

Case 2254
Dec 10 1960
Ed 710 10

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
KEMNITZ-WOLFCAMP POOL UNIT AREA
LEA COUNTY, NEW MEXICO

NO. _____

THIS AGREEMENT, entered into as of the 30th day of December, 1960, 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 or gas interests in the unit area subject to this agreement; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 3, Chap. 88, Laws 1943) as amended by Sec. 1 of Chapter 162, Laws of 1951, (Chap. 7, Art. 11, Sec. 39, N. M. Statutes 1953 Annot.), to consent to and approve the development or operation of State lands under agreements made by lessees of State land jointly or severally with other lessees where such agreements provide for the unit operation or development of part of or all of any oil or gas pool, field, or area; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 1, Chap. 162), (Laws of 1951, Chap. 7, Art. 11, Sec. 41, N. M. Statutes 1953 Annot.) to amend with the approval of lessee, evidenced by the lessee's execution of such agreement or otherwise, any oil and gas lease embracing State lands so that the length of the term of said lease may coincide with the term of such agreements for the unit operation and development of part or all of any oil or gas pool, field or area; and

WHEREAS, the Oil Conservation Commission of the State of New Mexico (hereinafter referred to as the "Commission") is authorized by an Act of the Legislature (Chap. 72, Laws 1935; Chap. 65, Art. 3, Sec. 14, N. M. Statutes 1953 Annot.) to approve this agreement and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the Kemnitz-Wolfcamp Pool Unit Area covering the land hereinafter described to give reasonably effective control of operations therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources, prevent waste and secure other benefits obtainable 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 promise herein contained, the parties hereto commit to this agreement their respective interests in the hereinafter defined unit area, and agree severally among themselves as follows:

I

DEFINITIONS:

For purposes of this agreement, the following terms and expressions herein used are defined as follows:

(a) "Unit Area" shall mean and refer to that portion of the Wolfcamp Formation underlying the tracts of land described in Exhibit "A" attached hereto (which tracts are shown within the hatched lines on the plat attached hereto as Exhibit "B") which qualify pursuant to section XVIII hereof.

(b) "Wolfcamp Formation" shall mean that certain formation underlying the Kemnitz Wolfcamp Pool, as defined by Order No. R-1011, as extended by Order No. R-1011-A promulgated by the Oil Conservation Commission of the State of New Mexico, and which, for the purposes of this agreement, is located in the following interval:

- (1) The top of the interval conforming with the local stratigraphy which was encountered at a depth of 10,583 feet according to the electric log run in that certain well known as Tennessee Gas Transmission Company's Well No. 1 located in the NE/4 of the NE/4 of Section 30, Township 16 South, Range 34 East, N.M.P.M.,
- (2) and the bottom of the interval being at a depth of 200 feet below the top of said interval, as defined under (1) above,

it being expressly understood that the Wolfcamp Formation being unitized hereby neither includes the formation from which the Tennessee Gas Transmission Company's Well No. 6 located in Section 30, Township 16 South, Range 34 East, N.M.P.M. is currently producing (known as the Upper Wolfcamp formation), nor the formation from which The Pure Oil Company's Well No. 1 situated in Section 21, Township 16 South, Range 34 East, N.M.P.M. and the Tennessee Gas Transmission Company's Well No. 2 located in the NW/4 of Section 21, Township 16 South, Range 34 East, N.M.P.M. are currently producing (known as the Cisco formation).

(c) "Unitized substances" shall mean and include all crude petroleum oil, casinghead gas, natural gas, condensate or distillate and all associated substances contained in or produced from the Unit Area.

(d) "Residue gas" shall mean the gaseous portion of the unitized substances that is available for cycling, repressuring, sale or other use after the extraction of gasoline, condensate or other liquid hydrocarbons from such unitized substances.

(e) "Gas" means the gaseous portion of the unitized substances produced and saved and shall include the residue gas and natural gas in "outside substances", as that term is hereinafter defined.

(f) "Unit Operating Agreement" shall mean and refer to that certain agreement executed as of the date hereof by and between the operators hereto, known and designated as "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico."

(g) "Operator" is hereby defined as any owner of the right, in whole or in part, to search for and produce unitized substances, herein called "Operating Rights", whether such right be derived from the ownership of the entire mineral title, free of lease, or by oil, gas and mineral leases or by any other species of agreement conferring such right, and whose interest is not in the nature of a royalty interest. Said term shall include all leasehold owners, including the owners of carried working interests.

(h) "Royalty Owner" shall mean any owner who, subject to an operator's right to search for and produce unitized substances, owns land, mineral rights, royalties, overriding royalties, reversionary interests or other rights in and to the unitized substances.

(i) "Unit Operator" means the party hereto who is designated as Operator in accordance with the provisions of the Unit Operating Agreement to conduct operations hereunder in the Unit Area and the term "Operator", when used herein, shall include and refer to Unit Operator where "Unit Operator" qualifies as an operator, as that term is hereinabove defined.

(j) "Primary Participation Period" shall mean that period from the effective date hereof until the first day of the month following the date that the total cumulative production (including all past production of oil recovered from all tracts included in the Unit Area shall equal the number of barrels set out in Exhibit "C" attached hereto.

(k) "Secondary Participation Period" shall mean that period commencing with the end of the Primary Participation Period and continuing throughout the remaining life of the unit.

(l) "North Section" shall mean that portion of the Unit Area located north of a line running east and west through the Unit Area, which line is represented by the dotted line shown on the plat attached hereto as Exhibit "B".

(m) "South Section" shall mean that portion of the Unit Area located south of the North Section, as defined above.

II

UNIT FORMED

Subject to the terms, covenants and conditions of this agreement, the parties hereto hereby consolidate and communitize the oil and gas leasehold estates created by the oil and gas leases described in Exhibit "A" hereof, insofar as same cover and pertain to the Wolfcamp formation situated under the lands described in Exhibit "A" hereof, into one unit for the production of unitized substances. The unit created hereby shall include and be limited to all of the oil and gas mineral estates contained in the Wolfcamp formation within the tracts contained within the hatched area shown on Exhibit "B" which is attached hereto; provided, however, that if less than all of the operators in the Unit Area execute the Unit Agreement, this unit shall include only the tracts which qualify under Section XVIII hereof.

III

UNIT OPERATOR

Tennessee Gas Transmission Company is hereby designated as Unit Operator. Except as otherwise provided herein, or in the Operating Agreement, the exclusive right, duty and privilege of exercising any and all rights of the parties hereto within the Unit Area which are necessary or convenient in prospecting for, producing and saving the unitized substances and for conducting repressuring or pressure maintenance operations hereunder are hereby vested in and shall be exercised by Unit Operator, who shall have the right to inject any substances into the Unit Area for the purpose of stimulating or maintaining production or retarding the decline of reservoir pressure. Nothing herein shall be construed to transfer title to any land or leases, it being understood that the Unit Operator shall have the right of possession and use only for the purposes herein specified. Except as modified by the provisions of this agreement,

the Unit Operator shall keep and perform the terms and provisions of all leases, subleases and contracts, only to the extent that they are applicable to the development and production of unitized substances from the Unit Area. Otherwise, such obligations shall be the obligations of the operators in each respective tract committed hereto.

Unit Operator shall, except as otherwise specifically provided herein, or in the above referred to Unit Operating Agreement, in the first instance, pay all costs and expenses incurred in connection with operations hereunder and no part thereof shall be charged to the royalty owners. The method of handling such costs and expenses shall be the subject of a private arrangement between the operators, as provided in said Unit Operating Agreement.

Unit Operator may resign or be discharged and a new Unit Operator appointed under and in accordance with the provisions of said Unit Operating Agreement; however, any such resignation shall not be effective until a new Unit Operator has been designated by the operators, said new unit operator has accepted such designation and said new unit operator has been approved by the Commissioner of Public Lands of the State of New Mexico, hereinafter called "Commissioner".

IV

DETERMINATION OF PERCENTAGES OF PARTICIPATION

(1) As of the effective date of this agreement, the parties hereto agree to participate in unitized substances produced from the Unit Area as follows:

Attached hereto, marked Exhibit "C" and made a part hereof, is a schedule on which are listed numbered tracts of land within the Unit Area, which tracts are described under corresponding numbers in Exhibit "A". Opposite each numbered tract on Exhibit "C" in Column 1 is shown the percentage of participation in unitized substances allocated to said tract during the primary participation period of this agreement; and opposite each numbered tract in Exhibit "C" in Column 2 is shown the percentage of participation in unitized substances allocated to said tract during the secondary participation period of this agreement. Also shown on Exhibit "C" is the formula by which said percentages of participation were determined.

All parties to this agreement hereby accept such percentages of participation as correct and, subject to the terms and conditions hereinafter set out relative to the subsequent adjustment of said percentages, agree that payment or accounting shall be made to them as their interests respectively appear on the percentage of participation basis set out in said Exhibit "C".

(2) Subsequent Adjustment of Percentages of Participation:

(a) As reflected on Exhibit "C" hereto, tracts or portions of tracts located in the North Section of the Unit Area are not given any credit in unitized substances after the primary participation period of this agreement; however, in the event a study of the performance of the wells located in the North Section of the Unit Area during the primary participation period of this agreement indicates that said wells respond favorably to repressuring or pressure maintenance activities conducted in the South Section of the Unit Area or in the event the operators should subsequently elect to initiate a secondary recovery and/or pressure maintenance program exclusively for the North Section of the Unit Area, the operators will arrive at an equitable allocation of percentages of participation in unitized substances to the respective tracts or portions of tracts in the North Section of the Unit Area and the tracts or portions of tracts in the North Section of the Unit Area will thereafter participate in unitized substances produced and saved during the secondary participation period. Any revision of participation shall be made by agreement of the operators with the approval of the Commissioner, provided, however, that after any such revision, the percentages of participation allocated to tracts or portions of tracts situated in the South Section shall continue to bear the same ratio to each other; i.e. any diminution in total participation allocated to the South Section shall be deducted proportionately from the respective tracts in the South Section.

(b) If and when Exhibit "C" is revised, as hereinabove provided, a certificate setting out the changes shall be executed by the Unit Operator and approved by the Commissioner and the new percentages of participation, as therein shown, shall be effective, applicable and in lieu of the preceding Exhibit "C" for all purposes of this agreement from and after 7:00 a. m. on the first day of the calendar month next following date of approval of said certificate by the Commissioner.

ALLOCATION AND DISPOSAL OF UNITIZED SUBSTANCES:

(a) From and after the effective date of this agreement, all unitized substances shall be apportioned among and allocated to the numbered tracts in the Unit Area in accordance with the percentage of participation allocated to each such tract, as shown on Exhibit "C", or any revision thereof, and shall be distributed among, or accounted for, to the several parties entitled to share in the production from such separately owned tract in the same manner, in the same proportions and upon the same conditions as they would have participated and shared in the production from such separately owned tract, or in the proceeds thereof had the unit not been formed, and with the same legal force and effect; provided however, that nonsubscribing owners of royalty rights in the tracts included within the Unit Area shall not receive any payments for unitized substances produced from the Unit Area based on the production allocated to the tract or tracts in which such owners are interested, but such owners shall be paid on the basis of the oil, gas and other minerals actually produced from the respective tracts in which they own an interest in the royalty rights, and any obligation to such owners for such production shall remain the obligation of the operator or operators hereto who were liable therefor prior to the effective date of this agreement and shall be paid and satisfied in each instance by said operator or operators.

(b) If any oil or gas rights in a tract set forth on Exhibit "A" shall now or hereafter become divided and owned in severalty, as to different parts of said tract, the owners of the divided interests in said tract shall share in the unitized substances allocated to said tract or in the proceeds thereof in proportion to the surface acreage of their respective parts of said tract.

(c) Each party hereto who, prior to the effective date of this agreement, had the right or who may thereafter acquire the right to take in kind or separately dispose of its proportionate part of the production from properties covered hereby, shall, at its own expense, take in kind or separately dispose of its proportionate part of the unitized substances produced and saved from the Unit Area, exclusive of the portion which may be used by Unit Operator in conducting operations hereunder; provided, however, that at such times as any party hereto shall fail or refuse to take in kind or separately dispose of his or its

proportionate part of the unitized substances, Unit Operator shall have the right, revocable at will, to purchase such party's proportionate part of the unitized substances or to sell the same to others at not less than the market price prevailing in the field where produced at the time of such sale or purchase; and provided, further, that all such sales contracts made under this revocable authority to sell shall be only for such reasonable periods of time as are consistent with the minimum needs of the industry under the circumstances, but in no event shall any such sales contract bind such party for a period greater than thirty (30) days.

(d) Each party hereto shall be responsible for the payment of, and shall indemnify all other parties hereto against any liability for, any and all royalties, overriding royalties, production payments and any and all other payments chargeable against or payable out of his or its interest in the production from the Unit Area.

VI

SETTLEMENT WITH ROYALTY OWNERS ON GAS:

Operators jointly shall always have the right, at their discretion, to sell any part or portion of the gas produced and saved from the Unit Area to a plant for the purpose of extracting and separating gasoline or other hydrocarbons from such gas, whether such plant is owned by some or all of the parties hereto or by third parties. In the event of such sale, all royalty, overriding royalty and other payments to royalty owners hereunder shall be determined and calculated on the basis of the net proceeds received under the contract covering such sale, it being understood, however, that only the net proceeds attributable to the unit gas production allocated to each of the numbered tracts within the Unit Area in accordance with the percentages of participation of each such tract, as shown on Exhibit "C", or any revision thereof, shall be considered in determining the gas royalty payments to be made to the royalty owners hereunder in such tract. Nothing in this Article VI shall ever be construed to amend or modify the minimum price provision, if any, for the sale of gas or casinghead gas by lessee contained in the respective leases covering acreage within the Unit Area.

VII

USE OF PRODUCTION AND OPERATIONS AND WAIVER OF ROYALTIES WITH RESPECT THERETO:

Unit Operator shall have the free use of and may utilize such part or portion of the unitized substances produced hereunder as may be necessary for

all operations hereunder. If any outside substances (being all substances obtained from any source other than the Unit Area) consisting of natural gases are injected into the Unit Area, any like substance contained in unitized substances subsequently produced and sold or used for other than operations hereunder, shall be deemed to be an outside substance until the aggregate amount of such like substances produced equals the accumulated volume of such outside substances injected into the Unit Area. If the outside substances injected are liquified petroleum gases or other liquid hydrocarbons (as distinguished from natural gases) prior to injection, then on the first day of the calendar month following the commencement of the injection of such liquified petroleum gases or other liquid hydrocarbons, the value of the total liquids extracted from the Unit Area and processed in gasoline or other processing plants shall be deemed to be outside substances until the aggregate value of such liquids equals the accumulated value of all such liquified petroleum gases or other liquid hydrocarbons so injected into the Unit Area. The aforesaid "value" of the above mentioned total liquids extracted shall be that amount of money paid or credited to the lessee for liquids under the extraction contracts under which all such liquids are or may be extracted. No payment shall be due to royalty owners on any substance which is classified hereby as an outside substance; provided such outside substances are injected into the Unit Area pursuant to a plan of operation consented to by the Commissioner and approved by the Commission as conforming to good petroleum engineering practice.

VIII

LEASES AND CONTRACTS CONFORMED AND EXTENDED INsofar AS THEY APPLY TO LANDS WITHIN THE UNITIZED AREA:

The terms, conditions and provisions of all leases, subleases, operating agreements and other contracts relating to the exploration, drilling, development or operation for oil or gas of the lands committed to this agreement shall, as of the effective date hereof, be and the same are hereby expressly modified and amended, insofar as they apply to lands within the unitized area to the extent necessary to make the same conform to the provisions hereof and so that the respective terms of said leases and agreements will be extended, insofar as necessary, to coincide with the term of this agreement and the approval

of this agreement by the Commissioner for the lessors and by lessees shall be effective to conform the provisions and extend the term of each such lease, as to lands within the unitized area, to the provisions and term of this agreement; but otherwise to remain in full force and effect. Each lease committed to this agreement, insofar as it applies to lands within the unitized area, shall continue in force beyond the term provided therein so long as this agreement remains in effect. Termination of this agreement shall not affect any lease which, pursuant to the terms thereof or any applicable laws, would continue in full force and effect thereafter. The commencement, completion, continued operation or production of a well or wells for unitized substances on the Unit Area shall be construed and considered as the commencement, completion, continued operation or production on each of the leasehold interests committed to this agreement and operations or production pursuant to this agreement shall be deemed to be operations upon and production from each leasehold interest committed hereto and there shall be no obligation on the part of the Unit Operator or any of the owners of the respective leasehold interests committed hereto to drill offsets to wells, as between the leasehold interests committed to this agreement.

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 as to the portion not committed and the terms of such leases shall apply separately as to such segregated portions commencing as of the effective date hereof. 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 and gas, or either of them, are capable of being produced in paying quantities from some part of the lands embraced in such lease committed to this agreement at the expiration of the secondary term of such lease; or if, at the expiration of the secondary term, the lessee or the Unit Operator is then engaged in bona fide drilling or reworking operations on some part of the lands embraced therein, said lease 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 and gas, or either of them, are being produced in paying quantities from any portion of said lands.

IX

ENLARGEMENT OF UNIT AREA:

The Unit Area may be enlarged to include adjacent and contiguous tracts by agreement of the operators, subject to approval of the Commissioner. In such event, the incoming tracts shall be allocated equitable participation percentages acceptable to operators and such percentages of participation credited to the incoming tracts shall be deducted proportionately from the tracts in the Unit Area prior to enlargement so that the participation percentages of the tracts in the Unit Area prior to enlargement shall continue to bear the same ratio to each other. In the event of such a subsequent enlargement, there shall be no retroactive adjustment of past revenue from production; however, an adjustment of prior unit expenditures shall be the subject of a separate arrangement among the operators.

In the event of such enlargement, Exhibits "A", "B" and "C" will be revised by Unit Operator and a certificate setting out the changes shall be executed by the Unit Operator and approved by the Commissioner. The changes, as therein shown, shall be effective, applicable and in lieu of the preceding Exhibits "A", "B" and "C" for all purposes of this agreement from and after 7:00 a. m. on the first day of the calendar month next following the date of approval of said certificate by the Commissioner.

X

AGREEMENT OF OPERATORS:

Except as otherwise provided herein, for all matters herein requiring a determination or decision by operators, the Unit Operating Agreement shall provide for the manner and method of arriving at such determination or decision; provided, however, that in the event of a conflict between any of the terms of this agreement and the Unit Operating Agreement, the terms of this agreement shall control.

XI

CONSERVATION:

Operations hereunder and production of unitized substances shall be conducted so provide for the most economical and efficient recovery of said substances

without waste, as defined by or pursuant to State laws or regulations.

XII

DRAINAGE:

In the event a well or wells producing oil or gas in paying quantities should be brought in on land adjacent to the Unit Area draining unitized substances from the lands embraced therein, Unit Operator shall drill such offset well or wells as a reasonably prudent operator would drill under the same or similar circumstances.

XIII

RATE OF PRODUCTION:

All production and the disposal thereof shall be in conformity with allocations, allotments and quotas made or fixed by the Commission and in conformity with all applicable laws and lawful regulations.

XIV

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 Commissioner of Public Lands and/or the New Mexico Oil Conservation Commission, and to appeal from orders issued under the regulations of the Commissioner or Commission or to apply for relief from any of said regulations relative to operations hereunder; provided, however, that any interested party shall also have the right at his own expense to appear and to participate in any such proceeding.

XV

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 sent by 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.

XVI

UNAVOIDABLE DELAY:

All obligations under this agreement requiring the Unit Operator to operate on or produce unitized substances from any of the lands covered by this agreement shall be suspended and neither this unit nor any lease subject hereto shall terminate while, but only so long as, 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, war, acts of God, Federal, State or municipal law or agencies, unavoidable accident, 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.

XVII

LOSS OF TITLE:

In the event title to any tract of unitized land or substantial interest therein shall fail and the true owner cannot be induced to join the unit agreement so that such tract is not committed to this agreement or the operation thereof hereunder becomes impracticable as a result thereof, such tract may be eliminated from the unitized area, and the interest of the parties readjusted as a result of such tract being eliminated from the unitized area. In the event of a dispute as to the title to any royalty, working or other interest subject hereto, the Unit Operator may withhold payment or delivery of the allocated portion of the unitized substances involved on account thereof without liability for interest until the dispute is finally settled, provided that no payments of funds due the State of New Mexico shall be withheld. Unit Operator, as such, is relieved from any responsibility for any defect or failure of any title hereunder.

XVIII

TRACTS TO BE INCLUDED IN UNIT:

As of the effective date hereof, the Unit Area shall be composed of the following tracts listed in Exhibit "A" hereto which corner, adjoin or are contiguous to each other (tracts separated by a road, highway or railroad are to be considered adjoining for the purposes of this agreement):

1. Each tract as to which operators owning 100% of the operating rights have signed or ratified this agreement.
2. Each tract as to which operators owning less than 100% but at least 90% of the operating rights have signed or ratified this agreement, and as to which (a) The operator who operates the tract and all of the other subscribing operators have joined in a request for inclusion of such tract in the Unit Area and have executed and delivered an indemnity agreement acceptable to the other operators in the Unit Area indemnifying and agreeing to hold such parties harmless from and against all claims and demands that may be made by the nonsubscribing operators in such tract on account of the inclusion of same in the Unit Area, and further as to which (b) 90% of the combined voting interest of the operators in all tracts qualifying under Number 1 above vote in favor of the inclusion of such tract; and for this purpose, the voting interest of each operator shall equal the ratio which the total of such operator's unit participation attributable to tracts qualifying under Number 1 above bears to the total unit participation of all operators attributable to all tracts which qualify under Number 1 above.
3. In no event, however, shall this unit become effective if the Unit Area includes less than all of those tracts described in Exhibits "A" and "B" hereto, unless a smaller Unit Area be approved by the vote of 90% of the combined voting interest of operators in the tracts which shall have qualified pursuant to 1 and 2 above.

In the event the Unit Area is adopted with less than all tracts described on Exhibits "A" and "B" hereto, Unit Operator shall recompute, using the original basis of computation, the tract participation of each of the qualifying tracts and the number of barrels to be produced during the primary participation period and shall revise Exhibits "A", "B" and "C" accordingly. Said revised exhibits shall be effective as of the effective date hereof.

In the event less than all of the operators in the Unit Area are parties hereto, all royalty owners agree to look solely to the uncommitted operators for the proportion of royalty constituting a charge against said uncommitted interest.

XIX

SUBSEQUENT JOINDER:

Any oil or gas interest in lands within the Unit Area not committed hereto prior to the effective date hereof may be committed hereto by the owner or owners of such rights by the subsequent execution of this agreement or a ratification thereof, and if such owner is also an operator, by subscribing to the Operating Agreement providing for the allocation of costs of development and operation; provided, however, any operator or royalty owner who fails to join the unit within sixty (60) days after receipt of a copy hereof with a request for joinder shall only be permitted to join on such terms and conditions as may be stipulated by the operators who are then parties hereto. A subsequent joinder shall be effective as of 7:00 a.m. on the first day of the calendar month next following the filing for recording in the appropriate records of the State Land Office in Santa Fe, New Mexico of the instrument executed by such party or parties evidencing such joinder, but any operator subsequently joining, prior to participating in any benefits hereunder, shall be required to assume and pay to Unit Operator its proportionate share of the expenditure incurred prior to joinder in the Unit Agreement, and the Unit Operator shall make appropriate adjustments of such expenditures to the other operators in the Unit Area; however, there shall be no retroactive adjustment of revenue on production from the Unit Area.

XX

EFFECTIVE DATE AND TERM:

This agreement shall become effective at 7:00 a.m. on the first day of the calendar month following the approval of same by the Commissioner and shall remain in effect so long as unitized substances or outside substances can be produced from the Unit Area in paying quantities, and should production cease, for sixty (60) days and so long thereafter as operations are in progress for the restoration of production without cessation for more than sixty (60) consecutive days, and thereafter so long as unitized substances or outside substances can be produced as aforesaid. This agreement may be terminated by a concurring vote of the operators owning ninety percent (90%) of the voting interests, with the approval of the Commissioner. For this purpose, each operator's voting interest shall be the sum of those fractions determined by multiplying said operator's interest in the leasehold estate in each respective tract in the Unit Area by the participation allocated to said tract as of the time said vote is taken. Upon termination hereof, Unit Operator shall have the right to remove all material and equipment from the Unit Area.

XXI

PRIOR AGREEMENTS RECONCILED:

It is recognized that some of the leases described on Exhibit "A" hereto are subject to prior agreements concerning operation, development and distribution of production; however, the parties hereto hereby agree that insofar as said prior agreements pertain to the herein unitized area and are in conflict with this agreement or the Unit Operating Agreement, such prior agreements are superseded hereby, otherwise, said prior agreements shall remain in force and effect in accordance with their terms and provisions.

XXII

COVENANTS RUN WITH LAND:

The covenants herein shall be construed to be covenants running with the land with respect to the interests of the parties hereto and their successors in interest until this agreement terminates, and any grant, transfer or conveyance of 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, royalty or other interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after the Unit Operator is furnished with the original, photostatic or certified copy of the instrument of transfer.

XXIII

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.

IN WITNESS WHEREOF, this instrument is executed as of the date first above written.

TENNESSEE GAS TRANSMISSION COMPANY

By 
Agent and Attorney in Fact

ATTEST:

Warren D. Anderson

THE VINCENT ASTOR FOUNDATION

By _____

Shirley K. Bernstein, Individually
and as Independent Executor of the
Estate of Edward Karfiol, deceased

L. W. Biddick

H. L. Brown

C. C. Cathey

ATTEST:

CITIES SERVICE OIL COMPANY

By _____

BANK OF THE SOUTHWEST, N. A.
(Formerly The Second National Bank
of Houston) Independent Co-Executor
and Co-Trustee of the Estate of
Wilburne Austin Dickson, deceased

By _____

Mrs. Inez Lee Dickson, Independent
Co-Executor and Co-Trustee of the
Estate of Wilburne Austin Dickson,
deceased

D. H. Dorn

ATTEST:

FOREST OIL CORPORATION

By _____

ATTEST:

GLORIETA OIL COMPANY, INC.

By _____

H. L. Huffman

ATTEST:

THE PURE OIL COMPANY

By _____

Irl Rhynes

Willard E. Rhynes

ATTEST:

SAMEDAN OIL CORPORATION

By _____

ATTEST:

SHELL OIL COMPANY

By _____

C. E. Siegesmund

ATTEST:

SIGNAL OIL AND GAS COMPANY

By _____

ATTEST:

SINCLAIR OIL & GAS COMPANY

By _____

ATTEST:

SKELLY OIL COMPANY

By _____

Thomas J. Walsh

Ellen Woods Westheimer

Jerome M. Westheimer

Jane Johnson Wilson

"OPERATORS"

APPROVED this _____ day of _____, 1961.

Commissioner of Public Lands of
the State of New Mexico

"ROYALTY OWNERS"

THE STATE OF TEXAS |
 |
COUNTY OF MIDLAND |

The foregoing instrument was acknowledged before me this 4 day
of January, 1961 by A. N. MCDOWELL, as Attorney in Fact, on
behalf of Tennessee Gas Transmission Company.

Anne L. West
Notary Public in and for
Midland County, Texas

L. S.

EXHIBIT "A" TO UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA
LEA COUNTY, NEW MEXICO

The following leases are committed to the Unit Agreement to which this Exhibit is attached, insofar and only insofar as said leases cover the respective tracts described, all situated in Lea County, New Mexico:

Tract No. 1

New Mexico State Oil and Gas Lease No. E-9538, insofar and only insofar as same covers:

E/2 of E/2 Section 26, T-16-S, R-33-E,
N.M.P.M.

Tract No. 2

New Mexico State Oil and Gas Lease No. E-1126, insofar and only insofar as same covers:

N/2 Section 25, T-16-S, R-33-E, N.M.P.M.

Tract No. 3

New Mexico State Oil and Gas Lease No. E-992, insofar and only insofar as same covers:

All of Section 30, T-16-S, R-34-E, N.M.P.M.

Tract No. 4

New Mexico State Oil and Gas Lease No. E-2509, insofar and only insofar as same covers:

NW/4 of Section 29, T-16-S, R-34-E, N.M.P.M.

Tract No. 5

New Mexico State Oil and Gas Lease No. E-1387, insofar and only insofar as same covers:

NE/4 Section 29 and W/2 SE/4 Section 20,
T-16-S, R-34-E, N.M.P.M.

Tract No. 6

New Mexico State Oil and Gas Lease No. E-1769, insofar and only insofar as same covers:

S/2 Section 29 and SW/4 Section 28, T-16-S,
R-34-E, N.M.P.M.

Tract No. 7

New Mexico State Oil and Gas Lease No. OG-380, insofar and only insofar as same covers:

NW/4 Section 28, T-16-S, R-34-E, N.M.P.M.

Tract No. 8

New Mexico State Oil and Gas Lease No. OG-180, insofar and only insofar as same covers:

E/2 Section 21, T-16-S, R-34-E, N.M.P.M.

Tract No. 9

New Mexico State Oil and Gas Lease No. OG-377, insofar and only insofar as same covers:

NW/4 Section 21, T-16-S, R-34-E, N.M.P.M.

Tract No. 10

New Mexico State Oil and Gas Lease No. OG-378, insofar and only insofar as same covers:

SW/4 Section 21, T-16-S, R-34-E, N.M.P.M.

Tract No. 11

New Mexico State Oil and Gas Lease No. E-1387, insofar
and only insofar as same covers:

E/2 SE/4 of Section 20, T-16-S, R-34-E,
N.M.P.M.

Tract No. 12

New Mexico State Oil and Gas Lease No. OG-129, insofar
and only insofar as same covers:

W/2 Section 20, T-16-S, R-34-E, N.M.P.M.

Tract No. 13

New Mexico State Oil and Gas Lease No. E-944, insofar
and only insofar as same covers:

E/2 Section 19, T-16-S, R-34-E, N.M.P.M.

Tract No. 14

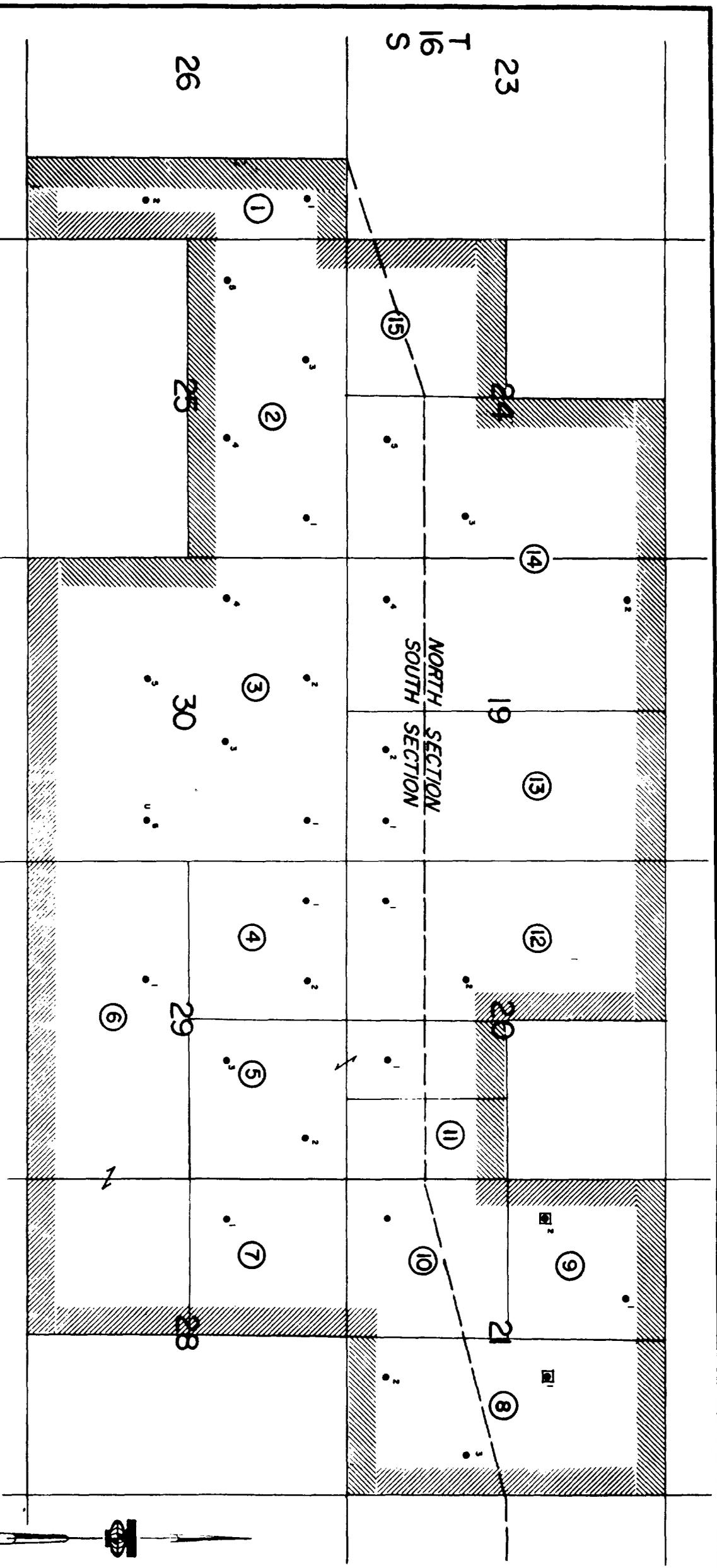
New Mexico State Oil and Gas Leases Nos. E-944, E-1078
and E-912, insofar and only insofar as said leases cover:

W/2 Section 19, T-16-S, R-34-E and E/2
Section 24, T-16-S, R-33-E, N.M.P.M.

Tract No. 15

New Mexico State Oil and Gas Lease No. E-1078, insofar
and only insofar as same covers:

SW/4 Section 24, T-16-S, R-33-E, N.M.P.M.



- LEGEND
- WOLF CAMP WELL
 - CISCO WELL
 - u ● UPPER WOLF CAMP WELL

TENNESSEE GAS AND OIL COMPANY
 DIVISION OF TENNESSEE GAS TRANSMISSION COMPANY

EXHIBIT 'B' TO
 UNIT AGREEMENT FOR

THE DEVELOPMENT & OPERATION
 OF THE
 KEMNITZ-WOLF CAMP POOL UNIT
 LEA COUNTY, NEW MEXICO



EXHIBIT "C" TO UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION OF THE
KEMNITZ-WOLFCAMP POOL UNIT AREA
LEA COUNTY, NEW MEXICO

The tracts referred to below are more particularly described under corresponding numbers on the preceding Exhibit "A" and are also reflected under corresponding numbers on the preceding Exhibit "B". The number of barrels of cumulative oil production from all of the following tracts prior to the expiration of the primary participation period shall be 9,637,800 barrels. In the event the unit becomes effective to include less than all of the following tracts, said number of barrels shall be adjusted in accordance with Section XVIII of this Agreement. Any recomputation of total cumulative barrels of production during the primary participation period must be made on the basis of the remaining primary reserves credited to the above tracts as of April 1, 1960, as calculated by the Engineering Committee hereinafter referred to.

	<u>PERCENTAGES OF PARTICIPATION DURING PRIMARY PARTICIPATION PERIOD</u>	<u>PERCENTAGES OF PARTICIPATION DURING SECONDARY PARTICIPATION PERIOD</u>
<u>Tract No. 1:</u> Forest Oil Company, et al - State "A" Lease	2.884	2.731
<u>Tract No. 2:</u> Tennessee Gas Transmission Company, et al - Kemnitz "B" Lease	16.877	17.226
<u>Tract No. 3:</u> Tennessee Gas Transmission Company, et al - Kemnitz "A" Lease	20.651	22.370
<u>Tract No. 4:</u> Shell Oil Company - State "WC" Lease	8.437	9.253
<u>Tract No. 5:</u> Tennessee Gas Transmission Company, et al - State - Western	12.656	12.425
<u>Tract No. 6:</u> Shell Oil Company - State "WD" Lease	4.219	4.369
<u>Tract No. 7:</u> Tennessee Gas Transmission Company - State "D" Lease	2.750	2.225
<u>Tract No. 8:</u> The Pure Oil Company - State "E" Lease	6.818	5.780
<u>Tract No. 9:</u> Tennessee Gas Transmission Company - State "B" Lease	.372	.000

	<u>PERCENTAGES OF PARTICIPATION DURING PRIMARY PARTICIPATION PERIOD</u>	<u>PERCENTAGES OF PARTICIPATION DURING SECONDARY PARTICIPATION PERIOD</u>
<u>Tract No. 10:</u> Tennessee Gas Transmission Company - State "C" Lease	1.211	1.688
<u>Tract No. 11:</u> Samedan Oil Corporation, et al - State - Western Lease	.000	.000
<u>Tract No. 12:</u> Tennessee Gas Transmission Company - State "A" Lease	5.311	4.685
<u>Tract No. 13:</u> Sinclair Oil & Gas Company - State Lease "381"	8.437	9.322
<u>Tract No. 14:</u> Sinclair Oil & Gas Company, et al - Seamen Unit	9.377	7.926
<u>Tract No. 15:</u> Sinclair Oil & Gas Company - State Lease "692"	<u>.000</u>	<u>.000</u>
TOTAL:	100.000	100.000

The following formulae were used in determining percentages of participation allocated to the various tracts during the respective primary and secondary participation periods:

During the primary participation period, the unitized substances in the Unit Area are allocated to the various tracts according to their remaining primary reserves as of April 1, 1960, as calculated by an Engineering Committee (composed of representatives of numerous Operators who are parties to the Unit Agreement) on May 10-11, 1960.

During the secondary participation period, all additional unitized substances are allocated to the tracts situated in the South Area based upon the predicted ultimate primary recovery of the wells situated in the South Area, as estimated or predicted by the aforesaid Engineering Committee on May 10-11, 1960.

It is expressly understood that the preceding formulae were used to determine the above percentages of participation, which are hereby accepted by all parties; however, any revision of this Exhibit "C" pursuant to this agreement and the Unit Operating Agreement shall not necessarily be required to be based upon the foregoing formulae but may be made upon any equitable basis in accordance with the terms of the Unit Operating Agreement, limited only by the provisions of Section IV, Subsection (2) (a), and Section IX to this Unit Agreement.



TENNECO OIL COMPANY • P. O. BOX 1031 • 1800 WILCO BUILDING • MIDLAND, TEXAS

August 4, 1961

Case # 2255

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Kemnitz-Wolfcamp Pool Unit Area
Lea County, New Mexico

Gentlemen:

Enclosed herewith are photostatic copies of Ratification Agreements executed by the various parties interested in the above subject unit. The originals of these agreements have been filed for record in Lea County, New Mexico and the recording information appears on the enclosed copies. The original agreements are being forwarded to the New Mexico Land Commissioner's office.

All of the working interest owners interested in the leases in the Kemnitz-Wolfcamp Pool Unit Area have executed Ratification Agreements with the exception of a small interest owned by Astor & Company which is in the process of being sold to Forest Oil Corporation. A proper indemnification agreement has been furnished by Forest Oil Corporation and approved by a sufficient number of working interest owners so that all tracts reflected by the exhibits to the Unit Agreement have properly qualified, effective June 1, 1961. We are in the process of constructing facilities on the unit and hope to be injecting gas some time this fall.

We are sorry for the delay in furnishing you with these copies as required by the Commission's Order approving the subject unit; however, we had to wait until the original agreements were returned from the County Recorder's office. The Commission has already been furnished with copies of the Unit and Unit Operating Agreements. If there is anything further you require, please so advise.

