

CALUMET RANCH UNIT

Geological Report

Chaves County  
New Mexico

BEFORE EXAMINER STAMETS OIL CONSERVATION COMMISSION
EXHIBIT NO. <u>1</u>
CASE NO. <u>6154</u>
Submitted by <u>Reed + Stearns, Inc</u>
Hearing Date <u>2-22-78</u>

February 1, 1978

CALUMET RANCH UNIT

Chaves County, New Mexico

The Calumet Ranch Unit, as proposed, is based upon the development of Lower Pennsylvanian sandstones which exhibit lithologic and geologic environmental similarity to the highly productive gas-condensate reservoir in the Buffalo Valley Penn field of Chaves County.

The proposed unit covers nine (9) sections in T12S-R27E., including sections 15, 16, 17, 20, 21, 22, 17, 28, and 29. Throughout this area the surface is composed of redbeds and gypsum outcroppings of the Yates-Seven Rivers formations, and Quaternary soils developed thereon. The only surface use of the land is for grazing cattle. Some shallow fresh waters are present in the proposed unit area, but normally do not exist below about 100 feet from the surface.

The prospective horizons are considered to be mainly the Pennsylvanian sandstones of Strawn and Atoka (?) age which overlie the Mississippian Limestone.

While the prospect is controlled by structure and stratigraphic data from numerous deep test surrounding the prospect area, three test in particular are of greatest significance in delineation of the prospective area. These three tests are:

Humble #1 State Y	Sec. 33, T11S-R27E
Humble #1 State U	Sec. 10, T12S-R27E
Gibson #1 Humble State	Sec. 12, T12S-R27E.

The stratigraphic environment in the Buffalo Valley Penn field, approximately 14 miles south, was one of basal Pennsylvanian sandstones having been deposited on the down side of a northeast-southwest trending fault. The sands on the up-side of the fault are very thin to absent, and effectively non-porous. The thick sands on the down-side of the fault are intercalated with richly organic shales which form both the source rocks and the seal rock on the reservoir.

The Calumet Ranch prospect, comparing the Humble #1 State Y and the Humble #1 State U tests, has developed a similar stratigraphic relationship. Sands are developed in the #1 State U which are absent in the #1 State Y on the uplifted block. Figure 1, a diagrammatic cross section, shows the relationship of the wells to the fault across the northern end of the prospective area. The fault forms the northwest boundary of the prospective area.

Figure 2 is a structure contour map on the "Devonian" formation. Several wells to the northeast and the southwest lend additional subsurface control for the development of the data shown. The thickness of the overlying formations and the availability of aerial magnetic data over the proposed unit area allow development of the projected subsurface closure at the "Devonian" level. Additionally, seismic data is available to the immediate northeast to assist in delineating the trend (and presence) of the projected fault. A closure can be mapped in Section 21 at the shallow Queen level and is strong evidence to support the broader closure shown on Figure 2.

While the primary horizon is the lower sands of the Pennsylvanian formation, the supporting subsurface contour map is on the deeper "Devonian" horizon. This is due to the fact that the "Devonian" is the closest horizon to which we can readily tie the seismic data to the northeast, and it is the best defined mapping horizon in the subsurface. Zones within the Pennsylvanian are discontinuous and non-correlative.

Clear, white, coarse-grained sandstone was logged in both the Humble #1 State U and the Gibson #1 Humble State. We know therefore that the sands are present on the down-side of the fault and are absent on the up-side in the Humble #1 State Y. Drill stem tests were run on both the #1 State U and the #1 Humble State tests about 30 to 40 feet below the sands. Only a small amount of drilling fluid was recovered on each test. This suggests the sands, which are difficult to recover from the hole during drilling, may have exhibited some show in the cuttings. No gas detectors were used while drilling these tests.

The potentially productive area in the Pennsylvanian is estimated to coincide with the -3500 contour on Figure 2. At that horizon water was recovered in the Gibson #1 Humble State and farther down-dip Devonian development could not be expected. It is anticipated that trapping in the Pennsylvanian sands will be enhanced by the closure which should conform quite closely to the Devonian closure.

Shallow potential is present in the San Andres dolomite. Several wells have been drilled and have recorded shows of oil in the San Andres. One well has been completed in the San Andres (660' FNL & FWL of Section 27) within the proposed unit outline. This well is non-commercial and is not believed producing or active. This well would also be excluded as a unit well.

Additional potential is present in the Devonian, Montoya and Ellenberger.

The initial test will penetrate the Mississippian (Barnett shale) or reach a depth of 6,700 feet. This is believed sufficient to test the lower sands of the Pennsylvanian at an initial location in either the S/2 of Section 21, or the N/2 of Section 28.

