflood pattern, perform the remedial work, install new pumping equipment, and obtain reservoir information.

RECOMMENDATIONS

1. The area within the southern portion of the Eunice Monument oil pool as outlined in Figure 1 of this report should be unitized.

2. The parameter table included as Table 8 on page 40 should be accepted as the basis for the Working Interest Owners to negotiate an equitable participation formula.

3. The vertical interval to be unitized should be described as follows:

   'The unitized interval shall include the formations from a lower limit defined by the base of the San Andres formation, to an upper limit defined by the top of the Grayburg formation or a -100 foot subsea datum, whichever is higher.'

4. A waterflood project should be initiated in the proposed unit area.

GEOLOGY

The proposed Eunice Monument South Unit, located in the southern portion of the Eunice Monument field, is situated on a NW-SE trending asymetrical anticline which lies along the northwestern edge of the Central Basin Platform. In this part of the field the oil producing formations are the Queen-Penrose and Grayburg, with the Grayburg being the major contributor to production (See Figures 3 and 4).

The Grayburg is a massive dolomite with thin stringers of sand interspersed within it. The majority of production probably comes from intercrystalline porosity within the dolomite. Overlaying the Grayburg is the Queen-Penrose. This section is composed of alternating layers of hard dolomite and sand stringers which are present over the entire anticline. The sands of the Queen-Penrose produce either oil or gas depending on their structural position on the anticline. Relative position and thickness of these formations are depicted on the Typelog shown in Figure 5.

Reports published during the early development of the field indicate that the gas-oil contact was believed to be -150 feet subsea, and the water-oil contact was believed to be -400 feet subsea. Our study of both field production data and individual well completion intervals indicates that the gas-oil contact is at approximately -100 feet subsea, and the oil-water contact is located at approximately -325 feet subsea. These contacts appear to be valid across the entire anticline and across formation boundaries. At this time there is insufficient data available to determine the degree of vertical reservoir communication.

Only 170 of the 344 proposed unit wells have logs, and the majority of these logs are of such poor quality that they are useless for technical interpretation. Most logs are uncompensated radioactivity and neutron logs, vintage 1955, or earlier,

The water injection plant and treating facilities will be located at the central battery site. Water will be transferred under pressure to the primary distribution headers located at each satellite battery site, then to secondary headers located in the field, each serving from three to five injection wells.

The total water requirement will be provided by reinjection of produced water, and from make-up water provided by nine San Andres supply wells. For this cost estimate, the assumption was made that new water supply wells would be drilled; however, there is a possibility that existing wellbores may be available which could be purchased and completed in the San Andres.

UNITIZED INTERVAL

During Technical Committee meetings in February and May of 1982, a major discussion item was the definition of the vertical interval to be unitized. A number of wells which are classified as Eunice Monument oil wells are actually producing from open hole completions exposing both the Eumont and Eunice Monument pools. In addition, many of the Eumont oil wells located along the western and southern edges of the proposed unit are producing from both pools.

An evaluation of the few available logs, cross-sections and production data indicates that the oil column within and adjacent to the unit is continuous from approximately -325 feet to -100 feet subsea, and includes oil being classified as both Eumont (Penrose and Queen) and Eunice Monument (Grayburg) production. Because of structural variations throughout the field, the upper limit of -100 feet subsea varies from mid-Grayburg in the eastern portion of the field to upper-Queen in the southwestern area of the field. In general, gas wells are completed above the -100 foot datum, and oil wells are completed below the -100 foot datum, regardless of their classification as Eumont or Eunice Monument wells. This is easily seen in the completion interval diagrams shown in Figures 98 through 106, and the geologic cross sections shown in Figures 107 and 108.

Originally the fact that many wells were open hole completions across the top of the Grayburg was of no consequence since the Eunice pool included both Queen and Grayburg formations. However, separation of the Eunice pool into the Eumont Gas Pool and Eunice Monument Oil Pool in the early 1950's created an accounting and classification problem for oil produced in the area. Because the oil wells were allowed to remain on production in their original completion status, a number of problems are evident which affect this unitization effort. First, there is no practical method

EXHIBIT 11

EXHIBIT NO. 5
Case No. 8397
November 7, 1984

EUNICE MONUMENT SOUTH SECONDARY RECOVERY UNIT

(Royalty Owners Overview)
LEA COUNTY, NEW MEXICO

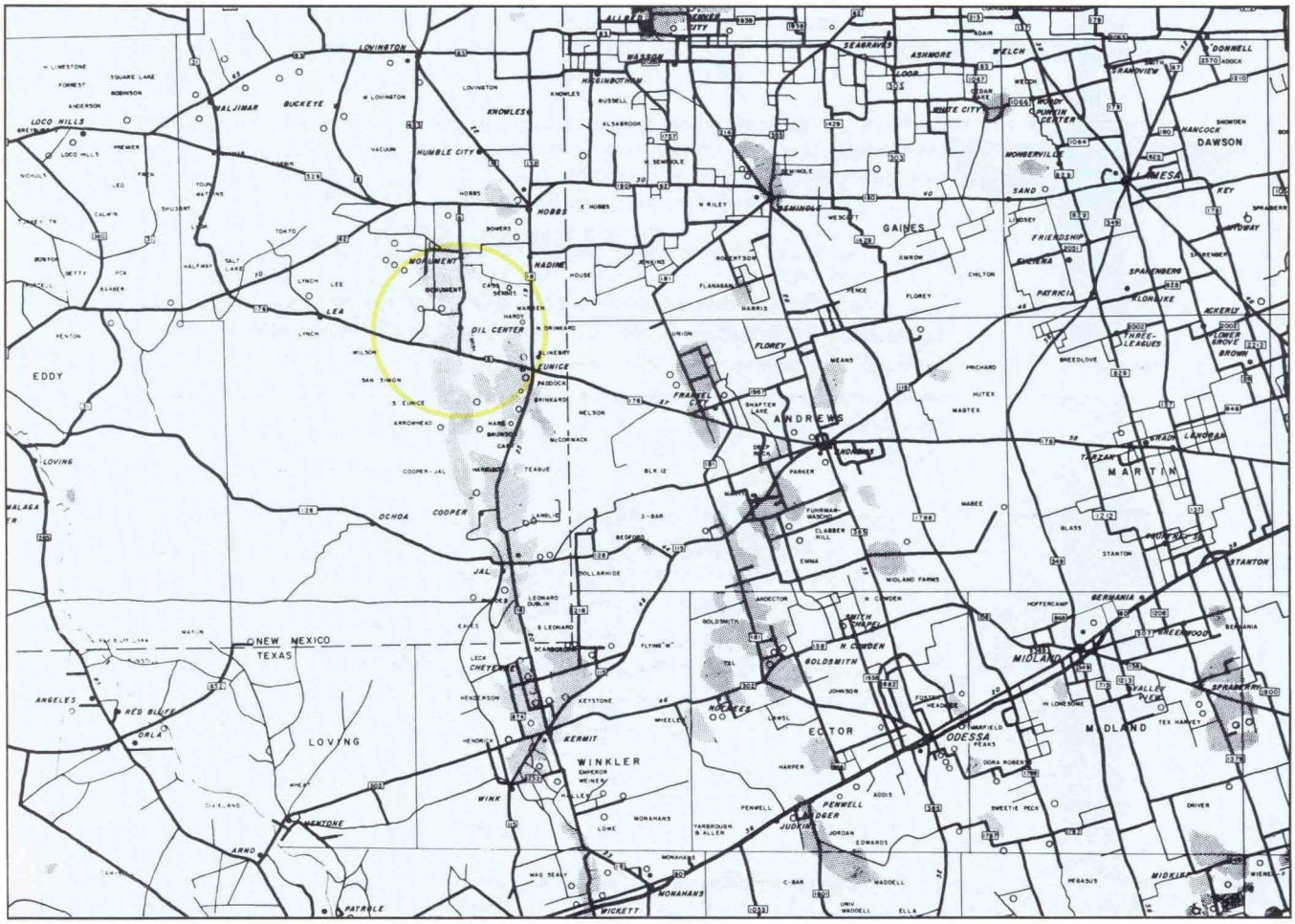
INTRODUCTION

The Proposed Eunice Monument South Secondary Recovery Unit in Lea County, New Mexico, encircles the Town of Oil Center, is approximately four miles south of the Town of Monument, and is fifteen miles southwest of the City of Hobbs. The unit area covers 14,190 acres in Townships 20 and 21 South, Ranges 36 and 37 East, New Mexico Principal Meridian, and includes all or portions of 24 sections of land. At its longest and widest portions, the unit area is six miles by five and one-fourth miles.

The field was discovered March 21, 1929 with the completion of the Continental Lockhart "B-31" well in Section 31, Township 21 South, Range 36 East, N.M.P.M., Lea County, New Mexico. Following discovery, the field was designated as the Eunice (Queen-Penrose, Grayburg and San Andres geological formations) Pool. In 1953, the Eunice Pool was separated into the Eumont Gas Pool and Eunice Monument Oil Pool.

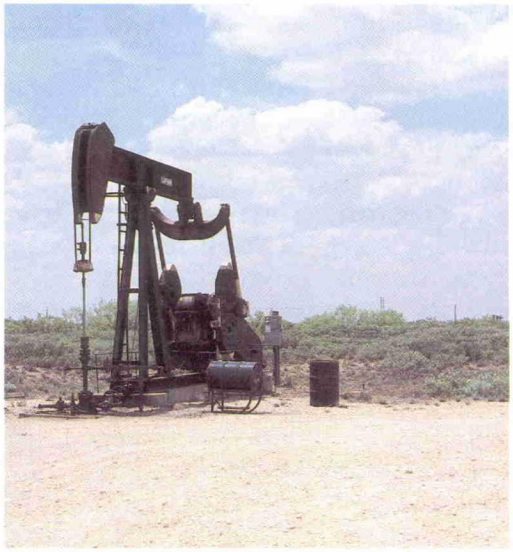
The oil field was developed on 40-acre spacing with the majority of wells being drilled and completed during the three-year period from 1934 through 1937. Peak oil production from the collective wells occurred in May of 1937 when the monthly production was 791,800 barrels of oil, or 25,542 barrels per day.

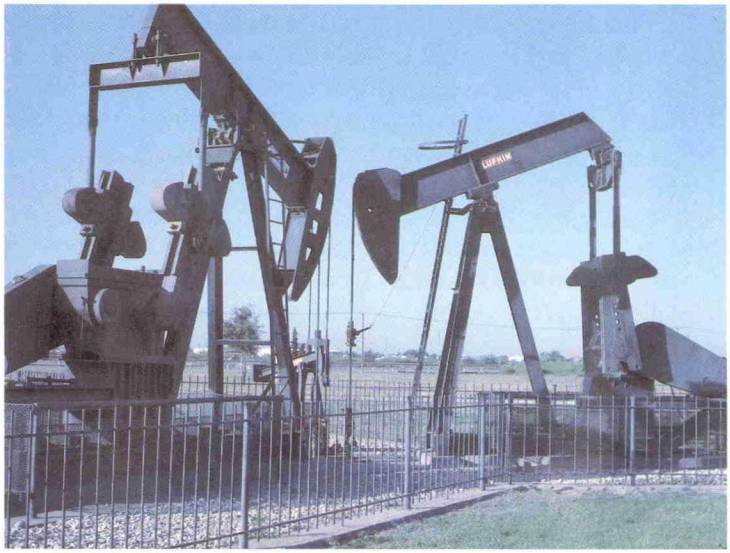
Since May of 1937, oil production within the unit has steadily declined. Twenty-three companies have drilled and completed 344 oil wells, but because of production decline, only 200 oil wells are active. The remaining wells have been temporarily abandoned, plugged, or recompleted in other zones. The oil production is now approximately 60,000 barrels of oil per month, or 7½% of the peak (1937) monthly production.

