

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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APPLICATION OF ANADARKO PRODUCTION )  
COMPANY FOR APPROVAL OF THE UNIT )  
AGREEMENT AND UNITIZED WATERFLOOD )  
OPERATIONS IN THE FAR WEST LOCO HILLS )  
SAND UNIT, EDDY COUNTY, NEW MEXICO )

Case No. 3988

A P P L I C A T I O N

COMES NOW Anadarko Production Company, hereinafter referred to as "Applicant," and in support of this Application states:

1. Applicant is a corporation, duly organized and existing under the laws of the State of Delaware, and authorized to do business in the State of New Mexico. Applicant's principal office and post office address is Post Office Box 9317, Fort Worth, Texas.

2. Applicant and others have entered into a Unit Agreement and Unit Operating Agreement for the Far West Loco Hills Sand Unit, Eddy County, New Mexico, a copy of which is attached to this Application as Exhibit I. The purpose of such agreements is to provide for unitized waterflood operations in the Loco Hills Sand, which is a member of the Grayburg formation of the Guadalupe series of the Permian system, which formation is approximately 2480 feet below the surface in the Unit Area. The Unitized Formation is also known as the Grayburg No. 4 Sand.

3. The Unit Area covers the following described land, all in T18S, R29E, Eddy County, New Mexico:

- Tract 1 S/2 NE/4 Section 4
- Tract 2 NW/4 NE/4 and SW/4 NW/4 Section 16
- Tract 3 NE/4 NW/4 Section 16
- Tract 4 SE/4 NW/4 Section 16
- Tract 5 NW/4 NW/4 Section 16
- Tract 6 NE/4 NE/4 Section 16
- Tract 7 S/2 NE/4 Section 16
- Tract 8 W/2 SE/4 and E/2 SW/4 Section 4
- Tract 9 S/2 NW/4 and NE/4 NW/4 Section 9
- Tract 10 N/2 SW/4 Section 9
- Tract 11 S/2 SW/4 Section 9

All working interest owners under all tracts have signed the Unit Agreement and Unit Operating Agreement. Basic lease, royalty and working interest owner information, together with individual tract participation, are all contained in Exhibit "B" to the Unit Agreement attached as Exhibit I and reference is hereby made thereto. As shown therein, the Federal Government owns the fee title to Tract No. 1. The fee title to Tracts 2, 3, 4, 5, 6, and 7 is in the State of New Mexico. Tracts 8, 9, 10, and 11 are owned by individuals. Ratifications of the Unit Agreement by all royalty interest, overriding royalty and oil payment interest owners have been obtained with the exception of the following:

- a) Preliminary approval has been obtained from the Commissioner of Public Lands of the State of New Mexico and from the United States Geological Survey. Application for final approval will be made upon receipt of the orders requested herein.
- b) W. D. Brookover, Sr. has not ratified with respect to his overriding royalty on Tract 8.
- c) The following overriding royalty owners have not ratified with respect to Tract 11:

Alex S. Emmons  
James D. Lumpkin  
Taylor Holdings, Ltd.  
George S. Todd.

*Robert W. ...*  
*George S. Todd*

From the foregoing, it appears that a sufficient percentage of the working, royalty, and overriding royalty interests have approved the Unit Agreement for it to become effective by its terms, once final approval is obtained from the State Commissioner of Public Lands and the United States Geological Survey.

4. Applicant is designated as the Unit Operator in the Unit Operating Agreement and, as such, is given the authority to develop and operate the Unit Area for the production of Unitized Substances.

5. The Unit Agreement is in substantially the same form as unit agreements heretofore approved by the Commissioner of Public Lands, the New Mexico Oil Conservation Commission, and the United States Geological Survey. Applicant believes, and therefore alleges, that secondary recovery operations can be more economically and efficiently conducted under the terms of the Unit Agreement, and that such operations will be in the interest of conservation of oil and the prevention of waste.

6. Oil production from the Unit Area has declined to the point that the wells are in an advanced stage of depletion and are regarded as what is commonly referred to as "stripper" wells. Approval of a unit agreement for the area immediately adjacent to the east of the Unit Area was previously granted by Order No. R-2166 of this Commission. Waterflood operations of such immediately adjacent area were authorized and implemented by Order Nos. R-2178, R-2178-B, R-2178-C, R-2829, R-2933, R-3204, and R-3375.

7. An engineering appraisal of the waterflood potential for the Unit Area has been prepared and is attached hereto as Exhibit II. This study indicates both the need and economic feasibility for a secondary recovery waterflood operation in the Unit Area.