Yours very truly,

TENNECO OIL COMPANY

William N. Armstrong

William N. Armstrong
Division Attorney

WNA:jo
Enc.

cc: T. Myron Pyle

CERTIFICATE OF APPROVAL

BY COMMISSIONER OF PUBLIC LANDS, STATE OF NEW MEXICO

THE KERNITZ-WOLFCAMP POOL UNIT

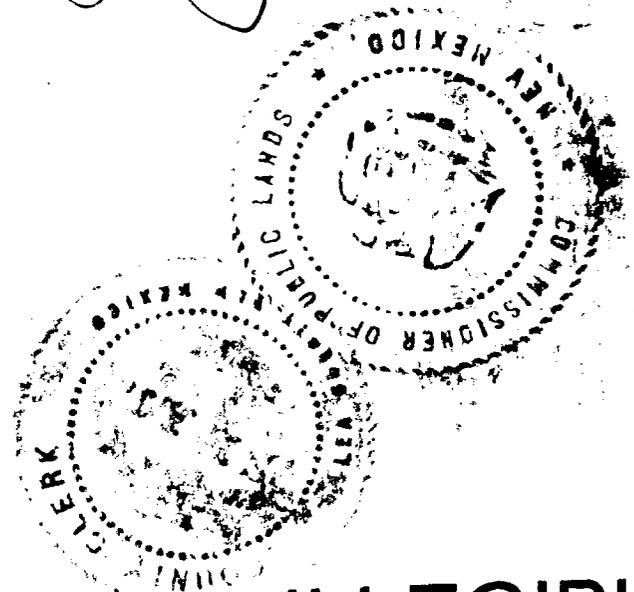
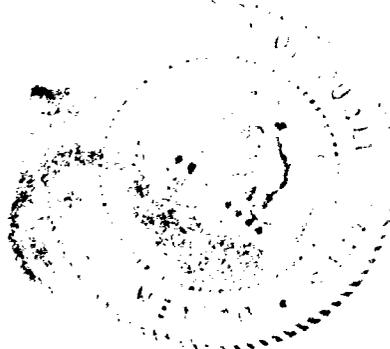
There having been presented to the undersigned Commissioner of Public Lands of the State of New Mexico for examination, the attached Agreement for the development and operation of acreage which is described within the attached Agreement, dated December 30, 1961, which has been executed or is to be executed 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, 7-11-48, New Mexico Statutes Annotated 1953 Compilation, I, the undersigned, Commissioner of Public Lands of the State of New Mexico, for the purpose of more properly conserving the oil and gas resources of the State, do hereby consent to and approve the said Agreement, and any leases embracing lands of the State of New Mexico within the area shall be and the same are hereby amended to conform with the terms thereof, and shall remain in full force and effect according to the terms and conditions of said Agreement. This approval is subject to all of the provisions of the aforesaid statutes.

IN WITNESS WHEREOF, this Certificate of Approval is executed, with seal affixed, this 16th day of MAY 19 61.

Ed Johnson
Commissioner of Public Lands
of the State of New Mexico



STATE OF NEW MEXICO
COUNTY OF LEA
FILED

JUN 2 1961

at 8:55 o'clock AM
and Recorded in Book 174
Page 18
By WLG Deputy
VERGIL LOVE, County Clerk

31939

ILLEGIBLE

THE STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this 1 day
of _____, 1961 by A. N. MCDOWELL, as Attorney in
Fact, on behalf of Tennessee Gas Transmission Company.

Notary Public in and for Midland
County, Texas

My Commission Expires:

Tenneco Corporation, successor to the interest of Tennessee Gas
Transmission Company in the Kemnitz-Wolfcamp Pool Unit Area, acting by
and through its managing agent, Tenneco Oil Company, hereby executes and
adopts the foregoing Unit Agreement and assumes all of the privileges, rights,
obligations and responsibilities therein credited to Tennessee Gas Transmission
Company.

TENNECO CORPORATION, Acting by Its
Managing Agent, TENNECO OIL COMPANY

By A. N. McDowell
Agent and Attorney in Fact for
Tenneco Corporation and Tenneco
Oil Company.

THE STATE OF TEXAS)
)
COUNTY OF MIDLAND)

The foregoing instrument was acknowledged before me this 1 day
of _____, 1961 by A. N. MCDOWELL, as Agent and
Attorney in Fact, on behalf of Tenneco Corporation and Tenneco Oil Company.

Notary Public in and for Midland
County, Texas

My Commission Expires:

ILLEGIBLE

Filed 10:00 AM.
MAY 25, 1961
Rec. 173/498
LEA County, N.M.

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: Dec. 14, 1961

Shirley K. Bernstein

Date: Feb. 14, 1961

Isidore C. Bernstein

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 14th day of February, 1961 by Richard Bernstein and his wife Shirley Bernstein

CAROLYN M. PRETSCHE
NOTARY PUBLIC, State of New York
No. 30200000 County Clerk
Qualified 12/17/59
Certificate expires 12/31/61

Carolyn Pretsch
Notary Public in and for New York
County, New York

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

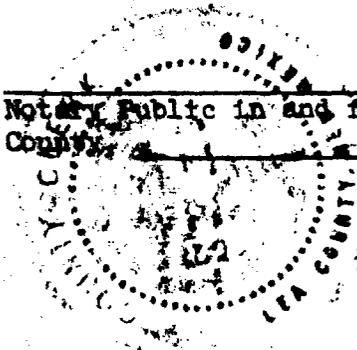
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

at 10:00 o'clock A.M.
and Recorded in Book 173
Page 392
VIRGIL LORR, County Clerk
By _____ Deputy



31607

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: May 10, 1961

CITIES SERVICE PETROLEUM COMPANY

Attest: _____

By Gerald McGrew
Vice President

Asst. Secretary

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)



(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Arkansas
COUNTY OF Washington

The foregoing instrument was acknowledged before me this 10 day of May, 1961 by George McGraw, Vice President of Citic Service Petroleum Co., a corporation, on behalf of said corporation.

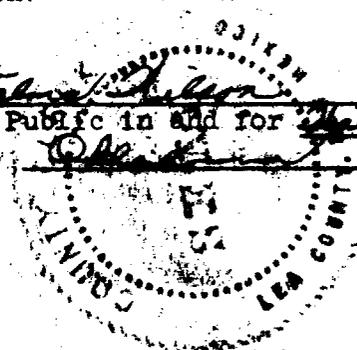
Notary Public in and for Washington
County, Arkansas

My Comm Exp 10-22-61

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock P.M.
and Recorded in Book 123
Page 390
VIRGIL LOVE, County Clerk
Deputy



31606

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

~~Date:XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX~~

BANK OF THE SOUTHWEST, N.A. (Formerly The Second National Bank of Houston) Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, deceased.

Date: 5-16-61

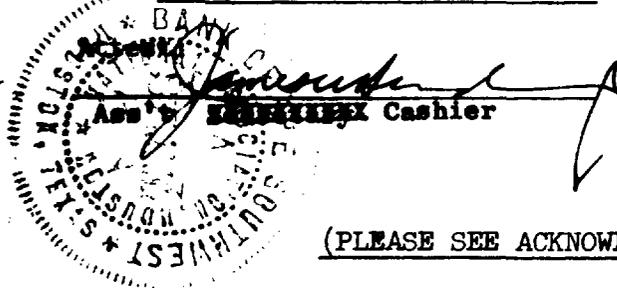
By: E.C. Sherry
Vice President and Trust Officer

Date: 5-16-61

Mrs Inez Lee Dickson
Mrs. Inez Lee Dickson, Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, Deceased.

Date: _____

Date: _____



By _____

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____.

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____.

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

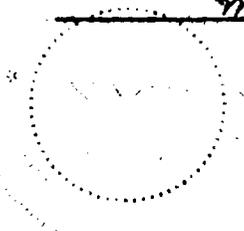
Notary Public in and for _____
County, _____

C-720

THE STATE OF TEXAS)
COUNTY OF HARRIS }

Before me, the undersigned authority, on this day personally appeared C. E. Edens, Jr., Vice President and Trust Officer for the Bank of the Southwest (Formerly The Second National Bank of Houston) Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, deceased, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, on behalf of the Estate of Wilburne Austin Dickson, deceased.

Given under my hand and seal of office this the 16th day of May, 1961.



Evelyn Knight
Notary Public in and for Harris
County, Texas
Notary in and for Harris County, Texas
Evelyn Knight
My Commission Expires - June 1, 1961.

THE STATE OF TEXAS)
COUNTY OF HARRIS }

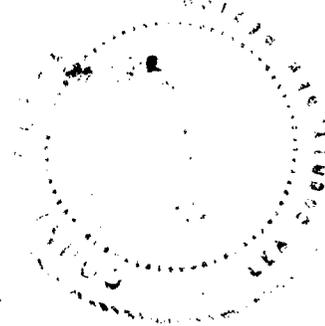
Before me, the undersigned authority, on this day personally appeared Mrs. Inez Lee Dickson, Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, deceased, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that she executed the same for the purposes and consideration therein expressed, in the capacity therein stated, on behalf of the Estate of Wilburne Austin Dickson, deceased.

Given under my hand and seal of office this the 16th day of May, 1961.



Evelyn Knight
Notary Public in and for Harris
County, Texas
Notary in and for Harris County, Texas
Evelyn Knight
My Commission Expires - June 1, 1961.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A M.
and Recorded in Book 123
Page 588
VIRGIL LOVE, County Clerk
By [Signature] Deputy



3100E

C-740

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: May 8, 1961

Ann Karfiol Schulman, executrix of the Estate of Edward Karfiol, deceased
Ann Karfiol Schulman, Executrix of the Estate of Edward Karfiol, deceased

Date: _____

Date: May 8, 1961

Ida R. Karfiol, executrix of the Estate of Edward Karfiol, deceased
Ida R. Karfiol, Executrix of the Estate of Edward Karfiol, deceased

Date: _____

Date: May 8, 1961

Shirley Karfiol Bernstein, executrix of the Estate of Edward Karfiol, deceased
Shirley Karfiol Bernstein, Executrix of the Estate of Edward Karfiol, deceased

Attest: _____
Secretary

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF NEW YORK
COUNTY OF NEW YORK

The foregoing instrument was acknowledged before me this 8th day of May, 1961 by ANN KAUFMAN SCHULMAN, Executrix, on behalf of the Estate of Edward Kaufman,



ABE M. HALPERN
Notary Public State of New York
No. 41-6741600
Qualified in Queens County
Commission Expires March 30, 1962

Abe M. Halpern
Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 8th day of May, 1961 by IDA R. KAUFMAN, Executrix, on behalf of the Estate of Edward Kaufman, deceased.



ABE M. HALPERN
Notary Public State of New York
No. 41-6741600
Qualified in Queens County
Commission Expires March 30, 1962

Abe M. Halpern
Notary Public in and for _____
County, _____

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 8th day of May, 1961 by HELEN KAUFMAN SCHULMAN, Executrix, on behalf of the Estate of Edward Kaufman, deceased.



ABE M. HALPERN
Notary Public State of New York
No. 41-6741600
Qualified in Queens County
Commission Expires March 30, 1962

Abe M. Halpern
Notary Public in and for _____
County, _____



STATE OF NEW MEXICO
COUNTY OF LBA
FILED
MAY 25 1961
at 10:00 o'clock
and Recorded in Book 173
Page 586
VIRGIL LOVE, County Clerk
By _____ Deputy

ILLEGIBLE

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

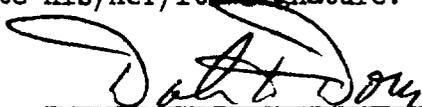
WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 3-7-61


Dale H. Dorn

Date: 3-7-61


Jean Forster Dorn

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

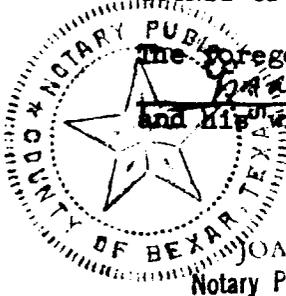
The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF TEXAS
COUNTY OF BEXAR

The foregoing instrument was acknowledged before me this 7th day of March, 1961 by Dale H. Dorn and his wife Jean Forster Dorn



JOANNE LINDEMANN
Notary Public, Bexar County, Texas

Joanne Lindemann
Notary Public in and for Bexar
County, Texas

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

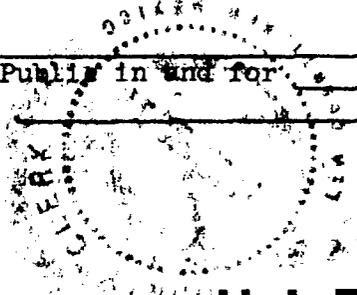
Notary Public in and for _____
County, _____

31603

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock 9 M.
and Recorded in Book 173
Page 584
VIRGIL LOVE, County Clerk
By W. L. Deputy



ILLEGIBLE

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

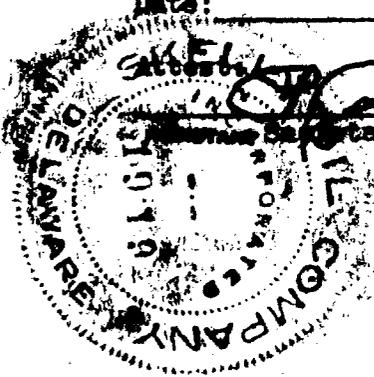
Date: _____

Date: _____

Date: _____

Date: _____

SKELLY OIL COMPANY



[Signature]

By *[Signature]*

Vice President

Approved as to Form *[Signature]*
abc
K.S.J.

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

ILLEGIBLE

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____
_____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Okfuskee
COUNTY OF Okfuskee

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ a corporation, on behalf of _____

Commissioner
July 25, 1961

STATE OF NEW MEXICO
COUNTY OF _____
FILED
JUN 2 1961



ILLEGIBLE

31938

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____ W. A. B. ...

Date: _____

Date: _____

Date: _____

Date: _____

Attest: _____

Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

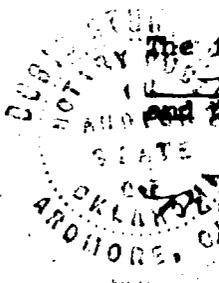
Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Carter

The foregoing instrument was acknowledged before me this 10th day of February, 1961 by A. L. Brown and his wife _____

Miss Stuberberg
Notary Public in and for Carter
County, Oklahoma



(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

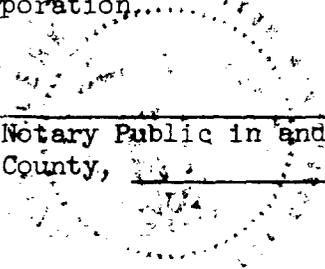
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31608

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock
and Recorded in Book 173
Page 594
VIRGIL LOVE, County Clerk
By [Signature] Deputy



RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 2-8-61

Earl Rogers

Date: _____

Date: _____

Date: _____

Date: _____

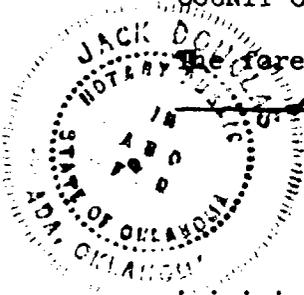
Attest: _____

By _____

Secretary

(Single Man or Woman)

THE STATE OF Oklahoma
COUNTY OF LeFlore



The foregoing instrument was acknowledged before me this 8th day of February, 1961 by Sal Rhyme

Jack Douglas
Notary Public in and for Oklahoma
County, LeFlore

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

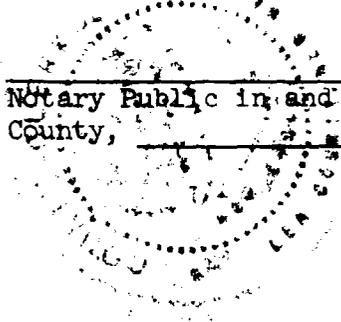
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31609

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A.M.
and Recorded in Book 172
Page 396
BOGIE LOVE, County Clerk
By _____ Deputy



**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 1/19/61

[Signature]

Date: 1/19/61

Beatrice Biddick

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Individual)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Carter

The foregoing instrument was acknowledged before me this 19th day of January, 1961 by L. W. Biddick and his wife Beatrice Biddick

[Signature]
Notary Public in and for Carter
County, Oklahoma

My commission expires 7-12-63

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

Notary Public in and for _____
County, _____

31610

ILLEGIBLE

C-72

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature

Date: 1/16/61

Will M. Huffman
Mrs. H. L. Huffman

Date: 1/16/61

H. L. Huffman

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 16 day of January, 1961 by H. G. Huffman and his wife W. M. Huffman

Roland H. Johnson
Notary Public in and for Midland
County, Texas ROLAND H. JOHNSON

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

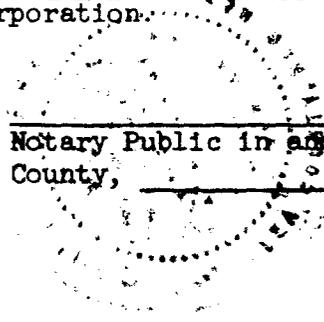
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

at 10:00 o'clock A.
and Recorded in Book 173
Page 600
VIRGIL LOVE, County Clerk
By _____ Deputy



31611

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: January 13, 1961

Warren D. Anderson

Date: January 13, 1961

Ada Alice Anderson

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 13th day of January, 1961 by Warren D. Anderson and his wife Ada Alice Anderson

Cecile Royal
Notary Public in and for Midland
County, Texas

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

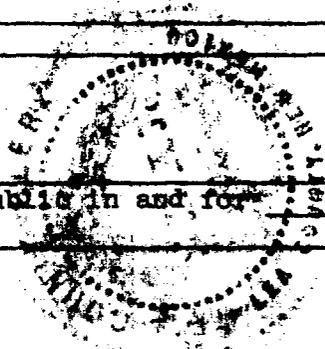
The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A. M.
and Recorded in Book 173
Page 202
VIRGIL LOVE, County Clerk
By _____ Deputy



31012

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 1-25-61

C. C. Embury

Date: 1-25-61

Beatrice Embury

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Carter

The foregoing instrument was acknowledged before me this 25 day of January, 1961 by G. C. Gathey and his wife Beatrice Gathey

H. C. L...
Notary Public in and for Carter
County, Oklahoma

Commission expires
Feb. 8th, 1964

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, & partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

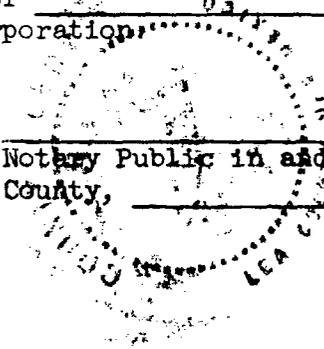
The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____, a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A. M.
and Recorded in Book 127
Page 608
VERGEL LOVE, County Clerk
By [Signature] Deputy



31613

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 1-17-61

Ellen Wood

Date: 1-17-61

James M. ...

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Carter

The foregoing instrument was acknowledged before me this 17th day of January, 1961 by Jerome M. Westheimer and his wife Ellen Woods Westheimer

Notary Public in and for Carter
County, Oklahoma

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

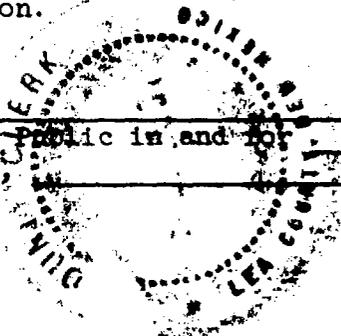
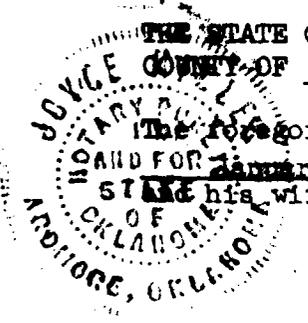
Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____



STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A M.
and Recorded in Book 172
Page 608
By Virgil Love, County Clerk
Deputy

31615

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

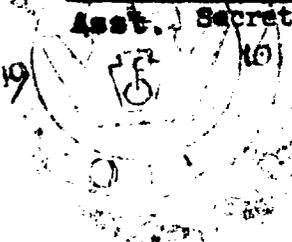
Date: _____

Date: February 27, 1961

FOREST OIL CORPORATION

Attest: [Signature]
Asst. Secretary

By [Signature]
Vice-President



(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF BEKAR

The foregoing instrument was acknowledged before me this 27th day of February, 1961 by C. H. Ledebur, Vice-President of Forest Oil Corporation, a corporation, on behalf of said corporation.

James H. Ledebur
Notary Public in and for Bezar
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

10:00 a.m. A. M.
and Recorded in Book 172
Page 630
VIRGIL LOVE, County Clerk
By [Signature] Deputy



ELLIOTT & WALDRON
ABSTRACT CO., INC.
LOVINGTON, N. M.

31626

C-720

31617

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

SIGNAL OIL AND GAS COMPANY

Attest
R. O. Negfors
Asst. Secretary

By *James M. Woolan*
Vice President



(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF California
COUNTY OF Los Angeles

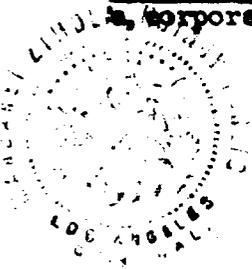
The foregoing instrument was acknowledged before me this 24 day of March, 1961 by James K. Neenan, Vice President of Signal Oil and Gas Company, a corporation, on behalf of said corporation.

Margaret Zivola
Notary Public in and for Los Angeles
County, California

MARGARET ZIVOLA

My Commission Expires March 23, 1962

31617



STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A. M.
and Recorded in Book 173
Page 612
VIRGIL LOVE, County Clerk
By [Signature] Deputy

ILLEGIBLE

31616

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

1961
C-720

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 4-10-61

Jane Johnson Wilson

Date: 4-10-61

Charles F. Wilson

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 10th day of April, 1961 by Charles E. Wilson and his wife Jana Johnson Wilson

Donnie Jones
Notary Public in and for Midland
County, Texas

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

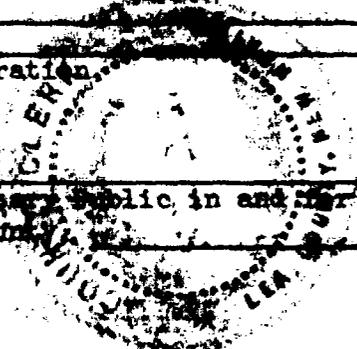
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

10:00 a.m. A
and Recorded in Book 172
670
REGEL LOVE, County Clerk
By _____



31616

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 2-8-61

Willard E. Rhynes

Date: 2-8-61

Martha E. Rhynes

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

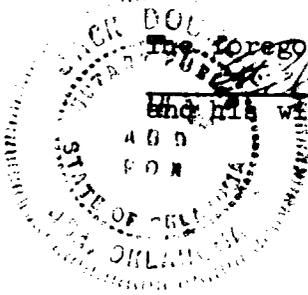
Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF LeFlore

The foregoing instrument was acknowledged before me this 8th day of February, 1961 by William Rhyme and his wife Martha Rhyme

Jack Douglas
Notary Public in and for Oklahoma
County, LeFlore



(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

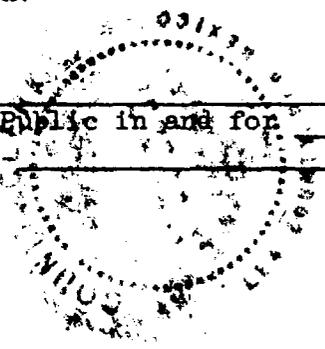
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31618

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A.M.
and Recorded in Book 172
Page 614
VIRGIL LOVE, County Clerk
By [Signature] Deputy



31619

RATIFICATION OF AGREEMENT
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

GLORIETA OIL COMPANY, INC.

By Richard [Signature]
President

Date: 8/23/61
Secretary
[Signature]
SECRETARY
GLORIETA OIL COMPANY, INC.
TEXAS
PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 23rd day of January, 1961 by Richard S. Anderson, President of Glorieta Oil Company, Inc., a corporation, on behalf of said corporation.

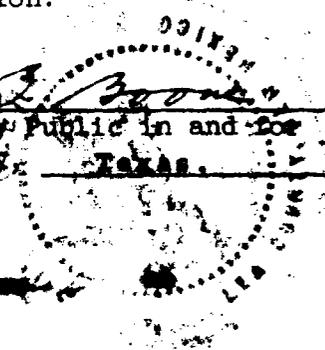
B. BOONE
Notary Public, Midland Co., Tex

Notary Public in and for Midland,
County, Texas.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

10:00 o'clock A.M.
Page 676
VIRGIL LOVE, County Clerk
By [Signature] Deputy



31619

3162

RATIFICATION OF AGREEMENT
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KENNITZ-WOLF CAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kennitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kennitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature

Date: January 19, 1961

By

Shell Oil Company

Attorney-in-Fact

Date: _____

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

ILLEGIBLE

Operating Agreement

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 19 day of _____, 1961 by J. E. Lindsay Attorney in Fact of Shell Oil Company a corporation, on behalf of said corporation.

Notary Public in and for Midland
County, Texas

Jess Atkins
Notary Public in and for
Midland County, Texas



STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

ILLEGIBLE

[Signature]
Notary Public in and for
Lea County, New Mexico

31625

31624

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: January 25, 1961

SAMEDAN OIL CORPORATION

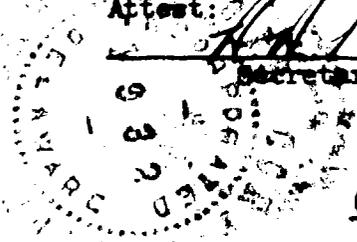
Attest: [Signature]
Secretary

By [Signature]
Vice-President

1	CC
2	BULL
3	JOH
4	JOH
5	JOH

(PLEASE SEE ACKNOWLEDGMENT)

(SEE REVERSE SIDE)



(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

SEAL OF BRAEMOR (LIDED)

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

Page: _____ (Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ partners on behalf of _____ a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____ OKLAHOMA
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ Vice President of _____ Corporation, on behalf of said corporation.

Commission expires: _____
SEAL OF NEW BRUNSWICK
COUNTY OF LEA
MAY 25 1961

31624



ILLEGIBLE

31623

MAY 1961 11 11 11 11

**DECLARATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

APPROVED	
FORM	SUBSTANCE
	Red
	h h

Date: MAR 8 1961

Attest: [Signature]

Asst. Secretary

Sinclair Oil & Gas Company

By [Signature]
Vice-President

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 21st day of March, 1961 by R. L. ELSTON, Vice-President of SINCLAIR OIL & GAS COMPANY, a corporation, on behalf of said corporation.

Notary Public in and for Midland
County, _____

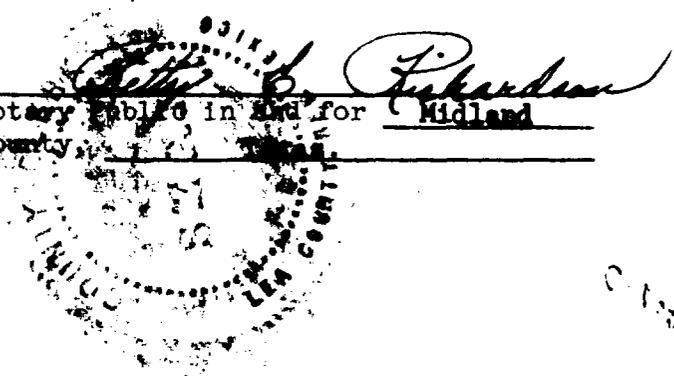
31623



STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at El Paso Tex.
and Recorded in Book 173
Page 624
VIRGIL LOVE, County Clerk
By _____ Deputy



31020

RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: MAY 5, 1961

Thomas H. Hall

Date: _____

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 5 day of May, 1961 by Thomas J. Walsh

GERTRUDE BALL
NOTARY PUBLIC, State of New York
No. 60-5162050
Qualified in Westchester County
Certificate filed in New York County
Term Expires March 30, 1962

Gertrude Ball
Notary Public in and for New York
County, New York



(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____.

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

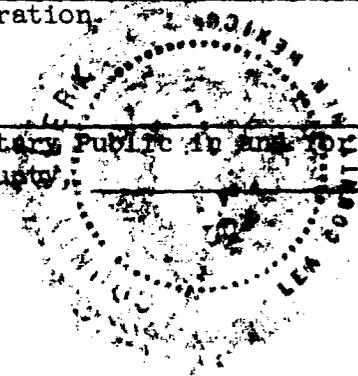
Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____



STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

at 10:00 o'clock A. M.
and Recorded in Book 172
Page 618
VIRGIL LOVE, County Clerk
By _____ Deputy

31620

31622

C-720

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

THE PURE OIL COMPANY

Date: APR 17 1961

By James L. Harris
Manager, Southern Producing Division

Date: _____

Date: _____

Date: _____

Attest: _____

Secretary

By _____

APPROVED	
TRADE	<u>John Harris</u>
FORM	<u>PSM</u>
DESCRIPTION	<u>Lea Co. N.M.</u>

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

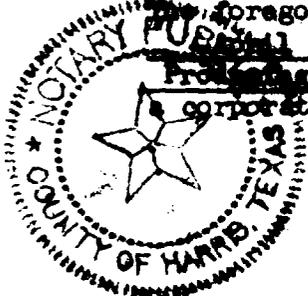
THE STATE OF TEXAS
COUNTY OF HARRIS

The foregoing instrument was acknowledged before me this 17th day of April, 1961 by James L. Morris, Manager of the Southern Producing Division of The Pure Oil Company a corporation, on behalf of said corporation.

Jo Ann Brewer
Notary Public in and for Harris
County, Texas
My Commission Expires Jan 1, 1964

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
and Recorded in Book 122
Page 222
VIRGIL LOVE, County Clerk
By J Deputy

31622



ILLEGIBLE

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT OPERATING AGREEMENT FOR THE DEVELOPMENT
AND OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960 entitled "Unit Operating Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as "Unit Operating Agreement" and which Unit Operating Agreement provides for the operation and distribution of expenses of operation of the Unit Area, as defined in that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

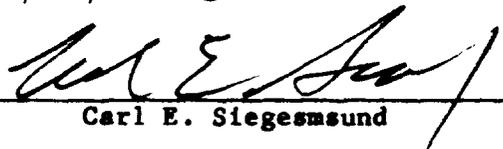
WHEREAS, each of the undersigned is a Working Interest Owner, as defined in said Unit Operating Agreement, owning a working interest in one or more of the tracts included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Operating Agreement desires to ratify and confirm said Unit Operating Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Operating Agreement and all exhibits thereto, with respect to all of his/her/its interest in the above described land, and the leases covering same, as identified by exhibits incorporated by reference and made a part of said Unit Operating Agreement, hereby becoming a party to said Unit Operating Agreement and committing thereto all of his/her/its operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement and Unit Operating Agreement, to the same effect as if each of the undersigned had executed the original Unit Operating Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: January 30, 1961



Carl E. Siegesmund

Date: _____

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF NEW YORK
COUNTY OF NEW YORK

The foregoing instrument was acknowledged before me this 30th day of January, 1961 by Carl E. Siegemund



RUTH A. GIRIAT
NOTARY PUBLIC, State of New York
Qualified in New York County
No. 31-1443050
Certificate filed with City Reg. N.Y. County
Commission Expires March 30, 1961

[Signature]
Notary Public in and for New York
County, New York

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

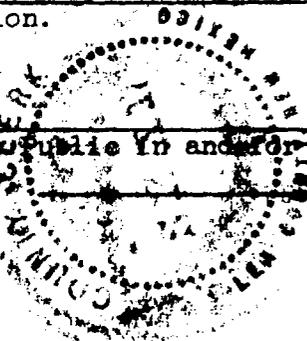
Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____



STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A.M.
and Recorded in Book 123
Page 620

VIRGIL LOVE, County Clerk

By [Signature] Deputy

31621

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: April 7th 1961

Arthur Beck

Date: _____

Date: _____

Date: _____

Date: _____

Attest:

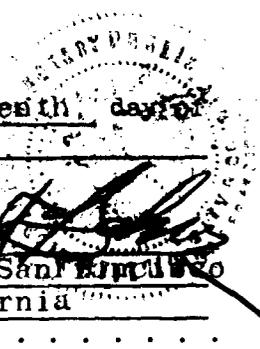
Secretary

By _____

(Single Man or Woman)

THE STATE OF California
COUNTY OF San Francisco

The foregoing instrument was acknowledged before me this Seventh day of
April - - - - - , 1961 by Arthur Park



William Gilbert Baker
Notary Public in and for San Francisco
County, State of California

WILLIAM GILBERT BAKER

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____
and his wife _____.

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____
as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____,
partners on behalf of _____,
a partnership.

Notary Public in and for _____
County, _____

(Corporation)

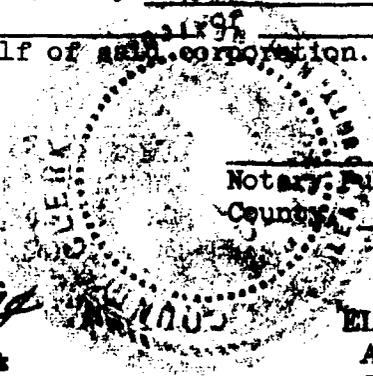
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____,
a corporation, on behalf of _____ corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
JUN 26 1961

at 11:35 o'clock AM
and Recorded in Book 174
Page 281
VIRGIL LOVE, County Clerk
By W.C. Deputy



ELLIOTT & WALDRON
ABSTRACT CO., INC.
LOVINGTON, N. M.

32875

32034

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____
Date: _____
Date: _____
Date: _____
Date: _____ SKELLY OIL COMPANY

Attest:
 Secretary
P. R. Proctor

By *L. L. Blacksher*
Vice President

Approved as to Form *ABC*
KEJ

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Oklahoma
COUNTY OF Tulsa

The foregoing instrument was acknowledged before me this 19 day of May, 1961 by C. L. Blockader, Vice President of Shelby Oil Co. a corporation, on behalf of said corporation.

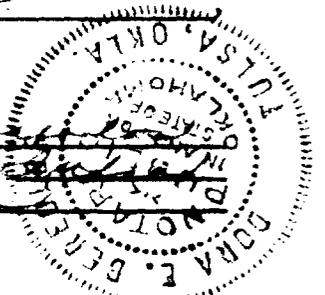
Notary Public in and for _____
County, Oklahoma

My Commission Expires
July 23, 1964

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

JUN 5 1961

at 11:45 o'clock A. M.
and Recorded in Book 174
Page 114
VIRGIL LOVE, County Clerk
11.1.8



Elliott Valison Abstract Co. Held For

83028

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

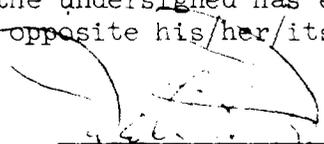
WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

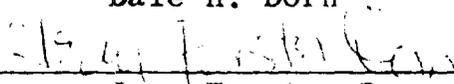
IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____



Dale H. Dorn

Date: _____



Jean Forster Dorn

Date: _____

Date: _____

Date: _____

Attest: _____

Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF TEXAS
COUNTY OF BEXAR

The foregoing instrument was acknowledged before me this 7th day of March, 1961 by Dale H. Dorn and his wife Jean Forster Dorn

Joanna Lindemann
Notary Public in and for Bexar
County, Texas

FRANKLIN W. LINDEN
Notary Public, Bexar County, Texas

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

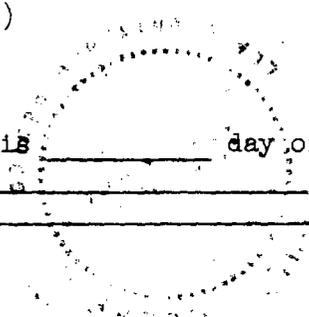
at 10:00 a.m. Albuquerque, N.M.
and Recorded in Book 173
Page 522

(Corporation)

THE STATE OF _____
COUNTY OF _____
By Virgil Love Deputy

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____



RESTRICTION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFGANG POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfgang Pool Unit Area, Lea County, New Mexico", which agreement is herein-
after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfgang Formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 4/10/61

Lyndell Rice

Date: 4/10/61

Pauline S. Rice

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

ILLEGIBLE

THE STATE OF _____
County of _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 16th day of April, 1961 by E. Leslie Rice and his wife LaVone A. Rice

FREDERICK E. OHRLEIN, Notary Public
State of New York 30-2943675
Qual. in Nassau Co. Cert. filed N.Y. County
Commission Expires March 30, 1963

Frederick E. Oehrlein
Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____ a partnership.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A.M.
and Recorded in Book 123
Page 324

VIRGIL LOVE, County Clerk

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____
By W.L. Deputy

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

ILLEGIBLE

31573

1574
RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: April 11, 1961

Guil J. Duran

Date: April 11, 1961

Esther B Moulton

Date: _____

Date: _____

Date: _____

Attest:

Secretary

By _____

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 11th day of April, 1961 by Leil & Marlon and his wife Colin B. Marlon



RUTH A. GIRIAT
NOTARY PUBLIC, State of New York
Qualified in New York County
No. 31-1443030
Certificate filed with City Reg. N.Y. County
Commission Expires March 30, 1963

Ruth A. Giriat
Notary Public in and for New York
County, New York

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ partners, on behalf of _____ a partnership.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

Notary Public in and for _____
County, _____

at 10:00 o'clock a.m.
and Recorded in Book 173
Page 526

(Corporation)

THE STATE OF _____
COUNTY OF _____
By Virgil Love Deputy
VIRGIL LOVE, County Clerk

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31574

ILLEGIBLE

C-720

INDEPENDENCE OF NORTHWEST TERRITORY
UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of a certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfgang Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Kemnitz-Wolfgang Pool, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, 14N27E, all of Section 19, W/2 and SW/4 of Section 20, all of Section 21, W/2 of Section 23, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, 14N27E; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

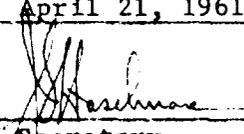
WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

WHEREAS, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covered by said exhibits identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

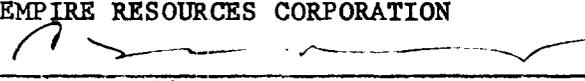
Witness my hand and seal this April 21, 1961

Attest:


Secretary

Secretary

EMPIRE RESOURCES CORPORATION

By 

Vice President

Attest:

Secretary

By _____

(THIS INSTRUMENT IS SUBJECT TO THE TERMS OF THE UNIT AGREEMENT)

ILLEGIBLE

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

ILLEGIBLE

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF New York
COUNTY OF New York

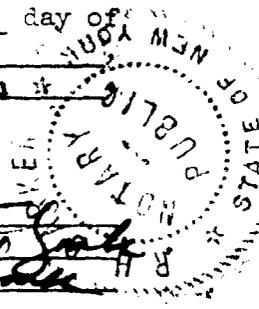
The foregoing instrument was acknowledged before me this 21st day of April, 1961 by Charles F. Traves, Vice President of Empire Resources Corporation a corporation, on behalf of said corporation.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

at 10:00 o'clock A.M.
and Recorded in Book 123
Page 328
VIRGIL LOVE, County Clerk
By W.C. Deputy

Notary Public in and for New York
County, State of New York

RAYMOND H. BARKER
Notary Public, State of New York
No. 24-0161500
Qualified in Kings County
Certificate filed in New York County
Commission Expires March 30, 1963



31576

C-72

STATEMENT OF AGREEMENT FILED
"UNIT AREA ONE FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFORD POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolford Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolford formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 4/10/61

Charles D. ...