Respectfully submitted,



Kay C. Havenor  
Geologist

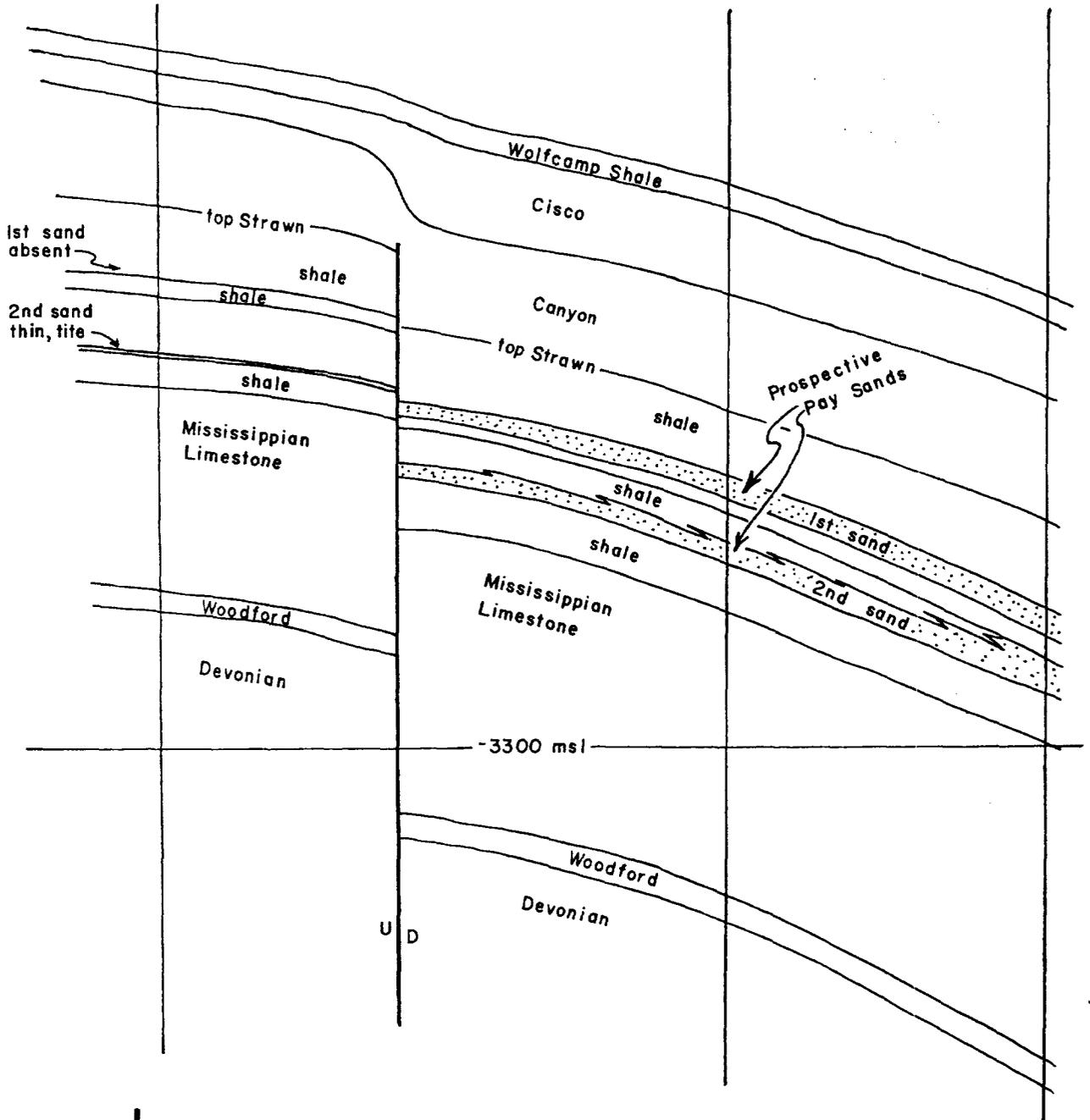
NW

SE

Humble  
State Y  
33-IIS-27E

Humble  
State U  
10-12S-27E

Gibson  
Humble  
12-12S-27E



CALUMET RANCH PROSPECT

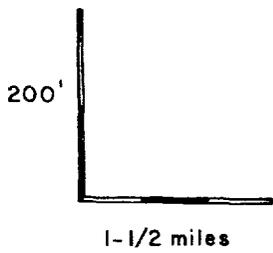
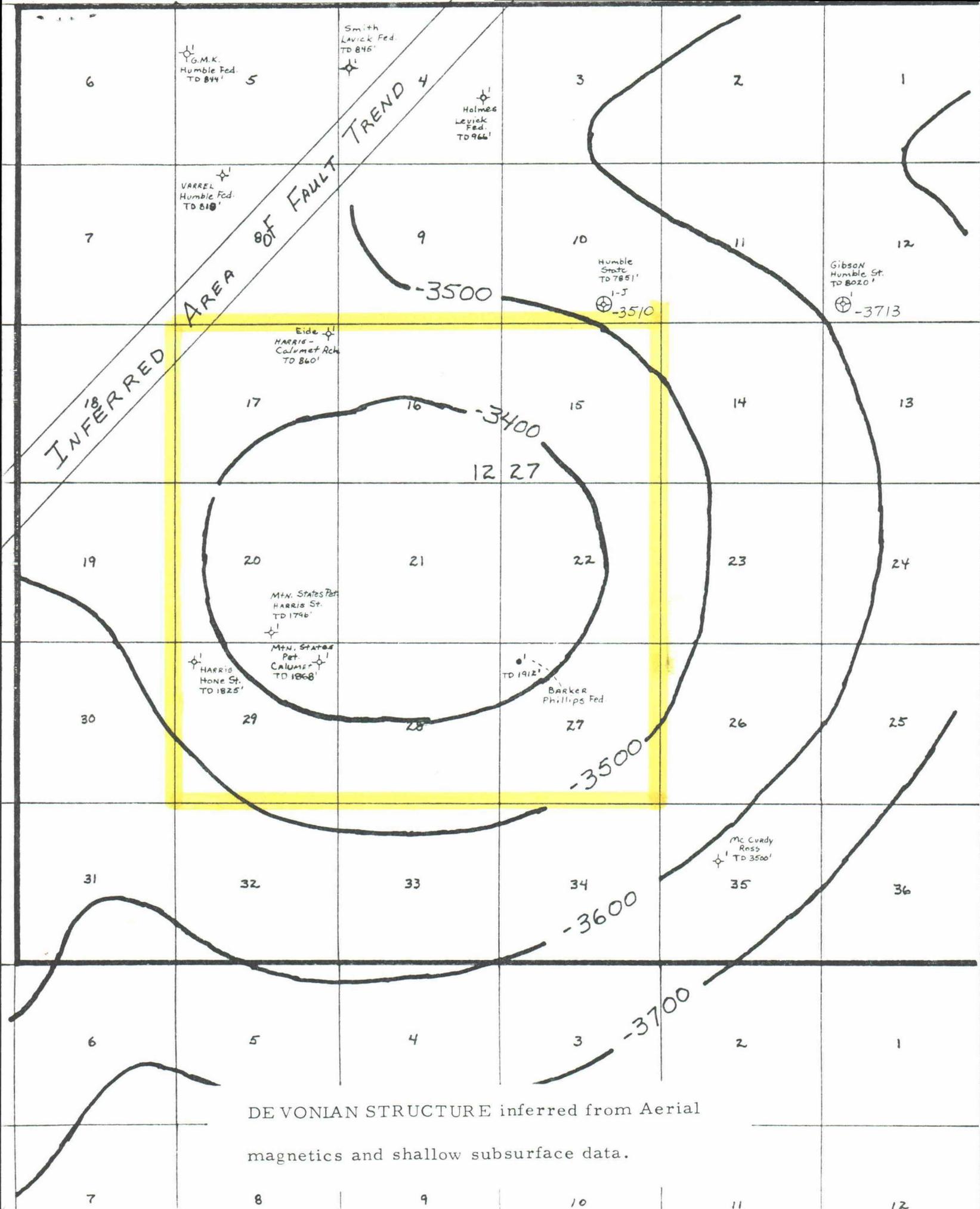


Fig. 1



DEVONIAN STRUCTURE inferred from Aerial magnetics and shallow subsurface data.



# United States Department of the Interior

GEOLOGICAL SURVEY

P. O. Box 26124  
Albuquerque, New Mexico 87125

MAR 14 1978

Randolph M. Richardson, III  
P. O. Box 819  
Roswell, New Mexico 88201

Gentlemen:

One approved copy of the Calumet Ranch unit agreement, Chaves County, New Mexico, with Read and Stevens, Inc. as unit operator is returned herewith. Such agreement has been assigned No. 14-08-0001-16900, and is effective as of the date of approval.

You are requested to furnish the New Mexico Oil Conservation Commission and all other interested principals with evidence of this approval.

Sincerely yours,

GENE F. DANIEL  
Acting Area Oil & Gas Supervisor

Enclosure

CERTIFICATION--DETERMINATION

Pursuant to the authority vested in the Secretary of Interior, under the act approved February 25, 1920, 41 Stat. 437, as amended, 30 U. S. C. secs. 181, et seq., and delegated to the Oil and Gas Supervisors of the Geological Survey (33 F.R. 5812), I do hereby:

A. Approve the attached agreement for the development and operation of the Calumet Ranch Unit Area, State of New Mexico, County of Chaves.

B. Certify and determine that the unit plan of development and operation contemplated in the attached agreement is necessary and advisable in the public interest for the purpose of more properly conserving the natural resources.

C. Certify and determine that the drilling, producing, rental, minimum royalty, and royalty requirements of all Federal leases committed to said agreement are hereby established, altered, changed, or revoked to conform with the terms and conditions of this agreement.

Dated MAR 14 1978.

Gene A. Daniel  
Oil and Gas Supervisor, United States Geological Survey

Contract Number 14-08-0001-16900

2711

THIS AGREEMENT  
FOR THE DEVELOPMENT AND OPERATION  
OF THE  
CALUMET RANCH UNIT  
COUNTY OF CHAVES  
STATE OF NEW MEXICO  
NO. \_\_\_\_\_

THIS AGREEMENT, entered into as of the 25th day of January,  
1978, by and between the parties subscribing, ratifying, or consenting hereto,  
and herein referred to as the "parties hereto,"

W I T N E S S E T H :

WHEREAS, the parties hereto are the owners of working, royalty, or other  
oil and gas interests in the unit area subject to this agreement; and

WHEREAS, the Mineral Leasing Act of February 25, 1920, 41 Stat. 437, as  
amended, 30 U. S. C. Secs. 181 et seq., authorizes Federal leasees and their re-  
presentatives to unite with each other, or jointly or separately with others, in  
collectively adopting and operating a cooperative or unit plan of development or  
operation of any oil or gas pool, field, or like area, or any part thereof for the  
purpose of more properly conserving the natural resources thereof whenever determined  
and certified by the Secretary of the Interior to be necessary or advisable in the  
public interest; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is  
authorized by an Act of the Legislature (Sec. 7-11-29 N.M. Statutes 1953 Annotated)  
to consent to or approve this agreement on behalf of the State of New Mexico, insofar  
as it covers and includes land and mineral interest of the State of New Mexico; and,

WHEREAS, the Oil Conservation Commission of the State of New Mexico is author-  
ized by an Act of the Legislature (Chapter 72, Laws of 1939, as amended by Chapter  
193, Laws of 1937; Chapter 107, Laws of 1941; and Chapter 108, Laws of 1948) to ap-  
prove this agreement and the regulations provided hereof; and,

WHEREAS, the parties hereto own beneficial interests in the \_\_\_\_\_  
Calumet Ranch Unit Area covering the land hereinafter des-  
cribed to give reasonably efficient control of operations therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources,  
prevent waste, and secure the maximum ultimate recovery through development and operation  
of the area subject to this agreement under the terms, conditions, and limitations

herein set forth;

NOW, THEREFORE, in consideration of the premises and the promises herein contained, the parties hereto commit to this agreement their respective interests in the below-defined unit area, and agree severally among themselves as follows:

1. ENABLING ACT AND REGULATIONS. The Mineral Leasing Act of February, 25, 1920, as amended, supra, and all valid pertinent regulations, including operating and unit plan regulations, heretofore issued thereunder or valid, pertinent, and reasonable regulations hereafter issued thereunder are accepted and made a part of this agreement as to Federal lands, provided such regulations are not inconsistent with the terms of this agreement; and as to non-Federal lands, the oil and gas operating regulations in effect as of the effective date hereof governing drilling and producing operations, not inconsistent with the terms hereof or the laws of the State in which the non-Federal land is located, are hereby accepted and made a part of this agreement.

2. UNIT AREA. The following described land is hereby designated and recognized as constituting the unit area:

T-12-S, R-27-E, NMPM  
Secs. 15, 16, 17; All  
Secs. 20, 21, 22; All  
Secs. 27, 28, 29; All

Containing 5,760.00 acres,  
more or less

Exhibit "A" attached hereto is a map showing the unit area and the boundaries and identity of tracts and leases in said area to the extent known to the Unit Operator. Exhibit "B" attached hereto is a schedule showing to the extent known to the Unit Operator the acreage, percentage, and kind of ownership of oil and gas interests in all land in the unit area. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. Exhibits "A" and "B" shall be revised by the Unit Operator whenever changes in the unit area render such revision necessary when requested by the Oil and Gas Supervisor, hereinafter referred to as "Supervisor," or when requested by the Commissioner of Public Lands of the State of New Mexico,

hereinafter referred to as "Land Commissioner," and not less than five (5) copies of the revised Exhibits shall be filed with the Supervisor and one (1) copy thereof shall be filed with the Land Commissioner, and one (1) copy with the New Mexico Oil Conservation Commission, hereinafter referred to as "State Commission."

The above-described unit area shall, when practicable, be expanded to include therein any additional lands or shall be contracted to exclude lands whenever such expansion or contraction is deemed to be necessary or advisable to conform with the purposes of this agreement. Such expansion or contraction shall be effected in the following manner:

(a) Unit Operator, on its own motion or on demand of the Director of the Geological Survey, hereinafter referred to as "Director," or on demand of the Land Commissioner, after preliminary concurrence by the Director, shall prepare a notice of proposed expansion or contraction describing the contemplated changes in the boundaries of the unit area, the reasons therefor, and the proposed effective date thereof, preferably, the first day of a month subsequent to the date of notice.

(b) Said notice shall be delivered to the Supervisor, the Land Commissioner and the State Commission, and copies thereof mailed to the last known address of each working-interest owner, lessee, and lessor whose interests are affected, advising that thirty (30) days will be allowed for submission to the Unit Operator of any objections.

(c) Upon expiration of the 30-day period provided in the preceding item (b) hereof, Unit Operator shall file with the Supervisor, the Land Commissioner, and the State Commission, evidence of mailing of the notice of expansion or contraction and a copy of any objections thereto which have been filed with the Unit Operator, together with an application in sufficient number, for approval of such expansion or contraction and with appropriate joinders.

(d) After due consideration of all pertinent information, the expansion or contraction shall, upon approval by the Supervisor, the Land Commissioner, become effective as of the date prescribed in the notice thereof.