8. Applicant desires to initiate a waterflood project to inject fresh and produced water into the following described wells at the following described locations within the Unit Area:

<u>Well Number</u>	<u>Location</u>
8-8	1 10' NSL and 2630' WEL, Section 4 <i>new</i>
2-3	1 330' SNL and 1980' WEL, Section 16 <i>ST.</i>
1-1	1 2310' SNL and 330' WEL, Section 4 <i>new</i>
<del>6-2</del>	<del>1 1310' SNL and 10' WEL, Section 4</del>
10-2	1 1650' NSL and 2310' EWL, Section 9 <i>new</i>
8-9	2 1330' NSL and 2630' WEL, Section 4 <i>new</i>
10-3	2 1330' NSL and 10' EWL, Section 9 <i>new</i>
8-10	2 2310' NSL and 1650' EWL, Section 4 <i>new</i>
5-1	2 660' SNL and 660' EWL, Section 16 <i>new</i>
9-5	2 1650' SNL and 330' EWL, Section 9 <i>new</i>
	<i>1650' EWL + 2000' EWL + 16-2000'</i>

~~Five~~ <sup>4</sup> of the proposed injection wells (2-3, ~~6-2~~, 8-8, 8-9, and 10-3)

are not presently in existence and must be drilled with the proposed locations of wells ~~6-2~~, 8-8, 8-9, and 10-3 unorthodox or non-standard. Approval of the locations and authority to drill are requested herein on the basis that the plan is the most economical and efficient method of operation of the waterflood and necessary to complete an efficient water injection and oil production pattern.

9. Applicant and Newmont Oil Company, as operator of the West Loco Hills Grayburg No. 4 Sand Unit, have tentatively agreed upon a cooperative lease line development agreement between the units. Applicant understands Newmont will make a separate application with respect to its obligations and proposed operations completing its waterflood development.

10. Applicant plans to initiate waterflooding in two stages. The first stage, which will commence as soon as possible after the effective date of the formation of the Unit, will involve injection into the following unit wells: 1-1, 2-3, ~~6-2~~, 8-8, and 10-2. The second stage of water injection, which is proposed to commence approximately nine months after the first stage, will involve injection into the remaining wells set out in paragraph 8. Authority is therefore requested for establishment of an administrative procedure whereby wells may be converted to or drilled for injection by stages, rather than after experiencing substantial response to water injection as required by Rule 701 E 5.

11. Exhibit III attached hereto is a data sheet giving pertinent information with respect to the proposed waterflood project as required by Rule 701 B 4. Exhibit IV attached hereto is a Gamma Ray-Neutron log of the Anadarko Production Company H. G. Watson Well No. 2, to be known as Unit Well No. 8-7, located in the SW/4 SE/4, Section 4-T18S-R29E, showing the stratigraphic position of the Unitized Formation, as required by Rule 701 B 2.

12. Exhibit V attached hereto is a diagrammatic sketch of the proposed completion of a typical water injection well to be converted from producing status, and Exhibit VI attached hereto is a diagrammatic sketch of the proposed completion of a typical water injection well to be drilled, as required by Rule 701 B 3.

13. Attached hereto as Exhibit VII is a map of the Unit Area showing the proposed waterflood development of the Unitized Formation and Exhibit VIII attached hereto is a map of the Unit Area and surrounding area within a two-mile radius, as required by Rule 701 B 1.

14. Applicant alleges that the proposed waterflood operation will prevent the premature abandonment of wells, will result in increased ultimate recovery of oil, and thus will prevent waste.

15. Applicant requests that all producing wells in the Unit Area be operated and produced in accordance with the allowable provisions of Rule 701 E of the Commission's Rules and Regulations.

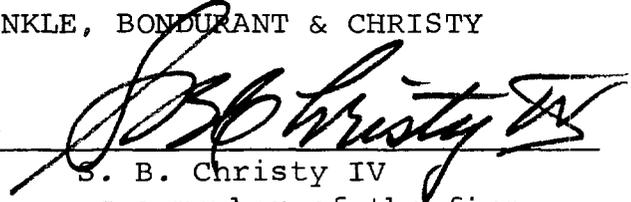
WHEREFORE, Applicant requests that the necessary notice be given and this matter be set for hearing, and that following such hearing the Commission approve the Unit Agreement and unitized waterflood operations in the Far West Loco Hills Sand Unit, Eddy County,

New Mexico, as herein requested, and for such other and further relief as may seem just and equitable in the premises.