Date: Apr. 10, 1961

Anna H. Dennis

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
County of _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF NEW YORK
COUNTY OF NEW YORK

The foregoing instrument was acknowledged before me this 10th day of April, 1961 by Henry C. Bruner and his wife Anna H. Bruner

RAYMOND H. BARKER
Notary Public, State of New York
No. 24 926700
Qualified in _____ County
Certificate filed in New York County
Commission Expires March 30, 1963

Raymond H. Barker
Notary Public in and for _____
County, State of New York



(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____ a partnership.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

Notary Public in and for _____
County, _____

10:00 o'clock a.m.
and Recorded in Book 123
Page 530
By Virgil Love Deputy

(Corporation)

THE STATE OF _____
COUNTY OF _____
By Virgil Love Deputy

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31576

c-72

51577

RAZIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: April 7, 1961

Raymond F. Kraus

Date: April 7, 1961

Marie A. Kraus

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Tulsa

The foregoing instrument was acknowledged before me this 7 day of April, 1961 by Raymond J. Harris and his wife Berrie B. Harris

My Commission Expires Feb. 12, 1962

Johnnie Harris
Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

Notary Public in and for _____
County, _____

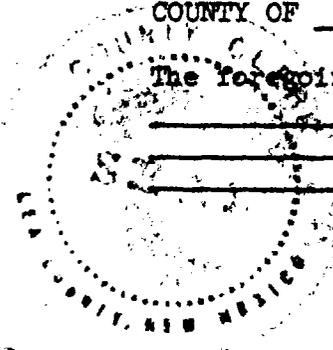
(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31577



at 10:00 o'clock P.M.
and Recorded in Book 178
Page 232
VINCE LOVE, County Clerk
By JL Deputy

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

COMMERCIAL BANK & TRUST CO., Midland, Texas
(Mortgagee of Glorieta Oil Co., Inc.)

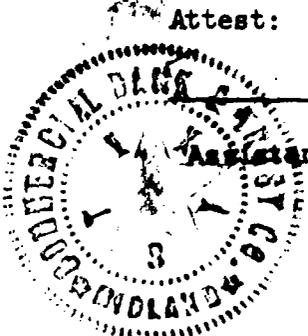
Date: _____

Attest:

A. E. Baird
Secretary

By L. L. Rudleton
President

Assistant Cashier



(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 18th day of May, 1961 by R. L. Pendleton, President of Commercial Bank & Trust Co., a corporation, on behalf of said corporation.

31578



STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

Shirley Lee Shirley Lee
Notary Public in and for Midland
County, Texas



and Recorded in Book 122
Page 324
VINCE LOVE, County Clerk
By _____ Deputy

C-720

31579

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Attest:
Wendell W. Hoover
Cashier

Date: May 18, 1961

Date: _____

Date: _____

Date: _____

Attest: _____

Secretary

The First National Bank, Midland, Texas
Mortgagee of W. D. Anderson

By: Jno. P. Butler, President

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 18th day of May, 1961 by Joe P. Kutler, President of The First National Bank of Midland, Texas, a corporation, on behalf of said corporation.

Notary Public in and for Midland
County, Texas

My commission expires June 15
COUNTY OF LEA
FILED

MAY 25 1961

and Recorded in Book 173
Page 332
VIRGIL LOVE, County Clerk
By W.C. Deputy

31579



c-710

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: May 8, 1961

Ann Karfiol Scholten, Executrix of the Estate of Edward Karfiol, deceased
Ann Karfiol Scholten, Executrix of the Estate of Edward Karfiol, deceased

Date: _____

Date: May 8, 1961

Ira R. Karfiol, Executrix of the Estate of Edward Karfiol, deceased
Ira R. Karfiol, Executrix of the Estate of Edward Karfiol, deceased

Date: _____

Date: May 8, 1961

Shirley Karfiol Bernstein, Executrix of the Estate of Edward Karfiol, deceased
Shirley Karfiol Bernstein, Executrix of the Estate of Edward Karfiol, deceased

Attest: _____
Secretary

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 8th day of May, 1961 by AME KATZEL SCHLESER, Executive on behalf of the Estate of Edward Karpel, deceased.

ABE M. HALPERN
Notary Public State of New York
No. 41-6741600
Qualified in Queens County
Commission Expires March 30, 1962

Abe M. Halpern
Notary Public in and for _____
County, _____

(Continued)

THE STATE OF _____
COUNTY OF _____

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 8th day of May, 1961 by IRA E. KATZEL, Executive on behalf of the Estate of Edward Karpel, deceased.

ABE M. HALPERN
Notary Public State of New York
No. 41-6741600
Qualified in Queens County
Commission Expires March 30, 1962

Abe M. Halpern
Notary Public in and for _____
County, _____

(Continued)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 8th day of May, 1961 by AME KATZEL SCHLESER, Executive on behalf of the Estate of Edward Karpel, deceased.

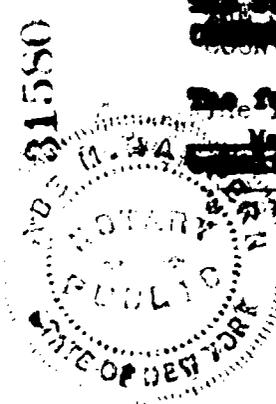
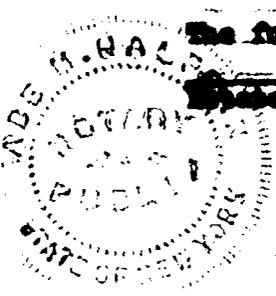
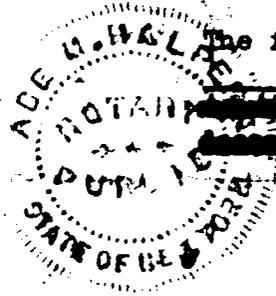
ABE M. HALPERN
Notary Public State of New York
No. 41-6741600
Qualified in Queens County
Commission Expires March 30, 1962

Abe M. Halpern
Notary Public in and for _____
County, _____

MAY 25 1961

Filed and Recorded in Book 124
Page 381
VIRGIL LOVE, County Clerk
By llh Deputy

ILLEGIBLE



RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX

Date: 5-16-61

Date: 5-16-61

Date: _____

Date: _____

BANK OF THE SOUTHWEST, N.A. (Formerly The Second National Bank of Houston) Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, deceased.

By: E. C. Edwards
Vice President and Trust Officer

Mrs. Inez Lee Dickson
Mrs. Inez Lee Dickson, Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, Deceased.

Attest: _____
Cashier

By: _____



(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

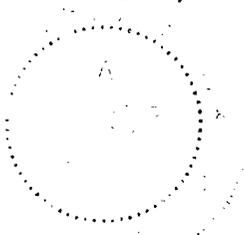
The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

THE STATE OF TEXAS)
COUNTY OF HARRIS)

Before me, the undersigned authority, on this day personally appeared C. E. Edens, Jr., Vice President and Trust Officer for the Bank of the Southwest (Formerly The Second National Bank of Houston) Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, deceased, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that he executed the same for the purposes and consideration therein expressed, in the capacity therein stated, on behalf of the Estate of Wilburne Austin Dickson, deceased.

Given under my hand and seal of office this the 16th day of May, 1961.



Evelyn Knight
Notary Public in and for Harris
County, Texas

Notary in and for Harris County, Texas
Evelyn Knight
My Commission Expires - June 1, 1961...

THE STATE OF TEXAS)
COUNTY OF HARRIS)

Before me, the undersigned authority, on this day personally appeared Mrs. Inez Lee Dickson, Independent Co-Executor and Co-Trustee of the Estate of Wilburne Austin Dickson, deceased, known to me to be the person whose name is subscribed to the foregoing instrument, and acknowledged to me that she executed the same for the purposes and consideration therein expressed, in the capacity therein stated, on behalf of the Estate of Wilburne Austin Dickson, deceased.

Given under my hand and seal of office this the 16th day of May, 1961.



Evelyn Knight
Notary Public in and for Harris
County, Texas

Notary in and for Harris County, Texas
Evelyn Knight
My Commission Expires - June 1, 1961...

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock a. M.
and Recorded in Book 123
Page 340
VIRGIL LOVE, County Clerk
By [Signature] Deputy



31582

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMMITS-WOLF CAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemmits-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement utilizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SE/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: May 10, 1961

CITIES SERVICE PETROLEUM COMPANY

By Gerald M. Drew
Vice President

Attest:

[Signature]
Assistant Secretary



(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Oklahoma
COUNTY OF Washington

The foregoing instrument was acknowledged before me this 10 day of May, 1961 by Harold M. Gray Vice President of Citizens Petroleum Co. a corporation, on behalf of said corporation.

Delora Wilson
Notary Public in and for Washington
County, Oklahoma



31582



My Comm. Exp 10-22-61

STATE OF NEW MEXICO
COUNTY OF Washington
FILED
MAY 25 1961
at 10.00 a.m. clock
and Recorded in Book 173
Page 542
VIRGIL LOVE, County Clerk
By ell Deputy

C-720

31583

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: Feb. 14, 1961

Staley K. Bernstein

Date: Feb. 14, 1961

Willard C. Bernstein

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By: _____

(PLEASE SEE ACKNOWLEDGMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF New York
COUNTY OF New York

The foregoing instrument was acknowledged before me this 14th day of February, 1961 by William L. Bernstein and his wife Shirley R. Bernstein

CAROLYN M. PIETSCH
NOTARY PUBLIC, State of New York
No. 32312-0
Qualified in _____ County
Certificate Filed - New York County Clerk
Term Expires March 30, 1961

Carolyn Pietsch
Notary Public in and for New York
County, New York

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

CAROLYN M. PIETSCH
NOTARY PUBLIC
STATE OF NEW YORK

31583

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
and Recorded in Book 192
Page 344
VIRGIL LOVE, County Clerk
By _____ Deputy



C-720

3158

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____ 7/15/23 _____

Date: _____

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Carter

The foregoing instrument was acknowledged before me this 10th day of February, 1961 by A. L. Brown and his wife _____

Louis Stukenberg
Notary Public in and for Carter
County, Oklahoma

Empire Express
2-5-63

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

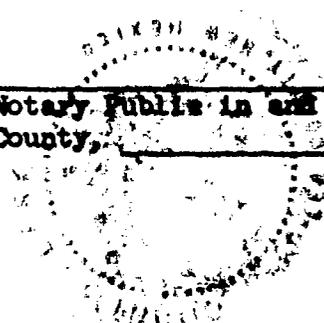
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

at 10:00 o'clock AM
and Recorded in Book 173
Page 346
VIRGIL LOVE, County Clerk
By WHL Deputy



155

B-103
Midland, Texas
C-70

31585

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 2-8-61

[Signature]

Date: _____

Date: _____

Date: _____

Date: _____

Attest:

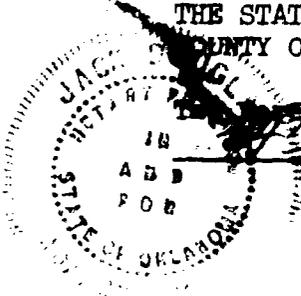
Secretary

By _____

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF Alabama
COUNTY OF Montgomery



The foregoing instrument was acknowledged before me this 24th day of Feb., 1961 by Paul Rhymer

Jack Douglas
Notary Public in and for Alabama
County, Montgomery

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock a.m.
and Recorded in Book 173
Page 548
VIRGIL LOVE, County Clerk
By WLB Deputy

31585

31586

C-72

**RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"**

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 1/19/61

[Signature]

Date: 1/19/61

Beatrice Biddick

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

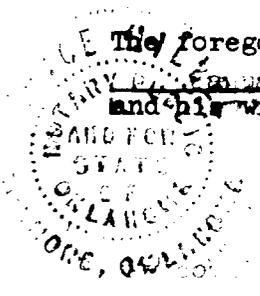
Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Jose Miller
Notary Public in and for _____
County, _____



(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

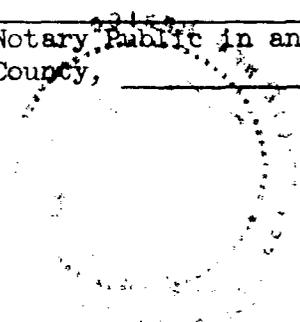
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

31580

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 11 o'clock a.m.
and Recorded in Book 173
Page 350
VIRGIL LOVE, County Clerk
By *W.L.* Deputy



31587

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 1/16/61

Gene M. Hoffmann
Mrs. H. L. Hoffmann

Date: 1/16/61

H. L. Hoffmann

Date: _____

Date: _____

Date: _____

Attest:

Secretary

By _____

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____.

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 16 day of January, 1961 by H. D. Huffman and his wife Gene M. Huffman.



Roland H. Johnson
Notary Public in and for Midland
County, Texas ROLAND H. JOHNSON

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

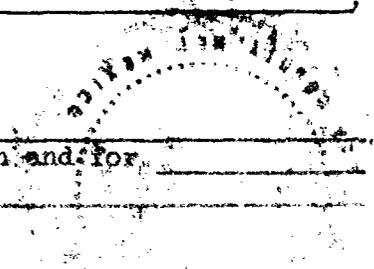
THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961

[Handwritten signatures and notes]



ILLEGIBLE

3155

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: January 13, 1961

Warren D. Anderson

Date: January 13, 1961

Ada Alice Anderson

Date: _____

Date: _____

Date: _____

Attest:

Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 13th day of January, 1961 by Warren D. Anderson and his wife Ada Alice Anderson

Celeste Kaye
Notary Public in and for Midland
County, Texas

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A.M.
and Recorded in Book 173

Page 289
VIRGIL LOVE, County Clerk

By _____ Deputy



3158

31589

C-120

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the said Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

1-23-61

C. C. [Signature]

1-25-61

Beatrice [Signature]

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ASSIGNMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____.

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Oklahoma
COUNTY OF Carter

The foregoing instrument was acknowledged before me this 25 day of January, 1961 by C. C. Cathey and his wife Beatrice Cathey.

H. L. Lunn
Notary Public in and for Carter
County, Oklahoma

My commission expires
Feb. 8th, 1964

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A. M.
and Recorded in Book 172
Page 236
VIRGIL LOVE, County Clerk
By _____ Deputy



ILLEGIBLE

31580

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 1-17-61

William ...

Date: 1-17-61

James M. ...

Date: _____

Date: _____

Date: _____

Attest: _____

By _____

Secretary

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this 17th day of _____, 1961 by _____ and His wife _____

[Signature]
Notary Public in and for Carter
County, Oklahoma

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

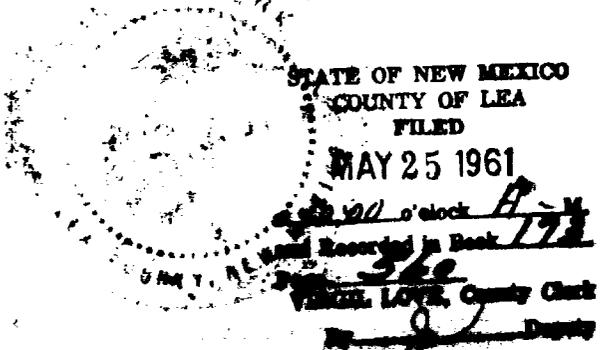
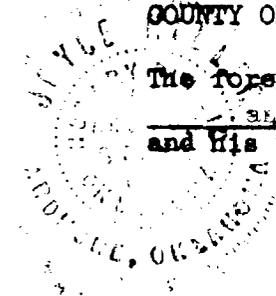
Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____



ILLEGIBLE

16618

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Jane Johnson Nelson

Date: _____

Charles F. Nelson

Date: _____

Date: _____

Date: _____

Attest:

Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 4TH day of APRIL, 1961 by CHARLES F. WILSON and his wife JANE JAHNSON WILSON

Bernice Jones
Notary Public in and for MIDLAND
County, TEXAS

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

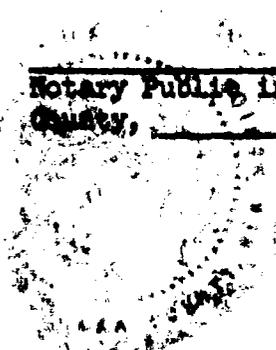
(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A.M.
and Recorded in Book 172
Page 362
VIRGIL LOVE, County Clerk
By [Signature] Deputy



31592

3159

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Attest: A. O. Hegfors
Asst. Secretary

SIGNAL OIL AND GAS COMPANY

By James M. Woolan
Vice President



(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF California
COUNTY OF Los Angeles

The foregoing instrument was acknowledged before me this 24 day of March, 1961 by James K. Wootan, Vice President of Signal Oil and Gas Company, a corporation, on behalf of said corporation.

Margaret Zimola
Notary Public in and for Los Angeles
County, California

MARGARET ZIMOLA

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

and Recorded in Book 1100 at 11:00 a.m. A
Page 364 My Commission Expires March 23, 1962

VIRGIL LOVE, County Clerk

By [Signature] Deputy

31593



C-720

31593 RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: 2-8-61

Willard E. Phyness

Date: 2-8-61

Martha E. Phyness

Date: _____

Date: _____

Date: _____

Attest:

Secretary

By _____

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF Alabama
COUNTY OF Mobile

The foregoing instrument was acknowledged before me this 5th day of July, 1961 by William R. King and his wife Martha R. King

Jack Douglas
Notary Public in and for Alabama
County, Mobile

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

11:00 o'clock A.M.
and Recorded in Book 173

By REGG. LOVE, County Clerk

By _____ Deputy

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: 1/23/61

GLORIETA OIL COMPANY, INC.

Attest:

Mary D. Love
Secretary

By Richard Anderson
PRESIDENT

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF Texas
COUNTY OF Midland

The foregoing instrument was acknowledged before me this 23rd day of January, 1961 by Richard S. Anderson, President of Glorieta Oil Company, Inc., a corporation, on behalf of said corporation.

B. Joane
Notary Public in and for Midland
County, Texas.

STATE OF NEW MEXICO
COUNTY OF LEA

FILED
MAY 25 1961

at 10:00 o'clock A
and Recorded in Book 123
Page 568
VIRGIL LOVE, County Clerk
Deputy

ILLEGIBLE

C-720

31590

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: May 5, 1961

Thomas [Signature]

Date: _____

Date: _____

Date: _____

Date: _____

Attest:

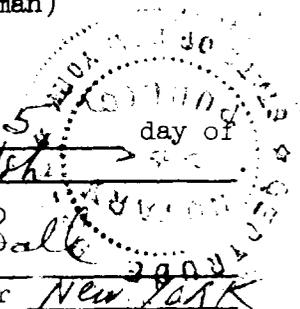
Secretary

By _____

THE STATE OF New York
COUNTY OF New York

(Single Man or Woman)

The foregoing instrument was acknowledged before me this 5 day of May, 1961 by Thomas J. Watson



GERTRUDE BALL
NOTARY PUBLIC, State of New York
No. 60-5162050
Qualified in Westchester County
Certificate filed in New York
County March 30, 1961

Gertrude Ball
Notary Public in and for New York
County, New York

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____.

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

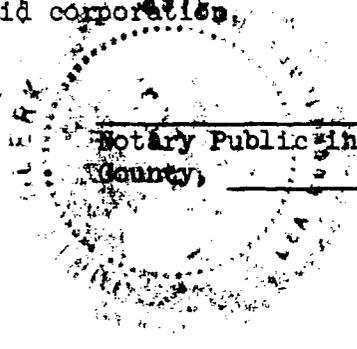
(Corporation)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ of _____ a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A M.
and Recorded in Book 173
Page 370
VIRGIL LOVE, County Clerk
By [Signature] Deputy



31590

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

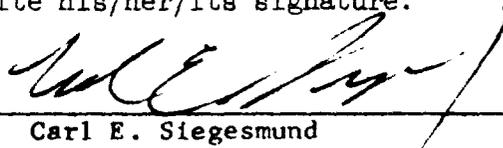
WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: January 30, 1961



Carl E. Siegesmund

Date: _____

Date: _____

Date: _____

Date: _____

Attest:

Secretary

By _____

(Single Man or Woman)

THE STATE OF NEW YORK
COUNTY OF NEW YORK

The foregoing instrument was acknowledged before me this 30th day of
January, 1961 by Carl E. Siegesmund



RUTH A. GRANT
NOTARY PUBLIC, State of New York
Qualified in New York County
Commission Expires March 29, 1961

Ruth A. Grant
Notary Public in and for New York
County, New York

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____
and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____
as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____,
_____, partners on behalf of _____,
_____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF _____
COUNTY OF _____

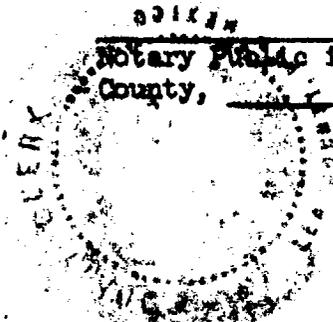
The foregoing instrument was acknowledged before me this _____ day of
_____, 1961 by _____,
_____ of _____,
a corporation, on behalf of said corporation.

Notary Public in and for _____
County, _____

STATE OF NEW MEXICO
COUNTY OF LEA
FILED

MAY 25 1961

at 10:00 o'clock A.M.
and Recorded in Book 123
Page 322
VIRGIL LOVE, County Clerk
By _____ Deputy



C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

THE PURE OIL COMPANY

Date: APR 17 1961

By James L. Morris
Manager, Southern Producing Division

Date: _____

Date: _____

Date: _____

Attest:

Secretary

APPROVED	
TRADE	<u>B. B. B. B.</u>
FORM	<u>AKM</u>
DESCRIPTION	<u>A</u>
	<u>7/16 7.7.15</u>

By _____

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF HARRIS

The foregoing instrument was acknowledged before me this 17th day of April, 1961 by James L. Morris, Manager of the Southern Producing Division of The Pure Oil Company, a corporation, on behalf of said corporation.

J. Ann Brewer J. ANN BREWER
Notary Public in and for Harris
County, Texas

My Commission Expires June 1, 1961

STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A.M.
and Recorded in Book 173
Page 374
VIRGIL LOVE, County Clerk
By [Signature] Deputy

ILLEGIBLE

RATIFICATION OF AGREEMENT ENTITLED
 "UNIT AGREEMENT FOR THE DEVELOPMENT AND
 OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
 LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

Date: _____

Date: _____

Shell Oil & Gas Company

Attest:

[Signature]
Asst Secretary

By [Signature]
Vice President

(PLEASE SEE ACKNOWLEDGEMENTS ON REVERSE SIDE)

ILLEGIBLE

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

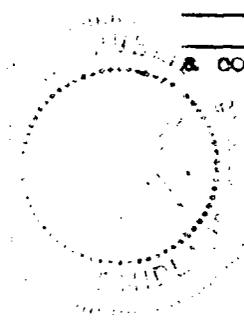
Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 21st day of March, 1961 by R. L. ELSTON, Vice-President of SINCLAIR OIL & GAS COMPANY, a corporation, on behalf of said corporation.

Betty C. Richardson
Notary Public in and for Midland
County, Texas



STATE OF NEW MEXICO
COUNTY OF LEA
FILED
MAY 25 1961
at 10:00 o'clock A M.
and Recorded in Book 173
Page 576
VIRGIL LOVE, County Clerk
By [Signature] Deputy



C-722

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement;

C-722

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF OKLAHOMA
COUNTY OF CARTER

The foregoing instrument was acknowledged before me this 30th day of January, 1961 by James E. Thompson, Vice-President of SAMEDAN OIL CORPORATION, a corporation, on behalf of said corporation.

Notary Public in and for Carter
County, Oklahoma

My commission expires:

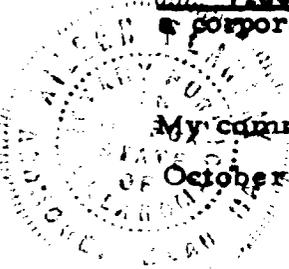
October 25, 1962

STATE OF NEW MEXICO
COUNTY OF LEA County,
FILED

MAY 25 1961

at 10:00 o'clock A
and Recorded in Book 173
Page 378
VIRGIL LOVE, County Clerk
By [Signature] Deputy

31600



31601

C-720

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is hereinafter referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: JANUARY 19, 1961

Shell Oil Company
By: [Signature]
Attorney-in-Fact

Date: _____

Date: _____

Date: _____

Date: _____

Attest: _____
Secretary

By _____

Unit

(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____.

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____.

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____.

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

(Corporation)

THE STATE OF TEXAS
COUNTY OF MIDLAND

The foregoing instrument was acknowledged before me this 19 day of January, 1961 by J. V. Lindsey, Attorney-in-Fact of Shell Oil Company a corporation, on behalf of said corporation.

Jean Akins
Notary Public in and for
Midland County, Texas

Jean Akins
Notary Public in and for Midland
County, Texas STATE OF NEW MEXICO
COUNTY OF LEA



FILED
MAY 25 1961
at 10:00 o'clock A.M.
and Recorded in Book 173
Page 580
VIRGIL LOVE, County Clerk
Deputy

330013

RATIFICATION OF AGREEMENT ENTITLED
"UNIT AGREEMENT FOR THE DEVELOPMENT AND
OPERATION OF THE KEMNITZ-WOLFCAMP POOL UNIT AREA,
LEA COUNTY, NEW MEXICO"

KNOW ALL MEN BY THESE PRESENTS: That

WHEREAS, each of the undersigned hereby acknowledges receipt of a true and correct copy of that certain agreement dated December 30, 1960, entitled "Unit Agreement for the Development and Operation of the Kemnitz-Wolfcamp Pool Unit Area, Lea County, New Mexico", which agreement is herein-after referred to as the "Unit Agreement", and which Unit Agreement unitizes the Wolfcamp formation, as defined therein, located in and under the following described lands situated in Lea County, New Mexico:

E/2 of E/2 of Section 26, N/2 of Section 25, E/2 and SW/4 of Section 24, all in Township 16 South, Range 33 East, N.M.P.M., all of Section 19, W/2 and SE/4 of Section 20, all of Section 21, W/2 of Section 28, all of Section 29 and all of Section 30, Township 16 South, Range 34 East, N.M.P.M.; and

WHEREAS, each of the undersigned is a royalty owner or operator, as defined in said Unit Agreement, owning a royalty or operating interest in one or more of the tracts to be included in the Unit Area; and

WHEREAS, each of the undersigned, being familiar with the contents of said Unit Agreement, desires to ratify and confirm said Unit Agreement;

NOW THEREFORE, each of the undersigned does hereby ratify, adopt and confirm said Unit Agreement and all exhibits thereto, with respect to all of his/her/its interest in all of the separately owned tracts, and leases covering same, identified by said exhibits attached to and made a part of said Unit Agreement, hereby becoming a party to said Agreement and committing thereto all of his/her/its royalty or operating interest in said tracts so identified by said exhibits or any subsequent revision thereof made pursuant to said Unit Agreement, to the same effect as if each of the undersigned had executed the original Unit Agreement.

IN WITNESS WHEREOF, each of the undersigned has executed this instrument on the date set forth below opposite his/her/its signature.

Date: _____

Date: _____

Date: _____

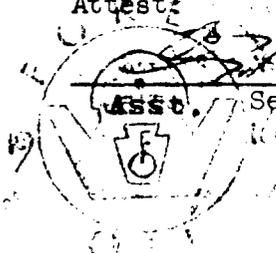
Date: _____

Date: February 27, 1961

FOREST OIL CORPORATION

Attest: [Signature]
Asst. Secretary

By [Signature]
Vice-President



(Single Man or Woman)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____

Notary Public in and for _____
County, _____

(Husband and Wife)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ and his wife _____

Notary Public in and for _____
County, _____

(Attorney in Fact or Trustee)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____ as Attorney in Fact (or Trustee) on behalf of _____

Notary Public in and for _____
County, _____

(Partnership)

THE STATE OF _____
COUNTY OF _____

The foregoing instrument was acknowledged before me this _____ day of _____, 1961 by _____, partners on behalf of _____, a partnership.

Notary Public in and for _____
County, _____

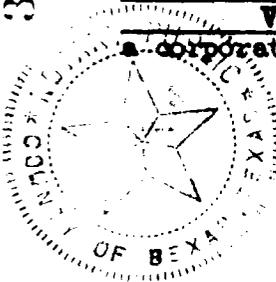
(Corporation)

THE STATE OF TEXAS
COUNTY OF BEKAR

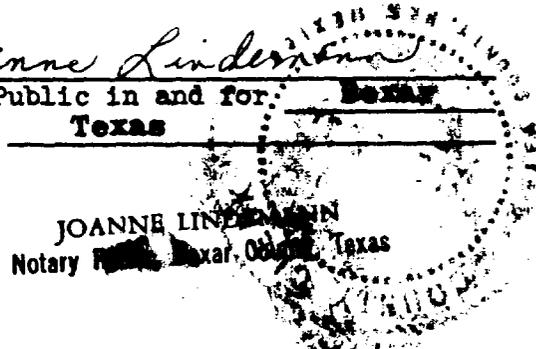
The foregoing instrument was acknowledged before me this 27th day of February, 1961 by C. W. Ledebur, Vice-President of Forest Oil Corporation, a corporation, on behalf of said corporation.

Joanne Lindeman
Notary Public in and for BEKAR
County, Texas

31602



STATE OF NEW MEXICO
COUNTY OF LEAS
FILED
MAY 25 1961
10:00 o'clock A.M.
and Recorded in Book 172
Page 582
VIRGIL LOVE, County Clerk
By [Signature] Deputy



ELLIOTT & WALLERSON
ABSTRACT CO., INC.
LOVINGTON, N. M.

DISCUSSION

SUPPLEMENT TO THE OCTOBER 1, 1959
REPORT OF KEMNITZ POOL ENGINEERING COMMITTEE

APRIL 1, 1960

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APRIL 1, 1960

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SUPPLEMENT TO THE OCTOBER 1, 1959
REPORT OF KEMNITZ POOL ENGINEERING COMMITTEE

APRIL 1, 1960

OBJECT

The object of this report is to supplement and update the Report of the Kemnitz Pool Engineering Committee dated October 1, 1959; to present additional engineering data and calculations concerning the Kemnitz Wolfcamp Pool; to make additional recommendations for the increased recovery of petroleum from the Pool; and to complete the charge given to the Engineering Committee by the Operators Committee on March 22, 1960.

Charge to the Engineering Committee, Accepted March 22, 1960

1. To continue their study and to make additional calculations for both gas and/or water injection, these calculations to be made on a comparable basis, taking into account, insofar as possible, problems of stratification within the reservoir.
2. To restudy the economic analyses of the several cases, particularly the effect of Phillips Petroleum Company's proposal for the return of residue gas to be injected.
3. To investigate the feasibility of conducting a model study on the Kemnitz Wolfcamp Pool and the time required and the cost of such a study. This item will be reported on by letter to each of the operators at the earliest possible date.
4. To review the base map and make any changes that are necessary.
5. To accumulate and verify such statistics and measurements needed to substantiate the parameters to be used by the Operators Committee in calculating a participation formula for the proposed unit, these

statistics to include specifically a well count by interest owners.

6. To investigate and determine the future ultimate recovery from each lease under competitive production practices.

CONCLUSIONS

1. The Kemnitz Wolfcamp reservoir is behaving as a solution gas drive reservoir.
2. A study of stratification indicated that there are no correlative zones of high permeability continuous throughout the reservoir.
3. A model study will not aid in determining reservoir conformance to water injection.
4. An analysis of the past performance and pressure history of the individual wells indicates that there is an area of good pressure communication and an area of poor pressure communication in the reservoir. The pressure maintenance calculations were made for the area of good pressure communication only.
5. The area of poor pressure communication probably will not respond favorably to pressure maintenance.
6. Based on available data, this study indicates that pressure maintenance by gas injection will yield a greater profit than primary and waterflood operations.
7. Continued study of the reservoir should be made, particularly to determine the feasibility of supplementing gas injection with water injection.

RECOMMENDATIONS

1. It is recommended that the Kemnitz Wolfcamp Pool be unitized to protect correlative rights and achieve efficiency and economy of operation.
2. It is recommended that pressure maintenance by gas injection

in the South Area be initiated as soon as possible.

3. It is recommended that the study of this reservoir be continued, particularly with regard to the supplementing of gas injection with water injection.

SUMMARY

The Kemnitz Wolfcamp Pool produces by a solution gas drive mechanism from a stratigraphic trap at a typical depth of 10,700 feet. The 28 wells in the South Area of the Pool have excellent pressure communication and the reservoir will behave as a single homogenous unit in this area. The individual well performance will be controlled by competitive production practices. The 8 wells in the North Area have poor pressure communication and each well in this area will decline according to the individual well characteristics. Available core and log data indicate that there are no zones of high permeability continuous throughout the reservoir.

The reservoir performance is better than was predicted in the October 1, 1959, report and a revision is justified. In order to focus attention on that part of the reservoir most likely to respond to pressure maintenance, the reservoir was divided into North and South Areas. The relative permeability for the South Area was calculated from past performance data and extrapolated parallel to the relative permeability curve for the "Fairway Area" of the Townsend Wolfcamp Pool. No pressure maintenance calculations were made for the North Area because of the poor primary performance of this area. The South Area is estimated to be 42.1% depleted with the recovery of 17.9% of the original oil in place to April 1, 1960. The North Area is estimated to be 61.2% depleted as of April 1, 1960, based on decline curve analyses. A summary of the revised reservoir calculations is as follows:

	<u>South Area</u>			<u>North Area</u>
	<u>Primary Depletion</u>	<u>Pressure Maintenance</u>	<u>Waterflood</u>	<u>Primary Depletion</u>
Ultimate Recovery MMBO	10.0	14.5	13.4	0.7
Reserves (7/1/60) MMBO	5.3	9.8	8.7	0.3
Gain Over Primary MMBO	-	4.5	3.4	-
Recovery, (% OIP)	42.6	61.7	57.0	-
Total Investment, MM\$	6.5	6.6	6.7	1.7
Total Profit, MM\$	19.7	30.0	26.0	-
Gain Over Primary MM\$	-	10.3	6.3	-
Future Life (7/1/60), Yrs.	12	20	17	10

A comparison of the economics of the possible recovery programs for the South Area is included as Table No. 25.

INTRODUCTION

The reservoir has been divided into two areas in order to make a more accurate analysis of the past performance history and performance under a pressure maintenance program. The reason for this division is discussed in a separate section of the report entitled "Division of Reservoir and Method of Analysis."

There are 28 wells in the South Area of the Pool, of which 23 are producing at the top allowable rate of 199 barrels of oil per well per day as of April 1, 1960. The production rate, producing gas-oil ratio, and cumulative recovery of the wells in both the North and South Areas of the Pool are shown on Figure No. 1.

There have been 8 wells completed in the North Area of the Pool. The Sinclair-Seaman Unit No. 2 declined to less than an economical oil production rate and was abandoned. The remaining 7 wells in the North Area

are all marginal wells, producing an average of 35 barrels of oil per day per well.

PAST PERFORMANCE

The cumulative production as of April 1, 1960, has been 0.4 million barrels of oil and 0.7 million MCF of gas from the North Area and 4.2 million barrels of oil and 5.8 million MCF of gas from the South Area.

A reservoir study was previously made by the Kemnitz Pool Engineering Committee, based upon data available on October 1, 1959. An additional 1.0 million barrels of oil has been recovered from the entire Pool from October 1, 1959, to April 1, 1960. The reservoir performance has been more favorable than predicted in the report of October 1, 1959, particularly with regard to producing gas-oil ratios. The comparison between the performance predictions of October 1, 1959, and the actual performance is shown in Figure No. 2. Since more production history is now available and the reservoir performance is not following the October 1, 1959, predictions, a revision of the calculations is justified.

The current producing gas-oil ratios of the individual wells are shown on Figure No. 1. The wells immediately north of the south lines of Sections 19 and 20, T-16-S, R-34-E, are currently producing with a higher than average gas-oil ratio which indicates that a secondary gas cap could be forming along a permeability barrier. However, these wells were completed soon after the discovery of the Pool in December 1956 and have higher than average cumulative fluid withdrawal per net pay volume which may account for a higher gas saturation. Based on data available at this time, it has been concluded that the reservoir is producing primarily by

solution gas drive. Figure No. 3 is a map showing the cumulative production of Pool wells expressed as barrels of oil produced per foot of net pay. Figure No. 4 is a map showing the top of the porosity and the top of the perforations in the individual wells compared to sea level datum.

STRATIFICATION

The gross thickness of the producing formation is fairly uniform throughout the Pool and for some distance beyond the Pool boundaries. Certain log characteristics may be correlated over most of the Pool so that it is possible to draw lines of correlation. An investigation of the occurrence of porosity and permeability within the formation has not shown a direct relation between the occurrence of productive reservoir rock and correlative log markers. Figure No. 5 shows that the zones of high permeability are not correlative throughout the reservoir.

The permeability measurements from core analyses and permeability indications from well logs have been plotted on a uniform vertical scale for each cored well in the Pool. The individual well plots were shifted vertically so that a correlative log marker would be on the horizontal base line. Figure No. 6 shows the location of the cored wells and a trace of Figure No. 5. The location of the cored wells is such that the data from these wells cannot be considered entirely representative of the South Area.

There does not appear to be any barrier to vertical communication within the reservoir. It has been concluded that the reservoir is not divided into zones and that stratification will not significantly affect the exploitation of the reservoir.

DIVISION OF RESERVOIR AND METHOD OF ANALYSIS

Figure Nos. 7, 8, 9, 10, and 11 show the major bottom-hole pressure surveys in the field. An analysis of the reservoir pressure performance of the individual wells has shown that some of the wells are in good pressure communication and that other wells are in poor pressure communication because of poor inter-well permeability. This difference in reservoir permeability was determined by pressure build-up characteristics of the individual wells as illustrated by Figure No. 12. It was concluded that the reservoir should be divided into two areas for analysis as shown on Figure Nos. 7 through 11.

The wells in the North Area may be expected to decline in production according to their individual characteristics without interference from offset wells. It is anticipated that these wells will not be materially affected by a pressure maintenance or secondary recovery project; therefore, these wells are predicted to behave according to primary depletion in all of the case studies presented herein. The reservoir is predicted to behave as a homogenous unit in the South Area and the individual well behavior will be controlled by competitive production practices. Pressure maintenance programs have been designed for the South Area of the reservoir only.

ORIGINAL OIL IN PLACE - SOUTH AREA

Five major pressure surveys (see Figure Nos. 7, 8, 9, 10, and 11) have been conducted since the reservoir pressure declined below the bubble point. Material balance calculations have been made for the South Area of the Pool to determine the original oil in place at the time of each survey. The results of these calculations are included in Table No. 2. An original oil in place of 23,500,000 stock tank barrels of oil in the South Area was used in subsequent reservoir calculations.

REVISION OF K_g/K_o CURVE

Additional production history subsequent to the report of October 1, 1959, has shown that the actual performance has been better than predicted and a revision is warranted. The reservoir has been divided into two areas as discussed herein. A revised K_g/K_o curve was calculated for the South Area only. The revised relative permeability calculations are shown in Table No. 3 and the results are plotted on Figure No. 13. The K_g/K_o curve for the South Area of the Kemnitz Field was extrapolated parallel to the K_g/K_o curve of the "Fairway" of the Townsend Wolfcamp Field. The more favorable relative permeability relationship is the basis for an increase in the primary reserve estimate and an increase in the pressure maintenance reserve estimate.

PRIMARY MATERIAL BALANCE CALCULATIONS

South Area

Primary differential material balance calculations were performed on an IBM computer by the Shell Oil Company according to a program based upon the Schilthuis form of the material balance equation. Primary differential material balance calculations were also made by the Pure Oil Company with an IBM 704 computer according to a program based upon the Turner method of depletion-drive prediction. Both sets of calculations developed similar performance curves. Table No. 4 is a reproduction of the primary material balance calculations made by the Pure Oil Company, and Figure No. 14 is a plot of these calculations.

The basic reservoir fluid data used in these calculations were taken from a reservoir fluid study by Core Laboratories, Inc., of subsurface

samples collected from the Tennessee State A.A. Kemnitz "B" No. 1, while the reservoir was producing above the bubble point. The data are the same as used in the October 1, 1959, report. Figure Nos. 15, 16, and 17 are a plot of the fluid data.