(e) All legal subdivisions of lands (i.e., 40 acres by Government survey or its nearest lot or tract equivalent; in instances of irregular surveys unusually large lots or tracts shall be considered in multiples of 40 acres or the nearest aliquot equivalent thereof), no parts of which are entitled to be in a participating area on or before the fifth anniversary of the effective date of the first initial participating area established under this unit agreement, shall be eliminated automatically from this agreement, effective as of said fifth anniversary, and such lands

*No approval by OCC - see D. Jan*

shall no longer be a part of the unit area and shall no longer be subject to this agreement, unless diligent drilling operations are in progress on unitized lands not entitled to participation on said fifth anniversary, in which event all such lands shall remain subject hereto for so long as such drilling operations are continued diligently, with not more than 90 days' time elapsing between the completion of one such well and the commencement of the next such well. All legal subdivisions of lands not entitled to be in a participating area within 10 years after the effective date of the first initial participating area approved under this agreement shall be automatically eliminated from this agreement as of said tenth anniversary. All lands proved productive by diligent drilling operations after the aforesaid five-year period shall become participating in the same manner as during said five-year period. However, when such diligent drilling operations cease, all non-participating lands shall be automatically eliminated effective as of the 91st day thereafter. The unit operator shall within 90 days after the effective date of any elimination hereunder, describe the area so eliminated to the satisfaction of the Supervisor and the Land Commissioner and promptly notify all parties in interest.

If conditions warrant extension of the ten-year period specified in this subsection 2 (e), a single extension of not to exceed two years may be accomplished by consent of the owners of 90% of the working interests in the current non-participating unitized lands and the owners of 60% of the basic royalty interests (exclusive of the basic royalty interests of the United States) in non-participating unitized lands with approval of the Director and Land Commissioner, provided such extension application is submitted to the Director and the Land Commissioner not later than 60 days prior to the expiration of said ten-year period.

Any expansion of the unit area pursuant to this section which embraces lands theretofore eliminated pursuant to this subsection 2 (e) shall not be considered automatic commitment or recommitment of such lands.

3. UNITIZED LAND AND UNITIZED SUBSTANCES. All land committed to this agreement shall constitute land referred to herein as "unitized land" or "land subject to this agreement." All oil and gas in any and all formations of the unitized land are unitized under the terms of this agreement and herein are called "unitized substances."

4. UNIT OPERATOR. Read & Stevens, Inc.  
is hereby designated as Unit Operator and by signature hereto as Unit Operator

agrees and consents to accept the duties and obligations of Unit Operator for the discovery, development, and production of unitized substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in the capacity and not as an owner of interest in unitized substances, and the term "working-interest owner" when used shall include or refer to Unit Operator as the owner of a working interest when such an interest is owned by it.

5. RESIGNATION OR REMOVAL OF UNIT OPERATOR. Unit Operator shall have the right to resign at any time prior to the establishment of a participating area or areas hereunder, but such resignation shall not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after notice of intention to resign has been served by Unit Operator on all working-interest owners and the Supervisor and the Land Commissioner, and until all wells then drilled hereunder are placed in a satisfactory condition for suspension or abandonment whichever is required by the Supervisor as to Federal lands and the State Commission as to State lands, unless a new Unit Operator shall have been selected and approved and shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period.

Unit Operator shall have the right to resign in like manner and subject to like limitations as above provided at any time a participating area established hereunder is in existence, but, in all instances of resignation or removal, until a successor unit operator is selected and approved as hereinafter provided, the working-interest owners shall be jointly responsible for performance of the duties of unit operator, and shall not later than 30 days before such resignation or removal becomes effective appoint a common agent to represent them in any action to be taken hereunder.

The resignation of Unit Operator shall not release Unit Operator from any liability for any default by it hereunder occurring prior to the effective date of its resignation.

The Unit Operator may, upon default or failure in the performance of its duties or obligations hereunder, be subject to removal by the same percentage vote of the owners of working interests as herein provided for the selection of a new Unit Operator. Such removal shall be effective upon notice thereof to the Supervisor and the Land Commissioner.

The resignation or removal of Unit Operator under this agreement shall not terminate its right, title, or interest as the owner of a working interest or other interest in unitized substances, but upon the resignation or removal of Unit Operator becoming effective, such Unit Operator shall deliver possession of all wells, equipment, materials, and appurtenances used in conducting the unit operations to the new duly qualified successor Unit Operator or to the common agent, if no such new Unit Operator is elected, to be used for the purpose of conducting unit operations hereunder. Nothing herein shall be construed as authorizing removal of any material, equipment, and appurtenances needed for the preservation of any wells.

6. SUCCESSOR UNIT OPERATOR. Whenever the Unit Operator shall tender his or its resignation as Unit Operator or shall be removed as hereinabove provided, or a change of Unit Operator is negotiated by working-interest owners, the owners of the working interests in the participating area or areas according to their respective acreage interests in such participating area or areas, or until a participating area shall have been established, the owners of the working interests according to their respective acreage interests in all unitized land, shall by majority vote select a successor Unit Operator: Provided, That, if a majority but less than 75 per cent of the working interests qualified to vote are owned by one party to this agreement, a concurring vote of one or more additional working interest owners shall be required to select a new operator. Such selection shall not become effective until

(a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and

(b) the selection shall have been approved by the Supervisor and approved by the Land Commissioner.

If no successor Unit Operator is selected and qualified as herein provided, the Director and the Land Commissioner, at their election, may declare this unit agreement terminated.

7. ACCOUNTING PROVISIONS AND UNIT OPERATING AGREEMENT. If the Unit Operator is not the sole owner of working interests, costs, and expenses incurred by Unit Operator in conducting unit operations hereunder shall be paid and apportioned among and borne by the owners of working interests, all in accordance with the agreement or agreements entered into by and between the Unit Operator and the owners of working interests, whether one or more, separately or collectively. Any agreement or agreements entered into between the working-interest owners and the

Unit Operator as provided in this section, whether one or more, are herein referred to as the "unit operating agreement." Such unit operating agreement shall also provide the manner in which the working-interest owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereto in conformity with their underlying operating agreements, leases, or other independent contracts, and such other rights and obligations as between Unit Operator and the working-interest owners as may be agreed upon by Unit Operator and the working-interest owners; however, no such unit operating agreement shall be deemed either to modify any of the terms and conditions of this unit agreement or to relieve the Unit Operator of any right or obligation established under this unit agreement, and in case of any inconsistency or conflict between this unit agreement and the unit operating agreement, this unit agreement shall govern. Three true copies of any unit operating agreement executed pursuant to this section should be filed with the Supervisor and one true copy with the Land Commissioner, prior to approval of this unit agreement.

8. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein, the exclusive right, privilege and duty of exercising any and all rights of the parties hereto which are necessary or convenient for prospecting for, producing, storing, allocating, and distributing the unitized substances are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Acceptable evidence of title to said rights shall be deposited with said Unit Operator and, together with this agreement, shall constitute and define the rights, privileges, and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease or operating agreement, it being understood that under this agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

9. DRILLING TO DISCOVERY. Within six (6) months after the effective date hereof, the Unit Operator shall begin to drill an adequate test well at a location approved by the Supervisor, if on Federal land, or by the Land Commissioner, if on State land, unless on such effective date a well is being drilled conformably with the terms hereof, and thereafter continue such drilling diligently until the Mississippian (Barnett) has been penetrated and all beds of Pennsylvanian age tested, or until at a lesser depth unitized substances shall be discovered which can be produced in paying

quantities (to-wit: quantities sufficient to repay the costs of drilling, completing and producing operations, with a reasonable profit) or the Unit Operator shall, at any time, establish to the satisfaction of the Supervisor if on Federal land, or the Land Commissioner if on State land, that further drilling of said well would be unwarranted or impracticable; provided, however, that Unit Operator shall not, in any event, be required to drill said well to a depth in excess of 6,700 feet. Until the discovery of a deposit of unitized substances capable of being produced in paying quantities, the Unit Operator shall continue drilling diligently one well at a time, allowing not more than six (6) months between the completion of one well and the beginning of the next well, until a well capable of producing unitized substances in paying quantities is completed to the satisfaction of said Supervisor if it be on Federal land or of the Land Commissioner if on State land, or until it is reasonably proved that the unitized land is incapable of producing unitized substances in paying quantities in the formations drilled hereunder. Nothing in this section shall be deemed to limit the right of the Unit Operator to resign as provided in Section 5 hereof, or as requiring Unit Operator to commence or continue any drilling during the period pending such resignation becoming effective in order to comply with the requirements of this section. The Director and Land Commissioner may modify the drilling requirements of this section by granting reasonable extensions of time when, in their opinion, such action is warranted.

Upon failure to commence any well provided for in this section within the time allowed, including any extension of time granted by the Supervisor and the Land Commissioner, this agreement will automatically terminate; upon failure to continue drilling diligently any well commenced hereunder, the Supervisor and the Land Commissioner may, after 15-days notice to the Unit Operator, declare this unit agreement terminated.

10. PLAN OF FURTHER DEVELOPMENT AND OPERATION. Within six (6) months after completion of a well capable of producing unitized substances in paying quantities, the Unit Operator shall submit for the approval of the Supervisor, the Land Commissioner, and State Commission an acceptable plan of development and operation for the unitized land which, when approved by the Supervisor, the Land Commissioner, and State Commission, shall constitute the further drilling and operating obligations of the Unit Operator under this agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall

submit for the approval of the Supervisor, the Land Commissioner, and State Commission a plan for an additional specified period for the development and operation of the unitized land.

Any plan submitted pursuant to this section shall provide for the exploration of the unitized area and for the diligent drilling necessary for determination of the area or areas thereof capable of producing unitized substances in paying quantities in each and every productive formation and shall be as complete and adequate as the Supervisor, the Land Commissioner, and State Commission may determine to be necessary for timely development and proper conservation of the oil and gas resources of the unitized area and shall:

(a) specify the number and locations of any wells to be drilled and the proposed order and time for such drilling; and

(b) to the extent practicable specify the operating practices regarded as necessary and advisable for proper conservation of natural resources. Separate plans may be submitted for separate productive zones, subject to the approval of the Supervisor, the Land Commissioner, and State Commission.

Plans shall be modified or supplemented when necessary to meet changed conditions or to protect the interests of all parties to this agreement. Reasonable diligence shall be exercised in complying with the obligations of the approved plan of development. The Supervisor and the Land Commissioner are authorized to grant a reasonable extension of the six-month period herein prescribed for submission of an initial plan of development where such action is justified because of unusual conditions or circumstances. After completion hereunder of a well capable of producing any unitized substance in paying quantities, no further wells, except such as may be necessary to afford protection against operations not under this agreement and such as may be specifically approved by the Supervisor, the Land Commissioner, and State Commission, shall be drilled except in accordance with a plan of development approved as herein provided.