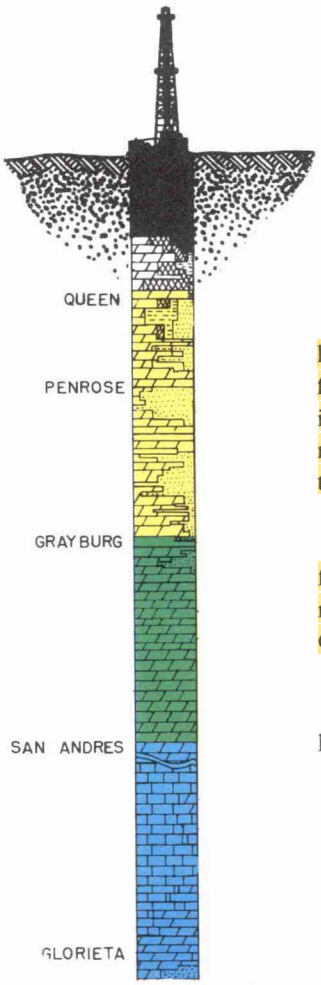


HOW CAN WE EXTEND THE LIFE OF THIS FIELD — 1929 TO _____

As with all oil fields, production has declined with time. In 1979, the Working Interest Owners (companies operating the wells and paying the maintenance costs) began a series of meetings and engineering studies to attempt to extend the productive life of this field by recovering oil that can never be produced with the present method of operation and existing facilities.







WATER INJECTION

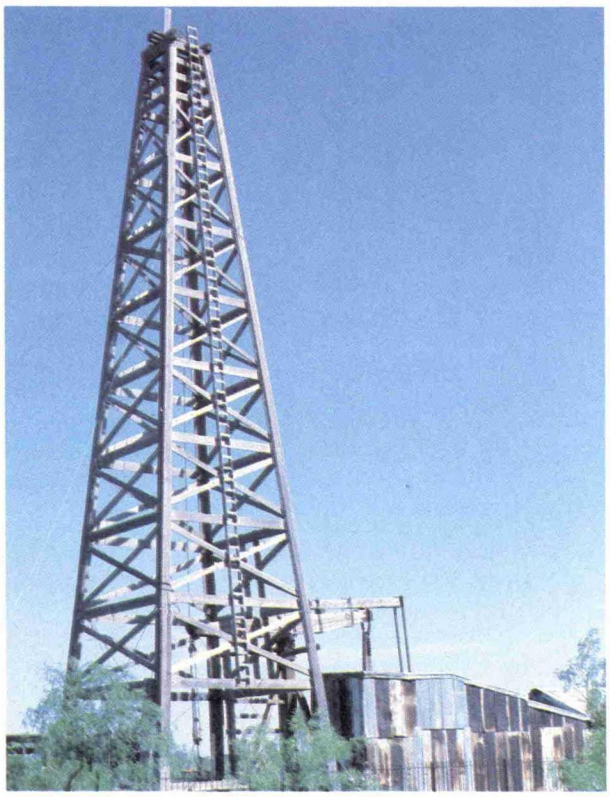
After the various company geologists and engineers completed their laboratory and reservoir studies, they concluded that a unit should be formed to inject water into the oil producing formations to force oil trapped in the rocks to the pumping units of the producing wells. This method of recovery is being successfully employed in many of the older oil fields in the area

For this proposed unit, salt water from the non-productive San Andres formation, supplemented by the reinjection of produced water, was recommended for pressurized injection into the oil producing portions of the Grayburg and Lower Penrose formations.

To understand the benefits of water injection, a brief discussion of primary and secondary recovery is helpful.

PRIMARY RECOVERY

Water, oil and gas existed under high temperature and high pressure when the first well was drilled into the oil producing formations. Because of the high gas pressure, the Continental Lockhart "B-31" well was a true gusher when it was drilled in 1929. The oil, along with some water and gas, was pushed out the well bore by the pressure of the gas. As more wells were drilled, the pressure decreased and pumps had to be installed on the wells.



With the decreased reservoir pressure, a large amount of oil was trapped in the pore spaces of the reservoir rocks. The diagram shown below represents the pore spaces in the reservoir at different times during the life of the field. The original condition of the reservoir at the time of discovery is shown in Figure (a), with only oil and water filling the pore spaces. It is seen that as oil is produced, gas bubbles, water, and the small pore spaces prevent recovery of 80% of the oil in place. At this point, as shown in Figure (b), a large amount of oil remains trapped in the reservoir.

SECONDARY RECOVERY

Two natural forces provide the energy necessary to move oil from the reservoir to a producing well. One is the expansion of the gas that is dissolved in the oil (solution gas drive) and the second is the movement of water which displaces the oil (water drive).

Generally speaking, a reservoir that has a water drive (natural or man-made) will yield significantly more oil than if subjected only to a solution gas drive. When it is determined that a reservoir is primarily producing by gas expansion, consideration is given to supplementing the solution gas drive with the injection of water to recover additional oil.

A water injection program, also referred to as secondary recovery, requires pressurized injection of water through selected wells into the oil-bearing reservoir. The injected water forces the oil to the surrounding producing wells where it is pumped to the surface. Following a water injection program, a large portion of the original oil is recovered as shown in Figure (c).

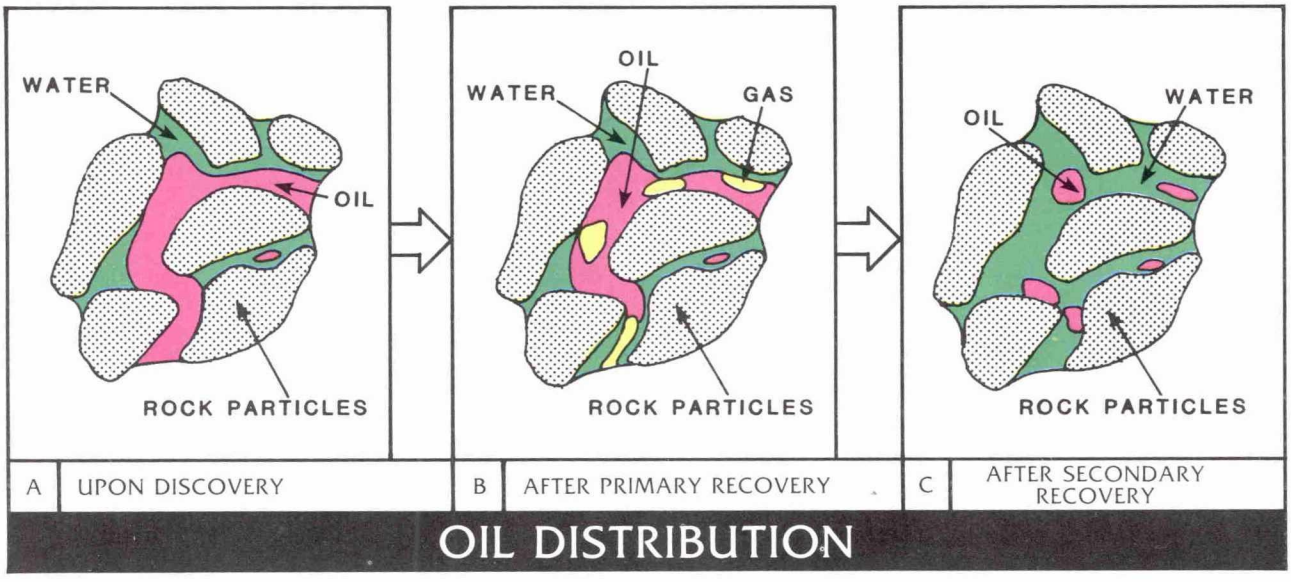


EXHIBIT 12

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

APPLICATION OF GOODNIGHT MIDSTREAM PERMIAN LLC FOR APPROVAL OF A SALTWATER DISPOSAL WELL, LEA COUNTY, NEW MEXICO. **COMM. CASE NO. 24123**

APPLICATIONS OF GOODNIGHT MIDSTREAM PERMIAN LLC FOR APPROVAL OF SALTWATER DISPOSAL WELLS, LEA COUNTY, NEW MEXICO. **DIV. 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. **DIV. CASE NO. 23775**

APPLICATIONS OF EMPIRE NEW MEXICO LLC TO REVOKE INJECTION AUTHORITY, LEA COUNTY, NEW MEXICO. **DIV. CASE NOS. 24018-24020, 24025**

SELF-AFFIRMED STATEMENT OF WILLIAM WEST

1. I am over the age of 18. I am a Petroleum Engineer working as Senior Vice President of Operations for Empire Petroleum Corporation ("Empire") and have personal knowledge of the matters stated herein. I have not previously testified before the New Mexico Oil Conservation Commission ("Commission"). My credentials as an expert Petroleum Engineer are provided in the attached resume. In short, I graduated from Marietta College with a Bachelor of Science Degree in Petroleum Engineering in May 1999. I began my career with Marathon Oil Company and have been employed in the oil and gas industry since graduation. I have been the Senior Vice President of Operations for Empire Petroleum Corporation since May 2023. I am a Certified Professional Engineer in the State of Wyoming - WY ID # 12599. I have over 25 years of oil and gas experience and have worked in most of the major oil and gas producing basins and States, including New Mexico, during my career.

2. My area of responsibility for Empire includes Lea County, New Mexico. I am responsible for the secondary waterflood operations in the Eunice Monument South Unit ("EMSU") and am working on developing the tertiary recovery CO_2 Project there. I submit the following information in support of Empire's opposition to the above-referenced Goodnight

EXHIBIT I

recompleted to a disposal well in the San Andres within the EMSU unitized interval. Failure to furnish notification of the recompletion of a disposal well into a new zone violated NMOCD rules and therefore should never have been approved. As a result, the well has disposed of 16.61 million barrels saltwater into Empire's unitized interval and has impacted roughly 181 acres as of June 1, 2024.

A. Discussion of Exhibits

4. **Exhibit I-1** shows the location of the five proposed SWD wells inside the EMSU. These wells are located in areas of EMSU where water production prior to the waterflood in 1986 was abnormally high, indicating communication between the San Andres and Grayburg through natural fractures.

5. **Exhibit I-2** shows the above five wells and the four active SWD wells Goodnight already operates within the EMSU that are disposing of water into the unitized interval. No disposal volumes are available on the Division's website for the Andre Dawson SWD #1, but Goodnight's document production demonstrates it has been disposing of water since January, 2023. The Ernie Banks SWD #1 has also been utilized for disposal since May, 2023 but disposal volumes are not available on the Division's website. It is estimated that these 2 wells have disposed of 12.8 million barrels as of June 1, 2024.

6. **Exhibit I-3** shows the results from an open-hole Repeat Formation Test (RFT) taken on April 8, 1986 in the EMSU-211 well prior to the start of water injection. The results show the depths where pressure measurements were made and the subsea depth associated with these measured depths based on a well elevation of 3576 feet. The original reservoir pressure in 1929 was measured to be 1450 psi at subsea depth of -250 feet. We assume a 0.43 psi per foot pressure gradient to determine the original reservoir pressure at the various depths where the RFT pressure measurements were taken. The top of San Andres has been picked at 3975' measured depth in the EMSU-211 well and this depth equates to -399' subsea. We then compare the original reservoir pressure at each depth with the measured pressure in 1986 and see that the pressure at the one depth tested in the San Andres has declined by 282 psi or 18.5%. The pressure in the Grayburg has declined by over 1000 psi at the top of the interval due to oil, water, and gas production from wells completed in the Grayburg since 1929. No wells have produced from the San Andres at EMSU, so the only way this San Andres pressure could have dropped is through communication with the Grayburg.

7. **Exhibit I-4** is a graphical representation of **Exhibit I-3** showing the measured pressures plotted on the X axis and the measured depth plotted on the Y axis. The graph shows the 282 psi (18.5%) pressure depletion in the San Andres in the area shaded in red at the bottom of the graph. The only physical explanation is that fluids from the San Andres interval migrated into the Grayburg interval. This confirms the two formations are hydraulically connected.