Conversion to Time

The primary material balance calculation was related to time on the basis of estimated gas-oil ratio penalties and productivity decline. The semiannual adjustment for gas-oil ratio penalties is shown in Table No. 5 and Figure No. 19. Figure No. 20 is a plot of the primary material balance calculation versus cumulative recovery.

The average productivity index above the bubble point was estimated from the available productivity index tests to be 9 barrels of oil per day per pound of bottom-hole pressure draw-down. This estimated average initial productivity was multiplied by the number of wells in the South Area to determine a total reservoir productivity above the bubble point. The relative permeability to oil at various liquid saturations was established from laboratory curves, as illustrated in Figure No. 21. Sufficient field data were not available to calculate a K_o/K curve. The decline in productivity was calculated as shown in Table No. 6 and plotted on Figure No. 22. The productivity becomes the controlling factor in determining the reservoir production rate in May 1963 at a reservoir pressure of approximately 1,000 pounds. A plot of the reservoir performance of the South Area converted to time is shown in Figure No. 19.

Economic Analysis of Primary Depletion

The oil revenue calculations herein are based upon \$2.507 net revenue per gross barrel produced. The revenue from past sales of gas has been estimated to be \$0.1218 net revenue per gross MCF of gas sold, and the revenue from future gas sales is estimated to be \$0.1014 net revenue per

gross MCF of gas sold. These revenue figures are based on gravity and price predictions and are the estimated net values to the operators after payment of the usual one-eighth royalty and direct production taxes. These revenue figures were used in all of the economic analyses presented herein.

The additional investment required to install lifting equipment was estimated to be \$35,000 per well. The future operating expense is estimated to be \$200 per well per month per flowing well, and \$300 per well per month for a pumping well. The rate at which wells will be placed on the pump was estimated from measured flow volume gradients and the available pressure draw-down. The oil and gas revenue and the investment and expense estimates are tabulated in Table No. 8.

The ultimate primary recovery of the South Area is predicted to be 10.0 million barrels of oil which is 42.6% of the original oil in place to depletion at a reservoir pressure of 400 psi in July 1972. The predicted total revenue will be 27.6 million dollars, with a total investment and expense of 7.9 million dollars, resulting in a profit of 19.7 million dollars.

The remaining primary reserves as of July 1, 1960, are estimated to be 5.3 million barrels of oil. The corresponding net revenue is 15.5 million dollars with 1.9 million dollars investment and expense, with a remaining undiscounted profit of 13.6 million dollars.

PRIMARY PERFORMANCE PREDICTION

North Area

The 7 remaining wells in the North Area have poor pressure communication and primary performance. It is predicted that each well will decline in production rate according to the individual well characteristics.

The rate of decline was established for each well and extrapolated. The predicted performance of the individual wells is shown in Table No. 9. The decline curve extrapolations for the individual wells are superimposed on the composite oil production prediction curve in Figure No. 23.

Economic Analysis of North Area

The ultimate primary recovery of the North Area is predicted to be 0.7 million barrels of oil to depletion in July 1970. The predicted total revenue will be 1.8 million dollars, with a total expense and investment of 1.9 million dollars, resulting in 0.1 million dollars loss.

The remaining reserves as of July 1, 1960, for the North Area are estimated to be 0.3 million barrels of oil. The corresponding revenue is 0.7 million dollars with 0.2 million dollars investment and expense, with a remaining undiscounted profit of 0.5 million dollars. The same economic factors were used in the analysis of the North Area as were discussed in the economic analysis of the South Area.

MATERIAL BALANCE CALCULATIONS OF GAS INJECTION - SOUTH AREA

Material balance calculations for a dispersed gas drive were performed by both Shell and Pure on IBM computers for gas return of 70%, 80% and 90% with a reservoir conformance factor of one. The case study selected for analysis and presented herein is shown in Table No. 11, which is a reproduction of Pure Oil Company's dispersed gas drive material balance calculations for 90% gas return. This rate of return is based upon gas sales contracts and a supplementary proposal by Phillips Petroleum Company wherein they would erect remote absorption facilities in the field and return residue gas from these facilities for reinjection into the reservoir. The gas injection material balance for 90% gas return was adjusted to an 80%

efficiency, or conformance factor, by the tabulation method shown in Table No. 12. Figure No. 14 is a plot of the adjusted differential material balance calculations.

The calculations show only the predicted effect of pressure maintenance upon the reservoir producing mechanism. No frontal displacement of oil is predicted.

Recommended Gas Injection Pattern

The recommended initial gas injection pattern is shown in Figure No. 24. This row of wells was selected for injection because gas can be injected easier into the areas of higher gas saturation and it will be easier to withdraw oil from the areas of higher oil saturation. Because the reservoir in the vicinity of these wells has a higher gas saturation, it may be possible to form a secondary gas cap and take advantage of any gravity segregation which might be occurring in the reservoir.

This pattern should be flexible and additional wells may be converted to gas injection if future conditions should warrant modification of the injection pattern. It is estimated that one million standard cubic feet of gas per day can be injected into each well for each 100 pounds of differential pressure maintained at the formation face.

Conversion to Time

The performance under gas injection operation was related to time on the basis of allowables and productivity decline. The typical allowable and production rate during the 12 months ending April 1, 1960, was approximately 5,000 barrels per day. It was assumed that this allowable and production rate would be maintained as long as the reservoir was capable of producing at this rate. The production rate during the remaining life of the Pool will be controlled by declining productivity. The declining

productivity index calculations shown in Table No. 13 indicate that the 5,000 barrels of oil per day production rate may be maintained until January 1963 when the reservoir pressure will be 1,700 pounds. The conversion to time of the reservoir performance of the South Area is shown in Table No. 14 and Figure No. 25. Figure No. 26 is a plot of the gas injection material balance calculations versus cumulative recovery.

Gas Injection System

A closed system was designed so that the wells would be gas lifted into a central stage separation and custody transfer system. The first stage separators would operate at 113 psia and first stage gas would be discharged into the compressor suction system. The compressor discharge pressure was calculated, based upon differential pressure requirement at the sand face, weight of gas column in the injection wells, and line friction. The initial injection rate of 11.89 MMCFGPD at compressor discharge pressure of 1762 psi will require 2431 compressor horsepower. The compressor installation was designed so that the liquid products could be removed by oil absorption process between the second and third compression stages. The predicted compressor requirements are shown in Table No. 15 and Figure No. 27.

Economic Analysis of Gas Injection

The initial plant investment was based upon the installation of portable high speed compression units which may be installed for approximately \$162.50 per compressor horsepower. The initial investment required is \$560,000. This includes six 400 horsepower compressor units at \$55,000 per unit, plus \$10,000 per unit for installation and piping; \$49,000 for field gas distribution system to injection wells; and \$120,000 for distribution lines and gas-lift equipment installation in 24 producing

wells. The consolidation of existing tank batteries and gas gathering system is planned so that the wells may be produced by natural flow and gas-lift into stage separation facilities. Pending a physical inventory of the properties concerned, it is estimated that the value of equipment salvaged from the individual batteries will equal the cost of consolidation.

An additional \$260,000 investment is planned during the second year of operation to increase the compressor system to 4400 compressor horsepower. The operating costs were estimated from cost experience curves at a minimum of 1¢ per MCF direct operating expense for the compressors plus the cost of make-up fuel when required. The total cost for each time period considered is calculated separately because the economic factors vary during the life of the project.

The ultimate recovery from the South Area with partial pressure maintenance by 90% gas return is predicted to be 14.5 million barrels of oil, which is 61.7% of the original oil in place, to the economic limit at a reservoir pressure of 900 psi in July 1980. The predicted total revenue will be 39.2 million dollars with a total investment and expense of 9.1 million dollars, resulting in a profit of 30.1 million dollars.

The remaining reserves under gas injection operations as of July 1, 1960, are calculated to be 9.8 million barrels of oil. The corresponding revenue is 27.1 million dollars with 3.2 million dollars investment and expense, resulting in a remaining undiscounted profit of 23.9 million dollars. The oil and gas revenue and the investment and expense are shown in Table No. 16.

Effect of Existing Gas Contract

At the present time, the casing head gas produced in the Pool is gathered by the Phillips Petroleum Company; compressed by a booster station

located in the Pool and owned by the El Paso Natural Gas Company; and transferred to the Phillips Lea Plant for processing. The residue is taken by El Paso and the liquid products are sold by Phillips. The revenue to the operators in the Pool is determined by contract agreement from the volume of gas sold, amount of liquid extracted in the plant and from the sale of residue gas. The El Paso Natural Gas Company has stated that they will not object to the withdrawal of gas for pressure maintenance purposes.

Phillips has proposed that they erect remote absorption facilities in the field and extract liquid gas products from the gas stream between the second and third stages in the proposed field compression facilities. Phillips would pay for the liquid products under the existing contracts. Approximately 10% of the volume of the gas stream would be removed by the proposed liquid extraction. Phillips would pay the compression cost of this portion of the gas stream together with an adjustment for the pressure loss across the absorbers and for the benefit of cooling which might be done by Phillips.

The monetary adjustments are to be negotiated between the owners of the field and the owners of the gas contracts. The Engineering Committee has made no attempt to negotiate any basis for monetary adjustment. The estimated horsepower required to offset the pressure loss in the absorbers is approximately equal to the reduction in horsepower requirements realized because of the cooling through the absorbers. It was assumed that the compensation to be paid by the operators for the benefit of cooling would offset the compensation to be made by the gasoline plant for pressure loss across the absorbers. It was further assumed that the total compensation for the compression of extracted gas would be approximately 3 1/2¢ per MCF extracted from the stream. In the absence of any agreement for the furnishing

of fuel to compress the incremental gas volume as required by the contract, it was assumed that make-up fuel could be purchased for \$0.11 per MCF. These factors are incorporated into the economic analysis of revenue and expense items tabulated in Table No. 16.

WATERFLOOD CALCULATIONS

Consideration of a Model Study

The feasibility of conducting a model study was investigated. As a result of this investigation, it was concluded that such a study would help only in determining flood pattern efficiency and would not aid in determining reservoir conformance to water injection. Approximately 8 to 10 weeks' time would be required to complete a model study and the corresponding cost is estimated to be \$5,000. The Kemnitz Pool Engineering Committee has unanimously recommended that a model study not be conducted at this time.

Design of a Water Injection System

A water injection system starting at a reservoir pressure of 2,000 pounds in July 1960 was designed for a case study. In order that the analysis of water injection would be comparable to the analysis of gas injection, an oil production rate of 5,000 stock tank barrels per day was selected for the case study. Based upon the predicted reservoir conditions in July 1960, it was determined that this volume of stock tank oil, corrected by the July formation volume factor, would be equal to 7,545 reservoir barrels per day. The associated free gas production corrected to reservoir volume is 9,165 reservoir barrels per day. The total withdrawal rate would then be 16,710 reservoir barrels per day. This rate of withdrawal may be reduced to approximately 14,100 reservoir barrels per day while maintaining

the 5,000 stock tank barrels of oil per day production rate by transfer of the allowable from the top row of wells to the more efficient wells under unit operation.

A line drive water injection system was designed as shown in Figure No. 28. The following wells were selected as injection wells:

<u>Wells</u>	<u>Gross Porosity, Feet</u>	<u>Daily Water Injection Rate, Barrels</u>
Forest - State "A" No. 2	17'	700
Phillips - New Mex "A" No. 1	54'	2200
TGT - St. Phillips No. 1	80'	3300
TGT - Kemnitz "A" No. 5	102'	4200
TGT - Kemnitz "A" No. 6	16'	700
Shell - St. "WD" No. 1	33'	1400
TGT - State "D" No. 1	59'	2500
TOTAL		<u>15000</u>

Method of Calculation of Waterflood Performance

There are no laboratory data available for the Kemnitz Wolfcamp reservoir to use in calculating the theoretical waterflood performance.

There is no record available to the Engineering Committee of a waterflood in a similar reservoir. The waterflood calculations were based upon the following data and assumptions:

1. The South Area of the reservoir will behave as a homogenous unit with equal flood advance and displacement in all permeability ranges.
2. The permeability to water of the reservoir will be 5 millidarcies so that water may be injected at the rate of 43 barrels per day per foot of Microlog porosity.
3. The vertical conformance to water injection will be 80%.
4. The areal conformance to water injection will be 100%.
5. The first water breakthrough will occur when 72.60% of the total area is swept and 100% of the area will be swept at the time two pore volumes of water are injected.

6. The residual oil saturation after waterflood will be 20% of the total pore volume.

Based upon the above assumption, the calculations were conducted according to the Hurst method. Three stages of the waterflood advance are outlined on Figure No. 28. The map was planimetered to determine the reservoir volume of each stage. The isopach map presented in the October 1, 1959, report was used in making the waterflood calculations. The result of this volumetric analysis is shown in Table No. 17.

There are no laboratory tests to determine the residual oil saturation after waterflooding. The available cores in the Pool have been flushed to extremely low oil saturations of approximately 5%. The calculated residual oil saturation after primary depletion is approximately 30%. It is reasonable to expect a slight reduction in oil saturation as a result of waterflooding. The assumed 20% residual oil saturation was based upon the low residual oil saturation in the cores and the relatively low residual oil saturation after primary depletion.

Conversion to Time

Considering the effect of both the high formation volume factor and the high producing gas-oil ratio on bottom-hole pump efficiency, an average maximum pumping capacity of 420 stock tank barrels of oil per day was determined for each producing well under waterflood operations. It was assumed that, initially, the first row of wells would be produced at the maximum rate possible and that the second row of wells would be produced at a reduced rate. The third row of wells would be shut in and the allowables transferred to the first and second row wells until the third row wells are needed to maintain the desired production rate. In this manner, the total production from the South Area would be maintained at 5,000 barrels of oil

per day. The flood front will advance faster than the oil is withdrawn from the first row of wells so that part of the oil is pushed to the second row of wells. According to the calculation procedure, the oil withdrawal rate exceeds the replacement rate in the second and third row of wells until complete fill-up occurs in approximately 4 years. It has been assumed that the displacement of gas by the advancing front would create a transient pressure maintenance system in front of the flood so that reservoir pressure conditions would remain approximately constant. In the calculation procedure, the oil produced ahead of the flood front is noted and then subtracted from the waterflood oil in subsequent calculation steps. At the end of 15 months, 1.4 million barrels of oil will have been produced ahead of the waterflood and after that time, the flood gradually catches up with withdrawals until equilibrium is reached at 48 months.

When the advancing water front reaches the first row of wells, that row is shut in and the production rate from the second row is increased and the third row is placed on production. When the advancing water reaches the second row of wells, that row is shut in. The third row will not produce enough oil to maintain the 5,000 barrels of oil per day production rate; therefore, the injection rate is decreased and the withdrawal rate is limited to the producing capacity of the wells. These injection and producing rates were related to time, as shown in Figure No. 29 and Table No. 18, and to cumulative recovery as shown in Figure No. 30.

It is predicted that 42.7 million barrels of water will be injected over a 17-year period. The water will fill 10.0 million barrels of gas space and displace 8.7 million stock tank barrels of oil which occupy 13.1 million barrels of reservoir space. Approximately 19.5 million barrels of water will be produced during the flood.

Economic Analysis of Waterflood

The cost of water for injection is based upon the purchase of fresh water from the Caprock Water Company under approximately 1000 psi pressure at a cost of \$0.0375 per barrel. No treating plant or pumps will be required and the principle investment will be water distribution lines, injection well preparation, and the installation of adequate lifting equipment.

An average producing gas-oil ratio of 1816-1 for the life of the project was determined from the volume of free gas displaced and the dissolved gas produced with the oil. The gas revenue was computed as an average revenue of \$0.184 per barrel of oil. The oil and gas revenue, investment and expense estimates are shown in Table No. 19.

The ultimate recovery of the South Area under waterflood operations is predicted to be 13.4 million barrels of oil, which is 57% of the original oil in place in the South Area. It is estimated that the project will be abandoned in July 1977. The predicted total revenue will be 35.6 million dollars and the total investment and expense will be 9.6 million dollars, resulting in a profit of 26.0 million dollars.

The remaining waterflood reserves as of July 1, 1960, are 8.7 million barrels of oil. The calculated revenue is 23.5 million dollars, with 3.7 million dollars investment and expense, resulting in a remaining undiscounted profit of 19.8 million dollars.

REGULATION OF PRESSURE MAINTENANCE

NMOCC Rules

The Oil Conservation Commission of the State of New Mexico issued Order No. R-1525 on November 9, 1959, which included Rule 701: Injection of

Fluids Into Reservoirs. Section "D" of this rule, entitled "Pressure Maintenance Projects," is as follows:

1. Pressure maintenance projects are defined as those projects in which fluids are injected into the producing horizon in an effort to build up and/or maintain the reservoir pressure in an area which has not reached the advanced or "stripper" state of depletion.
2. The project area and the allowable formula for any pressure maintenance project shall be fixed by the Commission on an individual basis after notice and hearing.

Probable Effect of Proration

It is anticipated that the NMOCC will grant a hearing to consider regulation of the proposed pressure maintenance project in accordance with Item No. 2 above. It may be anticipated that the Commission will allow the following special rules:

1. The establishment of a project allowable equal to the sum of the normal allowable (without gas-oil ratio penalty) of the individual wells within the unit project.
2. The transfer of normal allowables of injection wells to other wells which are producing within the project, and the transfer of allowables from wells which produce inefficiently to other producing wells within the project.
3. That the gas reinjected into the formation will be subtracted from the total gas produced to arrive at a net gas volume, and that the allowable production rate of the project will be exempt from gas-oil ratio penalties as long as the net gas-oil ratio is less than the limiting gas-oil ratio of 2000-1.

Economic Analysis of Well Inside and Outside of Unit

A theoretical case study has been made of a top allowable well in the South Area to determine if the owners of such a well would benefit from

placing the well in the proposed pressure maintenance project. It is anticipated that the reservoir pressure will be sustained throughout the South Area and that the productivity of an individual well will be sustained by pressure maintenance, regardless of whether the well is placed in the project or not.

The producing gas-oil ratios will increase throughout the reservoir and result in penalized allowables for those wells not operating under a net gas-oil ratio. The case study showed that a top allowable well inside the unit would produce 268,000 barrels of oil within the next 5 years. It was similarly calculated that a well outside the project area operating under a penalized allowable would produce 161,000 barrels of oil within the next 5 years. It was therefore concluded that a top allowable well inside the unit would produce 107,000 barrels more oil within the next 5 years than a well outside the project area.

The study also showed that a well within the project area might ultimately recovery 393,000 barrels of oil during the 20-year life of the project under net gas-oil ratio regulation as compared to 251,000 barrels of oil under penalized gas-oil ratio, or 142,000 additional barrels. The typical primary reserves for a top allowable well are 232,000 barrels from April 1, 1960; therefore, it is concluded that a well outside the project area is not significantly helped or hurt by pressure maintenance.

BASE MAP

The base map was reviewed by the Engineering Committee and by Humble Oil and Refining Company acting independently. The survey lines shown on the base map were checked against U.S.G.S. records. The well locations were

checked against NMOCC files. The survey lines were found to be correct; however, some minor corrections were made in well locations. A revised map, dated May 5, 1960, was submitted to each operator for checking. Each operator reported that his portion of the map was correct, and the revised map was then unanimously approved by the Engineering Committee.

POSSIBLE UNITIZATION PARAMETERS

Ownership of Pool

The apparent net working interest ownership in the various properties within the Pool boundaries as of April 1, 1960, is based upon letters received from each company. This apparent working interest ownership is tabulated herein as Table No. 20. It is stipulated that completeness or accuracy of this tabulation has not been determined by the legal committee at this time. All mineral interest in the Pool is owned by the State of New Mexico.

Current Production Rate

The production of each well in the Kemnitz Wolfcamp Pool was determined for the base period from January 1, 1960, to April 1, 1960, from the form C-115's filed with the New Mexico Oil Conservation Commission at Hobbs, New Mexico. The oil production by months for all wells in the Pool is shown on Table No. 21 and the corresponding production for this base period is tabulated by working interest owners as Table No. 24. The Tennessee-Kemnitz "A" No. 6 is producing from a separate reservoir and the production from this well is not included in this tabulation. It is stipulated that some individual wells now have comparative producing capability different than indicated by the comparative production during the base period, because of both mechanical repair and well stimulation.

Cumulative Recovery

The cumulative oil production from each individual well in the Kemnitz Wolfcamp Pool has been tabulated by months from discovery in December 1956 through April 1, 1960, from the form C-115's filed with the New Mexico Oil Conservation Commission at Hobbs, New Mexico. These statistics were verified by each individual operator. The cumulative recovery of each well to April 1, 1960, is included in Table No. 21 and the corresponding recovery is tabulated by working interest owners in Table No. 24.

Net Wells

In accordance with the charge to the Engineering Committee, a well count by interest owners was made. The well count excluded all wells now producing from a horizon different than the Kemnitz Wolfcamp reservoir. The producing horizon of wells in the Pool is shown on Figure No. 1. There are no dual completions in the Pool. The Tennessee-Kemnitz "A" No. 6 is producing from a separate Wolfcamp reservoir and is designated "Upper Wolfcamp." The Tennessee-Kemnitz "A" No. 6 was eliminated from the well count by interest owners for this reason.

Individual Well Reserves

The primary reserves of the 7 producing wells in the North Area of the Pool were determined by decline curve analyses on an individual well basis. The predicted performance of the individual wells is shown in Table No. 9. The decline curve extrapolations for the individual wells are superimposed on the composite oil production prediction curve in Figure No. 24.

The primary reserves of the 28 producing wells in the South Area of the Pool were determined from the differential material balance calculation of performance for the South Area. The total reserves were divided among the individual wells on the basis that each well would maintain its relative

competitive position in reservoir withdrawals during the remaining life of the Pool. The individual well reserves are shown in Table No. 22. If the individual well reserves are used by the operators as a participation parameter, it is recommended that the reserve estimate be revised to take into account any well stimulation or change in producing characteristics of the individual wells.

Acre-Feet Pay

The mechanically contoured Isopach Map prepared by the Kemnitz Pool Engineering Committee for the October 1, 1959, report was reviewed at the request of Humble. Subsequent to the review, Tennessee constructed a Revised Isopach Map, dated July 5, 1960, as shown in Figure No. 31. This map was approved by letter ballot from Samedan, Shell, Sinclair and Skelly. Phillips indicated verbal approval. The map was disapproved by Forest, Humble, Ohio and Pure.

The Revised Isopach Map was, therefore, approved by 6 committee members, representing 27 net wells. Since the approval of 7 committee members, representing 25 net wells, is required for Engineering Committee approval, it is stipulated that the Revised Isopach Map, dated July 5, 1960, has not been approved by the Engineering Committee.

The measurements of acre-feet obtained by planimetry of this revised map are shown in Table Nos. 23 and 24. There are 83,182 acre-feet in the South Area and 15,887 acre-feet in the North Area.

EXHIBITS

TABLE NO. 1

KEMNITZ POOL DATA
(April 1, 1960)

	<u>North Area</u>	<u>South Area</u>
A. Development:		
1. Discovery Date	December 1956	December 1956
2. Typical Depth	10,700	10,700
3. Number Wells (Wolfcamp)	3 - Flowing 4 - Pumping 1 - Abandoned	21 - Flowing 7 - Pumping
4. Other Wells		1 - Pumping
Upper Wolfcamp		
Pennsylvanian	1 - Flowing	
Cisco	2 - Flowing	
5. Cumulative Production (Wolfcamp Only)	422,818 Bbls Oil 689,971 MCF Gas	4,206,858 Bbls Oil 5,809,263 MCF Gas
B. Reservoir Properties:		
6. Formation - Undifferentiated	Limestone of Wolfcamp Age	
7. Type Trap	Stratigraphic	Stratigraphic
8. Producing Mechanism	Solution Gas Drive	Solution Gas Drive
9. Datum	6600' subsea	6600' subsea
10. Porosity	8 percent	8 percent
11. Permeability	Unknown	50 - 100 millidarcies
12. Water Saturation	25 percent	25 percent
C. Reservoir Fluids:		
13. Formation Volume Factor	1.768 initially	1.768 @ 3788 psi 1.526 @ 2100 psi
14. Solution Gas-Oil Ratio	1492 initially	1492 initially @ 3788 psi 924 @ 2100 psi
15. Stock Tank Oil Gravity	39°	39°
D. Reservoir History:		
16. Original Reservoir Pressure	3788 psi	3788 psi
17. Bubble Point Pressure	3188 psi	3188 psi
18. Production above Bubble Point	108,076 BO	311,924 BO
19. Present Reservoir Pressure	-	2100 psi (est.)
E. Material Balance:		
20. Original Oil in Place	Unknown	23,500,000
21. Water Encroachment	None	None
22. Acre-feet Net Pay (Volumetric)	15,887	83,182
F. Predicted Primary Depletion:		
23. Ultimate Recovery	0.7 mil. BO	10.0 mil. BO
24. Remaining Primary Reserves	0.3 mil. BO	5.8 mil. BO

TABLE NO. 2

MATERIAL BALANCE CALCULATIONS OF OIL IN PLACE
SOUTH AREA - KENNETH WOLF CAMP POOL

	<u>12/2/57</u>	<u>7/4/58</u>	<u>12/1/58</u>	<u>7/1/59</u>	<u>12/10/59</u>
Cum. Oil Rec. from Pool (Bbls)	555803	1361163	2099701	3170131	4028000
- Rec. above BP S. Area (Bbls)	- 311924	- 311924	- 311924	- 311924	- 311924
- Rec. from N. Area (Bbls)	- 128522	- 203909	- 259387	- 339974	- 387134
n, (Bbls)	115357	845330	1528390	2518233	3328942
Cum. Gas Rec. from Pool (MCF)	752811	1704595	2652102	4026316	5370309
- Rec. above BP S. Area (MCF)	- 347654	- 347654	- 347654	- 347654	- 347654
- Rec. from N. Area (MCF)	- 184714	- 302956	- 400213	- 510059	- 606691
Gas Production (MCF)	220443	1053985	1904235	3168603	4415964
rn	1911	1247	1246	1258	1327
Reservoir Pressure	3139	2922	2699	2468	2296
B	1.763	1.703	1.648	1.600	1.564
Z	.790	.793	.796	.799	.802
a (X10 ⁻³)	.792	.855	.928	1.019	1.101
S	1408	1286	1175	1074	999
So	1454	1454	1454	1454	1454
Bo	1.789	1.789	1.789	1.789	1.789
rn-s	503	-39	71	184	328
a(rn-s) (X10 ⁻³)	398	-33	66	187	361
B / a(rn-s)	2.161	1.670	1.714	1.787	1.925
So-S	46	168	279	380	455
a(So-S) (X10 ⁻³)	36	144	259	387	501
(Bo-B)	.026	.086	.141	.189	.225
a(So-S) - (Bo-B)	.010	.058	.118	.198	.276
Factor	216.1	28.793	14.525	9.025	6.975
N (BP)	24928648	24339587	22199865	22727053	23219370
/ Rec. above BP S. Area	311924	311924	311924	311924	311924
Original Oil in Place	25240572	24651511	22511789	23038977	23531294

TABLE NO. 3
 CALCULATION OF Kg/Ko
 SOUTH AREA
 KEMNITZ MOLFACAMP POOL

Month	Cumulative Recovery	Reservoir Pressure	Avg BHP For Mo.	Avg Cum Oil For Mo.	B	Cum. Oil Below BP x .001	Liq. Sat.	R-1	R-2	R-3	S @ 15.025 Ft ³ /Bbl	R-S Ft ³ /Ft ³	Ug/Uo	a x .001	Ug/Uo x a/b x .001	Kg/Ko
1/59	2123167	2635	2649	2046154	1.639	1734	88.63	1223	1213	1248	1155	12	0.1118	5.318	0.363	.0044
2/59	2245356	2605	2620	2175856	1.632	1864	87.98	1181	1232	1248	1140	13	0.1103	5.388	0.364	.0047
3/59	2367224	2571	2588	2307885	1.625	1996	87.34	1236	1232	1248	1126	22	0.1080	5.497	0.365	.0080
4/59	2528951	2538	2554	2449682	1.616	2138	86.57	1278	1298	1302	1110	34	0.1060	5.567	0.365	.0124
5/59	2685628	2504	2521	2598884	1.610	2287	85.91	1381	1378	1374	1097	49	0.1042	5.645	0.365	.0179
6/59	2833635	2468	2486	2751226	1.602	2439	85.17	1475	1446	1500	1082	63	0.1022	5.732	0.366	.0231
7/59	2982754	2436	2452	2899789	1.594	2588	84.45	1481	1489	1500	1066	77	0.1002	5.817	0.366	.0282
8/59	3133253	2402	2419	3049598	1.588	2738	83.80	1512	1565	1545	1050	88	0.0983	5.902	0.365	.0321
9/59	3273727	2370	2386	3195085	1.582	2883	83.17	1703	1582	1588	1037	98	0.0968	5.986	0.366	.0359
10/59	3428023	2340	2355	3341912	1.576	3030	82.53	1531	1616	1580	1023	95	0.0952	6.024	0.366	.0362
11/59	3577395	2310	2325	3493473	1.570	3181	81.89	1613	1544	1597	1011	104	0.0936	6.109	0.364	.0379
12/59	3733547	2278	2294	3646520	1.563	3335	81.20	1490	1632	1622	999	111	0.0918	6.192	0.364	.0379
1/60	3897780	2247	2262	3806712	1.557	3495	80.54	1793	1691	1713	986	129	0.0902	6.287	0.364	.0470
2/60	4048256	2218	2232	3967067	1.551	3655	79.88	1790	1818	1807	973	149	0.0885	6.380	0.364	.0542
3/60	4206858	2182	2200	4127632	1.545	3816	79.23	1873	1911		960	169	0.088	6.380	0.363	.0613
4/60	4356009	2146	2164	4284534	1.538	3973	78.55	2070			911	206	0.086	6.462	0.361	.0744

Note: R-1 is actual producing ratio for month
 R-2 is second-order average ratio
 R-3 is third-order average ratio

TABLE NO. 4

MATERIAL BALANCE CALCULATION
 KEMNITZ PREDICTION OF PRIMARY PERFORMANCE KG/PO H

STEP	PRESSURE	OIL PRODUCTION %	PRODUCING GOR	OIL SATURATION	KG/KO	Z FACTOR	SOLUTION GOR	FORMATION VOLUME FACTORS		RESERVOIR TEMPERATURE	GAS CAP FACTOR, M	GAS INJECTED, %	WATER INFLUX FACTOR	NONE	NONE	NONE	VISCOSITY
								OIL	B								
INITIAL	3783																
1	3000	5.17	1492	.7900	.0050	.790	1492	1.7680	.000644	1.7680	.193	.02250					
2	2900	4.17	1413	.7930	.0050	.792	1327	1.7260	.000815	1.8248	.193	.02210					
3	2800	3.20	1328	.8011	.0031	.793	1274	1.7000	.000944	1.8427	.193	.02170					
4	2700	2.22	1224	.8085	.0012	.794	1211	1.6750	.000875	1.8785	.193	.02130					
5	2600	1.22	1124	.8124	.0027	.795	1178	1.6500	.000909	1.9142	.197	.02120					
6	2500	0.23	1026	.8165	.0062	.797	1131	1.6280	.000946	1.9321	.200	.02040					
7	2400	11.11	1329	.8253	.0145	.799	1086	1.6060	.000936	1.9679	.206	.02000					
8	2300	12.62	1471	.8302	.0254	.800	1040	1.5850	.001029	2.0037	.212	.01930					
9	2200	14.75	1644	.8393	.0379	.802	999	1.5650	.001076	2.0795	.216	.01890					
10	2100	16.32	1873	.8488	.0541	.804	960	1.5460	.001128	2.0631	.224	.01820					
11	2000	18.00	2104	.8598	.0705	.806	924	1.5260	.001184	2.1469	.230	.01750					
12*	1900	19.89	2347	.8728	.0890	.811	882	1.5090	.001251	2.2184	.236	.01710					
13	1800	21.49	2565	.8866	.1046	.815	847	1.4910	.001324	2.2899	.242	.01690					
14	1700	23.15	2910	.9002	.1221	.819	820	1.4730	.001404	2.3794	.248	.01620					
15	1600	24.56	3226	.9130	.1350	.824	772	1.4560	.001496	2.4689	.252	.01570					
16	1500	26.04	3126	.9216	.1551	.830	757	1.4390	.001601	2.5762	.259	.01510					
17	1400	27.72	3305	.9305	.1746	.836	701	1.4230	.001720	2.7193	.265	.01470					
18	1300	29.31	3477	.9419	.1951	.842	663	1.4070	.001856	2.8803	.272	.01430					
19	1200	30.92	3681	.9478	.2189	.848	628	1.3910	.002013	3.0771	.281	.01390					
20	1100	32.48	3886	.9540	.2447	.856	591	1.3750	.002201	3.3097	.291	.01350					
21	1000	33.94	4100	.9614	.2733	.865	560	1.3590	.002427	3.5790	.303	.01310					
22	900	35.16	4283	.9697	.3043	.873	523	1.3440	.002694	3.9000	.319	.01290					
23	800	36.58	4522	.9785	.3443	.881	490	1.3280	.003021	4.3294	.333	.01250					
24	700	37.69	4681	.9871	.3828	.892	457	1.3130	.003441	4.8124	.353	.01220					
25	600	39.04	4890	.9954	.4334	.903	422	1.2970	.003981	5.3280	.378	.01200					
26	500	40.89	5177	.9994	.5090	.914	389	1.2820	.004701	6.7088	.407	.01180					
27	400	42.60	5414	.9995	.6005	.925	352	1.2630	.005709	8.3725	.442	.01160					
28	300	42.61	4681	.9942	.6244	.937	315	1.2500	.007229	9.7501	.495	.01180					
29	200	42.62	4215	.9904	.6553	.949	274	1.2340	.009762	10.9666	.580	.01210					
30	200	42.63	3686	.9884	.6875	.966	225	1.2180	.014905	12.0768	.690	.01120					

JR MURPHY, 04/29/60
 PRSD. ENG. PROGRAM

TABLE NO. 5

SEMIANNUAL GAS-OIL RATIO ADJUSTMENT
SOUTH AREA - KEMNITZ WOLF CAMP POOL

Survey Date	Cum. Oil (MSTB)	Recovery % OIP	Instantaneous GOR	Effective Date	Prod. to Eff. Date (MSTB)	Penalized Allowable (BOPD)	Prod. to Next Survey Date (MSTB)
6/1/60	4535	19.2	2260	8/1/60	300	4420	531
12/1/60	5366	22.8	2860	2/1/61	265	3500	420
6/1/61	6051	25.8	3120	8/1/61	210	3200	382
12/1/61	6643	28.3	3380	2/1/62	192	2960	177
6/1/62	7012	29.8	3550	8/1/62	365	2820	169
12/1/62	7546	32.1	3820	2/1/63	338	2620	157
6/1/63	8041	34.2	4140	8/1/63	314	2420	145
12/1/63	8500	36.2	4450	2/1/64	290	2240	

TABLE NO. 6

SOUTH AREA KEMNITZ WOLFCAMP POOL
 PRODUCTIVITY DECLINE - PRIMARY DEPLETION
 PI_1 (Kro/ub)₂ = PI_2 (Kro/ub)₁

Reservoir Pressure	Cum Rec MMSTB	SL-%	K _o /K	ub	K _o /K ub	Typical Well PI	Total PI	Prod Rate P-100# (MSTB/Mo)	Avg Max Prod Rate (MSTB/Mo)	Allowable (MSTB/Mo)	Time
2000	4.67	76.28	0.033	0.3561	0.0927	0.607	16.4	934.8		150	7/60
1900	5.05	74.66	0.027	0.3608	0.0748	0.489	13.2	712.8		133	10/60
1800	5.44	73.02	0.022	0.3653	0.0602	0.393	10.6	540.6		133	1/61
1700	5.77	71.60	0.018	0.3669	0.0491	0.321	8.66	415.7		105	4/61
1600	6.12	70.15	0.015	0.3727	0.0402	0.263	7.09	319.1		105	7/61
1500	6.52	68.63	0.012	0.3771	0.0318	0.208	5.61	235		96	11/61
1400	6.89	67.19	0.010	0.3827	0.0261	0.171	4.61	193		89	3/62
1300	7.27	65.76	0.0084	0.3909	0.0215	0.140	3.79	136		85	8/62
1200	7.63	64.40	0.0070	0.4001	0.0175	0.114	3.09	102	119.00	85	12/62
1100	7.95	63.14	0.0058	0.4118	0.0141	0.092	2.49	74.7	88.35	79	6/63
1000	8.26	61.97	0.0050	0.4287	0.0117	0.076	2.06	55.6	65.16	73	11/63
900	8.60	60.73	0.0045	0.4422	0.0102	0.067	1.80	43.2	49.40	67	6/64
800	8.85	59.71	0.0037	0.4635	0.0080	0.052	1.41	29.6	36.4		1/65
700	9.17	58.54	0.0033	0.4903	0.0067	0.044	1.18	21.2	25.4		2/66
600	9.45	57.40	0.0027	0.5218	0.0052	0.034	0.92	13.8	17.5		6/67
500	9.81	56.20	0.0023	0.5582	0.0041	0.027	0.73	8.8	11.3		2/70
400	10.013	55.4	0.0021	0.625	0.0038	0.025	0.67	6.0	7.4		7/72

Note: Average PI of South Area well at 3000 psi reservoir pressure was estimated to be 9 BOPD/psi BHP draw-down.

TABLE NO. 7

PREDICTED PERFORMANCE WITH PRIMARY DEPLETION
SOUTH AREA - KEMNITZ WOLFCAMP POOL

<u>Time After</u> <u>BHP Reaches</u> <u>2000 psi</u> <u>(years)</u>	<u>Oil Prod</u> <u>During</u> <u>Period</u> <u>(MMSTB)</u>	<u>Cum. Oil</u> <u>Recovery</u> <u>(MMSTB)</u>	<u>Avg GOR</u> <u>SCF/STB</u>	<u>Gas Prod</u> <u>During</u> <u>Period</u> <u>(MMMSCF)</u>	<u>Cum. Gas</u> <u>Prod</u> <u>(MMMSCF)</u>
Cum. to July 1960	<u>4.66</u>	<u>4.66</u>	<u>1456</u>	<u>6.80</u>	<u>6.80</u>
1	1.32	5.98	2760	3.64	10.44
2	1.11	7.09	3395	3.77	14.21
3	0.96	8.05	3885	3.73	17.94
4	0.55	8.60	4350	2.39	20.33
5	0.39	8.99	4660	1.82	22.15
6	0.26	9.25	4860	1.26	23.41
7	0.19	9.44	4985	0.95	24.36
8	0.14	9.58	5160	0.72	25.08
9	0.12	9.70	5350	0.64	25.72
10	0.11	9.81	5400	0.59	26.31
11	0.10	9.91	5250	0.53	26.84
12	<u>0.093</u>	<u>10.00</u>	<u>5000</u>	<u>0.47</u>	<u>27.31</u>
Remaining Reserves	5.34		3839	20.51	
Ultimate Recovery	10.00	10.00	2048	27.31	27.31

TABLE NO. 3

PREDICTED ECONOMICS OF PRIMARY DEPLETION
SOUTH AREA - KEMNITZ WOLFCAMP POOL

Time After BHP Reaches 2000 psi (years)	Oil Revenue During Period (MM\$)	Gas Revenue During Period (MM\$)	Expense (MM\$)	Operating Gain (MM\$)	Investment (MM\$)	Profit (MM\$)
Cum to 7/1/60	<u>11.71</u>	<u>0.43</u>	<u>0.18</u>	<u>11.96</u>	<u>5.77</u>	<u>6.19</u>
1	3.31	0.37	0.08	3.60	0.42	3.18
2	2.78	0.38	0.10	3.06	0.31	2.75
3	2.41	0.38	0.10	2.69		2.69
4	1.38	0.24	0.10	1.52		1.52
5	0.98	0.18	0.10	1.06		1.06
6	0.65	0.13	0.10	0.68		0.68
7	0.48	0.10	0.10	0.48		0.48
8	0.35	0.07	0.10	0.32		0.32
9	0.30	0.07	0.10	0.27		0.27
10	0.27	0.06	0.10	0.23		0.23
11	0.25	0.05	0.10	0.20		0.20
12	<u>0.23</u>	<u>0.05</u>	<u>0.10</u>	<u>0.18</u>		<u>0.18</u>
	<u>13.39</u>	<u>2.08</u>	<u>1.18</u>	<u>14.29</u>	<u>0.73</u>	<u>13.56</u>
Ultimate	25.10	2.51	1.36	26.25	6.50	19.75

Note:

Oil Revenue based on net value of \$2.507/bbl after royalty and taxes.