11. PARTICIPATION AFTER DISCOVERY. Upon completion of a well capable of producing unitized substances in paying quantities or as soon thereafter as required by the Supervisor, the Land Commissioner, or the State Commission, the Unit Operator shall submit for approval by the Supervisor, the Land Commissioner, and State Commission a schedule, based on subdivisions of the public-land survey or aliquot parts thereof, of all land then regarded as reasonably proved to be productive in paying quantities; all lands in said schedule on approval of the Supervisor, the Land Commissioner, and State Commission to constitute a participating area, effective

as of the date of completion of such well or the effective date of this unit agreement, whichever is later. The acreages of both Federal and non-Federal lands shall be based upon appropriate computations from the courses and distances shown on the last approved public-land survey as of the effective date of each initial participating area. Said schedule shall also set forth the percentage of unitized substances to be allocated as herein provided to each tract in the participating area so established, and shall govern the allocation of production commencing with the effective date of the participating area. A separate participating area shall be established for each separate pool or deposit of unitized substances or for any group thereof which is produced as a single pool or zone, and any two or more participating areas so established may be combined into one, on approval of the Supervisor, the Land Commissioner, and the State Commission. When production from two or more participating areas, so established, is subsequently found to be from a common pool or deposit said participating areas shall be combined into one, effective as of such appropriate date as may be approved or prescribed by the Supervisor, the Land Commissioner, and State Commission. The participating area or areas so established shall be revised from time to time, subject to like approval, to include additional land then regarded as reasonably proved to be productive in paying quantities or necessary for unit operations, or to exclude land then regarded as reasonably proved not to be productive in paying quantities and the schedule of allocation percentages shall be revised accordingly. The effective date of any revision shall be the first of the month in which is obtained the knowledge or information on which such revision is predicated, provided, however, that a more appropriate effective date may be used if justified by the Unit Operator and approved by the Supervisor, the Land Commissioner, and State Commission. No land shall be excluded from a participating area on account of depletion of the unitized substances, except that any participating area established under the provisions of this unit agreement shall terminate automatically whenever all completions in the formation on which the participating area is based are abandoned.

It is the intent of this section that a participating area shall represent the area known or reasonably estimated to be productive in paying quantities; but regardless of any revision of the participating area, nothing herein contained shall be construed as requiring any retroactive adjustment for production obtained prior to the effective date of the revision of the participating area.

In the absence of agreement at any time between the Unit Operator and the Supervisor, the Land Commissioner, and State Commission, as to the proper definition or redefinition of a participating area, or until a participating area has, or areas

have, been established as provided herein, the portion of all payments affected thereby shall be impounded in a manner mutually acceptable to the owners of working interests and the Supervisor and the Land Commissioner. Royalties due the United States shall be determined by the Supervisor for Federal lands and the Land Commissioner for the State lands and the amount thereof shall be deposited, as directed by the Supervisor and the Land Commissioner, to be held as unearned money until a participating area is finally approved and then applied as earned or returned in accordance with a determination of the sum due as Federal and State royalty on the basis of such approved participating area.

Whenever it is determined, subject to the approval of the Supervisor, the Land Commissioner, and State Commission that a well drilled under this agreement is not capable of production in paying quantities and inclusion of the land on which it is situated in a participating area is unwarranted, production from such well shall, for the purposes of settlement among all parties other than working-interest owners, be allocated to the land on which the well is located unless such land is already within the participating area established for the pool or deposit from which such production is obtained. Settlement for working interest benefits from such a well shall be made as provided in the unit operating agreement.

Determination as to whether a well completed within the Unit Area prior to the effective date of this agreement is capable of producing unitized substances in paying quantities shall be deferred until an initial participating area is established as a result of the completion of a well for production in paying quantities in accordance with Section 9 hereof.

12. ALLOCATION OF PRODUCTION. All unitized substances produced from each participating area established under this agreement, except any part thereof used in conformity with good operating practices within the unitized area for drilling, operating, camp, and other production or development purposes, for repressuring or recycling in accordance with a plan of development approved by the Supervisor, Land Commissioner, and State Commission, or unavoidable lost, shall be deemed to be produced equally on an acreage basis from the several tracts of unitized land of the participating area established for such production and, for the purpose of determining any benefits accruing under this agreement, each such tract of unitized land shall have allocated to it such percentage of said production as the number of acres of such tract included in said participating area bears to the total acres of unitized land in said participating area, except that allocation of production hereunder for purposes other than for settlement of the royalty, overriding royalty, or payment out of production obligations of the respective working-interest owners, shall be on the basis prescribed in the unit operating agreement whether in conformity with the basis of allocation herein set forth or otherwise. It is hereby

agreed that production of unitized substances from a participating area shall be allocated as provided herein regardless of whether any wells are drilled on any particular part or tract of said participating area. If any gas produced from one participating area is used for repressuring or recycling purposes in another participating area, the first gas withdrawn from such last-mentioned participating area for sale during the life of this agreement shall be considered to be the gas so transferred until an amount equal to that transferred shall be so produced for sale and such gas shall be allocated to the participating area from which initially produced as such area was last defined at the time of such final production.

13. DEVELOPMENT OR OPERATION OF NON-PARTICIPATING LAND OR FORMATIONS. Any party hereto owning or controlling the working interest in any unitized land having thereon a regular well location may with the approval of the Supervisor and the Land Commissioner, at such party's sole risk, costs, and expense, drill a well to test any formation for which a participating area has not been established or to test any formation for which a participating area has been established if such location is not within said participating area, unless within 90 days of receipt of notice from said party of his intention to drill the well the Unit Operator elects and commences to drill such a well in like manner as other wells are drilled by the Unit Operator under this agreement.

If any well drilled as aforesaid by a working-interest owner results in production such that the land upon which it is situated may properly be included in a participating area, such participating area shall be established or enlarged as provided in this agreement and the well shall thereafter be operated by the Unit Operator in accordance with the terms of this agreement and the unit operating agreement.

If any well drilled as aforesaid by a working-interest owner obtains production in quantities insufficient to justify the inclusion of the land upon which such well is situated in a participating area, such well may be operated and produced by the party drilling the same subject to the conservation requirements of this agreement. The royalties in amount or value of production from any such well shall be paid as specified in the underlying lease and agreements affected.

14. ROYALTY SETTLEMENT. The United States and any State and any royalty owner who is entitled to take in kind a share of the substances now unitized hereunder shall hereafter be entitled to the right to take in kind its share of the unitized substances, and the Unit Operator, or the working-interest owner in case

of the operation of a well by a working-interest owner as herein provided for in special cases, shall make deliveries of such royalty share taken in kind in conformity with the applicable contracts, laws, and regulations. Settlement for royalty interest not taken in kind shall be made by working-interest owners responsible therefor under existing contracts, laws, and regulations, or by the Unit Operator, on or before the last day of each month for unitized substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any royalties due under their leases.

If gas obtained from lands not subject to this agreement is introduced into any participating area hereunder, for use in repressuring, stimulation of production, or increasing ultimate recovery, in conformity with a plan of operations approved by the Supervisor and the Land Commissioner, a like amount of gas, after settlement as herein provided for any gas transferred from any other participating area and with appropriate deduction for loss from any cause, may be withdrawn from the formation into which the gas is introduced, royalty free as to dry gas, but not as to any products which may be extracted therefrom; provided that such withdrawal shall be at such time as may be provided in the approved plan of operations or as may otherwise be consented to by the Supervisor and the Land Commissioner as conforming to good petroleum engineering practice; and provided further, that such right of withdrawal shall terminate on the termination of this unit agreement.

Royalty due the United States shall be computed as provided in the operating regulations and paid in value or delivered in kind as to all unitized substances on the basis of the amounts thereof allocated to unitized Federal land as provided herein at the rates specified in the respective Federal leases, or at such lower rate or rates as may be authorized by law or regulation; provided, that for leases on which the royalty rate depends on the daily average production per well, said average production shall be determined in accordance with the operating regulations as though each participating area were a single consolidated lease.

Royalty due on account of State lands shall be computed and paid on the basis of all unitized substances allocated to such lands.

15. RENTAL SETTLEMENT. Rental or minimum royalties due on leases committed hereto shall be paid by working-interest owners responsible therefor under existing contracts, laws, and regulations, provided that nothing herein contained shall

operate to relieve the lessees of any land from their respective lease obligations for the payment of any rental or minimum royalty due under their leases. Rental or minimum royalty for lands of the United States subject to this agreement shall be paid at the rate specified in the respective leases from the United States unless such rental or minimum royalty is waived, suspended, or reduced by law or by approval of the Secretary or his duly authorized representative.

Rentals on State of New Mexico lands subject to this agreement shall be paid at the rates specified in the respective leases.

With respect to any lease on non-Federal land containing provisions which would terminate such lease unless drilling operations are commenced upon the land covered thereby within the time therein specified or rentals are paid for the privilege of deferring such drilling operations, the rentals required thereby shall, notwithstanding any other provision of this agreement, be deemed to accrue and become payable during the term thereof as extended by this agreement and until the required drilling operations are commenced upon the land covered thereby or until some portion of such land is included within a participating area.

16. CONSERVATION. Operations hereunder and production of unitized substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to State or Federal law or regulation.

17. DRAINAGE. The Unit Operator shall take such measures as the Supervisor and Land Commissioner deem appropriate and adequate to prevent drainage of unitized substances from unitized land by wells on land not subject to this agreement.

18. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions, and provisions of all leases, subleases, and other contracts relating to exploration, drilling, development, or operation for oil or gas on lands committed to this agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect; and the parties hereto hereby consent that the Secretary, as to Federal leases and the Land Commissioner, as to State leases, shall and each by his approval hereof, or by the approval hereof by his duly authorized representative, does hereby establish, alter, change, or revoke the drilling, producing, rental, minimum royalty, and royalty requirements of Federal and State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this agreement, and without limiting the generality of the foregoing,

all leases, subleases, and contracts are particularly modified in accordance with the following:

(a) The development and operation of lands subject to this agreement under the terms thereof shall be deemed full performance of all obligations for development and operation with respect to each and every separately owned tract subject to this agreement, regardless of whether there is any development of any particular tract of the unit area.