8. **Exhibit I-5** shows the 1/1/1986 cumulative water production for wells which produced over 500,000 barrels water before the waterflood and their location in respect to the 5 application and 4 existing active SWD wells. The high water production from these wells can be attributed to San Andres water migrating into the crestal areas of the Grayburg though natural

I understand this Self-Affirmed Statement will be used as written testimony in this case. I affirm that my testimony above is true and correct and is made under penalty of perjury under the laws of the State of New Mexico. My testimony is made as of the date next to my signature below.

Signed by:
William West

William West

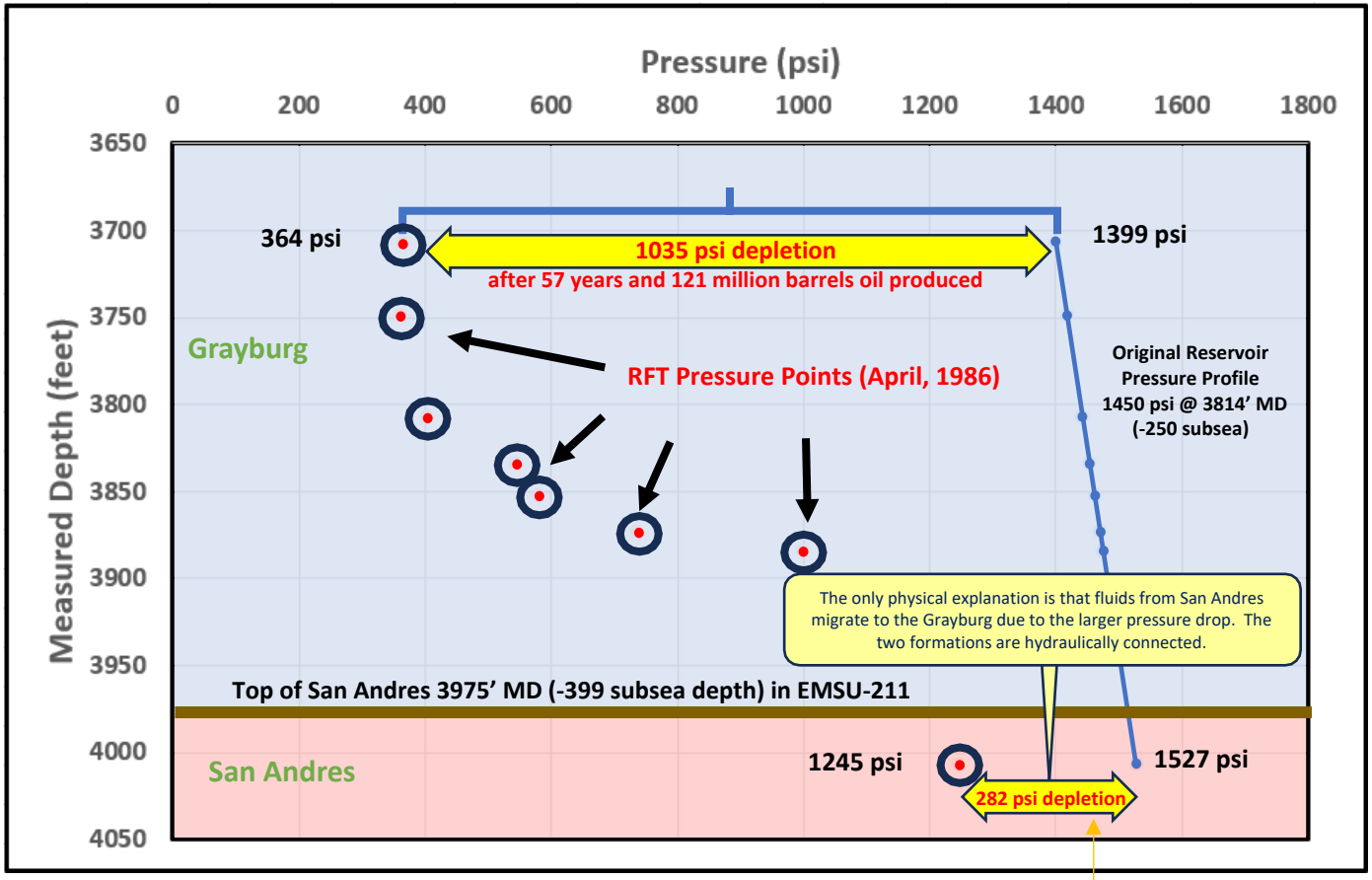
Senior Vice President Operations

EMPIRE PETROLEUM CORPORATION

Date: 8/22/2024

Pressure Depletion Prior To Water Injection (Pressure Measured in EMSU-211 April, 1986)

Exhibit I-4



Elevation for EMSU-211 is 3576' above sea level

KEY POINTS

- This is a graphical presentation of Exhibit I-3 showing pressures measured with depth in the EMSU-211 well during April, 1986.
- Seven pressure points in the Grayburg interval indicated 400 psi to 1035 psi depletion due to production of 121 million barrels oil.
- Although no production was made from the San Andres interval, pressure measurement indicated 282 psi depletion.
- This indicates that the Grayburg and San Andres are in pressure communication.

EXHIBIT 13

Ref: Item VIII of C-108

Geological Data
Injection Zones
in the
Proposed Eunice Monument South Unit

Penrose - Approx. depth 3,400'-3,800*, approx. 170 gross feet.

The Penrose is the lower portion of the Queen formation and overlies the Grayburg. The Penrose is composed of alternating layers of hard dolomite and sand lenses. The Penrose is productive of oil and/or gas, depending on structural position.

Grayburg - Approx. depth 3,500'-3,900*, approx. 490 gross feet.

The Grayburg is a massive dolomite with thin stringers of sand interspersed within it. The majority of oil production comes from intercrystalline porosity in the dolomite.

The range in depths to the top of the Grayburg is due to an asymmetrical anticlinal structure running NW to SE through the Eunice-Monument Pool. The structure dips steeply along the western and southern flanks and therefore the Grayburg top runs deeper, approximately 3,700'-3,900'. Along the axis and the gently dipping eastern flank of the anticline the Grayburg depths run at approximately 3,500-3,700 feet.

San Andres - Approx. depth 4,100'-4,500*, approx. 1,130 gross feet.

The San Andres is a massive dolomite with intercrystalline porosity, which lies directly below the Grayburg. The contact between the Grayburg and the San Andres is gradational and there is no clear marker for the top of the San Andres which can be traced across the field. The San Andres contributes very little if any oil production to the field and serves primarily as a source for injection make-up water and as a zone for salt water disposal.

There are no known faults cutting through the San Andres and Grayburg which would act as a conduit for gas, oil or injection water to seep into fresh water horizons above the injection zones in the Grayburg and San Andres.

* Depth depends upon structural position of the well.

EXHIBIT NO. 34a
Case No. 8397
November 7, 1984

WELEX

ACOUSTIC VELOCITY LOG

COMPANY CONTINENTAL OIL COMPANY

WELL MEYER B-4 # 23

FIELD OIL CENTER-BLINEBRY

COUNTY LEA STATE NEW MEXICO

Location 660'FSL 1980'FEL

Other Services: Guard

Sec. 4 Twp. 21-S Rge. 36-E

Permanent Datum: Bradenhead Flg. Elev. 3584

Log Measured From: K. B. 11 Ft. Above Perm. Datum

Drilling Measured From: Kelly Bushing

Elev.: K.B. 3595 D.F. 3594 G.L.

Date	10-30-62			
Run No.	One			
Depth-Driller	6350			
Depth-Welex	6362			
Btm. Log Intvl.	6358			
Top Log Intvl.	Surf.			
Casing-Driller	8-5/8" @ 1305	@	@	@
Casing-Welex				
Bit Size	7-7/8"			
Type Fluid in Hole	Mud			
Dens. / Visc.	9.2 / 39			
pH / Fluid Loss	6 / 10.2 ml	ml	ml	ml
Source of Sample	Circulated			
R_m @ Meas. Temp.	.16 @ 80 °F	@ °F	@ °F	@ °F
R_{mf} @ Meas. Temp.	.13 @ 70 °F	@ °F	@ °F	@ °F
R_{mc} @ Meas. Temp.	.19 @ 80 °F	@ °F	@ °F	@ °F
Source R_{mf} / R_{mc}	Measured			
R_m @ BHT	.115 @ 112 °F	@ °F	@ °F	@ °F
Time Since Circ.				
Max. Rec. Temp.	112°F @ BH	°F @	°F @	°F @
Equip. / Location	7121 / Hobbs			
Recorded By	L. E. Pharr			
Witnessed By	Mr. Levine			

Fold here

Reproduced By

West Texas Electrical Log Service

Dallas 2, Texas

REFERENCE W2483M

ELSI

16 COMPLETION RECORD

SPUD DATE

COMP DATE

DST RECORD

CASING RECORD

EXHIBIT NO. 34b

Case No. 8397

November 7, 1984

EXHIBIT 14

This rule was filed as State Engineer Rule 66-1, Article 7-4.

TITLE 19 NATURAL RESOURCES AND WILDLIFE
CHAPTER 27 UNDERGROUND WATER
PART 26 CAPITAN UNDERGROUND WATER BASIN

19.27.26.1 ISSUING AGENCY: Office of State Engineer.
[Recompiled 12/31/01]

19.27.26.2 SCOPE: [RESERVED]
[Recompiled 12/31/01]

19.27.26.3 STATUTORY AUTHORITY: Adopted pursuant to the authority of Sections 72-2-8, 72-2-12 and 72-13-4, New Mexico Statutes Annotated, 1978.
[Recompiled 12/31/01]

19.27.26.4 DURATION: [Permanent]
[Recompiled 12/31/01]

19.27.26.5 EFFECTIVE DATE: November 1, 1966
[Recompiled 12/31/01]

19.27.26.6 OBJECTIVE: This Rule is formulated for the purpose of carrying out the provisions of the statutes governing underground waters and describing the present extent of all declared underground water basins in New Mexico.
[Recompiled 12/31/01]

19.27.26.7 DEFINITIONS: [RESERVED]
[Recompiled 12/31/01]

19.27.26.8 CAPITAN BASIN:

A. The lands declared within the Capitan Basin on September 28, 1965, are as follows:

TOWNSHIP	RANGE	SECTIONS
18 S.	29 E.	19 thru 36
18 S.	30 E.	19 thru 36
18 S.	31 E.	All
18 S.	32 E.	All
18 S.	33 E.	3 thru 11, 13 thru 36
18 S.	34 E.	29 thru 32
19 S.	28 E.	All
19 S.	29 E.	All
19 S.	30 E.	All
19 S.	31 E.	All
19 S.	32 E.	All
19 S.	33 E.	All
19 S.	34 E.	4 thru 9, 15 thru 36
20 S.	28 E.	All
20 S.	29 E.	All
20 S.	30 E.	All
20 S.	31 E.	All
20 S.	32 E.	All
20 S.	33 E.	All
20 S.	34 E.	All
21 S.	28 E.	All
21 S.	29 E.	1 thru 6
21 S.	30 E.	1 thru 6
21 S.	31 E.	1 thru 15
21 S.	32 E.	1 thru 18, 22 thru 27, 34 thru 36
21 S.	33 E.	All
21 S.	34 E.	All
21 S.	35 E.	All
21 S.	36 E.	All
21 S.	37 E.	All

21 S.	38 E.	All**
22 S.	33 E.	1 thru 18, 22 thru 27, 34 thru 36
22 S.	34 E.	All
22 S.	35 E.	All
22 S.	36 E.	All
22 S.	37 E.	All
22 S.	38 E.	All**
23 S.	34 E.	1 thru 18, 22 thru 27, 34 thru 36
23 S.	35 E.	All
23 S.	36 E.	All
23 S.	37 E.	All
23 S.	38 E.	All**
24 S.	35 E.	All
24 S.	36 E.	All
24 S.	37 E.	All
24 S.	38 E.	All**
25 S.	35 E.	1 thru 3, 10 thru 15
25 S.	36 E.	All
25 S.	37 E.	All
25 S.	38 E.	All**
26 S.	36 E.	1 thru 6, N 1/2 7, N 1/2 8, N 1/2 9, NW 1/4 & E 1/2 10, 11 thru 14, E 1/2 15, E 1/2 22, 23 thru 26, E 1/2 27, E 1/2 34*, 35*, 36*
26 S.	37 E.	1 thru 30, 31 thru 36*
26 S.	38 E.	All**

*Fractional Sections. **All townships involving Range 38 East are fractional townships.