Gas Revenue based on average net value of \$0.1014/MCF during life of Pool.

Expense based on \$200/well-month for flowing well and \$300/well-month for pumping well.

Investment based on \$198,425/well for drilling and completion, presently-installed lifting equipment at estimated cost, and future lifting equipment installations at \$35,000 each.

TABLE NO. 9

PRIMARY OIL RECOVERY - NORTH AREA - KEMNITZ WOLF CAMP POOL - STOCK TANK BARRELS

PROD TO	HUMBIE ST. "SB"-1	OHIO ST. "SA"-1	OHIO ST. "SA"-2	OHIO ST. "SB"-1	SINCLAIR SEAMAN 2	SINCLAIR SEAMAN 3	TENNESSEE ST. "A" 2	TENNESSEE ST. "B" 1	TOTAL NORTH AREA	TOTAL AREA MONTHLY RATE
4/1/60	54075	85756	50478	11853	12699	102416	57960	47581	422818	8382
7/1/60	61614	88006	52248	12420		107366	63420	50191	447964	6773
7/1/61	85974	94753	57888	14448		124446	81040	57991	529239	4627
7/1/62	102774	98953	61092	15000		137986	93380	62875	584759	2996
7/1/63	114414	100000	62000			148524	102120	65959	620716	2058
7/1/64	122574					156804	108340	68000	645417	1376
7/1/65	128190					163308	112736		661933	1010
7/1/66	132066					168432	115860		674057	734
7/1/67	134742					172428	118000		682869	367
7/1/68	136000					175572			687271	206
7/1/69						178044			689743	163
7/1/70						180000			691699	

TABLE NO. 10

PREDICTED ECONOMICS OF PRIMARY DEPLETION
NORTH AREA - KEMNITZ WOLFCAMP POOL

Time After 7/1/60	Oil Revenue During Period (MM\$)	Gas Revenue During Period (MM\$)	Expense (MM\$)	Operating Gain (MM\$)	Investment (MM\$)	Profit (MM\$)
Cum to 7/1/60	<u>1.123</u>	<u>0.035</u>	<u>0.056</u>	<u>1.102</u>	<u>1.680</u>	<u>(-0.578)</u>
1	0.203	0.016	0.025	0.194	0.050	0.144
2	0.140	0.011	0.025	0.126		0.126
3	0.090	0.007	0.022	0.075		0.075
4	0.060	0.005	0.014	0.051		0.051
5	0.043	0.003	0.010	0.036		0.036
6	0.030	0.002	0.010	0.022		0.022
7	0.023	0.002	0.010	0.015		0.015
8	0.010	0.001	0.007	0.004		0.004
9	0.008	0.001	0.004	0.005		0.005
10	<u>0.005</u>	<u>0.001</u>	<u>0.004</u>	<u>0.001</u>		<u>0.001</u>
	0.612	0.048	0.131	0.529	0.050	0.479
<u>Ultimate</u>	<u>1.735</u>	<u>0.083</u>	<u>0.187</u>	<u>1.631</u>	<u>1.730</u>	<u>(-0.099)</u>

TABLE NO. 11

M A T E R I A L B A L A N C E C A L C U L A T I O N

KEMNITZ PRESSURE MAINTENANCE RETURN .90 PRODUCED GAS KG/KDA

RESERVOIR TEMPERATURE 153
 GAS CAP FACTOR, M NONE
 GAS INJECTED, % 90
 WATER INFLUX FACTOR NONE

STEP	PRESSURE	OIL PRODUCTION %	PRODUCING GOR	OIL SATURATION	KG/KO	Z FACTOR	SOLUTION GOR	FORMATION VOLUME FACTORS		VISCOSITY		
								OIL	GAS		OIL	GAS
INITIAL	3788		1492	.7500		.790	1492	1.7680	.000644	1.7680	.183	.02250
1	3000	3.17	1413	.7090	.0050	.792	1327	1.7260	.000815	1.8248	.188	.02210
2	2900	4.17	1328	.6911	.0031	.793	1274	1.7000	.000844	1.8427	.193	.02170
3	2800	6.20	1243	.6665	.0012	.794	1222	1.6750	.000875	1.8785	.197	.02120
4	2700	8.22	1224	.6424	.0027	.795	1178	1.6500	.000909	1.9142	.200	.02040
5	2600	9.23	1236	.6269	.0062	.797	1131	1.6280	.000946	1.9321	.206	.02000
6	2500	11.11	1329	.6056	.0145	.799	1086	1.6060	.000986	1.9679	.212	.01930
7	2400	12.82	1471	.5862	.0254	.800	1040	1.5850	.001029	2.0037	.218	.01860
8	2300	14.35	1644	.5686	.0378	.802	999	1.5650	.001076	2.0395	.224	.01820
9	2200	16.32	1873	.5488	.0541	.804	960	1.5460	.001128	2.0931	.230	.01770
10	2100	18.00	2104	.5308	.0705	.806	924	1.5260	.001184	2.1468	.236	.01710
11	2000	19.89	2347	.5128	.0880	.811	882	1.5090	.001251	2.2184	.242	.01660
12*	1900	28.12	3330	.4546	.1512	.815	847	1.4910	.001324	2.2899	.248	.01520
13	1800	36.44	4899	.3972	.2383	.819	820	1.4730	.001404	2.3794	.252	.01570
14	1700	43.19	6516	.3509	.3676	.824	772	1.4560	.001496	2.4688	.259	.01510
15	1600	49.05	9616	.3110	.5759	.830	737	1.4390	.001601	2.5762	.265	.01430
16	1500	54.01	13585	.2776	.8705	.836	701	1.4230	.001720	2.7193	.272	.01430
17	1400	57.78	18061	.2520	1.2065	.842	663	1.4070	.001856	2.8803	.281	.01390
18	1300	60.89	22712	.2308	1.5809	.848	628	1.3910	.002013	3.0771	.291	.01350
19	1200	63.50	27249	.2129	1.9798	.856	591	1.3750	.002201	3.3097	.303	.01310
20	1100	65.70	31504	.1977	2.3889	.865	560	1.3590	.002427	3.5780	.319	.01290
21	1000	67.63	35129	.1846	2.8050	.873	523	1.3440	.002694	3.9000	.333	.01250
22	900	69.46	38647	.1720	3.2580	.881	490	1.3280	.003021	4.3294	.353	.01220
23	800	71.03	41252	.1614	3.6946	.892	457	1.3130	.003441	4.8124	.378	.01200
24	700	72.65	43429	.1505	4.1904	.903	422	1.2970	.003981	5.3280	.407	.01180
25	600	74.45	45326	.1389	4.7772	.914	389	1.2820	.004701	6.7088	.442	.01160
26	500	76.14	45940	.1278	5.4079	.925	352	1.2630	.005709	8.3725	.499	.01180
27	400	77.01	42526	.1219	5.7723	.937	315	1.2500	.007229	9.7501	.580	.01210
28	300	77.34	36530	.1186	5.9832	.949	274	1.2340	.009762	10.9666	.690	.01120
29	200	77.35	30873	.1170	6.0875	.966	225	1.2180	.014905	12.0758		

*GAS INJECTION STARTED

JR MURPHY, 04/29/60
 PROD. ENG. PROGRAM

TABLE NO. 12

KEMNITZ VOLCANIC POOL - SOUTH AREA
 CALCULATED OF COMPOSITE PERFORMANCE -
 80% Conformance, 90% Return of Gas From Conformable Section

Pressure	Conformable Recovery %	Non-Conf. Recovery %	Average Recovery %	Avg. COR	MCF Gas Prod.	Gas Return	Avg. Oil Sat.	Total Oil Prod.
2000	19.89	19.89	19.89	2347	- 0 -	- 0 -	.5128	.444
1900	28.12	21.49	26.79	3215	5344	4637	.4630	1.662
1800	36.44	23.15	33.79	4605	7889	6896	.4130	1.842
1700	43.19	24.56	39.45	6339	8462	7442	.3739	1.837
1600	49.05	26.04	44.55	8229	10816	9537	.3391	1.172
1500	54.01	27.73	48.75	12374	13016	11479	.3093	1.011
1400	57.78	29.31	52.09	15685	13063	11525	.2860	0.783
1300	60.89	30.92	54.90	20523	13566	11953	.2662	0.661
1200	63.50	32.45	57.29	24251	13659	12041	.2491	0.563
1100	65.70	33.84	59.33	27795	13309	11739	.2344	0.479
1000	67.62	35.16	61.14	30628	13017	11477	.2216	0.425
900	69.46	36.58	62.86	33085	13596	11966	.2091	0.411
800	71.03	37.68	64.36	35764	12413	10952	.1985	0.347
700	72.65	39.04	65.93	36743	13558	11921	.1875	0.369
600	74.45	40.89	67.74	37108	13771	13788	.1754	0.425
500	76.14	42.60	69.43	37794	13042	13148	.1637	0.398

TABLE NO. 13

SOUTH AREA KENNITZ WOLFCAVE POOL
 PRODUCTIVITY INDEX DECLINE CALCULATIONS WITH PRESSURE MAINTENANCE BY
 GAS INJECTION - 80% CONFORMANCE - 90% RETURN TO CONFORMABLE SECTION

Reservoir Pressure	Cum Rec MMSTB	S _L	K _o /K	uB	K _o /K uB	Typical Well PI	Total PI	Prod Rate P-100# (MSTB/Mo)	Avg Max Prod Rate (MSTB/Mo)	Allowable MSTB/Mo	Time
2000	4.67	76.28	0.033	0.3961	0.0927	0.607	16.4	934.8			7/60
1900	6.30	71.30	0.017	0.3608	0.0471	0.309	8.33	449.8	692.3	150	6/61
1800	7.94	66.36	0.0090	0.3653	0.0246	0.161	4.35	221.9	335.6	150	5/62
1700	9.27	62.39	0.0053	0.3669	0.0144	0.094	2.55	122.4	172.1	150	2/63
1600	10.45	58.91	0.0035	0.3727	0.0094	0.061	1.66	74.7	98.55		2/64
1500	11.46	55.93	0.0023	0.3771	0.0061	0.040	1.08	45.36	60.03		7/65
1400	12.24	53.60	0.0017	0.3827	0.0044	0.029	0.778	30.34	37.85		4/67
1300	12.90	51.62	0.0013	0.3909	0.0033	0.022	0.584	21.02	25.68		6/69
1200	13.46	49.91	0.0010	0.4001	0.0025	0.016	0.442	14.59	17.31		1/72
1100	13.94	48.44	0.00085	0.4118	0.0021	0.014	0.372	11.16	12.68		2/75
1000	14.37	47.16	0.00073	0.4257	0.0017	0.011	0.301	8.13	9.65		11/78
900	14.78	45.91	0.00062	0.4422	0.0014	0.009	0.248	5.95	7.04		9/83

Estimated economic limit is July 1980.

TABLE NO. 14

PREDICTED PERFORMANCE WITH PRESSURE MAINTENANCE
SOUTH AREA - KEMNITZ WOLF CAMP POOL

Time After Injection Starts (Years)	Oil Prod During Period (MMSTB)	Cum. Oil Recovery (MMSTB)	GOR SCF/STB	Gas Prod During Period (MMMSCF)	Cum. Gas Prod. (MMMSCF)	Gas Inj. During Period (MMMSCF)	Cum. Gas Inj. (MMMSCF)
Cum. to 7/1/60	<u>4.66</u>	<u>1456</u>			<u>6.80</u>		
1	1.80	6.46	3367	6.06	12.86	5.26	5.26
2	1.80	8.26	5028	9.05	21.91	7.92	13.18
3	1.53	9.79	7248	11.09	33.00	9.77	22.95
4	0.98	10.77	10337	10.13	43.15	8.94	31.89
5	0.71	11.48	12944	9.19	52.32	8.10	39.99
6	0.45	11.93	16578	7.46	59.78	6.58	46.57
7	0.41	12.34	17463	7.16	66.94	6.32	52.89
8	0.31	12.65	20226	6.27	73.21	5.53	58.42
9	0.29	12.94	20828	6.04	79.25	5.32	63.74
10	0.22	13.16	24636	5.42	84.67	4.78	68.52
15	0.85	14.01	26694	22.69	107.36	20.01	88.53
20	0.52	14.53	31269	16.26	123.62	14.33	102.86

TABLE NO. 15

COMPRESSOR REQUIREMENTS
SOUTH AREA - KEMNITZ WOLFCAMP POOL

Reservoir Pressure	Gas Prod Rate MMCFGPD	Rate of Gas Return MMCFGPD	$P_s - P_f$	PGC	Line Friction	Compressor Discharge Pressure	2nd Stage Pressure	Total HP	Fuel Rate MMCFGPD
1900	13.70	11.89	297	585	100	1762	760	2431	1.116
1800	20.23	17.68	442	592	100	1800	765	3673	1.674
1700	23.50	20.67	517	588	100	1779	760	4207	2.046
1600	18.03	15.90	398	531	100	1617	705	3108	1.488
1500	14.46	12.75	319	486	100	1483	660	2397	1.116
1400	12.10	10.67	267	444	100	1373	630	1958	0.930
1300	10.28	9.06	227	410	100	1267	580	1580	0.744
1200	8.59	7.57	189	372	100	1167	560	1279	0.558
1100	7.04	6.21	155	338	100	1067	520	994	0.558
1000	5.71	5.03	126	304	100	972	485	787	(0.372)
900	4.53	3.99	100	273	100	877	450	586	(0.372)

Horsepower calculations based on 113 psia compressor suction pressure.
 Absorber between 2nd and 3rd stages removes approximately 10% of volume as liquids.
 Fuel removed downstream from absorber.
 Some make-up fuel required.

TABLE NO. 16

PREDICTED ECONOMICS OF PRESSURE MAINTENANCE
SOUTH AREA - KEMNITZ WOLFCAMP POOL

Time After Injection Starts (Years)	Oil Revenue During Period (MM\$)	Gas Revenue During Period (MM\$)	Expense (MM\$)	Operating Gain (MM\$)	Investment (MM\$)	Profit (MM\$)
Cum. to 7/1/60	<u>11.71</u>	<u>0.43</u>	<u>0.18</u>	<u>11.96</u>	<u>5.77</u>	<u>6.19</u>
1	4.51	0.10	0.12	4.49	0.56	3.93
2	4.51	0.14	0.16	4.49	0.26	4.23
3	3.83	0.18	0.18	3.83		3.83
4	2.46	0.16	0.16	2.46		2.46
5	1.79	0.15	0.15	1.79		1.79
6	1.12	0.13	0.13	1.12		1.12
7	1.03	0.13	0.13	1.03		1.03
8	0.77	0.12	0.12	0.77		0.77
9	0.73	0.12	0.12	0.73		0.73
10	0.56	0.11	0.11	0.56		0.56
15	2.14	0.52	0.52	2.14		2.14
20	<u>1.30</u>	<u>0.44</u>	<u>0.44</u>	<u>1.30</u>	<u>0.82</u>	<u>1.30</u>
	<u>24.75</u>	<u>2.30</u>	<u>2.34</u>	<u>24.71</u>		<u>23.89</u>
Ultimate	36.46	2.73	2.52	36.67	6.59	30.08

Note:

Oil Revenue based on \$2.507/bbl after royalty and taxes.
 Gas Revenue based on \$0.0125/MCF liquid payment plus \$0.0035/MCF adjustment for compression of incremental volume for remote absorber.
 Investment based on \$5,000/well for gas-lift equipment, 11 compressors at \$65,000 each, installed, and \$49,000 gas distribution piping.
 Expense based on \$200/well-month for gas-lift, fuel at \$0.11/MCF, and compressor operation at \$0.01/MCF.

TABLE NO. 17

VOLUMETRIC ANALYSIS OF WATERFLOOD STAGES
SOUTH AREA - KEMNITZ WOLFCAMP POOL

I. Total Volume

	<u>1st Stage</u>	<u>2nd Stage</u>	<u>3rd Stage</u>	<u>Total</u>
Acre-Feet	30,540	27,950	26,650	85,140
Pore Volume - M Bbls	18,954	17,347	16,540	52,841
Gas Volume - M Bbls	4,496	4,115	3,923	12,534
Water Volume - M Bbls	4,738	4,337	4,135	13,210
Residual Oil - M Res. Bbls	3,791	3,469	3,308	10,568
Moveable Oil - M Res. Bbls	5,929	5,426	5,174	16,529

II. Conformable Volume - 80%

	<u>1st Stage</u>	<u>2nd Stage</u>	<u>3rd Stage</u>	<u>Total</u>
Acre-Feet	24,432	22,360	21,320	68,112
Pore Volume - M Bbls	15,163	13,878	13,232	42,273
Gas Volume - M Bbls	3,597	3,292	3,139	10,028
Water Volume - M Bbls	3,790	3,470	3,308	10,568
Residual Oil - M Res. Bbls	3,033	2,775	2,646	8,454
Moveable Oil - M Res. Bbls	4,743	4,341	4,139	13,223
Displaceable Volume - M Res. Bbls	8,340	7,633	7,278	23,251

TABLE NO. 18

PREDICTED PERFORMANCE WITH WATER INJECTION
SOUTH AREA - KEMNITZ WOLFCAAMP POOL

Time After Inj. Starts (Years)	Oil Prod. Dur. Period (MMSTB)	Cum. Oil Recovery (MMSTB)	Water Prod. Dur. Period (MMSTB)	Cum. Water Prod. (MMSTB)	Water Inj. Dur. Period (MMSTB)	Cum. Water Inj. (MMSTB)
Cum. to 7/1/60		<u>4.66</u>		<u>0.27</u>	<u>- 0 -</u>	<u>- 0 -</u>
1	1.80	6.46	0	0.27	5.40	5.40
2	1.80	8.26	0.09	0.36	5.40	10.80
3	1.43	9.69	0	0.36	5.40	16.20
4	0.76	10.45	0.44	0.80	2.40	19.20
5	0.51	10.96	0.94	1.74	1.80	21.00
6	0.41	11.37	1.17	2.91	1.80	22.80
7	0.31	11.68	1.34	4.25	1.80	24.60
8	0.27	11.95	1.39	5.64	1.80	26.40
9	0.24	12.19	1.44	7.08	1.80	28.20
10	0.19	12.38	1.52	8.60	1.80	30.00
15	0.85	13.23	7.71	16.31	9.00	39.00
17	0.15	13.38	3.40	19.71	3.60	42.60

TABLE NO. 19

PREDICTED ECONOMICS OF WATER INJECTION
SOUTH AREA - KEMNITZ WOLFCAMP POOL

Time After Injection Starts (Years)	Oil Revenue During Period (MM\$)	Gas Revenue During Period (MM\$)	Expense (MM\$)	Operating Gain (MM\$)	Investment (MM\$)	Profit (MM\$)
Cum. to 7/1/60	<u>11.71</u>	<u>0.43</u>	<u>0.18</u>	<u>11.96</u>	<u>5.77</u>	<u>6.19</u>
1	4.51	0.33	0.33	4.51	0.88	3.63
2	4.51	0.33	0.32	4.52		4.52
3	3.59	0.26	0.27	3.58		3.58
4	1.90	0.14	0.17	1.87		1.87
5	1.28	0.09	0.13	1.24		1.24
6	1.03	0.07	0.13	0.97		0.97
7	0.78	0.06	0.13	0.71		0.71
8	0.68	0.05	0.13	0.60		0.60
9	0.60	0.05	0.13	0.52		0.52
10	0.48	0.04	0.13	0.39		0.39
15	2.13	0.16	0.64	1.65		1.65
17	<u>0.37</u>	<u>0.03</u>	<u>0.26</u>	<u>0.14</u>		<u>0.14</u>
	<u>21.86</u>	<u>1.61</u>	<u>2.77</u>	<u>20.70</u>	<u>0.88</u>	<u>19.82</u>
Ultimate	33.57	2.04	2.95	32.66	6.65	26.01

Note:

Oil Revenue based on net value of \$2.507/bbl after royalty and taxes.

Gas Revenue based on average gas-oil ratio of 1816-1 and average net value of

\$0.1014/MCF during life of flood.

Expense based on \$100/well-month for injection well, \$400/well-month for pumping well and \$1000/month for flood operation. Water cost is based on \$0.0375/bbl.

Investment based on \$80,000 for well conversion, \$64,000 for injection system and 21 pumping units at \$35,000 each.

TABLE NO. 20

OWNERSHIP OF KEMNITZ POOL

The Kemnitz Wolfcamp Pool, Lea County, New Mexico, is defined by NMOCC Order No. R-1011, May 31, 1957, Establishing Pool, and Amended by Order No. R-1210, June 26, 1958, and Order No. R-1283, November 18, 1958; as follows:

Secs. 24, 25; E/2 Sec. 26, T-16-S, R-33-E, and

Secs. 16 through 21; NW/4 Sec. 22;

Secs. 28 through 30, T-16-S, R-34-E.

The mineral interest in the entire pool is owned by the State of New Mexico.

The apparent working interest ownership of the proven or productive leases within the pool limits is as follows:

1. Description of Property: SE/4, Sec. 12, T-16-S, R-33-E,
E/2, Sec. 13, T-16-S, R-33-E,
E/2, Sec. 24, T-16-S, R-33-E,
SW/4, Sec. 7, T-16-S, R-34-E,
W/2, Sec. 18, T-16-S, R-34-E, and
W/2, Sec. 19, T-16-S, R-34-E,
Hereinafter referred to as Sinclair-Seaman Unit,

Except that the E/2 of the SE/4 of Sec. 24, T-16-S, R-33-E, is subject to a separate agreement between Sinclair and Cities Service and hereinafter shall be referred to as Sinclair-Seaman Unit No. 3.

Ownership:	Shell Oil Company	.3779705003
	Sinclair Oil & Gas Company	.3539377813
	Skelly Oil Company	.1259906048
	Cities Service Oil Company	.1421011136

Except that the apparent working interest ownership in Seaman Unit No. 3 is as follows:

	Shell Oil Company	.3779705003
	Sinclair Oil & Gas Company	.4960388949
	Skelly Oil Company	.1259906048

TABLE NO. 20 (Cont'd)

OWNERSHIP OF KEMNITZ POOL

2. Description of Property: SW/4, Sec. 24, T-16-S, R-33-E,
Hereinafter referred to as Sinclair-St. 692
Lease, and
E/2, Sec. 19, T-16-S, R-34-E,
Hereinafter referred to as Sinclair-St. 381 Lease.

Ownership: Sinclair Oil & Gas Company 1.0000000000

3. Description of Property: All of Sec. 26, T-16-S, R-33-E, Lea County,
New Mexico,
Hereinafter referred to as Forest-State "A" Lease.

Ownership:

Astor & Company	.0083333
Shirley Bernstein	.0020833
D. H. Dorn	.1625001
Forest Oil Corporation	.5000000
Edward Karfiol, deceased	.0020833
Siegesmund	.1583333
Signal Oil & Gas Company	.0833334
T. J. Walsh (Kennedy)	.0833333

4. Description of Property: N/2 Sec. 25, T-16-S, R-33-E,
Hereinafter referred to as Tennessee-Kemnitz
"B" Lease.

Ownership: Tennessee Gas & Oil Company	.750000
Samedan Oil Corporation	.173906
L. W. Eiddick	.008750
C. C. Cathey	.008750
Irl Rhynes	.008750
H. L. Erown	.005469
Jerome M. Westheimer	.004375
Ellen Woods Westheimer	.004375
Warren D. Anderson	.010417
Glorieta Oil Company	.010417
Jane Johnson Wilson	.004166
H. L. Huffman	.006250
Wilburne Austin Dickson Estate	.004375

5. Description of Property: SW/4 and W/2 of the SE/4 Sec. 25, T-16-S,
R-33-E,
Hereinafter referred to as Phillips-New Mex
"A" Lease.

Ownership: Phillips Petroleum Company 1.000000

TABLE NO. 20 (Cont'd)

OWNERSHIP OF KEMNITZ POOL

- | | | | |
|-----|--------------------------|--|----------|
| 6. | Description of Property: | E/2 of the SE/4 Sec. 25, T-16-S, R-33-E,
Hereinafter referred to as Tennessee-State
Phillips Lease. | |
| | Ownership: | Tennessee Gas & Oil Company | .500000 |
| | | Phillips Petroleum Company | .500000 |
| 7. | Description of Property: | NE/4 Sec. 20, T-16-S, R-34-E, Lea County
New Mexico,
Hereinafter referred to as Ohio-State "SA" Lease. | |
| | Ownership: | Ohio Oil Company | 1.000000 |
| 8. | Description of Property: | SE/4 Sec. 17, T-16-S, R-34-E,
Hereinafter referred to as Ohio (Sec. 17). | |
| | Ownership: | Ohio Oil Company | 1.000000 |
| 9. | Description of Property: | SW/4 Sec. 16, T-16-S, R-34-E,
Hereinafter referred to as Ohio-State "SB" Lease. | |
| | Ownership: | Ohio Oil Company | .500000 |
| | | Cities Service Oil Company | .500000 |
| 10. | Description of Property: | NE/4 Sec. 28, T-16-S, R-34-E,
Hereinafter referred to as Pure (Sec. 28). | |
| | Ownership: | Pure Oil Company | .500000 |
| | | Ohio Oil Company | .500000 |
| 11. | Description of Property: | Sec. 31, T-16-S, R-34-E,
Hereinafter referred to as Pure (Sec. 31). | |
| | Ownership: | Pure Oil Company | .500000 |
| | | Ohio Oil Company | .500000 |
| 12. | Description of Property: | E/2 Sec. 21, T-16-S, R-34-E, Lea County,
New Mexico,
Hereinafter referred to as Pure-State "E" Lease. | |
| | Ownership: | Pure Oil Company | 1.000000 |
| 13. | Description of Property: | E/2 and NW/4 Sec. 16, T-16-S, R-34-E, Lea
County, New Mexico,
Hereinafter referred to as Pure (Sec. 16). | |
| | Ownership: | Pure Oil Company | 1.000000 |

TABLE NO. 20 (Cont'd)

OWNERSHIP OF KEMNITZ POOL

14. Description of Property: E/2 of the SE/4 Sec. 20, T-16-S, R-34-E,
Lea County, New Mexico,
Hereinafter referred to as Samedan-State
Western Lease.

Ownership:	Warren D. Anderson	.0625000
	L. W. Biddick	.0350000
	H. L. Brown	.0218750
	C. C. Cathey	.0350000
	Wilburne Austin Dickson Estate	.0087500
	Wilburne Austin Dickson Estate	.0087500 (reassignment)
	Glorieta Oil Company	.0312500
	Glorieta Oil Company	.0312500 (reassignment)
	Irl Rhynes	.0350000
	Samedan Oil Corporation	.3478125
	Samedan Oil Corporation	.3478125 (reassignment)
	Ellen Woods Westheimer	.0175000
	Jerome M. Westheimer	.0175000

15. Description of Property: W/2 of the SE/4 Sec. 20, T-16-S, R-34-E, and
the NE/4 Sec. 29, T-16-S, R-34-E,
Hereinafter referred to as Tennessee-State
Western Lease.

Ownership:	Tennessee Gas & Oil Company	.3878125
	W. D. Anderson	.0625000
	L. W. Biddick	.0350000
	C. C. Cathey	.0350000
	Irl Rhynes	.0350000
	H. L. Brown	.0218750
	Jerome M. Westheimer	.0175000
	Ellen Woods Westheimer	.0175000
	Samedan Oil Corporation	.3478125
	Glorieta Oil Company	.0312500
	Wilburne Austin Dickson Estate	.0087500

16. Description of Property: W/2 Sec. 20, T-16-S, R-33-E,
Hereinafter referred to as Tennessee-State
"A" Lease.

Ownership:	Tennessee Gas & Oil Company	1.000000
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17. Description of Property: All of Sec. 30, T-16-S, R-34-E,
Hereinafter referred to as Tennessee-Kemnitz
"A" Lease.

TABLE NO. 20 (Cont'd)

CWNERSHIP OF KEMNITZ POOL

Ownership:	Tennessee Gas & Oil Company	.750000
	Samedan Oil Corporation	.173906
	L. W. Biddick	.008750
	C. C. Cathey	.008750
	Willard E. Rhynes	.008750
	H. L. Brown	.005469
	Jerome M. Westheimer	.004375
	Ellen Woods Westheimer	.004375
	Warren D. Anderson	.010417
	Glorieta Oil Company	.010417
	Jane Johnson Wilson	.004166
	H. L. Huffman	.006250
	Wilburne Austin Dickson Estate	.004375
18.	Description of Property: NW/4 Sec. 29, T-16-S, R-34-E, Lea County, New Mexico, Hereinafter referred to as Shell-State "WC" Lease.	
Ownership:	Shell Oil Company	1.0000000
19.	Description of Property: S/2 Sec. 29, T-16-S, R-34-E, Lea County, New Mexico, Hereinafter referred to as Shell-State "WD" Lease.	
Ownership:	Shell Oil Company	1.0000000
20.	Description of Property: S/2 Sec. 28, T-16-S, R-34-E, Lea County, New Mexico, Hereinafter referred to as Shell (Sec. 28).	
Ownership:	Shell Oil Company	1.0000000
21.	Description of Property: NW/4 Sec. 21, T-16-S, R-34-E, Hereinafter referred to as Tennessee-State "B" Lease, and SW/4 Sec. 21, T-16-S, R-34-E, Hereinafter referred to as Tennessee-State "C" Lease, and NW/4 Sec. 28, T-16-S, R-34-E, Hereinafter referred to as Tennessee-State "D" Lease.	
Ownership:	Tennessee Gas & Oil Company	1.0000000

TABLE NO. 20 (Cont'd)

OWNERSHIP OF KEMNITZ POOL

22. Description of Property: N/2 Sec. 22, T-16-S, R-34-E,
Hereinafter referred to as Humble State
"BB" Lease, and
S/2 Sec. 22, T-16-S, R-34-E,
Hereinafter referred to as Humble (Sec. 22),
and
Sec. 23, T-16-S, R-33-E,
Hereinafter referred to as Humble (Sec. 23).

Ownership: Humble Oil & Refining Company 1.0000000

TABLE NO. 21 (Cont'd)
 KENNITZ WOLF CAMP POOL
 OIL PRODUCTION - 1959

COMPANY	WELL	JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.	1959 TOTALS	ACCT. TO 1-1-59
FOREST OIL CORP.	State "A"	1886	1012	3424	3175	2993	2556	2836	2417	2511	2333	2090	2739	29912	73377
	State "A"	353	339	407	159	203	119	149	177	195	180	181	237	2599	7938
HUMBLE OIL & REFINING CO.	N. W. St. "BB"	3068	2734	2929	2715	2684	2339	2434	2407	2230	2471	2307	2900	31818	45035
	State "SA"	1292	1085	1034	945	825	782	1145	1117	1031	1633	1561	1235	13705	61532
OHIO OIL CO.	State "SA"	1276	1072	1021	934	815	772	1130	818	755	1195	1155	704	11348	48924
	State "SA"	210	248	249	220	220	213	195	237	172	221	178	196	2581	11274
PHILLIPS PETROLEUM CO.	New Max "A"	3815	2450	2453	3538	3460	2753	1987	1885	1294	5285	5355	6645	42031	74430
	Lea St. "E"	3607	2544	4747	4908	3946	3183	2598	4260	4269	4573	3858	3409	45842	78785
SHELL OIL CO.	State "WC"	5975	5530	5978	5996	6448	6156	6235	5985	5636	6170	5972	6359	72440	184473
	State "WC"	5900	5220	5979	5999	6095	6157	6245	5985	5638	6170	5972	6360	71520	171302
SINCLAIR OIL & GAS CO.	Seaman Unit	715	646	714	2007	1882	1925	1895	1827	1385	2016	1733	1745	2075	12599
	Seaman Unit	2772	1718	2148	4779	5084	4922	4931	4778	4500	5287	4702	5084	22854	22854
TENNESSEE GAS & OIL CO.	State "AA"	6113	5429	5849	5444	6318	6038	6197	6057	5640	6082	6028	5030	71225	212512
	State "AA"	6111	5431	5337	5433	6305	6025	6195	6056	5640	6075	6007	6022	71137	175419
UPPER WOLF CAMP ZONE	State "AA"	6115	5438	5846	5435	6308	6059	6201	6059	5641	6112	6334	6343	71885	177592
	State "AA"	4925	4451	4705	4430	5141	4838	5031	4923	4592	4973	5057	5074	58159	125307
KENTZ OIL CO.	State "AA"	6118	5433	5846	5441	6315	5943	6199	6054	5640	6007	6017	5028	71039	149051
	State "AA"	6033	5459	6032	5379	6175	5520	6237	6043	5673	6287	6050	6475	72004	194137
KENTZ OIL CO.	State "AA"	6035	5436	5879	6170	6175	5512	6276	6046	5669	6291	6054	6490	72052	152458
	State "AA"	6042	5501	6048	5875	6175	5590	6271	6046	5661	6289	6054	6470	72012	149535
KENTZ OIL CO.	State "AA"	5943	5494	5886	5386	6175	5676	6231	6054	5676	6288	6052	6455	72003	189948
	State "AA"	5949	5287	5846	5978	6222	6021	6192	6142	5738	6383	6052	6077	72476	185027
KENTZ OIL CO.	State "A"	1819	1539	1850	1763	1978	1780	1897	1873	1927	1911	2150	2025	22237	52120
	State "A"	339	823	854	734	697	740	1101	2723	2150	2075	1774	1133	22237	44387
KENTZ OIL CO.	State "C"	3574	3361	4440	3019	3911	3244	4145	6205	5358	5752	3167	3867	48910	42567
	State "C"	6212	5529	6131	5010	6148	6030	6277	6059	5731	6247	6083	5515	72992	131506
KENTZ OIL CO.	State "A"	6036	5564	5988	5066	6212	6212	6010	6082	5582	6228	6020	5909	72185	179739
	State "A"	6039	5565	5987	5887	6204	6215	6022	6082	5689	6243	6026	5929	71880	131617
KENTZ OIL CO.	State "A"	6040	5564	5987	5887	6205	6215	6020	6080	5585	6235	6034	5891	71839	108631
	State "A"	1927	2104	2104	1907	2213	1776	2136	2115	2043	2067	2217	2220	22727	22727

TABLE NO. 21 (Cont'd)
 KEMNITZ WOLFCAWMP POOL
 OIL PRODUCTION - 1950

COMPANY	WELL	1950												ACCT. TO					
		JAN.	FEB.	MARCH	APRIL	MAY	JUNE	JULY	AUG.	SEPT.	OCT.	NOV.	DEC.		TOTALS	4-1-50			
FOREST OIL CORP.																			
State "A"	1	4387	3264	5030														12681	53053
State "A"	2	252	123	123														498	9336
HUBBLE OIL & REFINING CO.																			
N. M. St. "BB"	1	2867	2507	2636															
OHIO OIL CO.																			
State "SA"	1	1910	1764	520															
State "SA"	2	708	654	192															
OHIO OIL & CITIES SERV. COS.																			
State "SB"	1	207	177	195															
PHILLIPS PETROLEUM CO.																			
New Mex "A"	1	6579	6008	6324															
PURE OIL CO.																			
Lea St. "E"	2	4815	4156	2657															
Lea St. "E"	3	6741	6187	6342															
SHELL OIL CO.																			
State "WC"	1	6493	5998	6369															
State "WC"	2	6493	5996	6369															
State "WD"	1	6486	5983	6365															
SINCLAIR OIL & GAS CO.																			
Seaman Unit	2																		
Seaman Unit	3	1888	1495	1788															
Seaman Unit	4	5208	4879	5084															
Seaman Unit	5	6516	6090	6368															
State Lea "381"	1	6515	6120	6123															
State Lea "381"	2	6514	6120	6124															
TENNESSEE GAS & OIL CO.																			
St. AA Kemnitz "A"	1	6440	6034	6637															
St. AA Kemnitz "A"	2	6442	6034	6620															
St. AA Kemnitz "A"	3	6780	6351	6654															
St. AA Kemnitz "A"	4	5424	5081	5375															
St. AA Kemnitz "A"	5	6444	6351	6636															
St. AA Kemnitz "B"	1	6567	5840	6388															
St. AA Kemnitz "B"	3	6557	5857	6389															
St. AA Kemnitz "B"	4	6577	5838	6389															
St. AA Kemnitz "B"	5	6568	5859	6389															
St. AA Kemnitz "g"	1	6439	6282	6434															
St. AA Kemnitz "g"	2	2446	1772	1922															
St. AA Kemnitz "g"	3	914	1059	921															
St. AA Kemnitz "g"	4	1828	1770	1726															
St. AA Kemnitz "g"	5	4873	3472	3797															
St. AA Kemnitz "g"	6	6616	6190	6447															
St. AA Kemnitz "g"	7	6484	6197	6481															
St. AA Kemnitz "g"	8	6641	6213	6481															
St. AA Kemnitz "g"	9	6554	6183	6481															

UPPER WOLFCAWMP ZONE
 St. AA Kemnitz "A" 6 2369 1905 1333 5607 28334

TABLE NO. 22

PREDICTION OF PRIMARY RESERVES BY
COMPETITIVE PRODUCTION PRACTICES
KEMNITZ WOLFCAMP POOL

(Oil Volumes in Thousands of Barrels)

OPERATOR	LEASE	WELL NO.	COMP. DATE	RECOVERY TO 4/1/60	PREDICTED ULTIMATE RECOVERY	PRIMARY RESERVES 4/1/60
NORTH AREA						
Humble	State "BB"	1	8/28/58	54.1	136.0 (1)	81.9
Ohio	State "SA"	1	2/28/57	85.8	100.0 (1)	14.2
Ohio	State "SA"	2	7/15/57	50.5	62.0 (1)	11.5
Ohio	State "SB"	1	5/5/57	11.9	15.0 (1)	3.1
Sinclair	Seaman Unit	2	12/16/56	12.7	12.7 (2)	0
Sinclair	Seaman Unit	3	3/5/57	102.4	180.0 (1)	77.6
Tennessee	State "A"	2	9/16/57	58.0	118.0 (1)	60.0
Tennessee	State "B"	1	7/14/57	47.6	68.0 (1)	20.4
NORTH AREA TOTALS				423.0	691.7	268.7
SOUTH AREA						
Forest	State "A"	1	1/21/58	86.0	243.7 (6)	157.7
Forest	State "A"	2	5/5/58	8.3	9.0 (3)	0.7
Phillips	New Mex "A"	1	6/6/58	98.4	330.0 (4)	231.6
Pure	Lea State "E"	2	2/6/58	90.4	233.1 (6)	142.7
Pure	Lea State "E"	3	4/17/59	70.5	302.1 (4)	231.6
Shell	State "WC"	1	5/4/57	203.3	434.9 (4)	231.6
Shell	State "WC"	2	7/10/57	190.2	421.8 (4)	231.6
Shell	State "WD"	1	10/10/57	172.9	404.5 (4)	231.6
Sinclair	Seaman Unit	4	8/25/57	149.9	355.5 (5)	205.6
Sinclair	Seaman Unit	5	3/18/58	146.8	378.4 (4)	231.6
Sinclair	State Lea "381"	1	5/28/57	207.7	439.3 (4)	231.6
Sinclair	State Lea "381"	2	8/12/57	192.2	423.8 (4)	231.6
Tennessee	Kemnitz "A"	1	12/10/56	231.6	463.2 (4)	231.6
Tennessee	Kemnitz "A"	2	6/15/57	195.5	427.1 (4)	231.6
Tennessee	Kemnitz "A"	3	6/12/57	197.5	429.1 (4)	231.6
Tennessee	Kemnitz "A"	4	9/18/57	144.5	351.9 (5)	207.4
Tennessee	Kemnitz "A"	5	12/9/57	168.5	400.1 (4)	231.6
Tennessee	Kemnitz "B"	1	4/1/57	210.2	441.8 (4)	231.6
Tennessee	Kemnitz "B"	3	8/28/57	181.3	412.9 (4)	231.6
Tennessee	Kemnitz "B"	4	11/13/57	168.3	399.9 (4)	231.6
Tennessee	Kemnitz "B"	5	10/28/58	108.8	340.4 (4)	231.6
Tennessee	State "A"	1	5/11/57	202.2	433.8 (4)	231.6
Tennessee	State "C"	1	5/14/58	89.8	156.3 (6)	66.5
Tennessee	State "D"	1	2/27/59	55.0	206.0 (6)	151.0
Tennessee	St. Phillips	1	9/13/57	181.2	412.8 (4)	231.6
Tennessee	St. Western "A"	1	8/14/57	178.9	410.5 (4)	231.6
Tennessee	St. Western "A"	2	2/5/58	151.0	382.6 (4)	231.6
Tennessee	St. Western "A"	3	7/6/58	125.8	357.4 (4)	231.6
SOUTH AREA TOTALS				4206.7	10001.9	5795.2
RESERVOIR TOTALS				4629.7	10693.6	6063.9

1. North Area well with reserves predicted by a decline curve analysis.
2. North Area well now shut in with no reserves assigned.
3. South Area well near economic limit with reserves based on six months' production.
4. South Area well producing at top pool allowable with reserves based on maintenance of competitive withdrawal rate.
5. South Area well with allowable reduced by acreage factor with 56.27% of reserves adjusted for acreage penalty and 43.73% of reserves based on full competitive withdrawals.
6. South Area well producing at less than top allowable rate with remaining reserves adjusted by ratio of current production to top allowable rate.