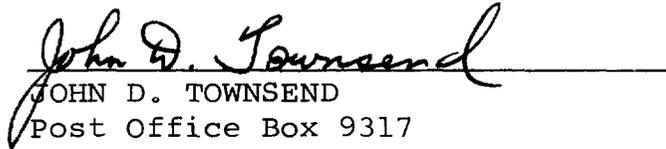
Respectfully submitted,

HINKLE, BONDURANT & CHRISTY

By



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DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 11, 1968

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,  
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

The following cases will be heard before ELVIS A. UTZ, EXAMINER, or DANIEL S. NUTTER, ALTERNATE EXAMINER:

- CASE 3984: Application of Gulf Oil Corporation for commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Penrose Skelly Pool and the Paddock Pool in the well-bore of its J. N. Carson (NCT-C) Well No. 9 located in Unit I of Section 28, Township 21 South, Range 37 East, Lea County, New Mexico, with the provision that no more than one allowable will be produced from said well.
- CASE 3985: Application of Midwest Oil Corporation for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4048 feet to 4218 feet in its Morgan-Federal Tract 4 Well No. 5 located in Unit I of Section 12, Township 7 South, Range 33 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.
- CASE 3986: Application of Bell Petroleum Company for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4224 feet to 4447 feet in its State "5" Well No. 3 located in Unit J of Section 5, Township 9 South, Range 32 East, South Button Mesa-San Andres Pool, Lea County, New Mexico.
- CASE 3987: Application of Union Texas Petroleum Corporation for salt water injection, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to inject produced salt water into the Seven Rivers formation in the open-hole interval from approximately 3421 feet to 3520 feet in its Wells lease Well No. 4 located in Unit D of Section 5, Township 25 South, Range 37 East, Langlie-Mattix Pool, Lea County, New Mexico.
- CASE 3988: Application of Anadarko Production Company for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Far West Loco Hills Sand Unit Area comprising 840 acres, more or less, of Federal, State and fee lands in Sections 4, 9, and 16, of Township 18 South, Range 29 East, Loco Hills Pool, Eddy County, New Mexico.

- CASE 3989: Application of Anadarko Production Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in its Far West Loco Hills Unit Area by the injection of water into the Grayburg formation through 10 wells located in Sections 4, 9, and 16 of Township 18 South, Range 29 East, Loco Hills Pool, Eddy County, New Mexico.
- CASE 3990: Application of Roger C. Hanks, Ltd., for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres and Glorieta formations in the perforated and open-hole interval from approximately 4500 feet to 6600 feet in its C. O. Drew Well No. 1 located in Unit J of Section 18, Township 8 South, Range 34 East, Milnesand Field, Roosevelt County, New Mexico.
- CASE 3991: Application of Roger C. Hanks, Ltd., for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the lower Devonian formation in the open-hole interval from approximately 10,835 feet to 10,965 feet in its Gulf State Well No. 1 located in Unit A of Section 11, Township 10 South, Range 32 East, Mescalero Field, Lea County, New Mexico.
- CASE 3992: Application of Roger C. Hanks, Ltd., for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 5150 feet to 5250 feet in its Mobil Federal Well No. 1 located in Unit E of Section 28, Township 8 South, Range 36 East, South Prairie Field, Roosevelt County, New Mexico.
- CASE 3973: (Readvertised)
- Application of Taylor Pruitt for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 4086 to 4455 feet in the Humble Federal Well No. 5 located in Unit B of Section 26, Township 7 South, Range 32 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico.

CASE 3993: Application of Coastal States Gas Producing Company for the creation of a new oil pool and for special pool rules, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new Pennsylvanian oil pool to be designated the North Baum-Upper Pennsylvanian Pool comprising the following-described lands:

Township 13 South, Range 33 East, Lea County, N. Mex.

Section 19: E/2

Section 20: NW/4 and S/2

Section 21: SW/4

and for the promulgation of temporary special rules therefor, including a provision for 160-acre spacing and proration units and the assignment of 80-acre allowables.

Applicant further seeks the contraction of the Lazy J-Pennsylvanian Pool by the deletion from said pool of the E/2 of Section 20 and the W/2 and SE/4 of Section 21, both in Township 13 South, Range 33 East, Lea County, New Mexico.

CASE 3994: Application of Kennedy Oil Company for an amendment to Order No. R-2752, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the amendment of Order No. R-2752, which authorized a waterflood project in the Square Lake Pool, Eddy County, New Mexico, to delete the water injection well previously authorized in Unit L of Section 20, Township 16 South, Range 31 East, and to authorize in lieu thereof a well in Unit K of said Section 20.

CASE 3995: Application of Continental Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle, by means of dual-flow downhole choke equipment, production from the Maljamar-Abo Pool and the Baish-Wolfcamp Pool in the wellbores of its Baish "A" Wells Nos. 12 and 13 located, respectively, in Unit A of Section 21 and Unit E of Section 22, both in Township 17 South, Range 32 East, Lea County, New Mexico, with the provision that no more than one single allowable be produced from each of said wells.