B. [TOWNSHIP AND RANGE MAP: See 7-4.1 Capitan Basin, PDF File 19.027.0026.8-Capitan.] [SE 66-1, Article 7-4; Recompiled 12/31/01]

HISTORY OF 19.27.26 NMAC:

Pre-NMAC History: The material in this Part was derived from that previously filed with the State Records Center and Archives:
SE 66-1, Rules and Regulations Governing Drilling of Wells and Appropriation and Use of Ground Water in New Mexico 1966, originally filed with the Supreme Court Law Library 11/1/66. Filed with the State Records Center 6/27/91.

History of Repealed Material: [RESERVED]

EXHIBIT 15

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

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

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

CASE NO. 21569
ORDER NO. R-22026

ORDER OF THE DIVISION

This case came in for hearing before the Oil Conservation Division ("OCD") at 8:15 a.m. on January 21, 2021, in Santa Fe, New Mexico.

The OCD Director, having considered the testimony, the record, the recommendations of Hearing Examiners Kathleen Murphy and Dylan Rose-Coss, these findings of fact, and conclusions of law issues this Order.

FINDINGS OF FACT

1. Due public notice has been given, and the Oil Conservation Division ("OCD") has jurisdiction of this case and the subject matter.

2. Goodnight Midstream Permian, LLC ("Applicant") seeks authority to utilize its Andre Dawson SWD No. 1 Well (API No. 30-025-Pending; "Well"), located 1105 feet from the South line and 244 feet from the East line (Unit P) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, as an Underground Injection Control ("UIC") Class II well for disposal of produced water into the San Andres formation through a perforated interval from 4287 feet to 5590 feet below surface.

3. Applicant submitted a Form C-108 application (Administrative Application No. pBL2032263200) on November 17, 2020, for authority to inject into the Well which was protested by the New Mexico State Land Office ("NMSLO").

4. On December 8, 2020, Applicant submitted an application for hearing for approval of the Well for commercial disposal of produced water. Subsequently, the NMSLO filed an entry of appearance for this application on December 31, 2020.

5. Applicant provided affidavits at hearing through counsel that presented geologic and engineering evidence in support of the approval of injection authority for the Well.

6. Applicant did not identify any wells that penetrate the proposed injection interval within the one-half mile Area of Review of the surface location of the Well.

7. Three shallow freshwater wells were located within one mile of the Well and a sample of the CP 01485 POD1 well with the results is included in the application.

8. The NMSLO did not appear at hearing and did not oppose the presentation of the case by affidavit nor oppose the granting of this application. The NMSLO provided a statement into record expressing their concern for the spacing of disposal wells and the potential impacts to adjacent state mineral interests.

9. No other party appeared at the hearing, or otherwise opposed the granting of this application.

The OCD concludes as follows:

10. Applicant provided the information required by 19.15.26 NMAC and the Form C-108 for an application to inject produced water into a Class II UIC well.

11. Applicant complied with the notice requirements of 19.15.4 NMAC.

12. Applicant affirmed in a sworn statement by a qualified person that it examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the approved injection interval and any underground sources of drinking water.

13. Applicant is in compliance with 19.15.5.9 NMAC.

14. Approval of disposal in the Well will enable Applicant to support existing production and future exploration in this area, thereby preventing waste while not impairing correlative rights and protecting fresh water or underground sources of drinking water.

IT IS THEREFORE ORDERED THAT:

1. Goodnight Midstream Permian, LLC is hereby authorized by **UIC Permit SWD-2403** to utilize its Andre Dawson SWD No. 1 Well, located in Unit P of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, for the commercial disposal of UIC Class II fluids into the San Andres formation.

2. Jurisdiction is retained by the OCD for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the

requirements in this order; whereupon the OCD may, after notice and hearing or prior to notice and hearing in event of an emergency, terminate the disposal authority granted herein.

DONE at Santa Fe, New Mexico, on this 07 day of February, 2022.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

ADRIENNE SANDOVAL
DIRECTOR

EXHIBIT 16

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

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

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

CASE NO. 21570
ORDER NO. R-22027

ORDER OF THE DIVISION

This case came in for hearing before the Oil Conservation Division ("OCD") at 8:15 a.m. on January 21, 2021, in Santa Fe, New Mexico.

The OCD Director, having considered the testimony, the record, the recommendations of Hearing Examiner Kathleen Murphy, these findings of fact, and conclusions of law issues this Order.

FINDINGS OF FACT

1. Due public notice has been given, and the Oil Conservation Division ("OCD") has jurisdiction of this case and the subject matter.

2. Goodnight Midstream Permian, LLC ("Applicant") seeks authority to utilize its Ernie Banks SWD No. 1 Well (API No. 30-025-Pending; "Well"), located 395 feet from the North line and 1203 feet from the West line (Unit D) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, as an Underground Injection Control ("UIC") Class II well for disposal of produced water into the San Andres formation through a perforated interval from 4312 feet to 5615 feet below surface.

3. Applicant submitted a Form C-108 application (Administrative Application No. pBL2032264441) on November 17, 2020, for authority to inject into the Well which was protested by the New Mexico State Land Office ("NMSLO").

4. On December 8, 2020, Applicant submitted an application for hearing for approval of the Well for commercial disposal of produced water. Subsequently, the NMSLO filed prehearing statement for this application on December 31, 2020.

5. Applicant provided affidavits at hearing through counsel that presented geologic and engineering evidence in support of the approval of injection authority for the Well.

6. Applicant did not identify any wells that penetrate the proposed injection interval within the one-half mile Area of Review of the surface location of the Well.

7. Four freshwater wells were located within one mile of the Well and a sample from the CP 01485 well was taken. Based on the records of the Office of the State Engineer, two of these four wells, CP 00693 and CP 00696 penetrate the proposed injection interval to a depth of 5000 feet and 4900 feet, respectively.

8. The NMSLO did not appear at hearing and did not oppose the presentation of the case by affidavit nor oppose the granting of this application. The NMSLO provided a statement into record expressing their concern for the spacing of disposal wells and the potential impacts to adjacent state mineral interests.

9. No other party appeared at the hearing, or otherwise opposed the granting of this application.

The OCD concludes as follows:

10. Applicant provided the information required by 19.15.26 NMAC and the Form C-108 for an application to inject produced water into a Class II UIC well.

11. Applicant complied with the notice requirements of 19.15.4 NMAC.

12. Applicant affirmed in a sworn statement by a qualified person that it examined the available geologic and engineering data and found no evidence of open faults or other hydrologic connections between the approved injection interval and any underground sources of drinking water.

13. Applicant is in compliance with 19.15.5.9 NMAC.

14. Approval of disposal in the Well will enable Applicant to support existing production and future exploration in this area, thereby preventing waste while not impairing correlative rights and protecting fresh water or underground sources of drinking water.

IT IS THEREFORE ORDERED THAT:

1. Goodnight Midstream Permian, LLC is hereby authorized by **UIC Permit SWD-2404** to utilize its Ernie Banks SWD Well No. 1, located in Unit D of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, for the commercial disposal of UIC Class II fluids into the San Andres formation.

2. Jurisdiction is retained by the OCD for the entry of such further orders as may be necessary

for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order; whereupon the OCD may, after notice and hearing or prior to notice and hearing in event of an emergency, terminate the disposal authority granted herein.

DONE at Santa Fe, New Mexico, on this 07 day of February, 2022.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

ADRIENNE SANDOVAL
DIRECTOR

EXHIBIT 17

State of New Mexico
Energy, Minerals and Natural Resources Department

Administrative Order SWD-2307
April 21,2020

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION DIVISION

Pursuant to the provisions of Division Rule 19.15.26.8(B) NMAC, Goodnight Midstream Permian, LLC (the "Operator") seeks an administrative order to authorize the Ryno SWD Well No. 1 (formerly the "Snyder SWD No. 1"; the "well") located 1450 feet from the North line and 708 feet from the East line, Unit letter H of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, for the purpose of commercial disposal of produced water.

This order amends Administrative Order SWD-1700 issued November 2, 2017. This order approves injection into the San Andres formation (SWD; San Andres) and abandonment of the current Devonian injection interval (SWD; Devonian). The well will be summarily plugged and abandoned from the top of the Devoinian formation at 10560 feet to base of the San Andres formation at 5625 feet. This order supersedes Administrative Order SWD-1700 which is rescinded.

THE DIVISION DIRECTOR FINDS THAT:

The application was duly filed under the provisions of Division Rule l9.15.26.8(B) NMAC and satisfactory information was provided that affected parties as defined in said rule have been notified and no objection was received within the prescribed waiting period. The applicant presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC were met and the operator is in compliance with Rule 19.15.5.9 NMAC.

IT IS THEREFORE ORDERED THAT:

The applicant, Goodnight Midstream Permian, LLC (OGRID 372311), is hereby authorized to utilize its Ryno SWD Well No. 1 (API: 30-025-43901) located 1450 feet from the North line and 708 feet from the East line, Unit letter H of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, for disposal of oil field produced water (UIC Class II only) through a perforated interval within the San Andres formation from 4320 feet to 5625 feet. Injection shall occur through 4½-inch or smaller internally-coated tubing within the 9⅝-inch casing and a packer set a maximum of l00 feet above the top of the perforated interval.

This permit allows niether disposal into the overlying Blinebry formation or the underlying Glorieta Formation, nor lost circulation to adjacent intervals potentially connected to the San Andres formation. The operator shall provide logs and a mudlog over the proposed interval which verify that only the permitted interval is completed for disposal.

Within two (2) years after commencing disposal, the operator shall conduct an injection survey, consisting of a temperature log or equivalent, over the entire injection interval using representative disposal rates. Copies of the survey results shall be provided to the Division's District I office and Santa Fe Engineering Bureau office.

IT IS FURTHER ORDERED THAT:

The operator shall take all steps necessary to ensure that the disposed water enters only the approved disposal interval and is not permitted to escape to other formations or onto the surface. This includes the completion and construction of the well as proposed in the application and, if necessary, as modified by the District Supervisor.

After installing tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the surface to the packer setting depth to assure casing integrity.

The well shall pass an initial mechanical integrity test ("MIT") prior to initially commencing disposal and prior to resuming disposal each time the disposal packer is unseated. All MIT procedures and schedules shall follow the requirements in Division Rule 19.15.26.11(A) NMAC. The Director retains the right to require at any time wireline verification of completion and packer setting depths in this well.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District I office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

If the disposal well fails a MIT or if there is evidence that the mechanical integrity of said well is impacting correlative rights, the public health, any underground sources of fresh water, or the environment, the Director shall require the well to be shut-in within 24 hours of discovery and the operator shall redirect all disposal waters to another facility. The operator shall take the necessary actions to address the impacts resulting from the mechanical integrity issues in accordance with Division Rule 19.15.26.10 NMAC, and the well shall be tested pursuant to Rule 19.15.26.11 NMAC prior to returning to injection.

The wellhead injection pressure on the well shall be limited to **no more than 860 psi**. In addition, the disposal well or system shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well.

The Director may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the target formation. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

The operator shall notify the supervisor of the Division's District I office of the date and time of the installation of disposal equipment and of any MIT so that the same may be inspected and witnessed. The operator shall provide written notice of the date of commencement of disposal to the Division's District office. The operator shall submit monthly reports of the disposal operations on Division Form C-115, in accordance with Division Rules 19.15.26.13 and 19.15.7.24 NMAC.

Without limitation on the duties of the operator as provided in Division Rules 19.15.29 and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the Division's District I office of any failure of the tubing, casing or packer in the well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

The injection authority granted under this order is not transferable except upon Division approval. The Division may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

The Division may revoke this injection order after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

The disposal authority granted herein shall terminate one (1) year after the effective date of this order if the operator has not commenced injection operations into the subject well. One year after the last date of reported disposal into this well, the Division shall consider the well abandoned, and the authority to dispose will terminate *ipso facto*. The Division, upon written request mailed by the operator prior to the termination date, may grant an extension thereof for good cause.