TABLE NO. 23

PHYSICAL MEASUREMENTS OF KEMNITZ POOL RESERVOIR
by Leases and Operators

OPERATOR	LEASE	MECHANICALLY CONTOURED OCTOBER 13, 1959		ROUNDED CONTOURS (TGT) JULY 5, 1960			
		TOTAL AC-FT	PERCENT TOTAL	N. AREA AC-FT	S. AREA AC-FT	TOTAL AC-FT	PERCENT TOTAL
		NET PAY	POOL	NET PAY	NET PAY	NET PAY	POOL
Forest	State "A"	1557	1.465	6	1951	1957	1.976
Humble	State (Sec. 22)	595	0.560	0	75	75	0.076
	State (Sec. 23)	19	0.018	62	73	135	0.136
	State "BB"	2481	<u>2.336</u>	1084	0	1084	<u>1.094</u>
	Total		2.914				1.306
Ohio	State (Sec. 17)	4	0.004	0	0	0	0
	State "SA"	2667	2.519	1719	0	1719	1.735
	State "SB"	694	<u>0.653</u>	414	0	414	<u>0.418</u>
	Total		3.176				2.153
Phillips	New Mex	2954	2.781	0	2959	2959	2.987
Pure	State (Sec. 16)	638	0.600	26	0	26	0.026
	Ohio-State (Sec. 28)	55	0.052	0	9	9	0.009
	Ohio-State (Sec. 31)	49	0.046	0	0	0	0
	State "E"	4715	<u>4.439</u>	1718	1735	3453	<u>3.485</u>
	Total		5.137				3.521
Sunray	State (Sec. 15)	81	0.076	0	0	0	0
Shell	State (Sec. 28)	24	0.023	0	47	47	0.047
	State "WC"	7349	6.918	0	7418	7418	7.488
	State "WD"	3534	<u>3.326</u>	0	3226	3226	<u>3.256</u>
	Total		10.267				10.791
Sinclair	State Lea "381"	4197	3.950	964	2085	3049	3.078
	State Lea "692"	682	0.642	20	1019	1039	1.048
	Seaman Unit	9379	<u>8.829</u>	3507	4764	8361	<u>8.439</u>
	Total		13.421				12.565
Tennessee	State "A"	2935	2.763	855	2038	2893	2.920
	State "B"	2391	2.250	2295	0	2295	2.317
	State "C"	2711	2.552	1127	1643	2770	2.796
	State "D"	1713	1.613	0	1605	1605	1.620
	Kemnitz "A"	23187	21.826	0	22345	22345	22.555
	Kemnitz "B"	15608	14.692	0	15863	15863	16.012
	State Phillips	2195	2.067	0	2013	2013	2.032
	State Western	11694	<u>11.007</u>	1000	11168	12168	<u>12.283</u>
	Total		58.770				62.535
Samedan	State (Sec. 20)	2117	1.993	1000	1146	2146	2.166
GRAND TOTAL		106235	100.000	15887	83182	99069	100.000

TABLE NO. 24

KENNITZ WOLFGAR POOL
 POSSIBLE PARAMETERS FOR UTILIZATION
 by Working Interest Owners

Owner, Lease	Net Wells	Parameter %	1st Quarter 1950 Net Prod.	Parameter %	Cum. Net Prod. to 4/1/50	Parameter %	Net Primary Reserves, 4/1/50	Parameter %	TCO Acres-Feet July 5, 1949	Parameter %
Warren D. Anderson										
.010417 T90-Kennitz "A"	.0520850	0.149	971.937	.194	9767	.211	11.8	.195	232.8	0.235
.010417 T90-Kennitz "B"	.0416680	0.119	783.546	.156	6965	.150	9.7	.160	165.2	0.167
.0525000 T90-St-Western	.1875000	0.536	3607.188	.719	28481	.615	43.4	.716	760.5	0.768
.0525000 Samedan-St-Western									134.1	0.135
Total	.2812530	0.804	5362.671	1.059	45213	.976	64.9	1.071	1292.6	1.305
Astor & Company										
.0083333 Forest-State "A"	.0166667	0.048	109.825	.022	786	.017	1.3	.021	16.3	0.015
Shirley Bernstein										
.00208333 Forest-State "A"	.0041667	0.012	27.456	.006	197	.005	.3	.005	4.1	0.004
E. W. Biddick										
.008750 T90-Kennitz "A"	.0437500	0.125	616.401	.163	8204	.177	9.9	.163	195.5	0.197
.008750 T90-Kennitz "B"	.0350000	0.100	658.157	.131	5650	.127	8.1	.134	138.8	0.140
.0350000 T90-St-Western	.1050000	0.300	2020.025	.402	15949	.345	24.3	.400	425.9	0.430
.0350000 Samedan-St-Western									75.1	0.076
Total	.1837500	0.525	3494.583	.696	30003	.649	42.3	.697	835.3	0.843
H. L. Brown										
.005459 T90-Kennitz "A"	.0273450	0.078	510.275	.102	5128	.111	6.2	.102	122.2	0.123
.005459 T90-Kennitz "B"	.0213750	0.063	411.367	.082	3657	.079	5.1	.084	85.8	0.088
.0213750 T90-St-Western	.0655250	0.187	1262.515	.252	9968	.215	15.2	.251	266.2	0.259
.0213750 Samedan-St-Western									46.9	0.057
Total	.1148450	0.328	2184.157	.436	18753	.405	26.5	.437	522.1	0.527
O. C. Carney										
.009750 T90-Kennitz "A"	.0437500	0.125	616.401	.163	8204	.177	9.9	.163	195.5	0.197
.009750 T90-Kennitz "B"	.0350000	0.100	658.158	.131	5650	.127	8.1	.134	138.8	0.140
.0350000 T90-St-Western	.1050000	0.300	2020.025	.403	15950	.345	24.3	.401	425.9	0.430
.0350000 Samedan-St-Western									75.1	0.075
Total	.1837500	0.525	3494.584	.697	30004	.649	42.3	.698	835.3	0.843
Cities Service Oil Company										
.5000000 Ohio St. "38"	.5000000	1.429	289.500	.057	5925	.128	1.5	.025	207.0	0.209
.46101135 Seaman Unit	.2812022	0.812	4852.042	.967	43983	.950	62.1	1.024	692.4	0.901
Total	.7812022	2.241	5141.542	1.024	49908	1.078	63.6	1.049	1099.4	1.110

TABLE NO. 24 (Cont'd)

KEMNITZ WOLF-CAMP POOL
 POSSIBLE PARAMETERS FOR UNITIZATION
 by Working Interest Owners

Owner, Lease	Net Wells	Parameter %	1st Quarter 1950 Net Prod.	Parameter %	Cum. Net Prod. to 4/1/50	Parameter %	Net Primary Reserves, 4/1/50	Parameter %	TGO Acre-Feet July 5 Map	Parameter %
Wilburn Austin Dickson Estate										
.004375 TGO-Kemnitz "A"	.0218750	0.062	408.200	.081	4102	.089	5.0	.082	97.8	0.099
.004375 TGO-Kemnitz "B"	.0175000	0.050	329.079	.065	2925	.063	4.0	.065	69.4	0.070
.0087500 TGO-St-Western	.0262500	0.075	505.006	.101	3987	.086	6.1	.101	106.5	0.107
.0087500 Samedan-St-Western									18.8	0.019
.0087500 Samedan-St-Western									18.8	0.019
Total	.0556250	0.187	1242.285	.248	11014	.238	15.1	.249	311.3	0.314
D. H. Dorn										
.1625001 Forest-State "A"	.3250002	0.929	2141.588	.427	15339	.331	25.8	.425	318.0	0.321
Forest Oil Corporation										
.5000000 Forest-State "A"	1.0000000	2.857	6589.500	1.314	47197	1.019	79.2	1.306	978.5	0.987
Glorieta Oil Company										
.010417 TGO-Kemnitz "A"	.0526850	0.149	971.937	.194	9767	.211	11.8	.193	232.8	0.235
.010417 TGO-Kemnitz "B"	.0416680	0.119	783.546	.156	6965	.150	9.6	.158	165.2	0.167
.0312500 TGO-St-Western	.0937500	0.258	1803.594	.360	14241	.308	21.7	.358	380.2	0.384
.0312500 Samedan-St-Western									67.1	0.068
.0312500 Samedan-St-Western									67.1	0.068
Total	.1875030	0.536	3559.077	.710	30973	.669	43.1	.709	912.4	0.922
H. I. Huffman										
.0062500 TGO-Kemnitz "A"	.0312500	0.089	583.144	.115	5860	.127	7.1	.117	139.6	0.141
.0062500 TGO-Kemnitz "B"	.0250000	0.071	470.113	.094	4179	.090	5.8	.095	99.1	0.100
Total	.0562500	0.160	1053.257	.210	10039	.217	12.9	.212	238.7	0.241
Humble Oil & Refining Company										
1.0000000 Humble-St "BB"	1.0000000	2.857	8010.000	1.597	54075	1.168	81.9	1.351	1084.0	1.094
1.0000000 Humble-St (Sec 22)									75.0	0.076
1.0000000 Humble-St (Sec 23)									135.0	0.136
Total	1.0000000	2.857	8010.000	1.597	54075	1.168	81.9	1.351	1294.0	1.306
Edward Karfiol, deceased										
.00203333 Forest-St "A"	.0041666	0.012	27.456	.005	197	.004	0.3	.005	4.1	0.004
Ohio Oil Company										
1.0000000 Ohio-St "SA"	2.0000000	5.714	5748.000	1.146	136234	2.943	25.7	.424	1719.0	1.735
1.0000000 Ohio-St (Sec 17)									207.0	0.209
.5000000 Ohio-St "SB"	.5000000	1.429	289.500	.058	5927	.128	1.6	.026	4.5	0.005
.5000000 Pure-Ohio St (Sec 28)										
.5000000 Pure-Ohio St (Sec 31)										
Total	2.5000000	7.143	6037.500	1.204	142161	3.071	27.3	.450	1930.5	1.949

TABLE NO. 24 (Cont'd)

KEFFITZ WOLFPAF POOL
 POSSIBLE PARAMETERS FOR UTILIZATION
 by Working Interest Owners

Owner, Lease	Net Wells	Parameter %	1st Quarter 1960 Net Prod.	Parameter %	Cum. Net Prod. to 4/1/60	Parameter %	Net Primary Reserves, 4/1/60	Parameter %	TCO Acres-Feet July 5 1960	Parameter %
Phillips Petroleum Company										
1.0000000 Phillips-New Max "A"	1.0000000	2.857	18911.000	3.770	98371	2.125	231.6	3.819	2959.0	2.987
.5000000 TGO-St. Phillips	.9000000	1.429	9625.500	1.919	90980	1.956	115.8	1.909	1005.5	1.015
Total	1.5000000	4.286	28537.500	5.689	188951	4.081	347.4	5.728	3965.5	4.003
Pure Oil Company										
1.0000000 Pure-St "E"	2.0000000	5.714	30898.000	6.160	160960	3.477	374.3	6.173	3453.0	3.485
1.0000000 Pure-St (Sec 16)									25.0	0.085
.5000000 Pure-Ohio St (Sec 28)									4.5	0.005
.5000000 Pure-Ohio St (Sec 31)										
Total	2.0000000	5.714	30898.000	6.160	160960	3.477	374.3	6.173	3483.5	3.516
Tul Rhynes										
.0087500 TGO-Kemnitz "B"	.0350000	0.100	658.157	.131	5850	.127	8.1	.134	138.8	0.140
.0350000 TGO-St-Western	.1050000	0.300	2020.025	.403	15950	.345	24.3	.401	425.9	0.430
.0350000 Samedan-St-Western									75.1	0.075
Total	.1400000	0.400	2678.182	.534	21800	.472	32.4	.535	639.8	0.646
Willard E. Rhynes										
.0087500 TGO-Kemnitz "A"	.0437500	0.125	816.401	.163	8204	.177	9.9	.163	195.5	0.197
Samedan Oil Corporation										
.173906 TGO-Kemnitz "A"	.6695300	2.484	16225.952	3.235	163053	3.522	197.2	3.252	3885.9	3.922
.173906 TGO-Kemnitz "B"	.6956240	1.987	13080.861	2.608	116273	2.512	161.1	2.657	2758.7	2.785
.3478125 TGO-St-Western	1.0434575	2.981	20073.998	4.002	158499	3.423	241.7	3.986	4232.2	4.272
.6956250 Samedan-St-Western									1492.8	1.507
Total	2.6089915	7.452	49380.811	9.845	437825	9.457	600.0	9.895	12369.6	12.186
Shell Oil Company										
1.0000000 Shell-St "WC"	2.0000000	5.714	37718.000	7.520	393573	8.501	463.2	7.639	7418.0	7.488
1.0000000 Shell-St "WD"	1.0000000	2.857	18834.000	3.755	172910	3.735	231.6	3.819	3226.0	3.235
1.0000000 Shell-St (Sec 28)									47.0	0.047
.3779705003 Seaman Unit	.7559410	2.150	12905.803	2.573	116935	2.525	165.3	2.726	2373.7	2.396
.3779705003 Seaman Unit 3	.3179710	1.080	1954.486	.390	36710	.836	29.3	.483	786.6	0.794
Total	4.1339120	11.811	71412.289	14.238	722128	15.597	889.4	14.667	12951.3	13.981
Siezasmund										
.1533333 Forest-St "A"	.3166666	0.905	2086.675	.416	14946	.323	25.1	.414	309.8	0.313
Sigmal Oil & Gas Company										
.0333334 Forest-St "A"	.1666666	0.476	1098.250	.219	7866	.170	13.2	.218	163.1	0.165

TABLE NO. 24 (Cont'd)

KEMNITZ WOLFCAVE POOL
 POSSIBLE PARAMETERS FOR UTILIZATION
 by Working Interest Owners

Owner, Lease	Net Wells	Parameter %	1st Quarter 1950 Net Prod.	Parameter %	Cum. Net Prod. to 4/1/50	Parameter %	Net Primary Reserves, 4/1/50	Parameter %	TWO Acre-Feet July 5 Year	Parameter %
<u>Sinclair Oil & Gas Company</u>										
1.0000000 Sinclair-St-Les "381"	2.0000000	5.714	37516.000	7.480	399934	8.638	463.2	7.639	3049.0	3.078
1.0000000 Sinclair-St-Les "692"	.7078760	2.023	12085.206	2.410	109500	2.365	154.7	2.551	1039.0	1.049
.3539377813 Seaman Unit	4960380	1.417	2565.017	.511	50802	1.097	38.5	.635	2222.7	2.243
4960388949 Seaman Unit 3									1032.2	1.042
Total	3.2039240	9.154	52166.223	10.401	560236	12.100	656.4	10.825	7342.9	7.412
<u>Skelly Oil Company</u>										
.1259906048 Seaman Unit	.2519810	0.720	4301.949	.858	38978	.842	55.1	.909	791.2	0.799
1.259905048 Seaman Unit 3	1.1259910	0.360	651.497	1.30	12904	.279	9.8	1.62	282.2	0.265
Total	.3779720	1.080	4953.446	.988	51882	1.121	64.9	1.071	1053.4	1.064
<u>Sunray-MidContinent Oil Corporation</u>										
1.00000000 Sunray-St (Sec 15)										
<u>Tennessee Gas & Oil Company</u>										
1.00000000 TGO-St "A"	2.0000000	5.714	24995.000	4.984	260142	5.619	291.6	4.809	2893.0	2.920
1.00000000 TGO-St "B"	1.0000000	2.857	2894.000	.577	47581	1.028	20.4	.336	2295.0	2.316
1.00000000 TGO-St "C"	1.0000000	2.857	5324.000	1.062	89794	1.939	66.5	1.097	2770.0	2.796
1.00000000 TGO-St "D"	1.0000000	2.857	12142.000	2.421	55009	1.188	151.0	2.490	1605.0	1.620
.75000000 TGO-Kemnitz "A"	3.7500000	10.714	69977.250	13.952	703195	15.188	850.4	14.024	16758.7	16.916
.75000000 TGO-Kemnitz "B"	3.0000000	8.571	56413.500	11.248	501448	10.831	694.8	11.458	11897.3	12.009
.50000000 TGO-St-Phillips	5.0000000	1.429	9626.500	1.920	96581	1.957	115.8	1.910	1006.5	1.016
.3878125 TGO-St-Western	1.1634375	3.324	22382.598	4.463	176727	3.817	289.4	4.442	4738.9	4.763
Total	13.4134375	38.323	203754.848	40.627	1924477	41.567	2459.9	40.566	43944.4	44.356
<u>T. J. Walsh (Kennedy)</u>										
.08333333 Forest-State "A"	.1666666	0.475	1098.250	.219	7866	.170	13.2	.218	163.1	0.165
<u>Ellen Woods Westheimer</u>										
.004375 TGO-Kemnitz "A"	.0218750	0.063	408.201	.081	4102	.089	4.9	.082	97.8	0.098
.004375 TGO-Kemnitz "B"	.0175000	0.050	329.079	.066	2925	.063	4.1	.067	69.4	0.070
.0175000 TGO-St-Western	.0525000	0.150	1010.013	.201	7975	.172	12.2	.201	212.9	0.215
.0175000 Samedan-St-Western									37.6	0.038
Total	.0918750	0.263	1747.293	.348	15002	.324	21.2	.350	417.7	0.421
<u>Jerome H. Westheimer</u>										
.004375 TGO-Kemnitz "A"	.0218750	0.063	408.201	.081	4102	.089	5.0	.082	97.8	0.099
.004375 TGO-Kemnitz "B"	.0175000	0.050	329.079	.066	2925	.063	4.0	.067	69.4	0.070
.0175000 TGO-St-Western	.0525000	0.150	1010.013	.201	7975	.172	12.2	.201	212.9	0.215
.0175000 Samedan-St-Western									37.6	0.038
Total	.0918750	0.263	1747.293	.348	15002	.324	21.2	.350	417.6	0.422
<u>Jane Johnson Wilson</u>										
.004165 TGO-Kemnitz "A"	.0208300	0.060	388.700	.078	3906	.084	4.7	.078	93.1	0.094
.004165 TGO-Kemnitz "B"	.0166340	0.048	313.358	.062	2785	.060	3.9	.064	60.1	0.067
Total	.0374640	0.108	702.058	.140	6691	.144	8.6	.142	159.2	0.161
POOL TOTAL	35.0000000	100.000	501553.000	100.000	4523676	100.000	6063.9	100.000	99059.0	100.000

SOUTH AREA - KECITZ WOLFCA P POOL
COMPARISON OF PREDICTED ECONOMICS
OF POSSIBLE RECOVERY PROGRAMS

TABLE NO. 25

Time After RHP Starts 2000 psi (Years)	PROFIT NOT DISCOUNTED				PROFIT DISCOUNTED AT 6%			
	PRIMARY DEPLETION Profit for Period-100%	CUMULATIVE Profit-100%	GAS INJECTION Profit for Period-100%	CUMULATIVE Profit-100%	PRIMARY DEPLETION Profit for Period-100%	CUMULATIVE Profit-100%	GAS INJECTION Profit for Period-100%	CUMULATIVE Profit-100%
1	3.18	3.18	3.93	3.93	2.99	2.99	3.70	3.70
2	2.75	5.93	4.23	8.16	2.44	5.43	3.75	7.45
3	2.69	8.62	3.83	11.99	2.25	7.68	3.20	10.65
4	1.52	10.14	2.46	14.45	1.20	8.88	1.94	12.59
5	1.05	11.20	1.79	16.24	0.79	9.67	1.33	13.92
6	0.63	11.88	1.12	17.36	0.47	10.14	0.78	14.70
7	0.48	12.36	0.97	18.39	0.32	10.46	0.68	15.38
8	0.32	12.68	0.77	19.16	0.20	10.66	0.48	15.86
9	0.27	12.95	0.73	19.89	0.15	10.82	0.43	16.29
10	0.23	13.18	0.56	20.45	0.13	10.95	0.31	16.60
12	0.33	13.56			0.18	11.13		
15			2.14	22.59			0.37	17.47
17			1.30	23.89			0.39	17.85
TOTAL	13.56		23.89		11.13		17.85	
				19.82				15.56

Gas - Oil Ratio - Thousands of Cubic Feet Gas/Barrels of Oil
 Reservoir Pressure - Thousands of Pounds Per Square Inch
 Oil Production Rate - Thousands of Barrels Per Day

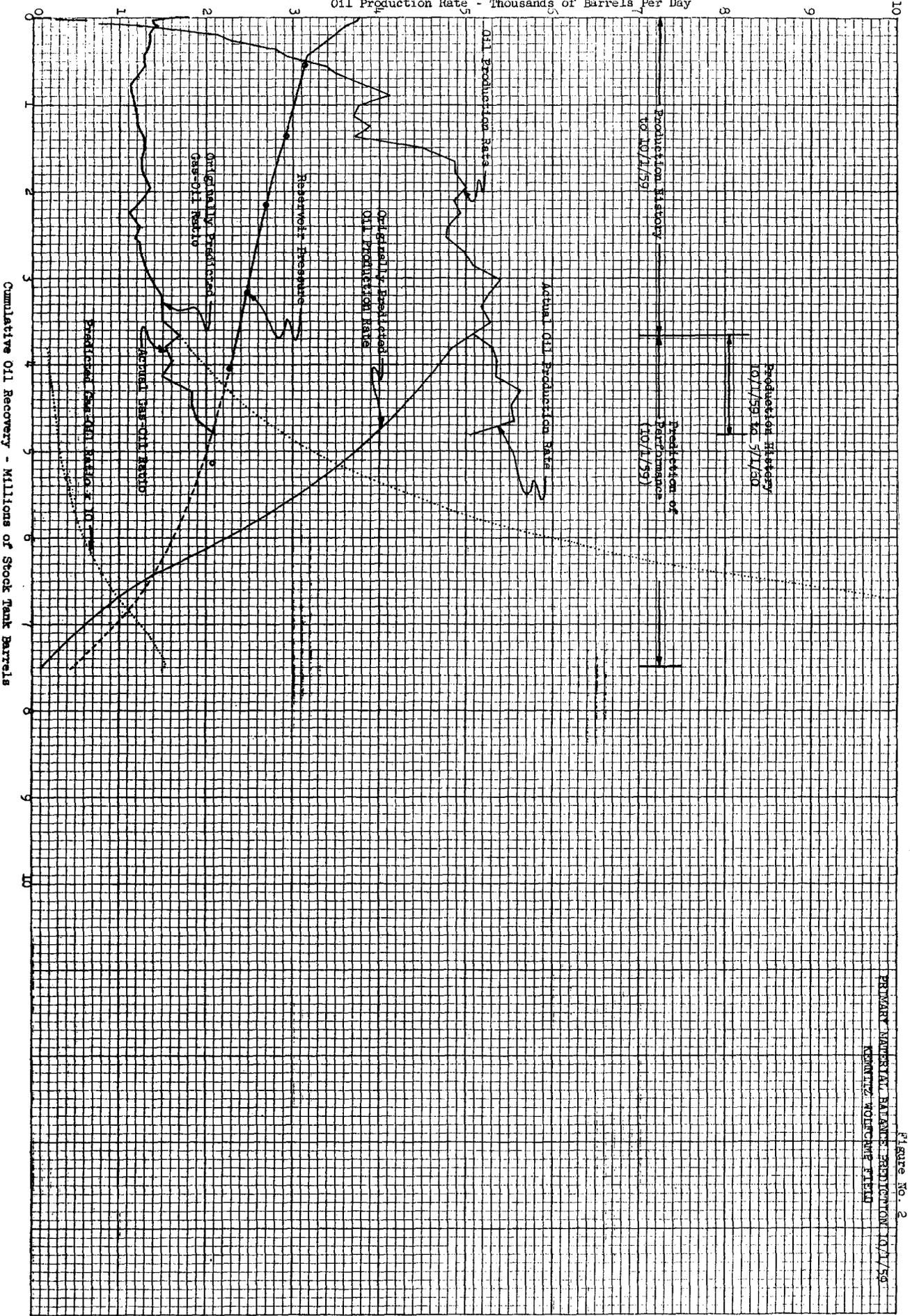
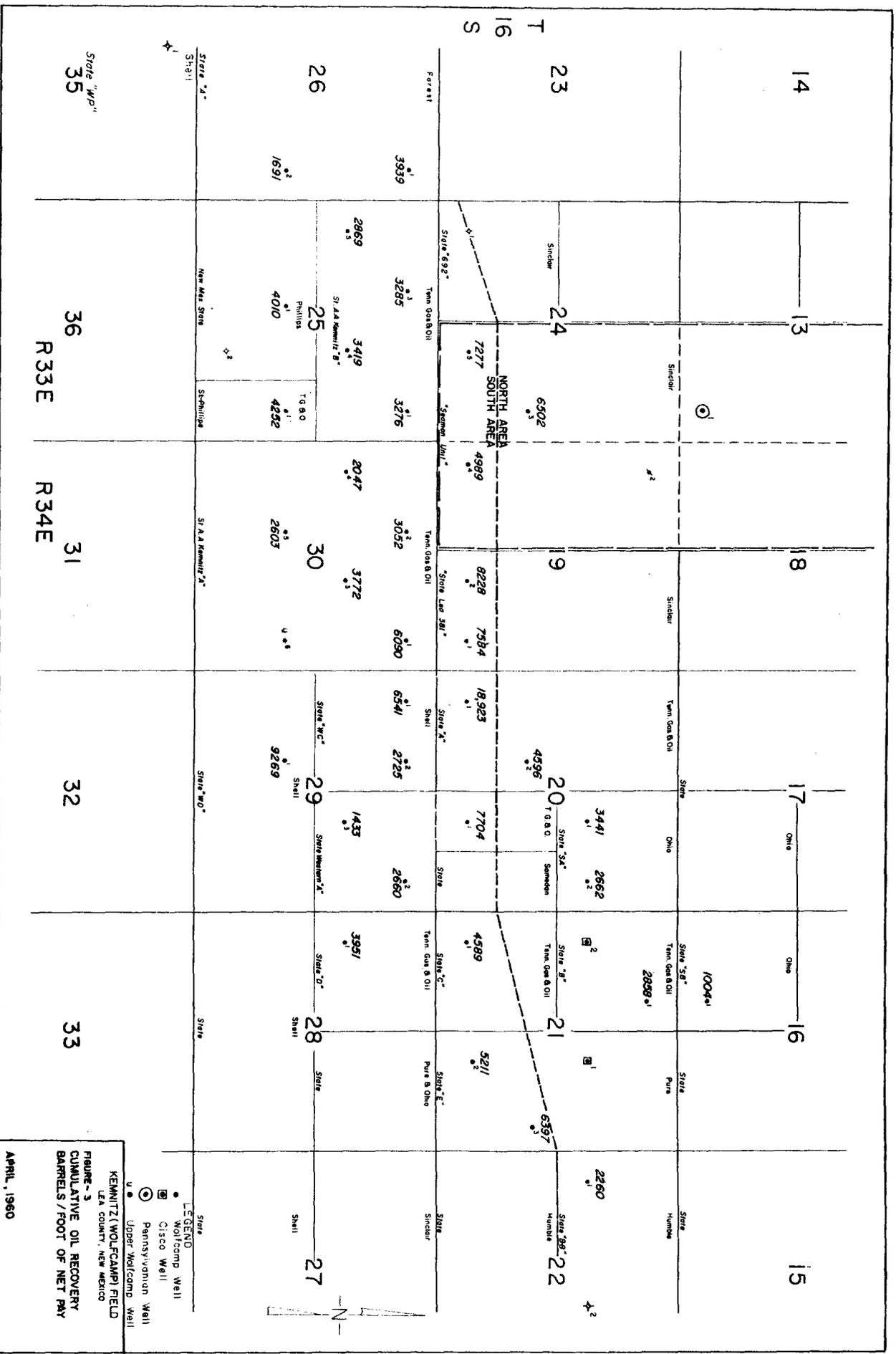
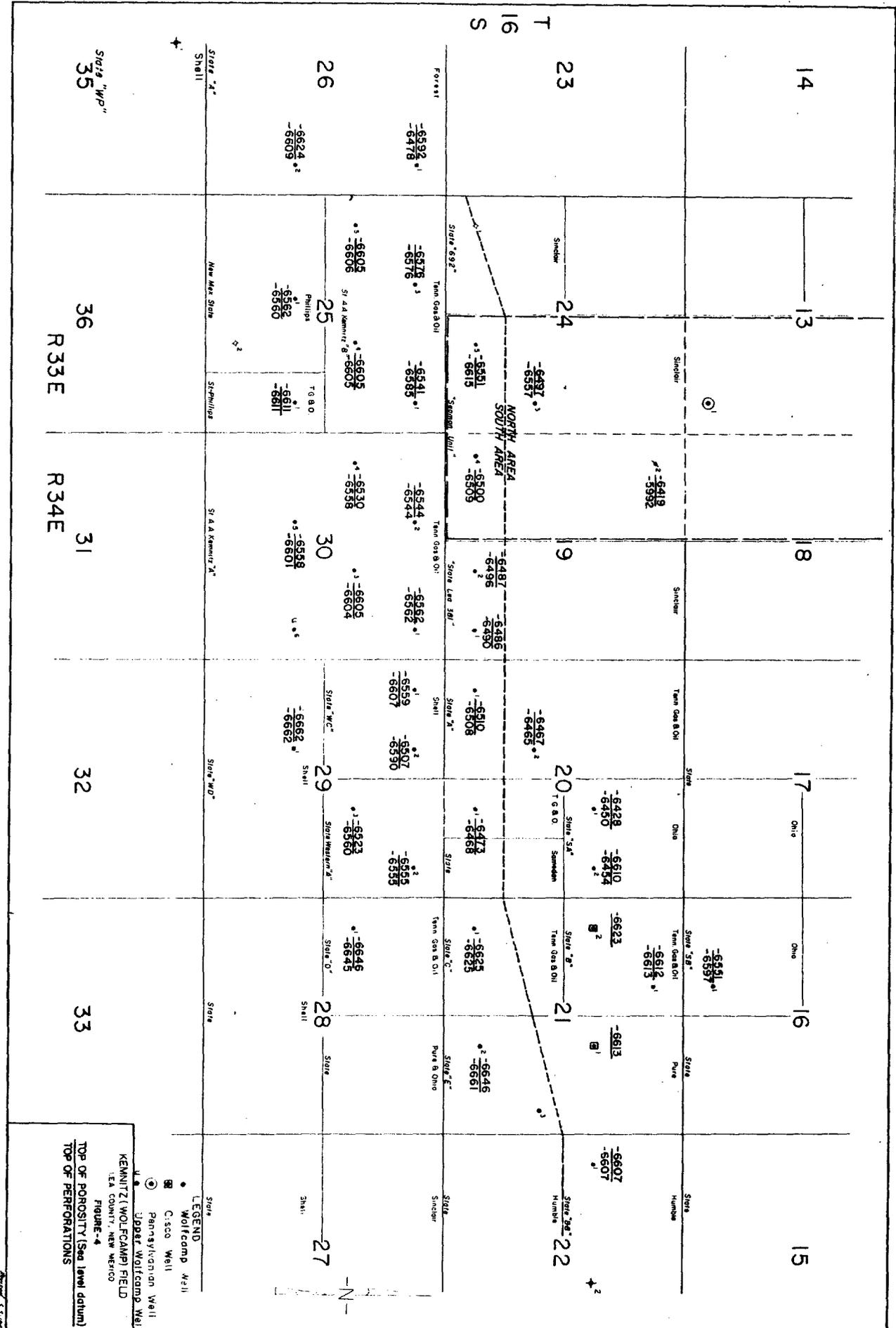


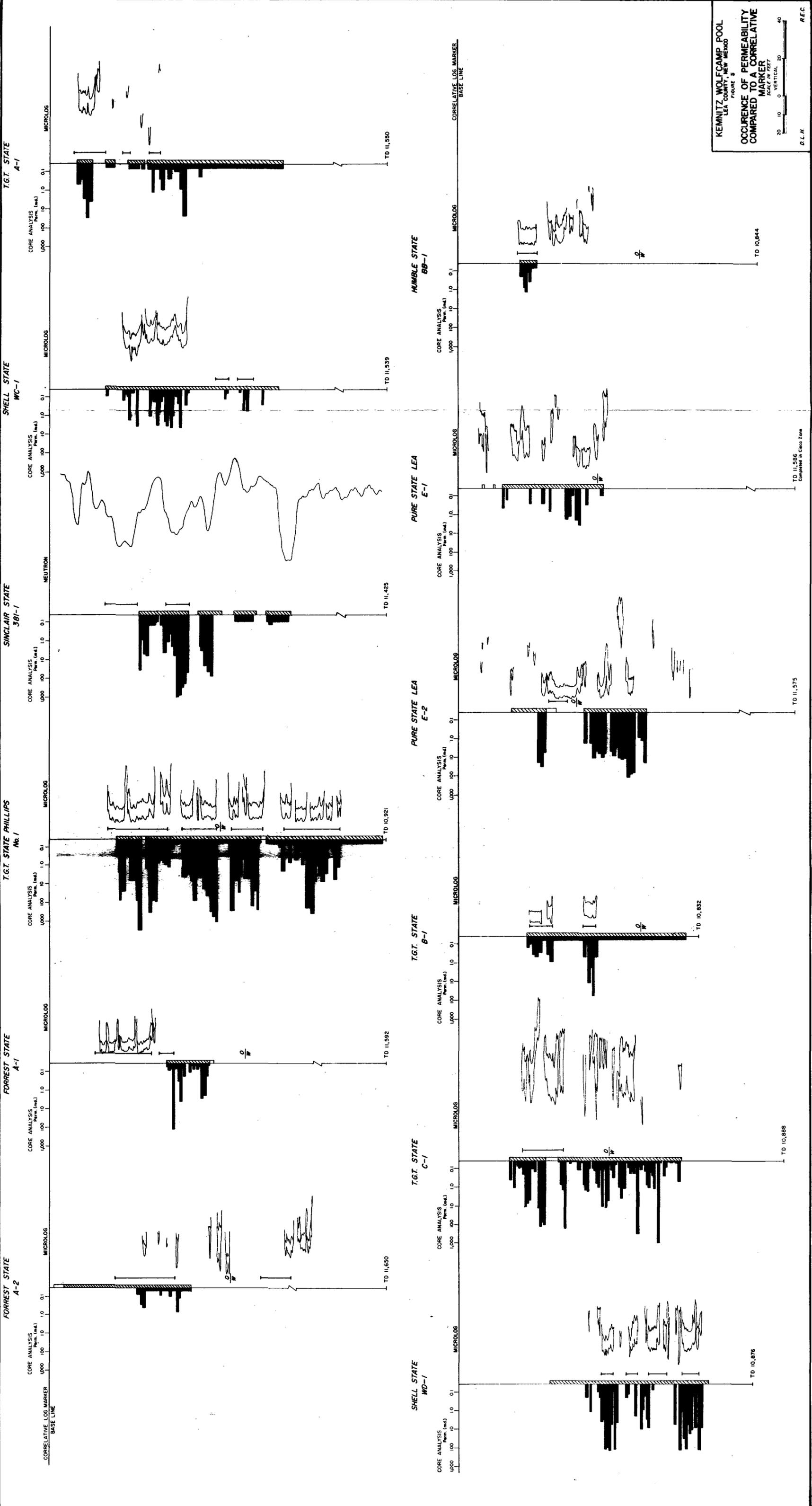
Figure No. 2
 PRIMARY NAVESLATI BALANKI SEDIMENTATION 10/1/59
 KENNETH WOLFCONE FIELD



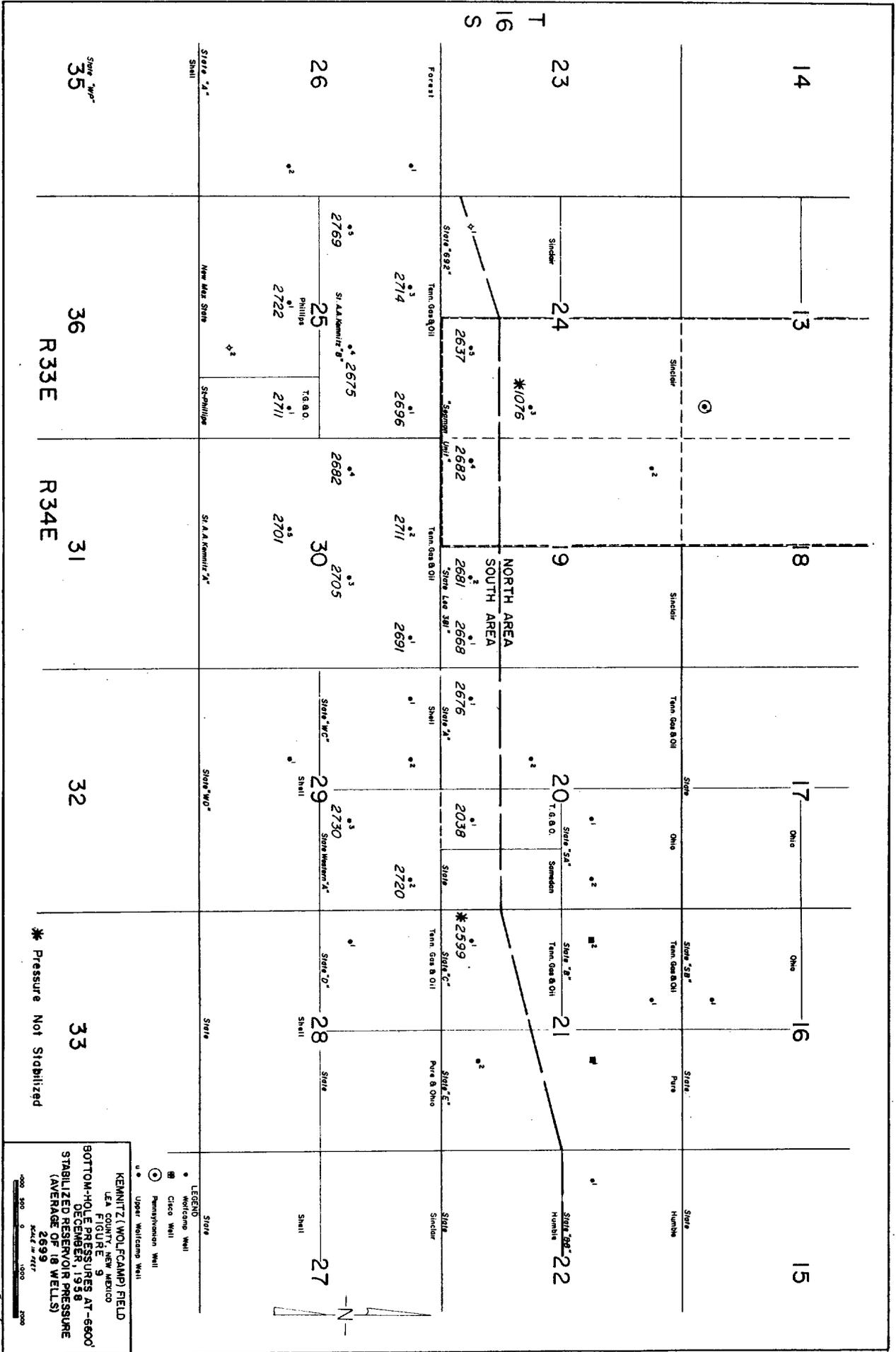
Scale 1" = 1000'



Revised 12/1988



KEMNITZ WOLF CAMP POOL
 LEA COUNTY, NEW MEXICO
 FIGURE 5
 OCCURRENCE OF PERMEABILITY
 COMPARED TO A CORRELATIVE
 MARKER
 SCALE IN FEET
 VERTICAL 20 40
 D.L.H. R.E.C.