(b) Drilling and producing operations performed hereunder upon any tract of unitized lands will be accepted and deemed to be performed upon and for the benefit of each and every tract of unitized land, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Secretary and the Land Commissioner, or his duly authorized representative, shall be deemed to constitute such suspension pursuant to such direction or consent as to each and every tract of unitized land. A suspension of drilling or producing operations limited to specified lands shall be applicable only to such lands.

(d) Each lease, sublease, or contract relating to the exploration, drilling, development or operation for oil or gas of lands other than those of the United States and State of New Mexico committed to this agreement, which, by its terms might expire prior to the termination of this agreement, is hereby extended beyond any such terms so provided therein so that it shall be continued in full force and effect for and during the term of this agreement.

(e) Any Federal lease for a fixed term of twenty (20) years or any renewal thereof or any part of such lease which is made subject to this agreement shall continue in force beyond the term provided therein until the termination hereof. Any other Federal lease committed hereto shall continue in force beyond the term so provided therein or by law as to the land committed so long as such lease remains subject hereto, provided that production is had in paying quantities under this unit agreement prior to the expiration date of the term of such lease, or in the event actual drilling operations are commenced on unitized land, in accordance with the provisions of this agreement, prior to the end of the primary term of such lease and are being diligently prosecuted at that time, such lease shall be extended for two years and so long thereafter as oil or gas is produced in paying quantities in

accordance with the provisions of the Mineral Leasing Act Revision of 1960.

(f) Each sublease or contract relating to the operation and development of unitized substances from lands of the United States committed to this agreement, which by its terms would expire prior to the time at which the underlying lease, as extended by the immediately preceding paragraph, will expire, is hereby extended beyond any such term so provided therein so that it shall be continued in full force and effect for and during the term of the underlying lease as such term is herein extended.

(g) The segregation of any Federal Lease committed to this agreement is governed by the following provision in the fourth paragraph of Sec. 17 (j) of the Mineral Leasing Act, as amended by the Act of September 2, 1960 (74 Stat. 781-784): "Any (Federal) lease heretofore or hereafter committed to any such (unit) Plan embracing lands that are in part within and in part outside of the area covered by any such plan shall be segregated into separate leases as to the lands committed and the lands not committed as of the effective date of unitization: Provided however, that any such lease as to the nonunitized portion shall continue in force and effect for the term thereof but for not less than two years from the date of such segregation and so long thereafter as oil or gas is produced in paying quantities."

(h) In the event the Initial Test Well is commenced prior to the expiration date of the shortest term State Lease within the Unit Area, any lease embracing lands of the State of New Mexico which is made subject to this agreement, shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(i) Any lease embracing lands of the State of New Mexico having only a portion of its lands committed hereto, shall be segregated as to the portion committed and the portion not committed, and the terms of such lease shall apply separately to such segregated portions commencing as of the effective date hereof; provided, however, notwithstanding any of the provisions of this agreement to the contrary any lease embracing lands of the State of New Mexico having only a portion of its lands committed hereto shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease, if oil or gas is discovered and is capable of being produced in paying quantities from some part of the lands embraced in such lease at the expiration of the secondary term of such lease; or if, at the expiration of the secondary term, the leasee or the Unit Operator is then engaged in bona fide drilling or reworking operations on some part of the lands embraced in such lease, the same as to all lands embraced therein, shall

remain in full force and effect so long as such operations are being diligently prosecuted, and if they result in the production of oil or gas; said lease shall continue in full force and effect as to all of the lands embraced therein, so long thereafter as oil or gas in paying quantities is being produced from any portion of said lands.

19. COVENANTS RUN WITH LAND. The covenants herein shall be construed to be covenants running with the land with respect to the interest of the parties hereto and their successors in interest until this agreement terminates, and any grant, transfer, or conveyance, or interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee, or other successor in interest. No assignment or transfer of any working interest, royalty, or other interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, photostatic, or certified copy of the instrument of transfer.

20. EFFECTIVE DATE AND TERM. This agreement shall become effective upon approval by the Secretary and the Land Commissioner or his duly authorized representative, and shall terminate five (5) years from said effective date unless

(a) such date of expiration is extended by the Director and the Land Commissioner, or

(b) it is reasonably determined prior to the expiration of the fixed term or any extension thereof that the unitized land is incapable of production of unitized substances in paying quantities in the formations tested hereunder and after notice of intention to terminate the agreement on such ground is given by the Unit Operator to all parties in interest at their last known addresses, the agreement is terminated with the approval of the Supervisor and the Land Commissioner, or

(c) a valuable discovery of unitized substances has been made or accepted on unitized land during said initial term or any extension thereof, in which event the agreement shall remain in effect for such term and so long as unitized substances are produced in quantities sufficient to pay for the cost of producing same from wells on unitized land within any participating area established hereunder and, should production cease, so long thereafter as diligent operations are in progress for the restoration of production or discovery of new production and so long thereafter as unitized substances so discovered are produced as aforesaid, or

(d) it is terminated as heretofore provided in this agreement. This agreement may be terminated at any time by not less than 75 per centum, on an acreage basis, of the working-interest owners signatory hereto, with the approval of the Supervisor and the Land Commissioner; notice of any such approval to be given by the Unit Operator to all parties hereto.

21. RATE OF PROSPECTING, DEVELOPMENT, AND PRODUCTION. The Director is hereby vested with authority to alter or modify from time to time in his discretion the quantity and rate of production under this agreement when such quantity and rate is not fixed pursuant to Federal or State law or does not conform to any state-wide voluntary conservation or allocation program, which is established, recognized, and generally adhered to by the majority of operators in such State, such authority being hereby limited to alteration or modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alteration or modification. Without regard to the foregoing, the Director is also hereby vested with authority to alter or modify from time to time in his discretion the rate of prospecting and development and the quantity and rate of production under this agreement when such alteration or modification is in the interest of attaining the conservation objectives stated in this agreement and is not in violation of any applicable Federal or State law.

Powers in this section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than 15 days from notice.

22. APPEARANCES. Unit Operator shall, after notice to other parties affected, have the right to appear for and on behalf of any and all interests affected hereby before the Department of the Interior and the Commissioner of Public Lands and to appeal from orders issued under the regulations of said Department or Land Commissioner or to apply for relief from any of said regulations or in any proceedings relative to operations before the Department of the Interior or the Land Commissioner or any other legally constituted authority; provided, however, that any other interested party shall also have the right at his own expense to be heard in any such proceeding.

23. NOTICES. All notices, demands, or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if given in writing and personally delivered to the party or sent by postpaid registered or certified mail, addressed to such party or parties at their respective addresses

set forth in connection with the signatures hereto or to the ratification or consent hereof or to such other address as any such party may have furnished in writing to party sending the notice, demand or statement.

24. NO WAIVER OF CERTAIN RIGHTS. Nothing in this agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State wherein said unitized lands are located, or of the United States, or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive.

25. UNAVOIDABLE DELAY. All obligations under this agreement requiring the Unit Operator to commence or continue drilling or to operate on or produce unitized substances from any of the lands covered by this agreement shall be suspended while the Unit Operator despite the exercise of due care and diligence, is prevented from complying with such obligations, in whole or in part, by strikes, acts of God, Federal, State, or municipal law or agencies, unavoidable accidents, uncontrollable delays in transportation, inability to obtain necessary materials in open market, or other matters beyond the reasonable control of the Unit Operator whether similar to matters herein enumerated or not. No unit obligation which is suspended under this section shall become due less than thirty (30) days after it has been determined that the suspension is no longer applicable. Determination of creditable "Unavoidable Delay" time shall be made by the unit operator subject to approval of the Supervisor and the Land Commissioner.

26. NONDISCRIMINATION. In connection with the performance of work under this agreement, the operator agrees to comply with all the provisions of section 202 (1) to (7) inclusive of Executive Order 11246 (30 F.R. 12319), as amended, which are hereby incorporated by reference in this agreement.

27. LOSS OF TITLE. In the event title to any tract of unitized land shall fail and the true owner cannot be induced to join in this unit agreement, such tract shall be automatically regarded as not committed hereto and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to title as to any royalty, working interest, or other interests subject thereto, payment or delivery on account thereof may be withheld without liability for interest until the dispute is finally settled; provided, that, as to Federal and State land or leases, no payments of

funds due the United States or the State of New Mexico should be withheld, but such funds shall be deposited as directed by the Supervisor and such funds of the State of New Mexico shall be deposited as directed by the Land Commissioner, to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

Unit Operator as such is relieved from any responsibility for any defect or failure of any title hereunder.

28. NON-JOINDER AND SUBSEQUENT JOINDER. If the owner of any substantial interest in a tract within the unit area fails or refuses to subscribe or consent to this agreement, the owner of the working interest in that tract may withdraw said tract from this agreement by written notice delivered to the Supervisor, the Land Commissioner, the State Commission, and the Unit Operator prior to the approval of this agreement by the Supervisor. Any oil or gas interests in lands within the unit area not committed hereto prior to submission of this agreement for final approval may thereafter be committed hereto by the owner or owners thereof subscribing or consenting to this agreement, and, if the interest is a working interest, by the owner of such interest also subscribing to the unit operating agreement. After operations are commenced hereunder, the right of subsequent joinder, as provided in this section, by a working-interest owner is subject to such requirements or approvals, if any, pertaining to such joinder, as may be provided for in the unit operating agreement. After final approval hereof, joinder by a non-working interest owner must be consented to in writing by the working-interest owner committed hereto and responsible for the payment of any benefits that may accrue hereunder in behalf of such non-working interest. A non-working interest may not be committed to this unit unless the corresponding working interest is committed hereto. Joinder to the unit agreement by a working-interest owner, at any time, must be accompanied by appropriate joinder to the unit operating agreement, if more than one committed working-interest owner is involved, in order for the interest to be regarded as committed to this unit agreement. Except as may otherwise herein be provided, subsequent joinders to this agreement shall be effective as of the first day of the month following the filing with the Supervisor, the Land Commissioner, and the State Commission of duly executed counterparts of all or any papers necessary to establish effective commitment of any tract to this agreement unless objection to such joinder is duly made within sixty (60) days by the Supervisor, the Land Commissioner, or State Commission.