Compliance with this Order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

Jurisdiction is retained by the Division for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the

requirements in this order, whereupon the Division may, after notice and hearing, terminate the disposal authority granted herein.

ADRIENNE SANDOVAL
Director

AS/dhr

cc: Oil Conservation Division – Hobbs District Office
Well file 30-25-43901

EXHIBIT 18

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

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:

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

CASE NO. 20721
ORDER NO. R-21190

ORDER OF THE DIVISION

BY THE DIVISION:

This case came on for hearing at 8:15 a.m. on September 19, 2019, at Santa Fe, New Mexico, before Examiners Kathleen Murphy and Phillip R. Goetze.

NOW, on this 2nd day of March 2020, the Division Director, having considered the testimony, the record, and the recommendations of the Examiners,

FINDS THAT:

(1) Due public notice has been given, and the Oil Conservation Division ("OCD") has jurisdiction of this case and the subject matter.

(2) Goodnight Midstream Permian, LLC ("Applicant" or "Goodnight Midstream") seeks authority to utilize its Sosa SA 17 SWD Well No. 2 (API No. 30-025-Pending; the "Subject Well"), located 470 feet from the South line and 1815 feet from the West line (Unit N) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, for disposal of produced water into the San Andres formation through a perforated interval from 4500 feet to 5350 feet below surface.

(3) Goodnight Midstream submitted a Form C-108 application (Administrative Application No. pMAM1918238141) on June 28, 2019, for authority to inject into the Subject Well which was protested by the New Mexico State Land Office ("SLO").

(4) On July 31, 2019, Goodnight Midstream submitted an application for hearing for approval of the Subject Well for commercial disposal of produced water.

(5) Subsequently, the SLO filed an entry of appearance for this application on August 13, 2019.

(6) Applicant appeared at the hearing through counsel and presented geologic and engineering evidence to the effect that:

(a) The Applicant seeks to drill the Subject Well to an approximate total depth of 5350 feet below surface. The injection will occur through perforations from approximately 4500 feet to approximately 5350 feet below surface.

(b) The Subject Well will be constructed with the following two casing strings: a 9⅝-inch surface casing set at 1465 feet and a 7-inch production casing set from the surface to 5400 feet. Both casings will have cement circulated to the surface.

(c) The Subject Well will inject fluids through 4½-inch, fiberglass-lined steel tubing attached to a packer set at depth within 100 feet of the shallowest perforation.

(d) The primary sources of produced water will be production from wells completed in the Bone Spring formation, the Wolfcamp formation, and Delaware Mountain Group.

(e) The analyses of produced water samples provided by Applicant showed the compatibility of the injection fluids with formation fluids in the proposed disposal interval.

(f) The Applicant proposes the Subject Well as a commercial operation with a maximum average injection rate of 25000 barrels of water per day (BWPD) using a maximum surface injection pressure of 900 pounds per square inch (psi).

(g) The depth of the deepest known source of fresh water in the vicinity of the Subject Well was approximately 1470 feet below surface and was identified as the Rustler formation.

(h) One fresh-water well was identified within a one-mile radius of the Subject Well. The Applicant provided water quality analysis for the well that showed total dissolved solids (TDS) concentration of 644 milligrams per liter (mg/L) and a chloride concentration of 176 mg/L.

(i) Applicant stated the Subject Well as being approximately 3.5 miles to the northeast of the lateral limits of the Capitan Aquifer reef.

(j) Applicant's engineering witness testified that he has examined the available geological and engineering data and found no evidence of open faults or

any other hydrologic connection between the disposal zone and any underground sources of drinking water.

(k) The results of the one half-mile Area of Review (AOR) around the Subject Well found no active or plugged wells that penetrated the proposed injection interval.

(l) Applicant identified the San Andres formation for the disposal interval due to the high porosity and the absence of historical hydrocarbon production in the formation within a two-mile radius of the Subject Well.

(m) Applicant further stated the top of the San Andres formation contains an anhydrite interval that provides an upper confining layer for the proposed disposal interval while a 300-foot interval of low-porosity limestone at the base of the San Andres provides a lower confining layer.

(n) Applicant has recent well completion experience in the upper San Andres formation as proposed for the Subject Well and found the formation to be pressure depleted owing to large-scale water extraction used to support prior enhanced recovery and drilling operations.

(o) The Applicant provided evidence of notification of this application to all "*affected persons*" within a one half-mile radius of the surface location of the Subject Well and with publication in a newspaper of general circulation in the county.

(7) The SLO appeared through counsel at hearing and did not oppose the granting of this application. The SLO provided a statement into record expressing their concern for the spacing of disposal wells and the potential impacts to adjacent state mineral interests.

(8) No other party appeared at the hearing, or otherwise opposed the granting of this application.

The OCD concludes as follows:

(9) The application has been duly filed under provisions of Rule 19.15.26.8 NMAC.

(10) Geologic and engineering interpretations submitted by the Applicant identified geologic seals at the top and at the base of the proposed disposal zone that would prevent the vertical migration of injection fluids.

(11) OCD notes as part of the review of the application that the Subject Well is approximately 3.5 miles northeast of the projected limit of the Capitan Reef aquifer.

(12) The disposal fluids are compatible with existing formation fluids based on analytical results provided by Applicant.

(13) The application has been duly filed under the provisions of Rule 19.15.26.8 NMAC.

(14) Applicant has presented satisfactory evidence that all requirements prescribed in Rule 19.15.26.8 NMAC have been met.

(15) OCD records indicate Goodnight Midstream (OGRID 372311) as of the date of this order is in compliance with Rule 19.15.5.9 NMAC.

(16) Approval of disposal in the Subject Well will enable Applicant to support existing production and future exploration in this area, thereby preventing waste, and will not impair correlative rights.

IT IS THEREFORE ORDERED THAT:

(1) Goodnight Midstream Permian, LLC (the "operator") is hereby authorized to utilize its Sosa SA 17 SWD Well No. 2 (API No. 30-025-Pending; the "Subject Well"), located 470 feet from the South line and 1815 feet from the West line (Unit N) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico, for disposal of Underground Injection Control Class II fluids into the San Andres formation.

(2) Disposal shall be through a perforated interval from 4500 feet to 5350 feet below surface comprising the San Andres formation only. This order does not authorize injection into formations deeper than the San Andres formation. Injection is to occur through 4½-inch, plastic-lined tubing with a packer set within 100 feet above the top perforation of the permitted interval.

(3) The operator shall take all steps necessary to ensure that the disposed water enters only the permitted disposal interval and is not permitted to escape to other formations or onto the surface.

(4) Well construction and testing shall be in accordance with Rule 19.15.16 NMAC and all casing strings shall have cement circulated to surface. If cement does not circulate on any casing string, the operator shall run a cement bond log (CBL) or other log to determine top of cement and shall notify the OCD's District I office with the top of cement on the emergency phone number prior to continuing with any further cement activity with the Subject Well. If cement did not tie back into the next higher casing shoe, the operator shall perform remedial cement job to bring cement, at a minimum, 200 feet above the next higher casing shoe.

(5) After installation of tubing, the casing-tubing annulus shall be loaded with an inert fluid and equipped with a pressure gauge or an approved leak detection device in order to determine leakage in the casing, tubing, or packer. The casing shall be pressure tested from the

surface to the packer setting depth to assure casing integrity.

(6) The operator shall run a mudlog over the approved disposal interval for assessment of the hydrocarbon potential and obtain a water sample for analysis of hydrocarbon content as well as general water chemistry (including major cations, major anions, and Total Dissolved Solids (TDS)). Prior to commencing injection, the operator shall supply the results of the water sample and the mudlog to OCD's District I office and provide a copy of the same submittal to Engineering bureau in the Santa Fe office. *If the analysis of the sample is found to contain a TDS concentration of 10000 mg/L or less, the injection authority under this Order shall be suspended ipso facto.*

(7) The Subject Well shall pass an initial mechanical integrity test ("MIT") prior to commencing disposal and prior to resuming disposal each time the well has significant equipment changes including, but not limited to, the packer being unseated, tubing being pulled, or when casing repairs have occurred. The operator shall notify the OCD's District I office a minimum of 48 hours in advance of the proposed date and time of the modification of disposal equipment and of any MIT test so that the same may be inspected and witnessed. All MIT procedures and schedules shall follow the requirements in Rule 19.15.26.11(A) NMAC.

(8) The operator shall file a Notice of Intent on OCD Form C-103 with the OCD's District I office prior to any testing of the well or for any activities that shall modify the well construction or operation. The operator shall provide written notice of the date of commencement of disposal to the OCD's District I office. The operator shall submit monthly reports of the disposal operations on Form C-115, in accordance with Rules 19.15.26.13 NMAC and 19.15.7.24 NMAC.

(9) If the Subject Well fails a MIT or if there is evidence that the mechanical integrity of said well is impacting correlative rights, the public health, any underground sources of fresh water, or the environment, the Director shall require the Subject Well to be shut-in within 24 hours of discovery and the operator shall redirect all disposal waters to another facility. The operator shall take the necessary actions to address the impacts resulting from the mechanical integrity issues in accordance with Rule 19.15.26.10 NMAC, and the Subject Well shall be tested pursuant to Rule 19.15.26.11 NMAC prior to returning to injection.

(10) Without limitation on the duties of the operator as provided in Rules 19.15.29 NMAC and 19.15.30 NMAC, or otherwise, the operator shall immediately notify the OCD's District I office of any failure of the tubing, casing or packer in the Subject Well, or of any leakage or release of water, oil or gas from around any produced or plugged and abandoned well in the area, and shall take such measures as may be timely and necessary to correct such failure or leakage.

(11) The wellhead injection pressure on the Subject Well shall be limited to **no more than 900 psi**. The disposal well shall be equipped with a pressure limiting device in workable condition which shall, at all times, limit surface tubing pressure to the maximum allowable pressure for this well. The Subject Well shall be included in a Supervisory Control and Data Acquisition (SCADA) system for operation as an injection well.

(12) The Director may authorize an increase in tubing pressure upon a proper showing by the operator of said well that such higher pressure will not result in migration of the disposed fluid from the approved injection interval. Such proper showing shall be demonstrated by sufficient evidence including but not limited to an acceptable Step-Rate Test.

(13) The injection authority granted under this order is not transferable except upon OCD approval. The OCD may require the operator to demonstrate mechanical integrity of any injection well that will be transferred prior to approving transfer of authority to inject.

(14) The OCD may revoke this injection permit after notice and hearing if the operator is in violation of Rule 19.15.5.9 NMAC.

(15) The disposal authority granted herein shall terminate one (1) year after the effective date of this order if the operator has not commenced injection operations into the Subject Well. The OCD, upon written request by the operator prior to the termination date, may grant an extension thereof for good cause.

(16) One (1) year after disposal into the Subject Well has ceased, the well will be considered abandoned and the authority to dispose will terminate *ipso facto* as provided in Rule 19.15.26.12(C) NMAC.

(17) Compliance with this order does not relieve the operator of the obligation to comply with other applicable federal, state or local laws or rules, or to exercise due care for the protection of fresh water, public health and safety and the environment.

(18) Jurisdiction is retained by the OCD for the entry of such further orders as may be necessary for the prevention of waste and/or protection of correlative rights or upon failure of the operator to conduct operations (1) to protect fresh or protectable waters or (2) consistent with the requirements in this order; whereupon the OCD may, after notice and hearing or prior to notice and hearing in event of an emergency, terminate the disposal authority granted herein.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION

ADRIENNE SANDOVAL
Director

SEAL

EXHIBIT 19

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

APPLICATION OF EMPIRE NEW MEXICO LLC TO REVOKE THE INJECTION AUTHORITY GRANTED UNDER ORDER NO. R-22026 FOR THE ANDRE DAWSON SWD #001 OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO **CASE NO. 24018**

APPLICATION

Empire New Mexico LLC ("Empire") respectfully applies for an order revoking the injection authority granted under Order No. R-22026/SWD-2403 in Case No. 21569 ("Order"). In support, Empire states as follows:

1. Goodnight Midstream Permian, LLC ("Goodnight") is the operator of record for the Andre Dawson SWD #1 well, API# 30-025-50634 ("Well"), a produced water disposal well located 1105' FSL and 244' FEL (Unit P) of Section 17, Township 21 South, Range 36 East, in Lea County, NM.