KENNITZ (WOLFCAMP) FIELD
 LEA COUNTY, NEW MEXICO
 BOTTOM-HOLE FLORES PRESS AT -6600'
 DECEMBER 1958
 STABILIZED RESERVOIR PRESSURE
 (AVERAGE OF 16 WELLS)
 4899.17
 SCALE 1:12,500

Figure No. 12

PRESSURE BUILD-UP CURVES
KOPPELZ WOLFGANG TOOL

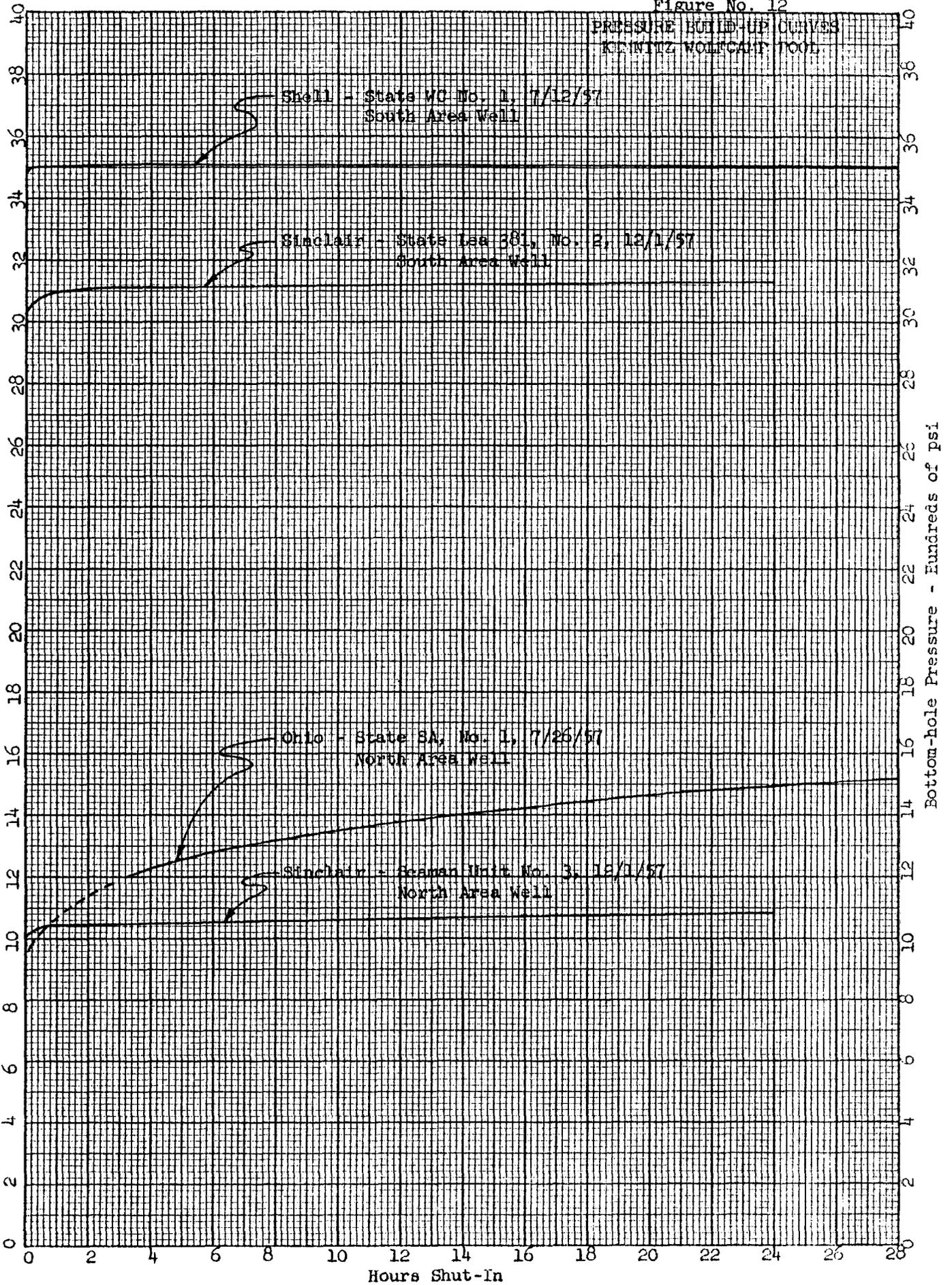
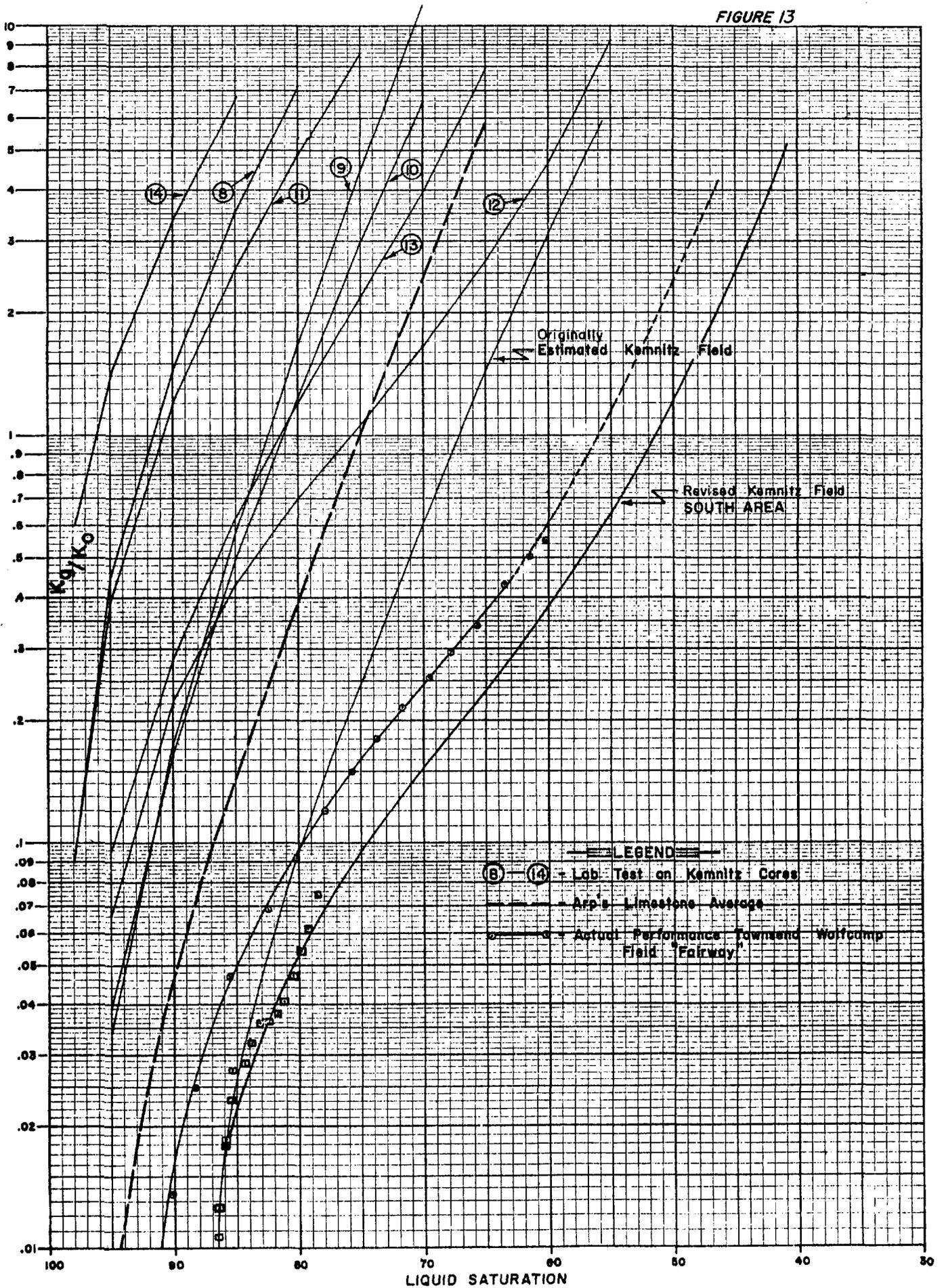


FIGURE 13



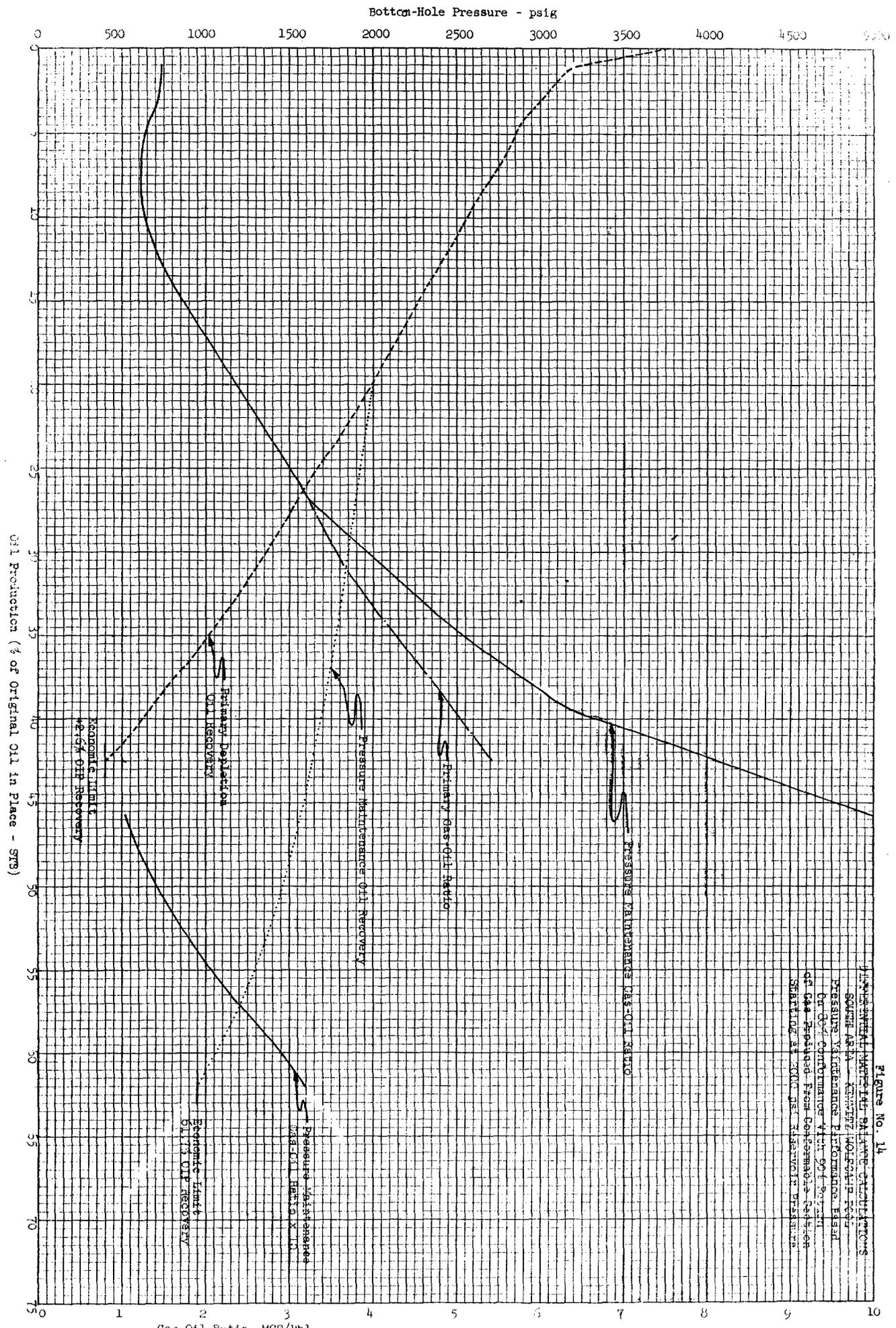
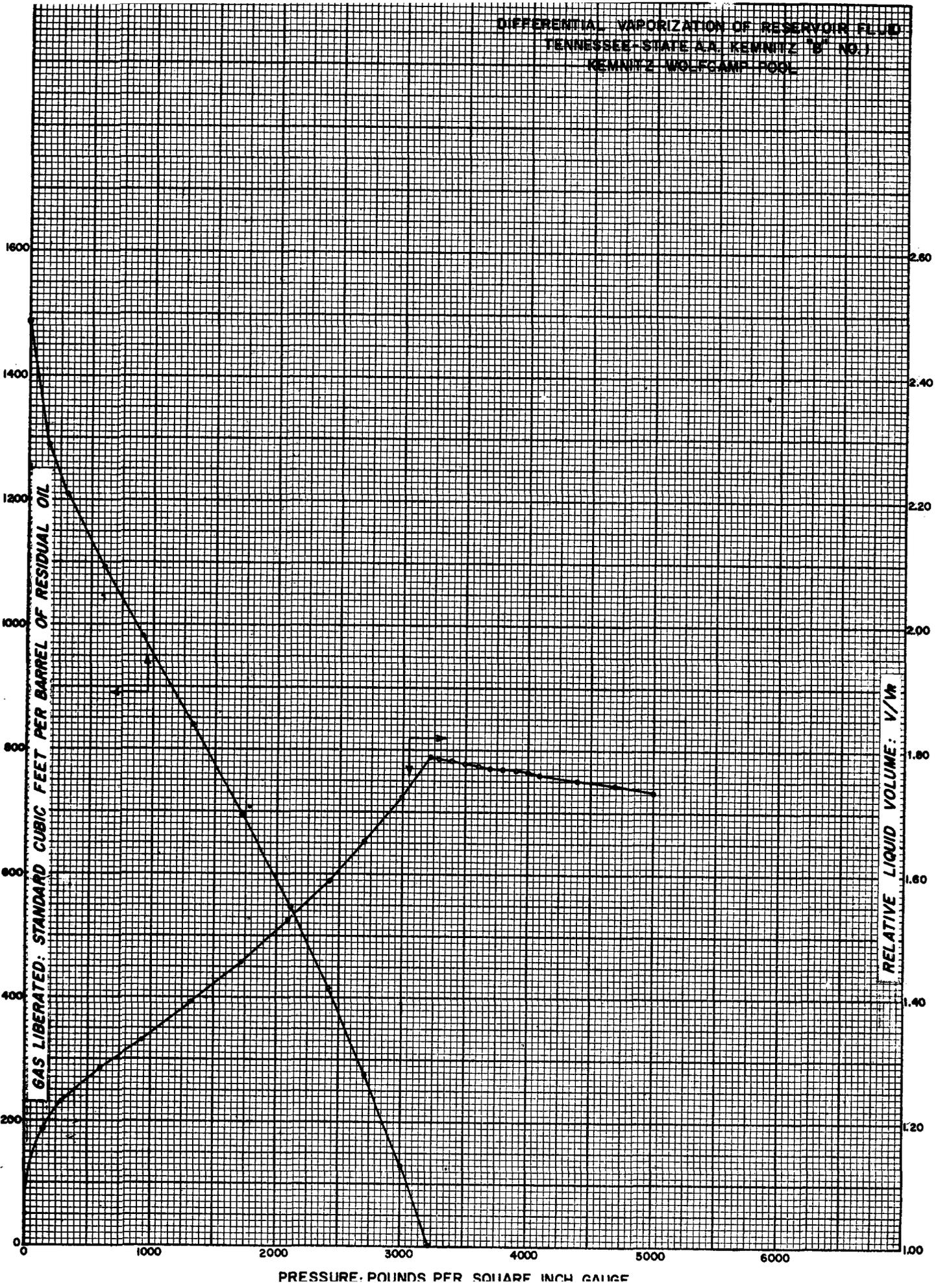


Figure No. 14

INSTRUMENTATION FOR SAULT STEAMFIELD
 SOUTH AREA - KENNEDY WOLFMAN FCB
 Pressure Maintenance Performance Field
 by 2% Containment with 90% Permeability
 of Gas Produced from Conventional Seals
 Starting at 2000 psi Reservoir Pressure

DIFFERENTIAL VAPORIZATION OF RESERVOIR FLUID
 TENNESSEE STATE A.A. KEWNTZ NO. 1
 KEWNTZ WOLFCAMP POOL



PRESSURE - POUNDS PER SQUARE INCH GAUGE

GAS LIBERATED: STANDARD CUBIC FEET PER BARREL OF RESIDUAL OIL

RELATIVE LIQUID VOLUME: V/M

Figure No. 16

RESERVOIR OIL VISCOSITY
RESERVOIR GAS GRAVITY
FROM RESERVOIR FLUID STUDY
PRESSURE - RESERVOIR "G" W.

RESERVOIR PRESSURE - psig

4000

3000

2000

1000

OIL VISCOSITY

GAS GRAVITY

Z FACTOR (GAS COMPRESSIBILITY)

0 .1 .2 .3 .4 .5 .6 .7 .8 .9 1.0 1.1 1.2 1.3 1.4 1.5 1.6 1.7

RESERVOIR OIL VISCOSITY @ 153 DEGREES F - CENTIPOISES
RESERVOIR GAS GRAVITY @ 153 DEGREES F.

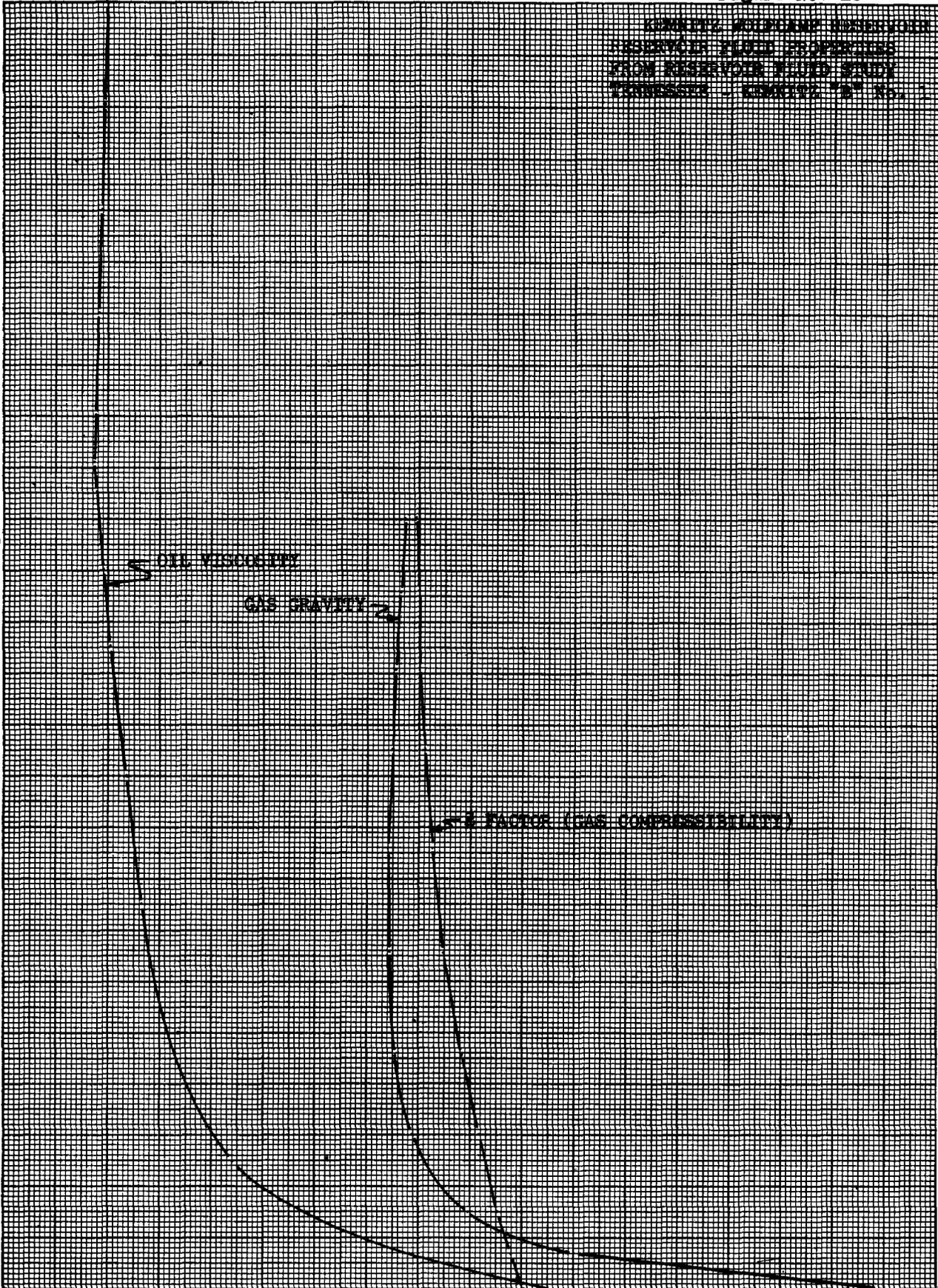


Figure No. 17

KHENTZ WOLF CAMP POOL
RELATIVE FLUID VISCOSITY

RESERVOIR PRESSURE - PSI

3000

2000

1000

0

.01

.02

.03

.04

.05

.06

.07

.08

.09

1.0

1.1

1.2

1.3

1.4

1.5

1.6

ug/uo x 10

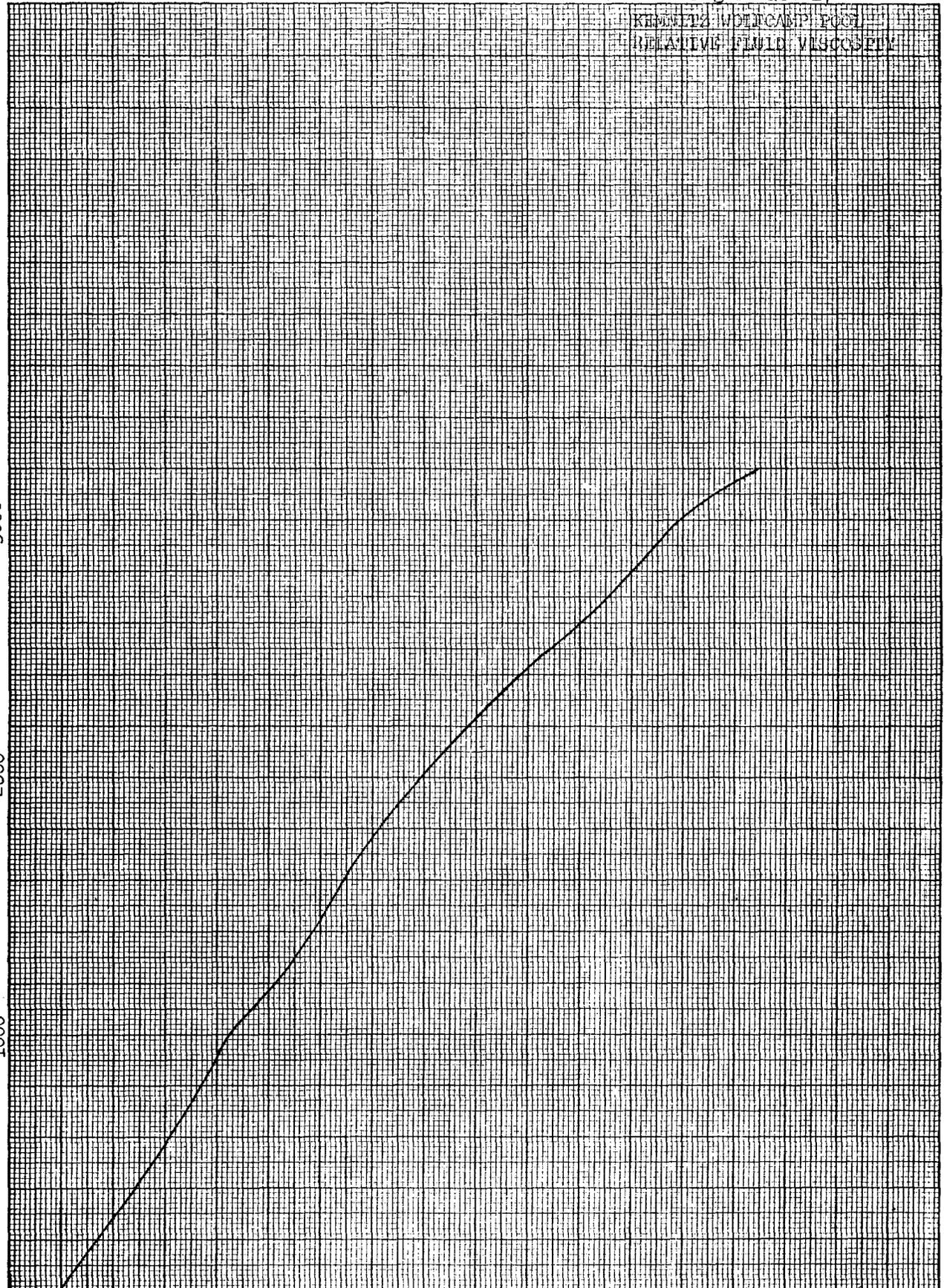
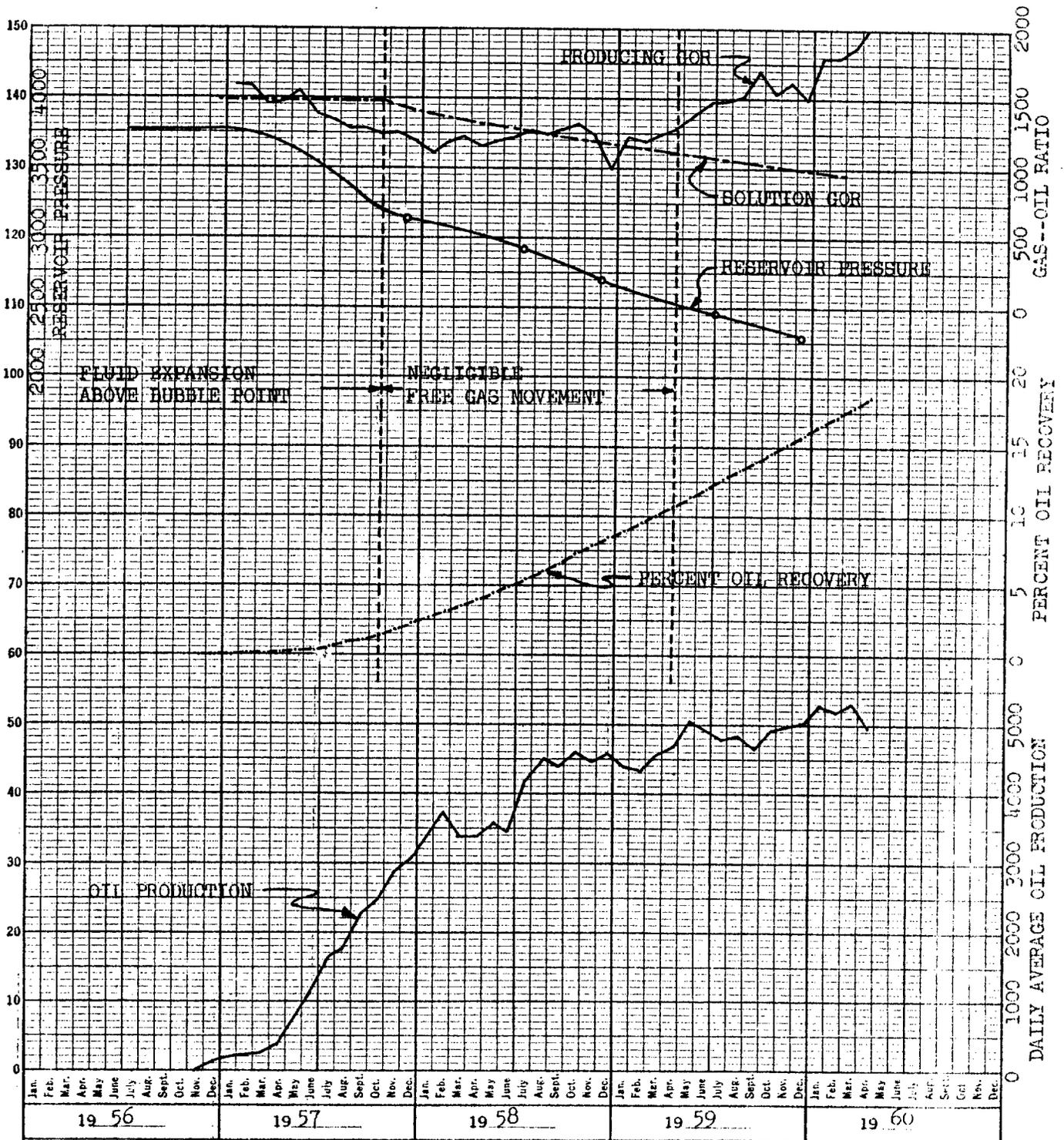


FIGURE NO. 18
 KEMNITZ WOLFCAMP POOL - SOUTH AREA
 PRODUCTION STATISTICS



N = 23,500,000 Bbls.

Oil Production Rate - Thousands of Stock Tank Barrels Per Month
 Reservoir Pressure - Hundreds of Pounds Per Square Inch
 Gas-Oil Ratio - Thousands of Standard Cubic Feet Per Stock Tank Barrel

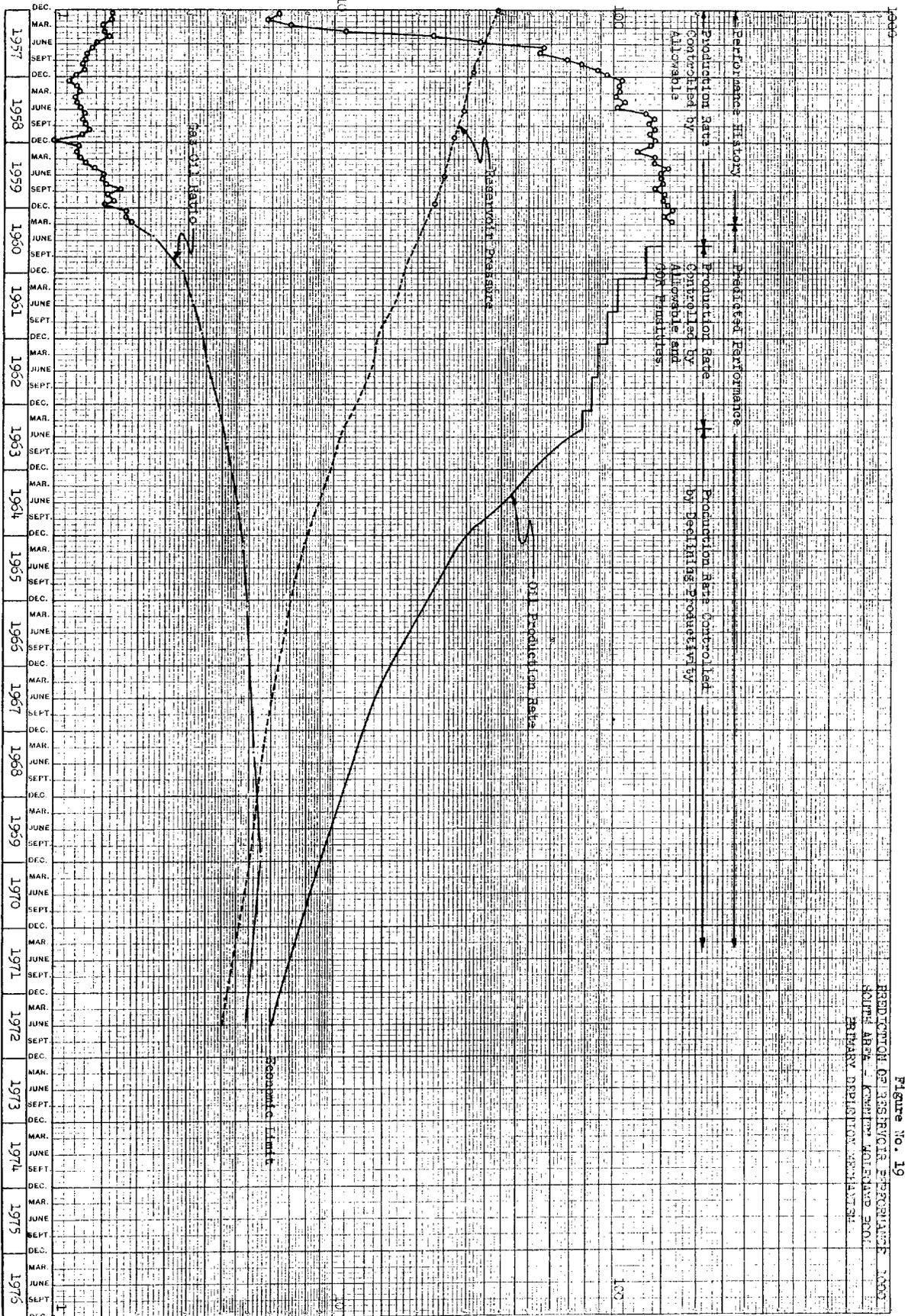


Figure No. 19

Oil Production Rate - Thousands of Stock Tank Barrels Per Month
 Reservoir Pressure - Hundreds of Pounds Per Square Inch
 Gas-Oil Ratio - Thousands of Standard Cubic Feet Per Stock Tank Barrel

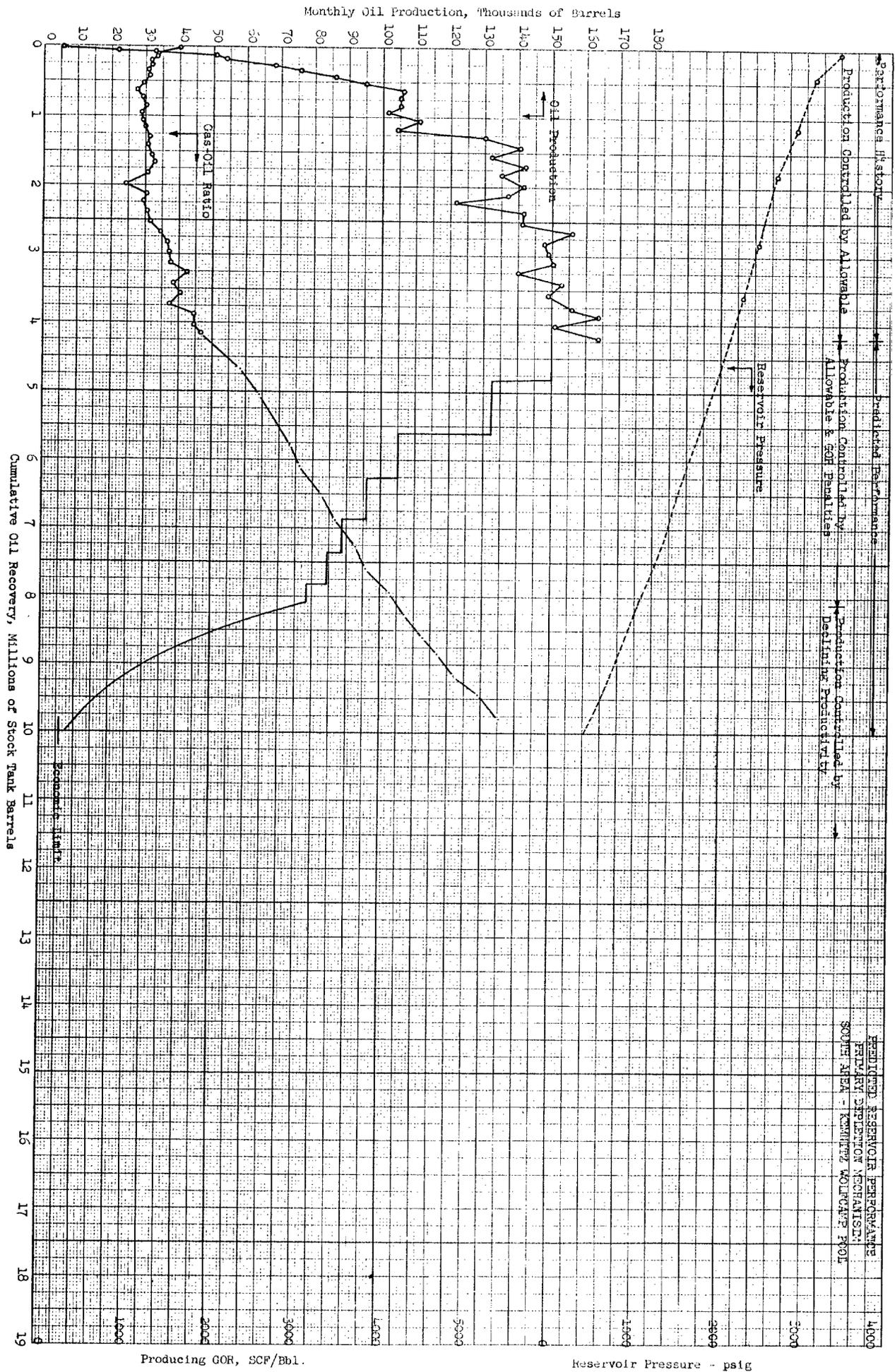
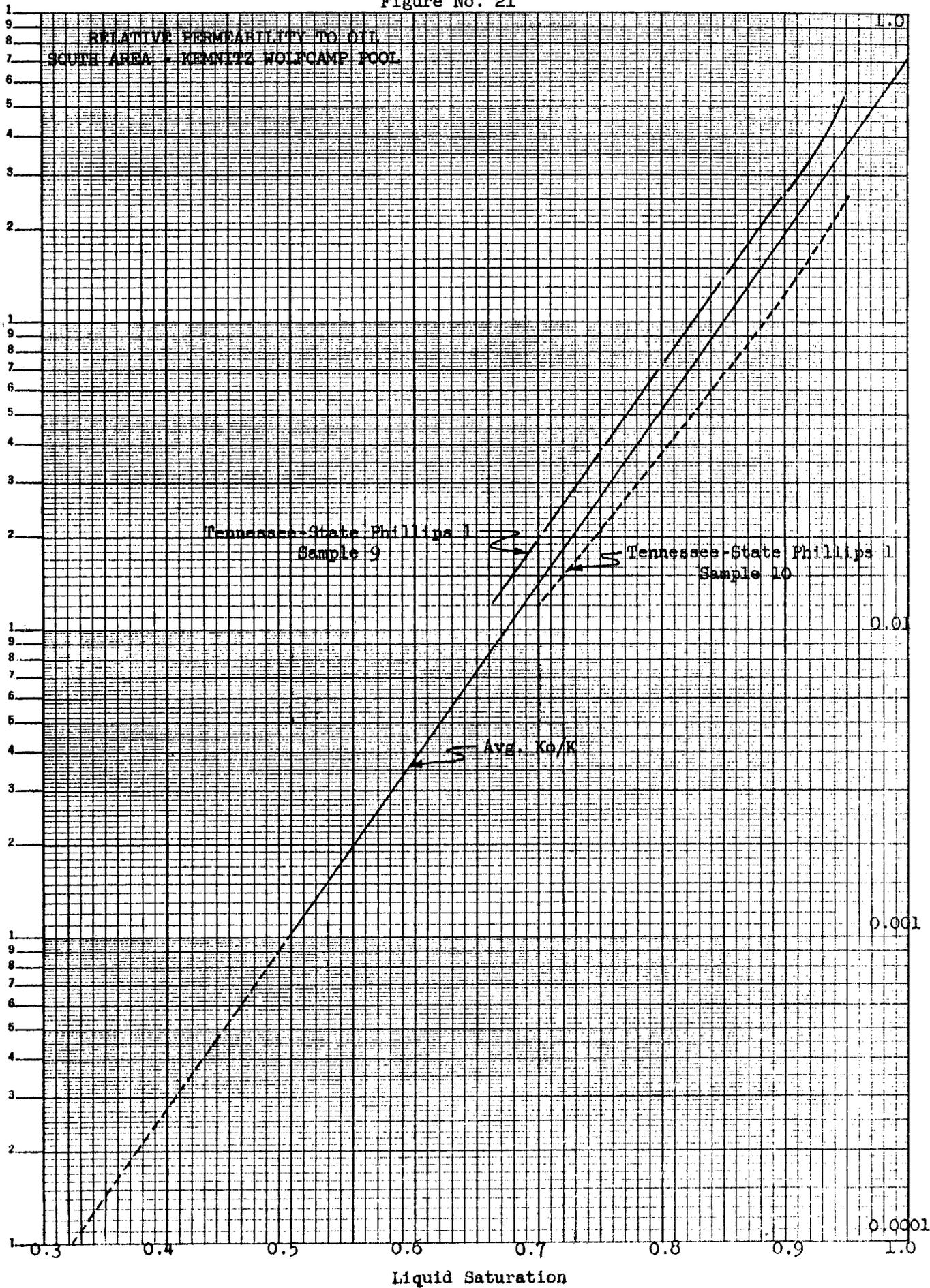