29. COUNTERPARTS. This agreement may be executed in any number of counterparts no one of which needs to be executed by all parties or may be ratified or consented to by separate instrument in writing specifically referring hereto and shall be binding upon all those parties who have executed such a counterpart, ratification, or consent hereto with the same force and effect as if all such parties had signed the same document and regardless of whether or not it is executed by all other parties owning or claiming an interest in the lands within the above-described unit area.

30. SURRENDER. Nothing in this agreement shall prohibit the exercise by any working-interest owner of the right to surrender vested in such party by any lease, sublease, or operating agreement as to all or any part of the lands covered thereby, provided that each party who will or might acquire such working interest by such surrender or by forfeiture as hereafter set forth, is bound by the terms of this agreement.

If, as a result of any such surrender, the working interest rights as to such lands become vested in any party other than the fee owner of the unitized substances, said party may forfeit such rights and further benefits from operation hereunder as to said land to the party next in the chain of title who shall be and become the owner of such working interest.

If, as the result of any such surrender or forfeiture, working interest rights become vested in the fee owner of the unitized substances, such owner may:

(1) Accept those working-interests rights subject to this agreement and the unit operating agreement; or

(2) Lease the portion of such land as is included in a participating area established hereunder subject to this agreement and the unit operating agreement.

(3) Provide for the independent operation of any part of such land that are not then included within a participating area established hereunder.

If the fee owner of the unitized substances does not accept the working-interest rights subject to this agreement and the unit operating agreement or lease, such lands as above-provided within six (6) months after the surrendered or forfeited working-interest rights become vested in the fee owner, the benefits and obligations of operations accruing to such lands under this agreement and the unit operating agreement shall be shared by the remaining owners of unitized working interests in accordance with their respective working interest ownerships, and such owners or working interests shall compensate the fee owner of unitized sub-

stances in such lands by paying sums equal to the rentals, minimum royalties, and royalties applicable to such lands under the lease in effect when the lands were unitized.

An appropriate accounting and settlement shall be made, for all benefits accruing to or payments and expenditures made or incurred on behalf of such surrendered or forfeited working interest subsequent to the date of surrender or forfeiture, and payment of any moneys found to be owing by such an accounting shall be made as between the parties within thirty (30) days. In the event no unit operating agreement is in existence and a mutually acceptable agreement between the proper parties thereto cannot be consummated, the Supervisor may prescribe such reasonable and equitable agreement as he deems warranted under the circumstances.

The exercise of any right vested in a working-interest owner to reassign such working interest to the party from whom obtained shall be subject to the same conditions as set forth in this section in regard to the exercise of a right to surrender.

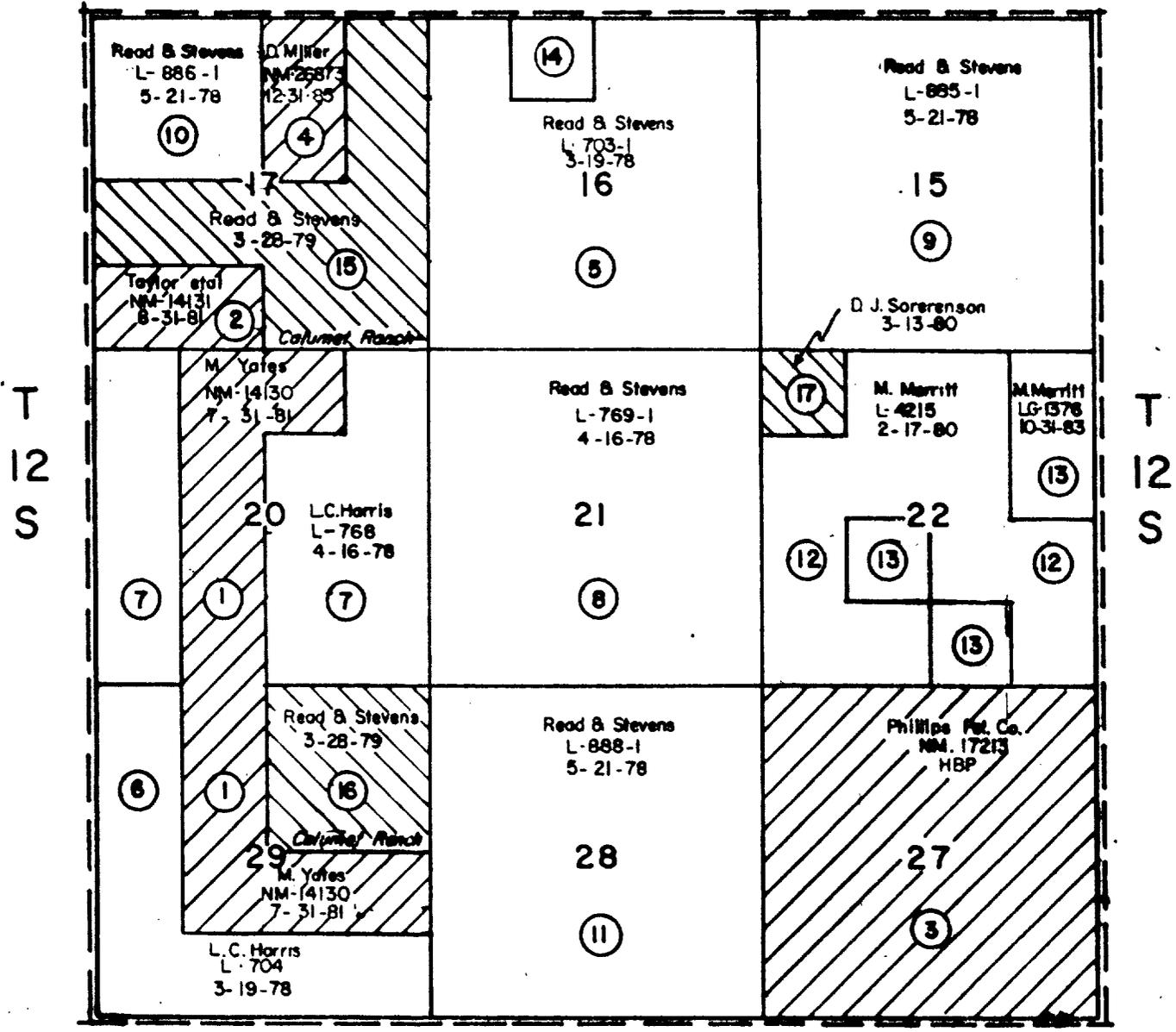
31. TAXES. The working-interest owners shall render and pay for their account and the account of the royalty owners all valid taxes on or measured by the unitized substances in and under or that may be produced, gathered, and sold from the land subject to this contract after the effective date of this agreement, or upon the proceeds derived therefrom. The working-interest owners on each tract shall and may charge the proper proportion of said taxes to the royalty owners having interests in said tract, and may currently retain and deduct sufficient of the unitized substances or derivative products, or net proceeds thereof from the allocated share of each royalty owner to secure reimbursement for the taxes so paid. No such taxes shall be charged to the United States or the State of New Mexico or to any lessor who has a contract with his lessor who has a contract with his lessee which requires the lessee to pay such taxes.

32. NO PARTNERSHIP. It is expressly agreed that the relation of the parties hereto is that of independent contractors and nothing in this agreement contained, expressed, or implied, nor any operations conducted hereunder, shall create or be deemed to have created a partnership or association between the parties hereto or any of them.

33. CONFLICT OF SUPERVISION. Neither the Unit Operator nor the working-interest owners, nor any of them, shall be subject to any forfeiture, termination, or expiration of any right hereunder or under any leases or contracts subject hereto,



R-27-E



R-27-E

- UNIT OUTLINE
- TRACT NO.
-  FEDERAL LANDS  
1,200.00 ACRES, 20.83% OF AREA
-  STATE OF NEW MEXICO  
4,040.00 ACRES, 70.14% OF AREA
-  FEE (PATENTED) LANDS  
520.00 ACRES, 9.03% OF ACRES
- TOTAL 5,760.00 ACRES

**EXHIBIT "A"**  
**Calumet Ranch Unit Area**  
**Chaves County, New Mexico**

EXHIBIT "B"

SCHEDULE OF LANDS AND LEASES  
CALUMET RANCH UNIT AREA  
CHAVES COUNTY, NEW MEXICO

TRACT NO.	DESCRIPTION OF LANDS	ACRES	SERIAL NO. AND EXP. DATE	BASIC ROYALTY & PERCENTAGE	LESSEE OF RECORD AND PERCENTAGE	OVERRIDING ROYALTY AND PERCENTAGE	WORKING INTEREST AND PERCENTAGE
<u>All Lands are in T-12-S, R-27-E, N.M.P.M.</u>							
<u>Federal Lands</u>							
1.	Sec. 20; NW $\frac{1}{4}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ W $\frac{1}{2}$ Sec. 29; E $\frac{1}{2}$ NW $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , NW $\frac{1}{2}$ SE $\frac{1}{4}$	400.00	NM-14130 7-31-81	USA 12.5	Martin Yates, III	All Unknown	6.25 Martin Yates, III All
2.	Sec. 17; S $\frac{1}{2}$ SW $\frac{1}{4}$	80.00	NM-14301 8-31-81	USA 12.5	Carl A. Nilsen Vernon L. Foster, Jr. Gwen P. Taylor	37.5 37.5 25.0	None Same as Lessee of Record
3.	Sec. 27; All	640.00	NM-17213 12-31-72	USA 12.5	Phillips Petroleum Co.	All Cathie Auvenshine	3.0 Phillips Petroleum Co. All
4.	Sec. 17; W $\frac{1}{2}$ NE $\frac{1}{4}$	80.00	NM-26873 12-31-85	USA 12.5	Duncan Miller	All None	Duncan Miller All
Total: 1,200.00 Acres Federal Lands, 20.83% of Unit Area							
<u>State of New Mexico Lands</u>							
5.	Sec. 16; NE $\frac{1}{4}$ , SE $\frac{1}{2}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ NW $\frac{1}{4}$ , S $\frac{1}{2}$	600.00	L-703-1 3-19-78	State 12.5	Read & Stevens, Inc.	All Kay Havenor Fisco, Inc. First Century Oil Co.	3.0 1.0 1.0 Read & Stevens, Inc. All