2. The Well is disposing of water within the unitized interval of the Eunice Monument South Unit ("Unit"), which is operated by Empire.

3. The unitized interval of the Unit extends from the top of the Grayburg formation to the bottom of the San Andres formation ("Unitized Interval"). The vertical limits of the Unitized Interval are the same as the vertical limits of the Eunice Monument Grayburg-San Andres Pool covering the Grayburg and San Andres formations.

4. The Well disposes into the San Andres formation between 4,287 feet and 5,590 feet.

5. At the time of the application, Goodnight misrepresented that the San Andres is a non-productive zone known to be compatible with formation water from the Bone Spring, Delaware, and Wolfcamp formations ("Produced Water").

6. However, residual oil zones ("ROZ") are found within the San Andres, and Empire has the right to recover hydrocarbons therein.

7. Moreover, the salinity levels of Produced Water are substantially greater than the salinity levels of water in the Unitized Interval, including the San Andres formation.

8. Goodnight began disposing into the Well on approximately January 18, 2023 and has regularly exceeded the permitted maximum daily disposal rate of 25,000 barrels of water, in violation of the Order. Within the first 166 days of disposal, Goodnight exceeded the permitted daily disposal rate 60 days.

9. Disposal in the Well impairs the ability of Empire to recover hydrocarbons within the Unitized Interval and thereby adversely affects the correlative rights of Empire and other interest owners in the Unit and results in waste.

10. Empire has requested that Goodnight voluntarily cease disposal of produced water in the Well, but as of the date of filing this application, the Well remains an active saltwater disposal well. Rather, Goodnight filed an application to increase the maximum daily disposal rate to 40,000 barrels of water in Case No. 23775, which is currently pending before the Division.

11. Revocation of the disposal authority granted by Order No. R- 22026 will prevent the waste of recoverable hydrocarbons and will protect correlative rights.

WHEREFORE, Empire requests that this case be heard as a status conference on December 7, 2023 and, at that time, be set for a consolidated contested hearing with Case No. 23775.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A.

/s/ Sharon T. Shaheen

Sharon T. Shaheen
Samantha H. Catalano
P.O. Box 2307
Santa Fe, NM 87504-2307
(505) 986-2678
sshaheen@montand.com
scatalano@montand.com
ec: wmcginnis@montand.com

Ernest L. Padilla
PADILLA LAW FIRM
P.O. Box 2523
Santa Fe, NM 87504
(505) 988-7577
padillalawnm@outlook.com

and

Dana S. Hardy
Jackie McLean
HINKLE SHANOR LLP
P.O. Box 2068
Santa Fe, NM 87504-2068
(505) 982-4554
dhardy@hinklelawfirm.com
jmclean@hinklelawfirm.com

Attorneys for Empire New Mexico, LLC

Application of Empire New Mexico LLC to Revoke the Injection Authority Granted Under Order No. R-22026 for the Andre Dawson SWD #001 Operated by Goodnight Midstream Permian LLC, Lea County, New Mexico. Applicant in the above-styled cause seeks an order revoking the injection authority granted by Order No. R-22026, SWD-2403, issued in Case No. 21569 on February 7, 2022, to dispose of produced water in the Andre Dawson SWD #1 well, API# 30-025-50634 ("Well"), a produced water disposal well located 1105' FSL and 244' FEL (Unit P) of Section 17, Township 21 South, Range 36 East, in Lea County, NM. The approved injection zone is the San Andres formation, an interval which is potentially productive of hydrocarbons since the advent of horizontal drilling. The Well is located approximately 6.5 miles Northwest of Eunice City, New Mexico.

EXHIBIT 20

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

APPLICATION OF EMPIRE NEW MEXICO LLC TO REVOKE THE INJECTION AUTHORITY GRANTED UNDER ORDER NO. R-22027 FOR THE ERNIE BANKS SWD NO. 1 WELL OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO

CASE NO. 24019

APPLICATION

Empire New Mexico LLC ("Empire") respectfully applies for an order revoking the injection authority granted under Order No. R-22027 in Case No. 21570 ("Order"). In support, Empire states as follows:

1. Goodnight Midstream Permian, LLC ("Goodnight") is the operator of record for the Ernie Banks SWD No. 1 well, API# 30-025-50633 ("Well"), a produced water disposal well located 395 feet from the North line and 1203 feet from the West line (Unit D) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico.

2. The Well is disposing of water within the unitized interval of the Eunice Monument South Unit ("Unit"), which is operated by Empire.

3. The unitized interval of the Unit extends from the top of the Grayburg formation to the bottom of the San Andres formation ("Unitized Interval"). The vertical limits of the Unitized Interval are the same as the vertical limits of the Eunice Monument Grayburg-San Andres Pool covering the Grayburg and San Andres formations.

4. The Well disposes into the San Andres formation through a perforated interval from 4312 feet to 5615 feet below surface.

5. At the time of the application, Goodnight misrepresented that the San Andres is a non-productive zone known to be compatible with formation water from the Bone Spring, Delaware, and Wolfcamp formations ("Produced Water").

6. However, residual oil zones ("ROZ") are found within the San Andres, and Empire has the right to recover hydrocarbons therein.

7. Moreover, the salinity levels of Produced Water are substantially greater than the salinity levels of water in the Unitized Interval, including the San Andres formation.

8. Further, Goodnight is in violation of the Order for failure to report disposal volumes.

9. Disposal in the Well impairs the ability of Empire to recover hydrocarbons within the Unitized Interval and thereby adversely affects the correlative rights of Empire and other interest owners in the Unit and results in waste.

10. Empire has requested that Goodnight voluntarily cease disposal of produced water in the Well, but as of the date of filing this application, the Well remains an active salt water disposal well.

11. Revocation of the disposal authority granted by Order No. R-22027 will prevent the waste of recoverable hydrocarbons and will protect correlative rights.

WHEREFORE, Empire requests that this case be heard as a status conference on December 7, 2023 and, at that time, be set for a contested hearing on the same docket as Case No. 23775.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A

/s/ Sharon T. Shaheen

Sharon T. Shaheen
Samantha H. Catalano
P.O. Box 2307
Santa Fe, NM 87504-2307
(505) 986-2678
sshaheen@montand.com
scatalano@montand.com
ec: wmcginnis@montand.com

Ernest L. Padilla
PADILLA LAW FIRM
P.O. Box 2523
Santa Fe, NM 87504
(505) 988-7577
padillalawnm@outlook.com

and

Dana S. Hardy
Jackie McLean
HINKLE SHANOR LLP
P.O. Box 2068
Santa Fe, NM 87504-2068
(505) 982-4554
dhardy@hinklelawfirm.com
jmclean@hinklelawfirm.com

Attorneys for Empire New Mexico, LLC

Application of Empire New Mexico LLC to Revoke the Injection Authority Granted Under Order No. R-22027 for the Ernie Banks SWD #001 Operated by Goodnight Midstream Permian LLC, Lea County, New Mexico. Applicant in the above-styled cause seeks an order revoking the injection authority granted by Order No. R-22027, issued in Case No. 21570 on February 7, 2022, to dispose of produced water in the Ernie Banks SWD #1 well, API# 30-025-50633 ("Well"), a produced water disposal well located 395 feet from the North line and 1203 feet from the West line (Unit D) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico. The approved injection zone is the San Andres formation, an interval which is potentially productive of hydrocarbons since the advent of horizontal drilling. The Well is located approximately 8.4 miles Northwest of Eunice City, New Mexico.

EXHIBIT 21

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

APPLICATION OF EMPIRE NEW MEXICO LLC TO REVOKE THE INJECTION AUTHORITY GRANTED BY ADMINISTRATIVE ORDER SWD-2307 FOR THE RYNO SWD #001 F/K/A SNYDER SWD WELL NO. 1 OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO

CASE NO. 24020

APPLICATION

Empire New Mexico LLC ("Empire") respectfully applies for an order revoking the injection authority granted under Administrative Order No. SWD-2307 ("Order"). In support, Empire states as follows:

1. Goodnight Midstream Permian, LLC ("Goodnight") is the operator of record for the Ryno SWD #001 f/k/a Snyder SWD Well No. 1, API# 30-025-43901 ("Well"), a produced water disposal well located 1450 feet from the North line and 708 feet from the East line (Unit H) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico.

2. The Well is disposing of water within the unitized interval of the Eunice Monument South Unit ("Unit"), which is operated by Empire.

3. The unitized interval of the Unit extends from the top of the Grayburg formation to the bottom of the San Andres formation ("Unitized Interval"). The vertical limits of the Unitized Interval are the same as the vertical limits of the Eunice Monument Grayburg-San Andres Pool covering the Grayburg and San Andres formations.

4. The Well disposes into the San Andres formation from 4320 feet to 5625 feet below surface.

5. At the time of the application, Goodnight misrepresented that the San Andres is a non-productive zone known to be compatible with formation water from the Bone Spring, Delaware, and Wolfcamp formations ("Produced Water").

6. However, residual oil zones ("ROZ") are found within the San Andres, and Empire has the right to recover hydrocarbons therein.

7. Moreover, the salinity levels of Produced Water are substantially greater than the salinity levels of water in the Unitized Interval, including the San Andres formation.

8. Disposal in the Well impairs the ability of Empire to recover hydrocarbons within the Unitized Interval and thereby adversely affects the correlative rights of Empire and other interest owners in the Unit and results in waste.

9. Empire has requested that Goodnight voluntarily cease disposal of produced water in the Well, but as of the date of filing this application, the Well remains an active salt water disposal well.

10. Revocation of the disposal authority granted under Administrative Order No. SWD-2307 will prevent the waste of recoverable hydrocarbons and will protect correlative rights.

WHEREFORE, Empire requests that this case be heard as a status conference on December 7, 2023 and, at that time, be set for a contested hearing on the same docket as Case No. 23775.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A

/s/ Sharon T. Shaheen

Sharon T. Shaheen
Samantha H. Catalano
P.O. Box 2307
Santa Fe, NM 87504-2307
(505) 986-2678
sshaheen@montand.com
scatalano@montand.com
ec: wmcginnis@montand.com

Ernest L. Padilla
PADILLA LAW FIRM
P.O. Box 2523
Santa Fe, NM 87504
(505) 988-7577
padillalawnm@outlook.com

and

Dana S. Hardy
Jackie McLean
HINKLE SHANOR LLP
P.O. Box 2068
Santa Fe, NM 87504-2068
(505) 982-4554
dhardy@hinklelawfirm.com
jmclean@hinklelawfirm.com

Attorneys for Empire New Mexico, LLC

Application of Empire New Mexico LLC to Revoke the Injection Authority Granted Under Administrative Order No. SWD-2307 for the Ryno SWD #001 f/k/a Snyder SWD Well Operated by Goodnight Midstream Permian LLC, Lea County, New Mexico. Applicant in the above-styled cause seeks an order revoking the injection authority granted by Administrative Order No. SWD-2307, issued on November 2, 2017, to dispose of produced water in the Ryno SWD #001 f/k/a Snyder SWD Well No. 1, API# 30-025-43901 ("Well"), a produced water disposal well located 1450 feet from the North line and 708 feet from the East line (Unit H) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico. The approved injection zone is the San Andres formation, an interval which is potentially productive of hydrocarbons since the advent of horizontal drilling. The Well is located approximately 7.7 miles Northwest of Eunice City, New Mexico.

EXHIBIT 22

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

APPLICATION OF EMPIRE NEW MEXICO LLC TO REVOKE THE INJECTION AUTHORITY GRANTED UNDER ORDER NO. R-21190 FOR THE SOSA SA 17 NO. 2 WELL OPERATED BY GOODNIGHT MIDSTREAM PERMIAN LLC, LEA COUNTY, NEW MEXICO

CASE NO. 24025

APPLICATION

Empire New Mexico LLC ("Empire") respectfully applies for an order revoking the injection authority granted under Order No. R-21190 in Case No. 20721 ("Order"). In support, Empire states as follows:

1. Goodnight Midstream Permian, LLC ("Goodnight") is the operator of record for the Sosa SA 17 SWD Well No. 2 well, API# 30-025-47947 ("Well"), a produced water disposal well located 470 feet from the South line and 1815 feet from the West line (Unit N) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico.

2. The Well is disposing of water within the unitized interval of the Eunice Monument South Unit ("Unit"), which is operated by Empire.

3. The unitized interval of the Unit extends from the top of the Grayburg formation to the bottom of the San Andres formation ("Unitized Interval"). The vertical limits of the Unitized Interval are the same as the vertical limits of the Eunice Monument Grayburg-San Andres Pool covering the Grayburg and San Andres formations.

4. The Well disposes into the San Andres formation through a perforated interval from 4500 feet to 5350 feet below surface.

5. At the time of the application, Goodnight misrepresented that the San Andres is a non-productive zone known to be compatible with formation water from the Bone Spring, Delaware, and Wolfcamp formations ("Produced Water").

6. However, residual oil zones ("ROZ") are found within the San Andres, and Empire has the right to recover hydrocarbons therein.

7. Moreover, the salinity levels of Produced Water are substantially greater than the salinity levels of water in the Unitized Interval, including the San Andres formation.

8. Further, Goodnight is in violation of the Order by regularly exceeding its maximum daily injection rate of 25,000 BWPD, with 4 months of disposal averaging more than 25,000 BWPD based on their monthly reported volumes. Most recent violations of the maximum daily rates occurred in July and August 2023.

9. Disposal in the Well impairs the ability of Empire to recover hydrocarbons within the Unitized Interval and thereby adversely affects the correlative rights of Empire and other interest owners in the Unit and results in waste.

10. Empire has requested that Goodnight voluntarily cease disposal of produced water in the Well, but as of the date of filing this application, the Well remains an active salt water disposal well.

11. Revocation of the disposal authority granted by Order No. R-21190 will prevent the waste of recoverable hydrocarbons and will protect correlative rights.

WHEREFORE, Empire requests that this case be heard as a status conference on December 7, 2023 and, at that time, be set for a contested hearing on the same docket as Case No. 23775.

Respectfully submitted,

MONTGOMERY & ANDREWS, P.A

/s/ Sharon T. Shaheen

Sharon T. Shaheen
Samantha H. Catalano
P.O. Box 2307
Santa Fe, NM 87504-2307
(505) 986-2678
sshaheen@montand.com
scatalano@montand.com
ec: wmcginnis@montand.com

Ernest L. Padilla
PADILLA LAW FIRM
P.O. Box 2523
Santa Fe, NM 87504
(505) 988-7577
padillalawnm@outlook.com

and

Dana S. Hardy
Jackie McLean
HINKLE SHANOR LLP
P.O. Box 2068
Santa Fe, NM 87504-2068
(505) 982-4554
dhardy@hinklelawfirm.com
jmclean@hinklelawfirm.com

Attorneys for Empire New Mexico, LLC

Application of Empire New Mexico LLC to Revoke the Injection Authority Granted Under Order No. R-21190 for the Sosa SA 17 SWD Well No. 2 Operated by Goodnight Midstream Permian LLC, Lea County, New Mexico. Applicant in the above-styled cause seeks an order revoking the injection authority granted by Order No. R-21190, issued in Case No. 20721 on March 2, 2020, to dispose of produced water in the Sosa SA 17 SWD Well No. 2, API# 30-025-47947 ("Well"), a produced water disposal well located 470 feet from the South line and 1815 feet from the West line (Unit N) of Section 17, Township 21 South, Range 36 East, NMPM, Lea County, New Mexico. The approved injection zone is the San Andres formation, an interval which is potentially productive of hydrocarbons since the advent of horizontal drilling. The Well is located approximately 7.3 miles Northwest of Eunice City, New Mexico.

EXHIBIT 23

MEETING MINUTES
Eunice Monument South Unit
Technical Committee and
Working Interest Owners' Committee

May 10, 1979 - August 25, 1983

EXHIBIT NO. 21
Case No. 8399
November 7, 1984

During the discussion of the vertical interval to be unitized, Mr. Wheeler described the five alternatives which have been investigated by Gulf. The bottom of the interval must be the base of the San Andres formations to include the area's most prolific water production zone, however, the five alternatives for the top of the interval are as follows:

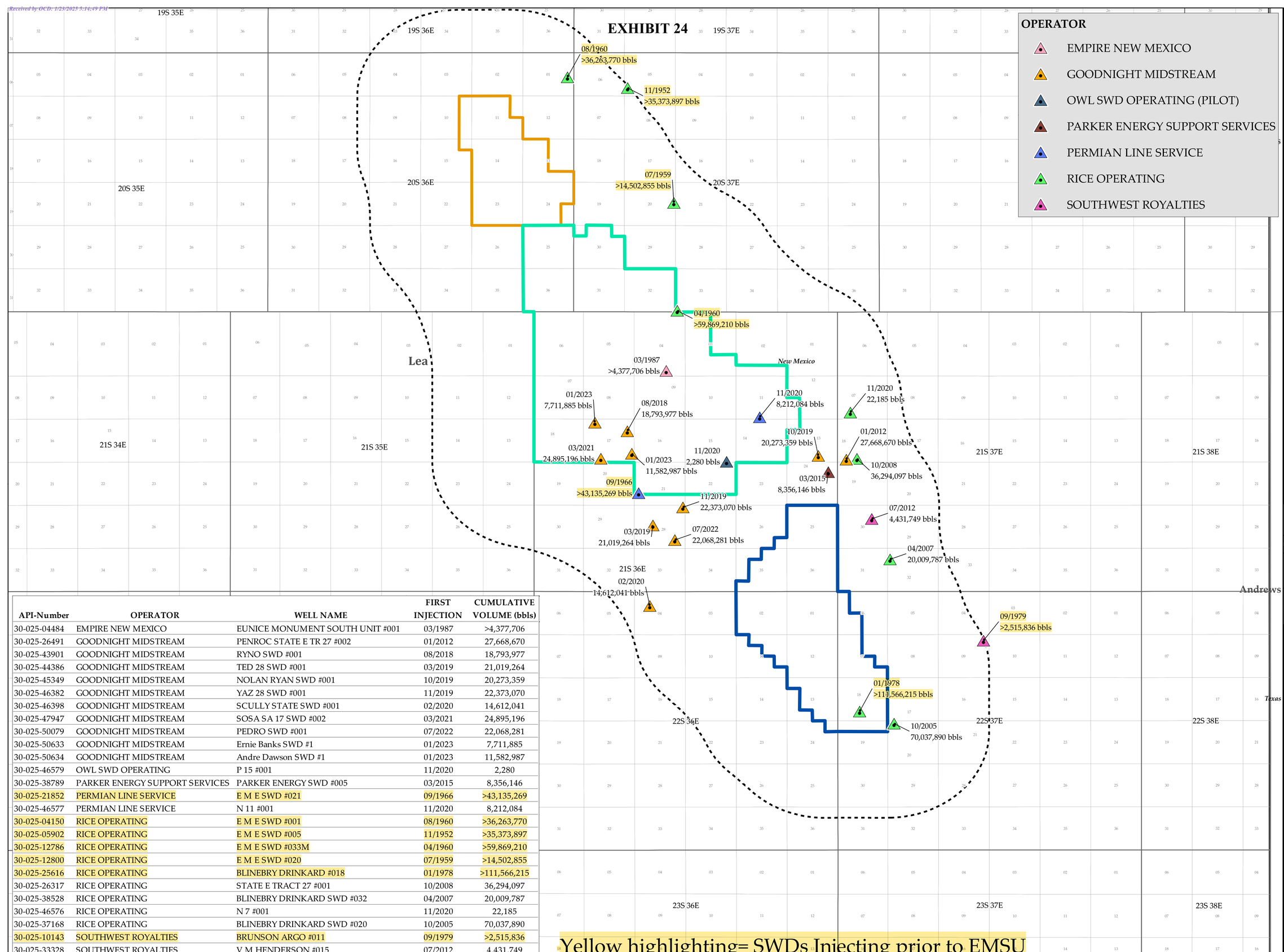
1. Top of the Grayburg Formation
2. Top of the Penrose Formation
3. An intermediate marker between the upper Penrose sand and lower Penrose carbonate section
4. A subsea datum
5. A combination of 1 and 4 (above)

Each alternative has advantages and disadvantages, however, after an extensive analysis of the cross sections from the Unit, Gulf engineers and geologists had concluded that the following vertical limit definition should be proposed to the Working Interest Owners: "The Unitized Interval shall include the formations from a lower limit defined by the base of the San Andres formation, to an upper limit defined by the top of the Grayburg formation or a -100 foot subsea datum, whichever is higher."

The significant advantages of this definition include the following:

1. Includes all known Eumont Oil and Eunice Monument Oil production in the Unit area
2. Excludes most gas well completions in the area
3. Minimizes the number of workovers required to prevent waterflooding non-unitized formations
4. Exposes the total oil productive interval in the Unit area to Waterflood operations

EXHIBIT 24



API-Number	OPERATOR	WELL NAME	FIRST INJECTION	CUMULATIVE VOLUME (bbls)
30-025-04484	EMPIRE NEW MEXICO	EUNICE MONUMENT SOUTH UNIT #001	03/1987	>4,377,706
30-025-26491	GOODNIGHT MIDSTREAM	PENROC STATE E TR 27 #002	01/2012	27,668,670
30-025-43901	GOODNIGHT MIDSTREAM	RYNO SWD #001	08/2018	18,793,977
30-025-44386	GOODNIGHT MIDSTREAM	TED 28 SWD #001	03/2019	21,019,264
30-025-45349	GOODNIGHT MIDSTREAM	NOLAN RYAN SWD #001	10/2019	20,273,359
30-025-46382	GOODNIGHT MIDSTREAM	YAZ 28 SWD #001	11/2019	22,373,070
30-025-46398	GOODNIGHT MIDSTREAM	SCULLY STATE SWD #001	02/2020	14,612,041
30-025-47947	GOODNIGHT MIDSTREAM	SOSA SA 17 SWD #002	03/2021	24,895,196
30-025-50079	GOODNIGHT MIDSTREAM	PEDRO SWD #001	07/2022	22,068,281
30-025-50633	GOODNIGHT MIDSTREAM	Ernie Banks SWD #1	01/2023	7,711,885
30-025-50634	GOODNIGHT MIDSTREAM	Andre Dawson SWD #1	01/2023	11,582,987
30-025-46579	OWL SWD OPERATING	P 15 #001	11/2020	2,280
30-025-38789	PARKER ENERGY SUPPORT SERVICES	PARKER ENERGY SWD #005	03/2015	8,356,146
30-025-21852	PERMIAN LINE SERVICE	E M E SWD #021	09/1966	>43,135,269
30-025-46577	PERMIAN LINE SERVICE	N 11 #001	11/2020	8,212,084
30-025-04150	RICE OPERATING	E M E SWD #001	08/1960	>36,263,770
30-025-05902	RICE OPERATING	E M E SWD #005	11/1952	>35,373,897
30-025-12786	RICE OPERATING	E M E SWD #033M	04/1960	>59,869,210
30-025-12800	RICE OPERATING	E M E SWD #020	07/1959	>14,502,855
30-025-25616	RICE OPERATING	BLINEBRY DRINKARD #018	01/1978	>111,566,215
30-025-26317	RICE OPERATING	STATE E TRACT 27 #001	10/2008	36,294,097
30-025-38528	RICE OPERATING	BLINEBRY DRINKARD SWD #032	04/2007	20,009,787
30-025-46576	RICE OPERATING	N 7 #001	11/2020	22,185
30-025-37168	RICE OPERATING	BLINEBRY DRINKARD SWD #020	10/2005	70,037,890
30-025-10143	SOUTHWEST ROYALTIES	BRUNSON ARGO #011	09/1979	>2,515,836
30-025-33328	SOUTHWEST ROYALTIES	V M HENDERSON #015	07/2012	4,431,749