6.	Sec. 29; W $\frac{1}{2}$ N $\frac{1}{2}$ SE $\frac{1}{4}$ SW $\frac{1}{4}$ , S $\frac{1}{2}$ SE $\frac{1}{4}$	280.00	L-704 3-19-78	State 12.5	L. C. Harris	ALL	Unknown	5.0	L. C. Harris	ALL
7.	Sec. 20; E $\frac{1}{2}$ E $\frac{1}{2}$ , SW $\frac{1}{4}$ NE $\frac{1}{4}$ , W $\frac{1}{2}$ SE $\frac{1}{4}$ , W $\frac{1}{2}$ N $\frac{1}{2}$	440.00	L-768 4-16-78	State 12.5	L. C. Harris	ALL	Unknown	5.0	L. C. Harris	ALL
8.	Sec. 21; ALL	640.00	L-769-1 4-16-78	State 12.5	Read & Stevens, Inc.	ALL	Kay Havenor Fisco, Inc. First Century Oil Co.	3.0 1.0 1.0	Read & Stevens, Inc.	ALL
9.	Sec. 15; ALL	640.00	L-885-1 5-21-78	State 12.5	Read & Stevens, Inc.	ALL	Kay Havenor Fisco, Inc. First Century Oil Co.	3.0 1.0 1.0	Read & Stevens, Inc.	ALL
10.	Sec. 17; NW $\frac{1}{4}$	160.00	L-886-1 5-21-78	State 12.5	Read & Stevens, Inc.	ALL	Kay Havenor Fisco, Inc. First Century Oil Co.	3.0 1.0 1.0	Read & Stevens, Inc.	ALL
11.	Sec. 28; ALL	640.00	L-888-1 5-21-78	State 12.5	Read & Stevens, Inc.	ALL	Kay Havenor Fisco, Inc. First Century Oil Co.	3.0 1.0 1.0	Read & Stevens, Inc.	ALL
12.	Sec. 22; W $\frac{1}{2}$ NE $\frac{1}{4}$ , E $\frac{1}{2}$ NW $\frac{1}{4}$ , SW $\frac{1}{4}$ NW $\frac{1}{4}$ , W $\frac{1}{2}$ SW $\frac{1}{4}$ , SE $\frac{1}{4}$ SW $\frac{1}{4}$ , N $\frac{1}{2}$ SE $\frac{1}{4}$ , SE $\frac{1}{4}$ SE $\frac{1}{4}$	440.00	L-4215 2-17-80	State 12.5	M. M. Merritt	ALL	None		M. M. Merritt	ALL
13.	Sec. 22; E $\frac{1}{2}$ NE $\frac{1}{4}$ , NE $\frac{1}{4}$ SW $\frac{1}{4}$ , SW $\frac{1}{4}$ SE $\frac{1}{4}$	160.00	IG-1376 10-31-83	State 12.5	M. M. Merritt	ALL	None		M. M. Merritt	ALL

14. Sec. 16; NE $\frac{1}{4}$ NW $\frac{1}{4}$  40.00 OPEN

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Total: 4,040.00 Acres State of New Mexico Lands, 70.14% of the Unit Area

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Patented (Fee) Lands

15. Sec. 17; E $\frac{1}{2}$ N $\frac{1}{2}$ E $\frac{1}{4}$ , N $\frac{1}{2}$ S $\frac{1}{2}$ W $\frac{1}{4}$ , SE $\frac{1}{4}$  320.00 Fee 3-28-79 Calumet Ranch Co. Read & Stevens, Inc. All Fisco, Inc. 2.5 Read & Stevens, Inc. All  
First Century Oil Co. 2.5

16. Sec. 29; NE $\frac{1}{4}$  160.00 Fee 3-28-79 Calumet Ranch Co. Read & Stevens, Inc. All Fisco, Inc. 2.5 Read & Stevens, Inc. All  
First Century Oil Co. 2.5

17. Sec. 22; NW $\frac{1}{4}$ NW $\frac{1}{4}$  40.00 Fee 3-13-80 Calumet Ranch Co. D. J. Sorenson All Unknown 5.0 D. J. Sorenson All

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Total: 520.00 Acres Fee Lands, 9.03% of the Unit Area

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Recapitulation

1,200.00 Acres Federal Lands, 20.83% of Unit Area	
4,040.00 Acres State Lands, 70.14% of Unit Area	
520.00 Acres Fee Lands, 9.03% of Unit Area	
<hr/>	
5,760.00 Acres	100.00% of Unit Area

CONSENT AND RATIFICATION  
CALUMET RANCH UNIT AGREEMENT  
CHAVES COUNTY, NEW MEXICO

The undersigned, (whether one or more) hereby acknowledges receipt of a copy of the Unit Agreement for the Development and Operation of the Calumet Ranch Unit Area embracing lands situated in Chaves County, New Mexico, which said Agreement is dated the 25th day of January, 1978, and acknowledged that they have read the same and are familiar with the terms and conditions thereof. The undersigned, also being the owners of the leasehold, royalty, or other interests in the lands or minerals embraced in said Unit Area, as indicated on the schedule attached to said Unit Agreement as Exhibit "B", do hereby commit all of their said interests to the Calumet Ranch Unit Agreement and do hereby consent thereto and ratify all of the terms and provisions thereof, exactly the same as if the undersigned had executed the original of said Unit Agreement or a counterpart thereof.

IN WITNESS WHEREOF, this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
MARTIN YATES, III  
By: Frank Yates  
Frank Yates, Attorney-In-Fact

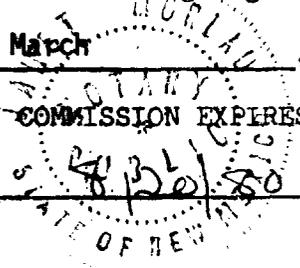
INDIVIDUAL

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STATE OF New Mexico |  
COUNTY OF Eddy |

The foregoing instrument was acknowledged before me this 9th day of March, 1978, by FRANK YATES, Attorney-In-Fact for MARTIN YATES, III.

MY COMMISSION EXPIRES:



Janet Morreau  
Notary Public

CORPORATE

STATE OF \_\_\_\_\_ |  
COUNTY OF \_\_\_\_\_ |

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 1978, by \_\_\_\_\_ who is \_\_\_\_\_ of \_\_\_\_\_ a \_\_\_\_\_ corporation, for and on behalf of said corporation.

MY COMMISSION EXPIRES:

\_\_\_\_\_  
Notary Public



CONSENT AND RATIFICATION

UNIT OPERATING AGREEMENT

FOR THE CALUMET RANCH UNIT AREA

CHAVES COUNTY, NEW MEXICO

The undersigned, (whether one or more) hereby acknowledge receipt of a copy of the Unit Operating Agreement in connection with the Unit Agreement for the development and operation of the Calumet Ranch Unit Area embracing lands situated in Chaves County, New Mexico, which said Agreement is dated the 25th day of January, 1978, and acknowledge that they have read the same and are familiar with the terms and conditions thereof. The undersigned also being the owners of leasehold interest being committed to said Unit Agreement do hereby consent to said Unit Operating Agreement and ratify all the terms and provisions thereof, exactly the same as if the undersigned had executed the original of said Unit Operating Agreement or a counterpart thereof.

IN WITNESS WHEREOF, this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
*[Signature]*  
Marion V. Harris  
WI

CORPORATE

G-7

STATE OF \_\_\_\_\_ )  
COUNTY OF Chaves )

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 1978, by \_\_\_\_\_ who is \_\_\_\_\_ of \_\_\_\_\_ a \_\_\_\_\_ corporation, for and on behalf of said corporation.

MY COMMISSION EXPIRES: \_\_\_\_\_  
Notary Public

INDIVIDUAL

STATE OF NEW MEXICO )  
COUNTY OF Chaves )

The foregoing instrument was acknowledged before me this 3rd day of March, 1978, by L. C. HARRIS and MARION V. HARRIS, wife.

MY COMMISSION EXPIRES: July 15, 1978  
*[Signature]*  
Notary Public

2211

CONSENT AND RATIFICATION  
CALUMET RANCH UNIT AGREEMENT  
CHAVES COUNTY, NEW MEXICO

The undersigned, (whether one or more) hereby acknowledges receipt of a copy of the Unit Agreement for the Development and Operation of the Calumet Ranch Unit Area embracing lands situated in Chaves County, New Mexico, which said Agreement is dated the 25th day of January, 1978, and acknowledged that they have read the same and are familiar with the terms and conditions thereof. The undersigned, also being the owners of the leasehold, royalty, or other interests in the lands or minerals embraced in said Unit Area, as indicated on the schedule attached to said Unit Agreement as Exhibit "B", do hereby commit all of their said interests to the Calumet Ranch Unit Agreement and do hereby consent thereto and ratify all of the terms and provisions thereof, exactly the same as if the undersigned had executed the original of said Unit Agreement or a counterpart thereof.

IN WITNESS WHEREOF, this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

Edna Marie Trevino  
Dr. Dr. Trevino

\_\_\_\_\_  
\_\_\_\_\_  
W I

INDIVIDUAL

12-13

STATE OF Texas            §  
  §  
COUNTY OF Midland       §

The foregoing instrument was acknowledged before me this 7th day of March, 1978, by Sheema L. Garces.

MY COMMISSION EXPIRES:  
Sept 3/78

\_\_\_\_\_  
Notary Public

CORPORATE

STATE OF \_\_\_\_\_ §  
  §  
COUNTY OF \_\_\_\_\_ §

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 1978, by \_\_\_\_\_ who is \_\_\_\_\_ of \_\_\_\_\_ a \_\_\_\_\_ corporation, for and on behalf of said corporation.

MY COMMISSION EXPIRES:  
\_\_\_\_\_

\_\_\_\_\_  
Notary Public

CONSENT AND RATIFICATION  
CALUMET RANCH UNIT AGREEMENT  
CHAVES COUNTY, NEW MEXICO

The undersigned, (whether one or more) hereby acknowledges receipt of a copy of the Unit Agreement for the Development and Operation of the Calumet Ranch Unit Area embracing lands situated in Chaves County, New Mexico, which said Agreement is dated the 25th day of January, 1978, and acknowledged that they have read the same and are familiar with the terms and conditions thereof. The undersigned, also being the owners of the leasehold, royalty, or other interests in the lands or minerals embraced in said Unit Area, as indicated on the schedule attached to said Unit Agreement as Exhibit "B", do hereby commit all of their said interests to the Calumet Ranch Unit Agreement and do hereby consent thereto and ratify all of the terms and provisions thereof, exactly the same as if the undersigned had executed the original of said Unit Agreement or a counterpart thereof.

IN WITNESS WHEREOF, this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

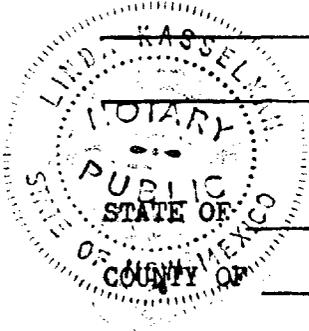
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

David J. Sorenson  
Bonnie J. Sorenson  
Wife

INDIVIDUAL

17

NEW MEXICO    |  
                  |  
CHAVES           |



The foregoing instrument was acknowledged before me this 9th day of

March, 1978, by David J. Sorenson and Bonnie J. Sorenson, husband and wife.

MY COMMISSION EXPIRES:

September 12, 1981

Linda Kasselmann  
Notary Public

CORPORATE

STATE OF \_\_\_\_\_ |  
                          |  
COUNTY OF \_\_\_\_\_ |

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of

\_\_\_\_\_, 1978, by \_\_\_\_\_ who is \_\_\_\_\_

of \_\_\_\_\_ a \_\_\_\_\_ corporation,

for and on behalf of said corporation.

MY COMMISSION EXPIRES:

\_\_\_\_\_  
Notary Public



CONSENT AND RATIFICATION  
CALUMET RANCH UNIT AGREEMENT  
CHAVES COUNTY, NEW MEXICO

The undersigned, (whether one or more) hereby acknowledges receipt of a copy of the Unit Agreement for the Development and Operation of the Calumet Ranch Unit Area embracing lands situated in Chaves County, New Mexico, which said Agreement is dated the 25th day of January, 1978, and acknowledged that they have read the same and are familiar with the terms and conditions thereof. The undersigned, also being the owners of the leasehold, royalty, or other interests in the lands or minerals embraced in said Unit Area, as indicated on the schedule attached to said Unit Agreement as Exhibit "B", do hereby commit all of their said interests to the Calumet Ranch Unit Agreement and do hereby consent thereto and ratify all of the terms and provisions thereof, exactly the same as if the undersigned had executed the original of said Unit Agreement or a counterpart thereof.

IN WITNESS WHEREOF, this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

ATTEST:  
John L. Anderson, Jr.  
John L. Anderson, Jr. Asst. Secretary

FISCO, INC.  
Norman L. Stevens, Jr.  
President

INDIVIDUAL 5-8-9-10-11-15-16

STATE OF \_\_\_\_\_ §  
COUNTY OF \_\_\_\_\_ §

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 1978, by \_\_\_\_\_.

MY COMMISSION EXPIRES: \_\_\_\_\_  
Notary Public

CORPORATE

STATE OF NEW MEXICO §  
COUNTY OF CHAVES §

The foregoing instrument was acknowledged before me this 9th day of March, 1978, by Norman L. Stevens, Jr. who is President of FISCO, INC. a New Mexico corporation, for and on behalf of said corporation.

MY COMMISSION EXPIRES: \_\_\_\_\_  
David C. Tucker  
Notary Public  
May 10, 1980

CONSENT AND RATIFICATION  
CALUMET RANCH UNIT AGREEMENT  
CHAVES COUNTY, NEW MEXICO

The undersigned, (whether one or more) hereby acknowledges receipt of a copy of the Unit Agreement for the Development and Operation of the Calumet Ranch Unit Area embracing lands situated in Chaves County, New Mexico, which said Agreement is dated the 25th day of January, 1978, and acknowledged that they have read the same and are familiar with the terms and conditions thereof. The undersigned, also being the owners of the leasehold, royalty, or other interests in the lands or minerals embraced in said Unit Area, as indicated on the schedule attached to said Unit Agreement as Exhibit "B", do hereby commit all of their said interests to the Calumet Ranch Unit Agreement and do hereby consent thereto and ratify all of the terms and provisions thereof, exactly the same as if the undersigned had executed the original of said Unit Agreement or a counterpart thereof.

IN WITNESS WHEREOF, this instrument is executed by the undersigned as of the date set forth in their respective acknowledgments.

ATTEST:

Joe Wigley, Secretary

FIRST CENTURY OIL, INC.

Charles B. Read, President

INDIVIDUAL

5-8-9-10-11-15-16

STATE OF \_\_\_\_\_  
COUNTY OF \_\_\_\_\_

The foregoing instrument was acknowledged before me this \_\_\_\_\_ day of \_\_\_\_\_, 1978, by \_\_\_\_\_.

MY COMMISSION EXPIRES:

\_\_\_\_\_  
Notary Public

CORPORATE

STATE OF NEW MEXICO  
COUNTY OF CHAVES

The foregoing instrument was acknowledged before me this 9th day of March, 1978, by Charles B. Read who is President of First Century Oil, Inc. a New Mexico corporation, for and on behalf of said corporation.

MY COMMISSION EXPIRES:

Notary Public

May 10, 1980

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

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

CASE NO. 6154  
Order No. R-5652

APPLICATION OF READ & STEVENS, INC. FOR  
APPROVAL OF THE CALUMET RANCH UNIT  
AGREEMENT, CHAVES COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on February 22, 1978, at Santa Fe, New Mexico, before Examiner Richard L. Stamets.

NOW, on this 28th day of February, 1978, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, Read & Stevens, Inc., seeks approval of the Calumet Ranch Unit Agreement covering 5,760 acres, more or less, of State, Federal and Fee lands described as follows:

CHAVES COUNTY, NEW MEXICO  
TOWNSHIP 12 SOUTH, RANGE 27 EAST, NMPM  
Sections 15 thru 17: All  
Sections 20 thru 22: All  
Sections 27 thru 29: All

(3) That all plans of development and operation and creations, expansions, or contractions of participating areas should be submitted to the Secretary-Director of the Oil Conservation Commission for approval.

(4) That approval of the proposed unit agreement should promote the prevention of waste and the protection of correlative rights within the unit area.

IT IS THEREFORE ORDERED:

(1) That the Calumet Ranch Unit Agreement is hereby approved.

-2-

Case No. 6154  
Order No. R-5652

(2) That the plan contained in said unit agreement for the development and operation of the unit area is hereby approved in principle as a proper conservation measure; provided, however, that notwithstanding any of the provisions contained in said unit agreement, this approval shall not be considered as waiving or relinquishing, in any manner, any right, duty, or obligation which is now, or may hereafter be, vested in the Commission to supervise and control operations for the exploration and development of any lands committed to the unit and production of oil or gas therefrom.

(3) That the unit operator shall file with the Commission an executed original or executed counterpart of the unit agreement within 30 days after the effective date thereof; that in the event of subsequent joinder by any party or expansion or contraction of the unit area, the unit operator shall file with the Commission within 30 days thereafter counterparts of the unit agreement reflecting the subscription of those interests having joined or ratified.

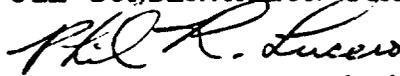
(4) That all plans of development and operation and all unit participating areas and expansions and contractions thereof shall be submitted to the Secretary-Director of the Oil Conservation Commission for approval.

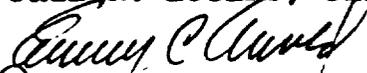
(5) That this order shall become effective upon the approval of said unit agreement by the Commissioner of Public Lands for the State of New Mexico and the Director of the United States Geological Survey; that this order shall terminate ipso facto upon the termination of said unit agreement; and that the last unit operator shall notify the Commission immediately in writing of such termination.

(6) That jurisdiction of this 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

  
PHIL R. LUCERO, Chairman

  
EMERY C. ARNOLD, Member

  
JOE D. RAMEY, Member & Secretary

S E A L

jr/



# NEW MEXICO STATE LAND OFFICE

CERTIFICATE OF APPROVAL

COMMISSIONER OF PUBLIC LANDS, STATE OF NEW MEXICO

CALUMET RANCH UNIT

CHAVES COUNTY, NEW MEXICO

There having been presented to the undersigned Commissioner of Public Lands of the State of New Mexico for examination, the attached Agreement for the development and operation of acreage which is described within the attached Agreement, dated January 25, 1978, which said Agreement has been executed by parties owning and holding oil and gas leases and royalty interests in and under the property described, and upon examination of said Agreement, the Commissioner finds:

- (a) That such agreement will tend to promote the conservation of oil and gas and the better utilization of reservoir energy in said area.
- (b) That under the proposed agreement, the State of New Mexico will receive its fair share of the recoverable oil or gas in place under its lands in the area.
- (c) That each beneficiary Institution of the State of New Mexico will receive its fair and equitable share of the recoverable oil and gas under its lands within the area.
- (d) That such agreement is in other respects for the best interests of the state, with respect to state lands.

NOW, THEREFORE, by virtue of the authority conferred upon me under Sections 7-11-39, 7-11-40, 7-11-41, 7-11-47, and 7-11-48, New Mexico Statutes Annotated, 1953 Compilation, I, the undersigned Commissioner of Public Lands of the State of New Mexico, do hereby consent to and approve the said Agreement, however, such consent and approval being limited and restricted to such lands within the Unit Area, which are effectively committed to the Unit Agreement as of this date, and, further, that leases insofar as the lands covered thereby committed to this Unit Agreement shall be and the same are hereby amended to conform with the terms of such Unit Agreement, and said leases shall remain in full force and effect in accordance with the terms and conditions of said Agreement. This approval is subject to all of the provisions and requirements of the afore-said statutes.

IN WITNESS WHEREOF, this Certificate of Approval is executed, with seal affixed, this 14th. day of March, 19 78.



*Phil R. [Signature]*

COMMISSIONER OF PUBLIC LANDS  
of the State of New Mexico