Yellow highlighting= SWDs Injecting prior to EMSU

OPERATOR

- EMPIRE NEW MEXICO
- GOODNIGHT MIDSTREAM
- OWL SWD OPERATING (PILOT)
- PARKER ENERGY SUPPORT SERVICES
- PERMIAN LINE SERVICE
- RICE OPERATING
- SOUTHWEST ROYALTIES

San Andres SWDs

- AGU Outline
- EMSU Outline
- EMSU -B
- 2 mile buffer

Printed Date: January 13, 2025

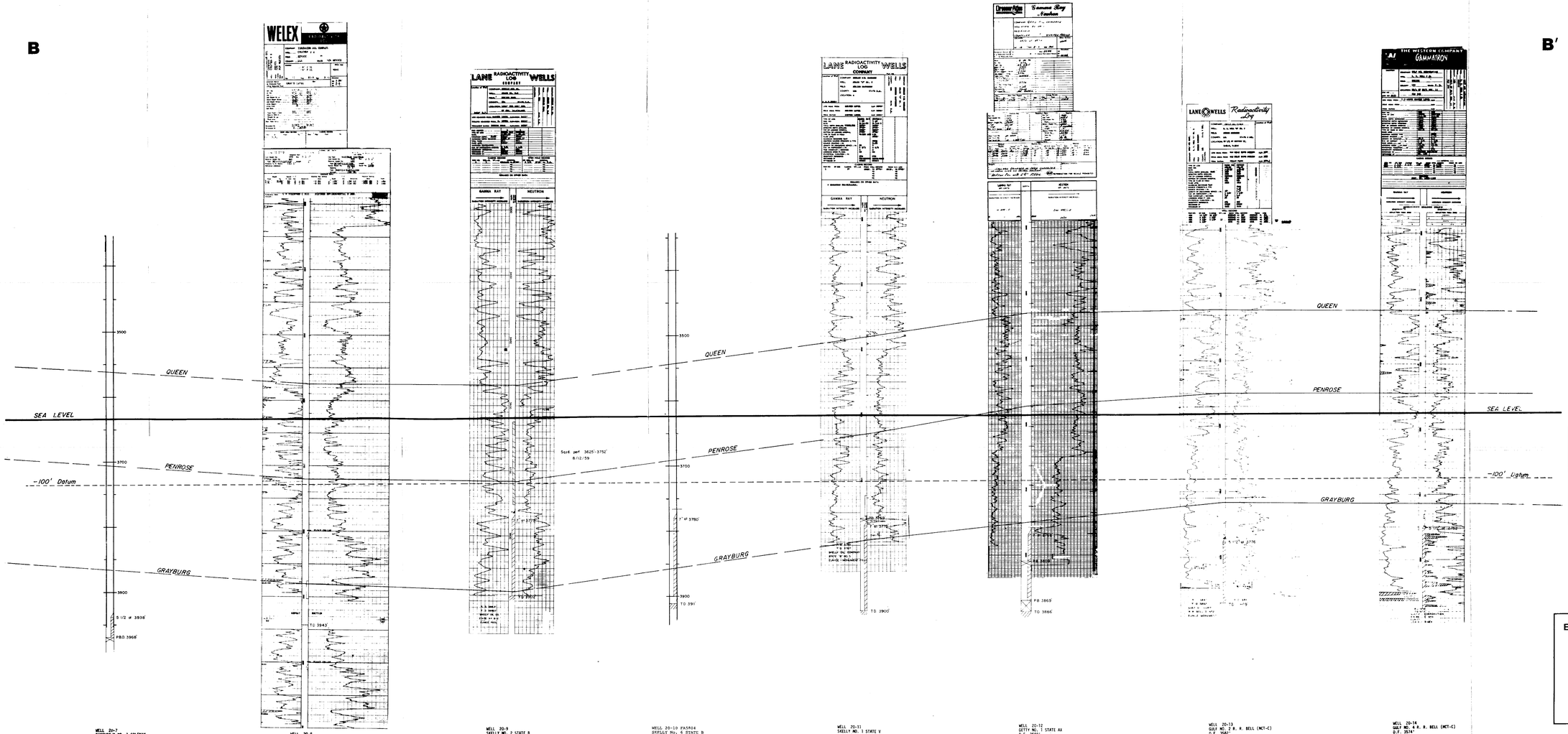
1 in = 1 miles

1 inch = 4,956 feet

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

GOODNIGHT MIDSTREAM
5910 N. CENTRAL EXPWY SUITE 800 | DALLAS, TX 75206

EXHIBIT 25



WELL 20-7
TIDEWATER NO. 1 COLDWAY
D.F. 3634'
T.D. 3968'
5 1/2" CSG @ 3938'
COMP. 10-30-36
O.H. 3887-4047
I.P. 1211 B.O.

WELL 20-8
TIDEWATER NO. 4 COLDWAY
D.F. 3627'
T.D. 3943'
7" CSG @ 3836'
COMP. 1-10-36
O.H. 3836-3943
I.P. 496 B.O. 300 MCFGPD

WELL 20-9
SKELLY NO. 2 STATE B
D.F. 3619'
T.D. 3900'
7" CSG @ 3775'
COMP. 9-1-35
O.H. 3775-3902
I.P. 30 B.O./HR. 1000 MCFGPD

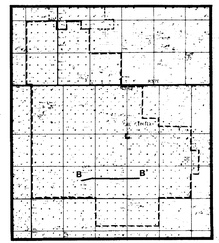
WELL 20-10 FARGO
SKELLY No. 4 STATE B
D. F. 3613'
T. D. 3911'
7"-CSG @ 3785'
COMP. 1-19-36
O.H. 3760-3911
I.P. 444 BO./13½ HRS. 700 MCFGPD

WELL 20-11
SKELLY NO. 3 STATE V
D.F. 3599'
T.D. 3900'
7" CSG @ 3770'
COMP. 12-16-35
O.H. 3770-3900
I.P. 124 B.O./HR. 3000 MCFGPD

WELL 20-12
SKELLY NO. 1 STATE AX
D.F. 3588'
T.D. 3886'
7" CSG @ 3768'
COMP. 2-22-36
O.H. 3768-3886
I.P. 486 B.O./HR

WELL 20-13
GULF NO. 2 H. R. BELL (MCT-C)
D.F. 3582'
T.D. 3869'
5½" CSG @ 3776'
COMP. 4-20-36
O.H. 3776-3869
I.P. 380 B.O./6 HRS. 1250 MCFGPD

WELL 20-14
GULF NO. 4 H. R. BELL (MCT-C)
D.F. 3574'
T.D. 3879'
5½" CSG @ 3758'
COMP. 7-17-37
O.H. 3758-3879
TREATED W/2000# A.
I.P. 906 B.O./6 HRS. B.H. 1224 MCFGPD



EUNICE MONUMENT SOUTH UNIT
CROSS SECTION B-B'

50
30
10
0 100 200 300
Scale In Feet

Figure 108

EXHIBIT 26

1457 June 1967 25

IMPORTANT—READ INSTRUCTIONS ON BACK BEFORE FILLING OUT THIS FORM

NOTICE OF INTENTION

Trn #602475

TO DRILL OR RECOMPLETE A WELL PURSUANT TO CHAPTER 86 OF THE SESSION LAWS OF 1967

CAPITAN

Basin Name

File No. CP-697 Date Received February 3, 1986

1. Name of Appropriator Chevron U.S.A. Inc.

Mailing Address P.O. Box 670

City and State Hobbs, NM 88240

2. Source of water supply (aquifer) San Andres at a depth of ~~4000-~~ 5000 feet

located in the Capitan Underground Water Basin.

3. Quantity of water to be appropriated 565 acre feet per annum.

4. Purpose of use: Reinject for secondary oil recovery in the Eunice Monument South Unit.

5. Description of well: Eunice Mounment South Unit #459
1420' FSL & 1220' FEL

(a) Location: *~~SW~~ NW ¼ NE ¼ SE ¼, Section 4 Township 21S Range 36E N.M.P.M., on land owned by Millard Deck Estate

(b) Depth to be drilled or recompleted 5000' feet.

(c) Driller: Not Available

(d) Date work is to be commenced: Upon Application Approval

(e) Proposed casing and cementing program:

Hole Size	Casing Diameter	Casing Weight	Casing From	Casing To	Perforations From	Perforations To	Top Cement
20"	16"	65#	0	400			Surface
14 3/4"	11 3/4"	47#	0	2800			Surface
10 5/8"	8 5/8"	32#	0	5000	4200	5000	2800

6. If appropriation is to be for waterflooding purposes, give date Oil Conservation Commission approved application to water flood December 27, 1984.

7. Additional statements or explanations (including data on any other water right appurtenant to same use as proposed herein)

I, P.H. Briley,Jr., affirm that the foregoing statements are true to the best of my knowledge and belief.

Chevron U.S.A. Inc., Appropriator

By: P.H. Briley Jr.

*A.S → Amended according to AOP dated August 21, 28 and September 14, 1988

POD Renumbered
From: CP-697
To: CP-697-POD1

CLOW Filed

This one not drilled

INSTRUCTIONS

1. Notice of Intention shall be completed in triplicate and filed with a $5.00 filing fee to the appropriate office of the State Engineer. A separate form shall be completed and separate filing fee submitted for each well to be drilled or re-completed.

2. The driller of the well must be a driller licensed and bonded by the State Engineer under New Mexico Statutes 75–11–13 through 75–11–18. It shall be the responsibility of the driller to file a log of the well and the actual casing and cementing program from ground surface to the producing aquifer in the office of the State Engineer within 10 days after completion.

3. A totalizing meter approved by the State Engineer shall be installed on the discharge line before the first branch line prior to the appropriation of water, and pumping records for the three preceding calendar months and chemical analysis of the water produced on a date specified within said three month period shall be submitted to the District Supervisor on the 10th day of January, April, July and October of each year.

4. Volume of water must be expressed in acre feet: 1 acre foot equals 7,758 barrels; 1 barrel equals 42 gallons.

Correspondence should be addressed to the State Engineer at the appropriate office:

Rio Grande, Bluewater, Sandia and Estancia Basins,
District No. 1, 505 Marquette, N.W., Room 1023,
Albuquerque, New Mexico 87106.

Portales, Roswell, Penasco,
Capitan, Jal and Ft. Sumner Basins, District No. 2,
Box 1717, Roswell, New Mexico 88201.

Mimbres, Hot Springs, Virden, Ver, Animas, Playas,
Gila–San Francisco, San Simon, Lordsburg and Nutt–Hockett
Basins, District No. 3, Box 844, Deming, New Mexico 88030.

Transaction Summary

COWNF Change of Ownership Full

Transaction Number:	767616	**Transaction Desc:**	CP 00697	**File Date:**	2024-05-22
Primary Status:	CHG Change of Ownership				
Secondary Status:	PRC Processed				
Person Assigned:	*******				
Applicant:	EMPIRE NEW MEXICO LLC				
Contact:	MICHAEL R. MORRISETT				

Events

Event Images	Date	Type	Description	Comment	Processed By
get images	2024-05-22	APP	Application Received	*	*******
	2024-05-22	FTN	Finalize non-published Trans.		*******
	2024-10-04	QAT	Quality Assurance Completed	SQ2	*******
	2024-10-09	QAT	Quality Assurance Completed	IMAGE	*******
	2024-10-09	ARW	WRAB Main File Rm Arch Sect	CP 00697 Archived	*******

Water Right Information

WR File Nbr	Acres	Diversion	Consumptive	Purpose of Use
CP 00697	0.000	0.000		SRO SECONDARY RECOVERY OF OIL