Figure No. 20

Figure No. 21



PRODUCTIVITY - THOUSANDS OF STOCK TANK BARRELS PER MONTH

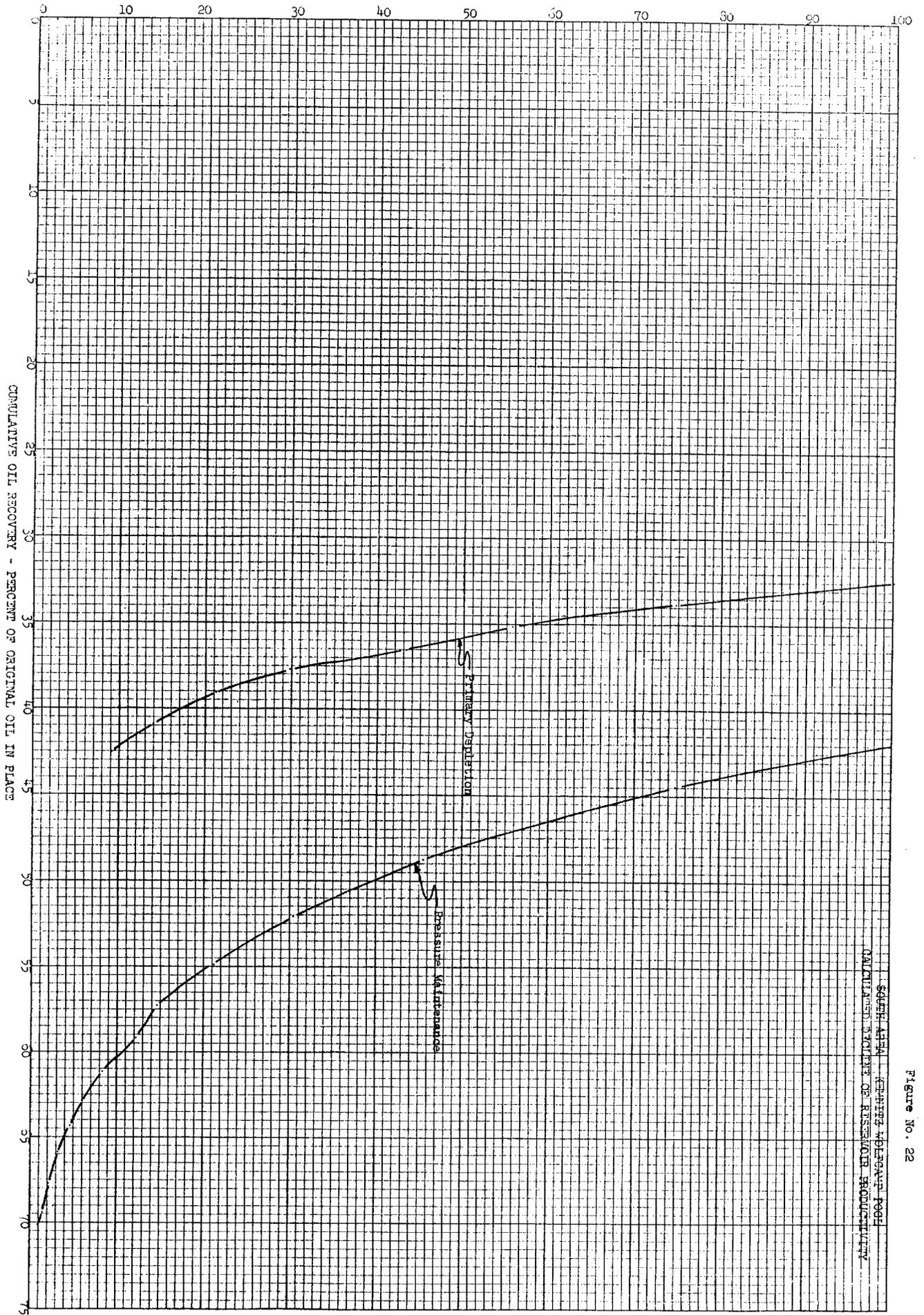


Figure No. 22

OIL PRODUCTION RATE - THOUSANDS OF STOCK TANK BARRELS PER MONTH

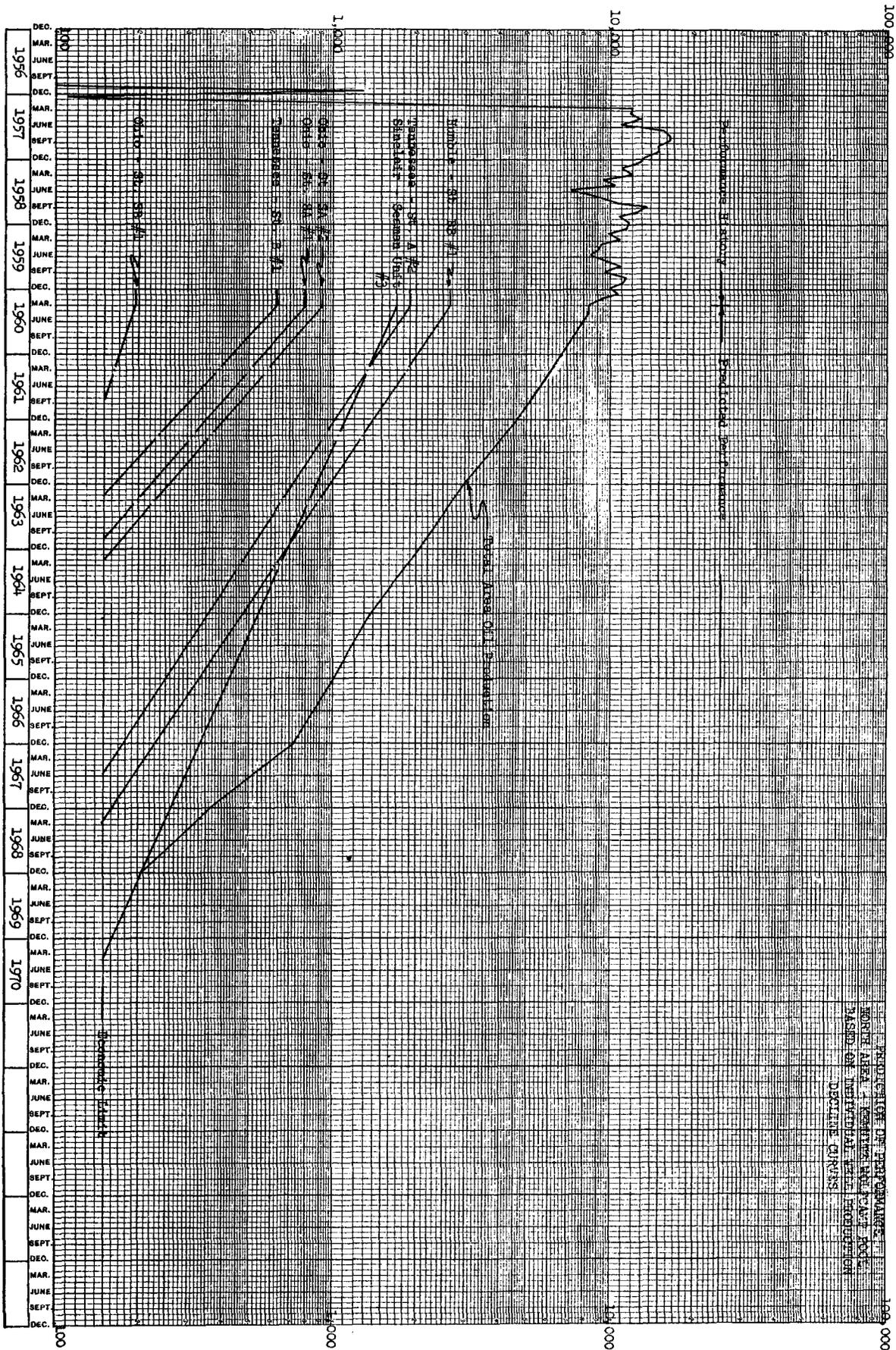
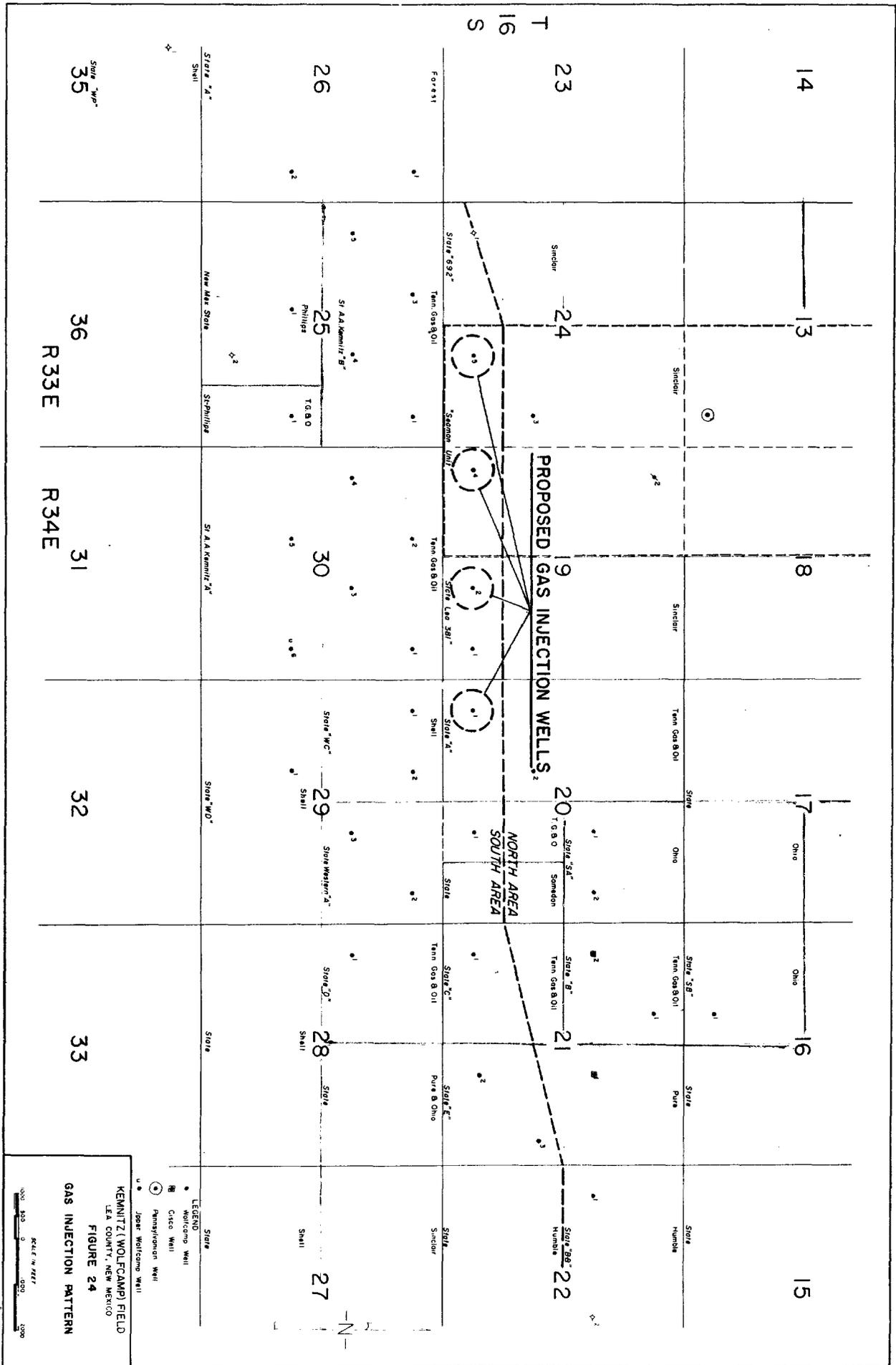


Figure No. 23

OIL PRODUCTION RATE - THOUSANDS OF STOCK TANK BARRELS PER MONTH



KENNITZ (WOLFCAMP) FIELD
 UTAH COUNTY, NEW MEXICO
FIGURE 24
GAS INJECTION PATTERN

0 500 1000
 FEET IN FEET
 SCALE

LEGEND
 ● Working Well
 ○ Cased Well
 ⊙ Abandoned Well

Oil Production Rate - Thousands of Stock Tank Barrels Per Month
 Reservoir Pressure - Hundreds of Pounds Per Square Inch
 Gas-Oil Ratio - Thousands of Standard Cubic Feet Per Stock Tank Barrel

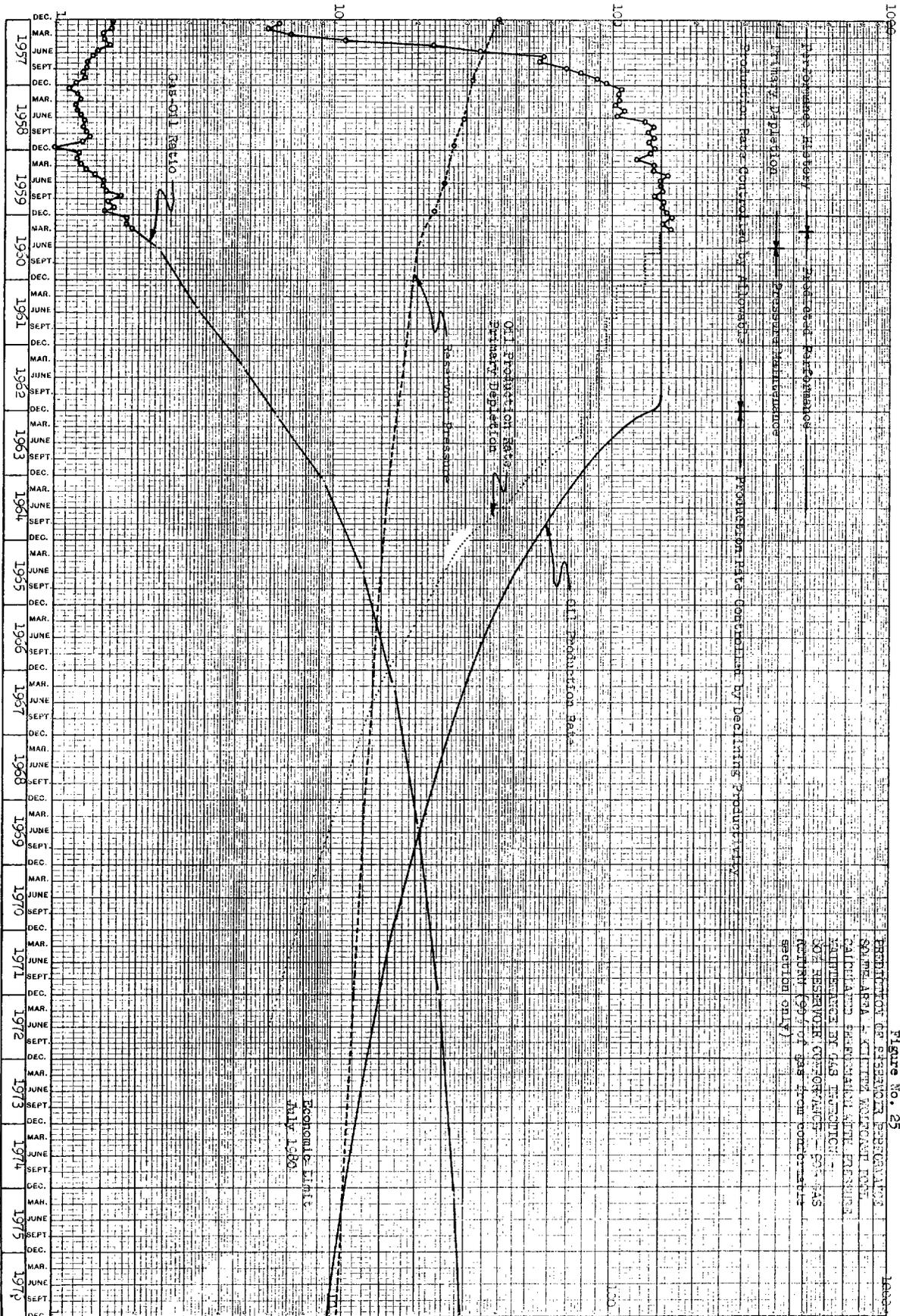


Figure No. 25
 PRODUCTION OF RESERVOIR PRESSURE FOR
 CALIFORNIA AND NEBRASKA AND OTHER
 OIL RESERVOIRS IN GAS PRODUCTION -
 (UNIT: 1000 OF GAS FROM ONE BARREL
 OF OIL)

Oil Production Rate - Thousands of Stock Tank Barrels Per Month
 Reservoir Pressure - Hundreds of Pounds Per Square Inch
 Gas-Oil Ratio - Thousands of Standard Cubic Feet Per Stock Tank Barrel

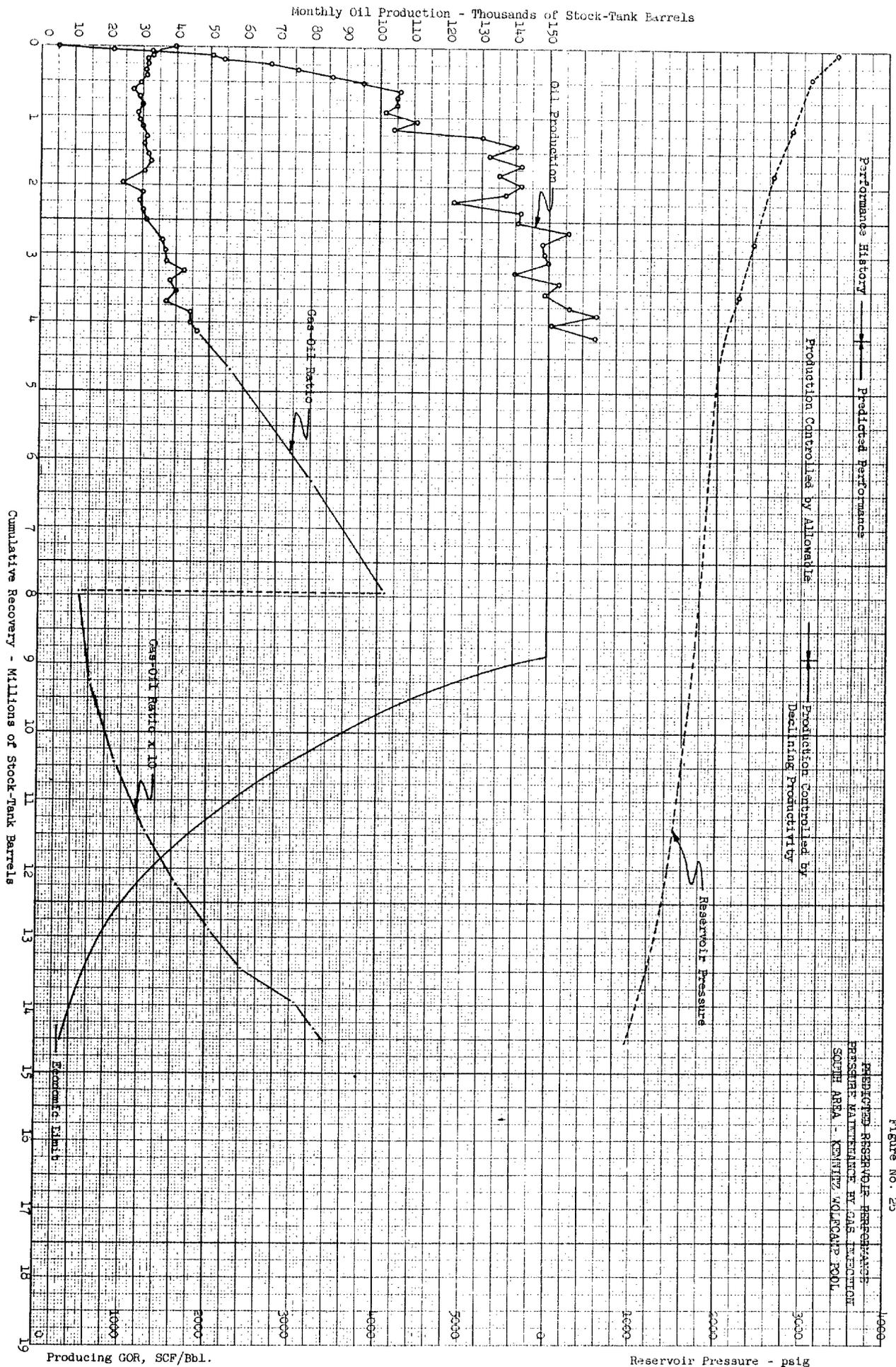
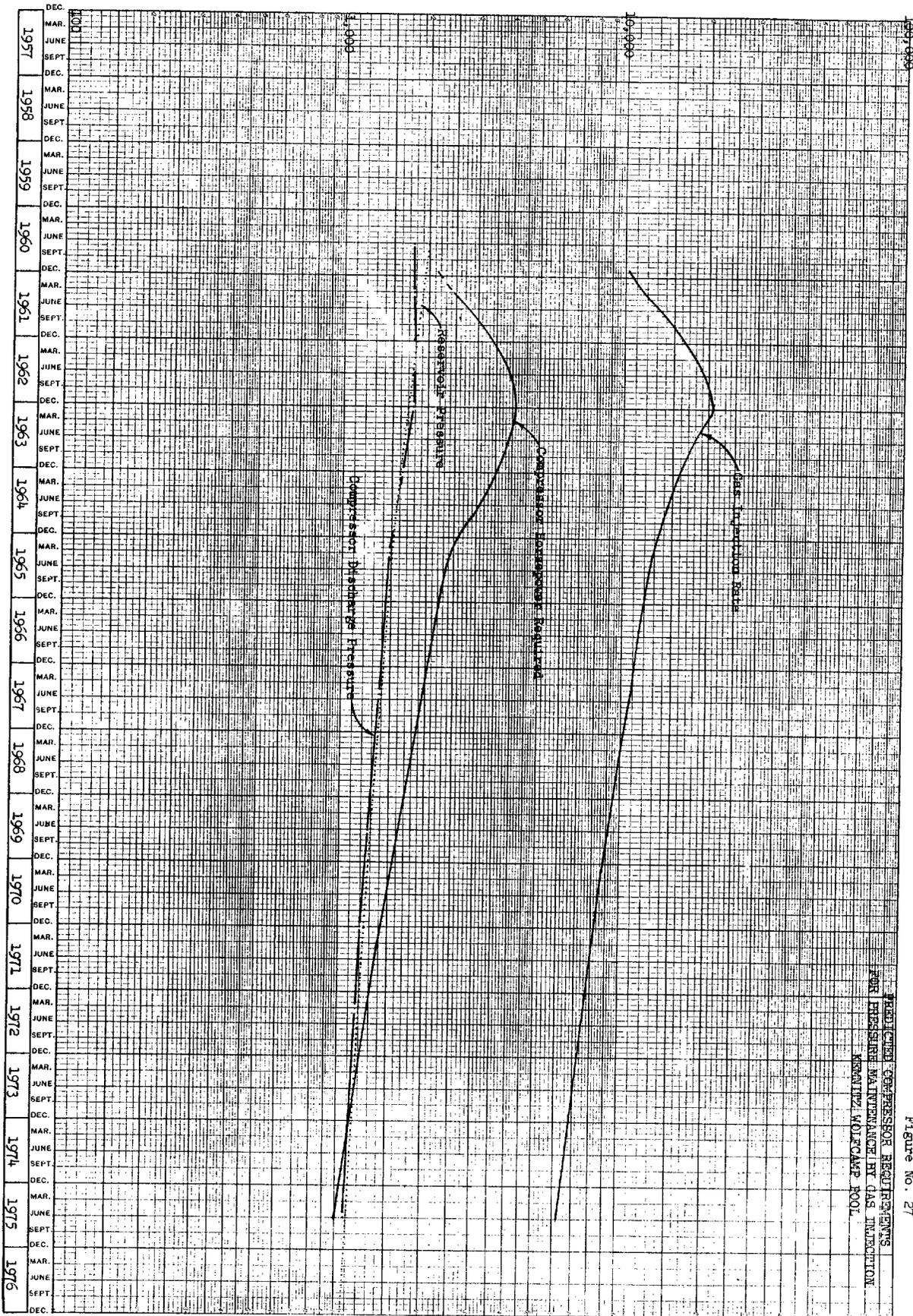


Figure No. 25

Producing GOR, SCF/Bbl.

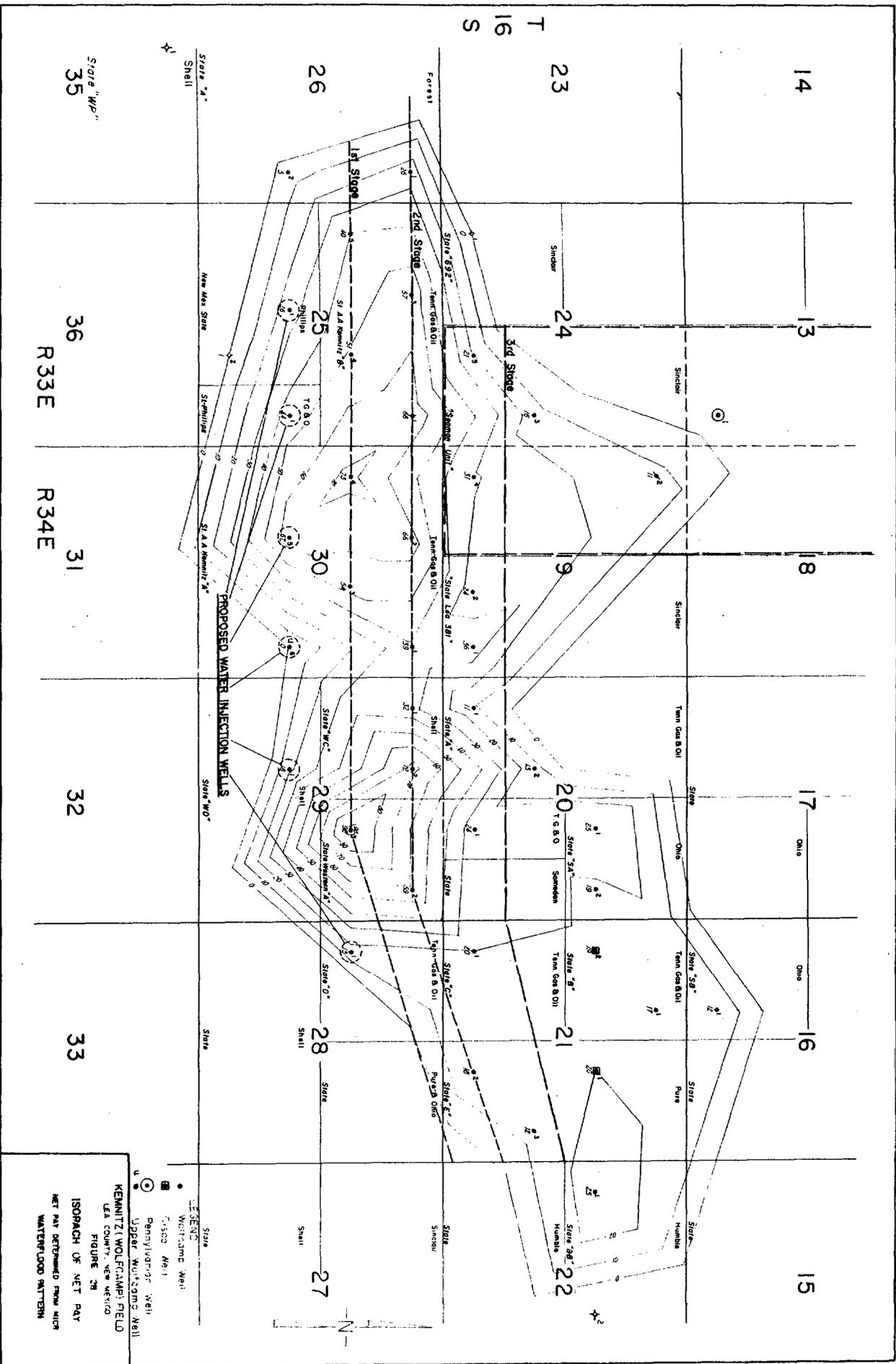
Reservoir Pressure - psig

Gas Injection Rate - MCF Per Day
 Compressor Horsepower
 Reservoir Pressure - psi
 Compressor Discharge Pressure - psi



REDUCED COMPRESSOR REQUIREMENTS
 FOR PRESSURE MAINTENANCE BY GAS INJECTION
 KENTON WOLFAMP POOL

Figure No. 27



• Kennitz
 • Working Well
 • Closed Well
 • Pending/Partial Well
 • Upper Mustang Well
 KENNITZ (WOLFGANG) FIELD
 LEA COUNTY, NEW MEXICO
 FIGURE 3B
 ISOPACH OF NET PAY
 NET PAY DETERMINED FROM HIGH
 WATERFLOOD PATTERNS

Oil Production Rate - Thousands of Stock Tank Barrels Per Month
 Water Injection Rate - Thousands of Barrels Per Month
 Reservoir Pressure - Hundreds of Pounds Per Square Inch

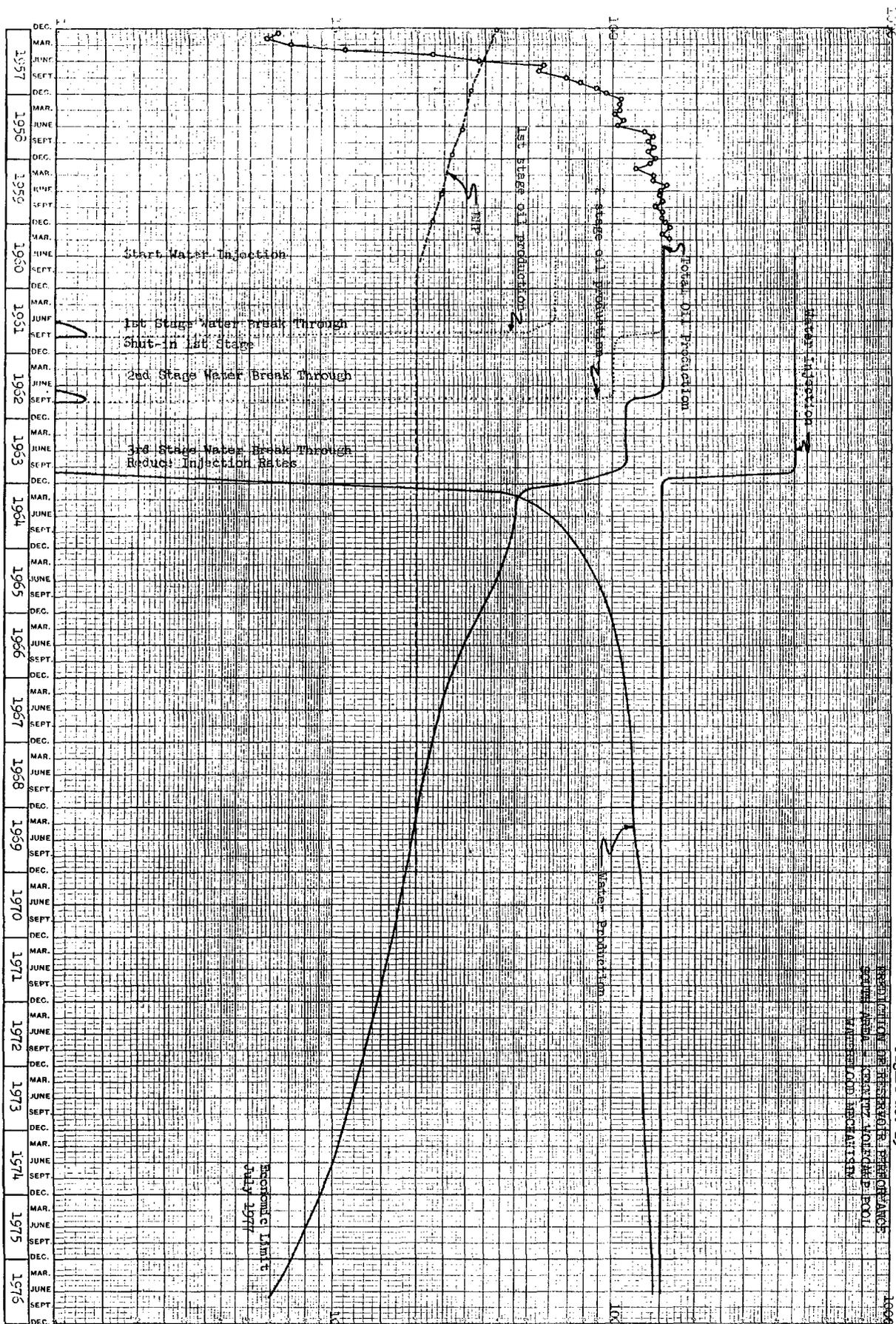
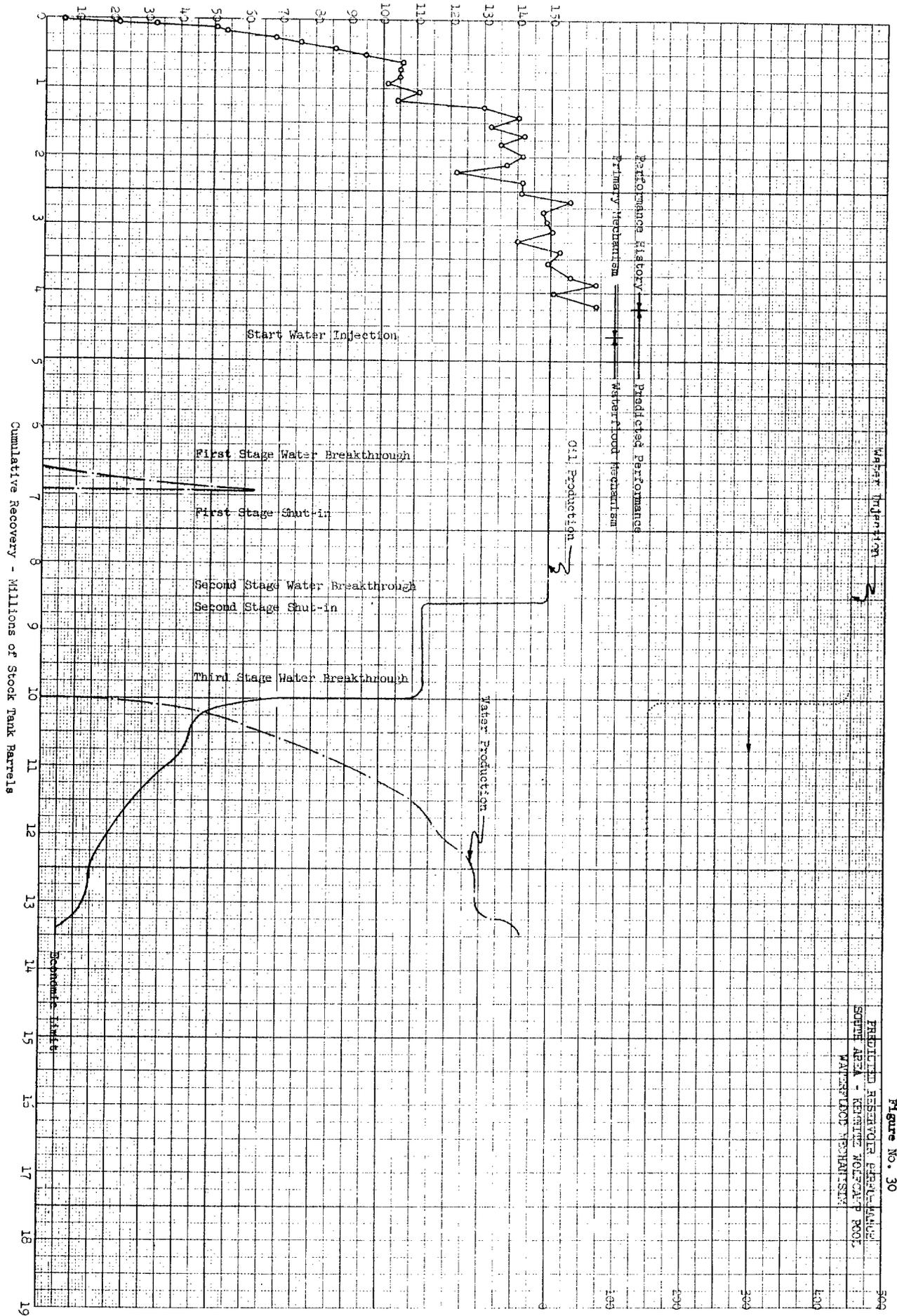


Figure No. 29

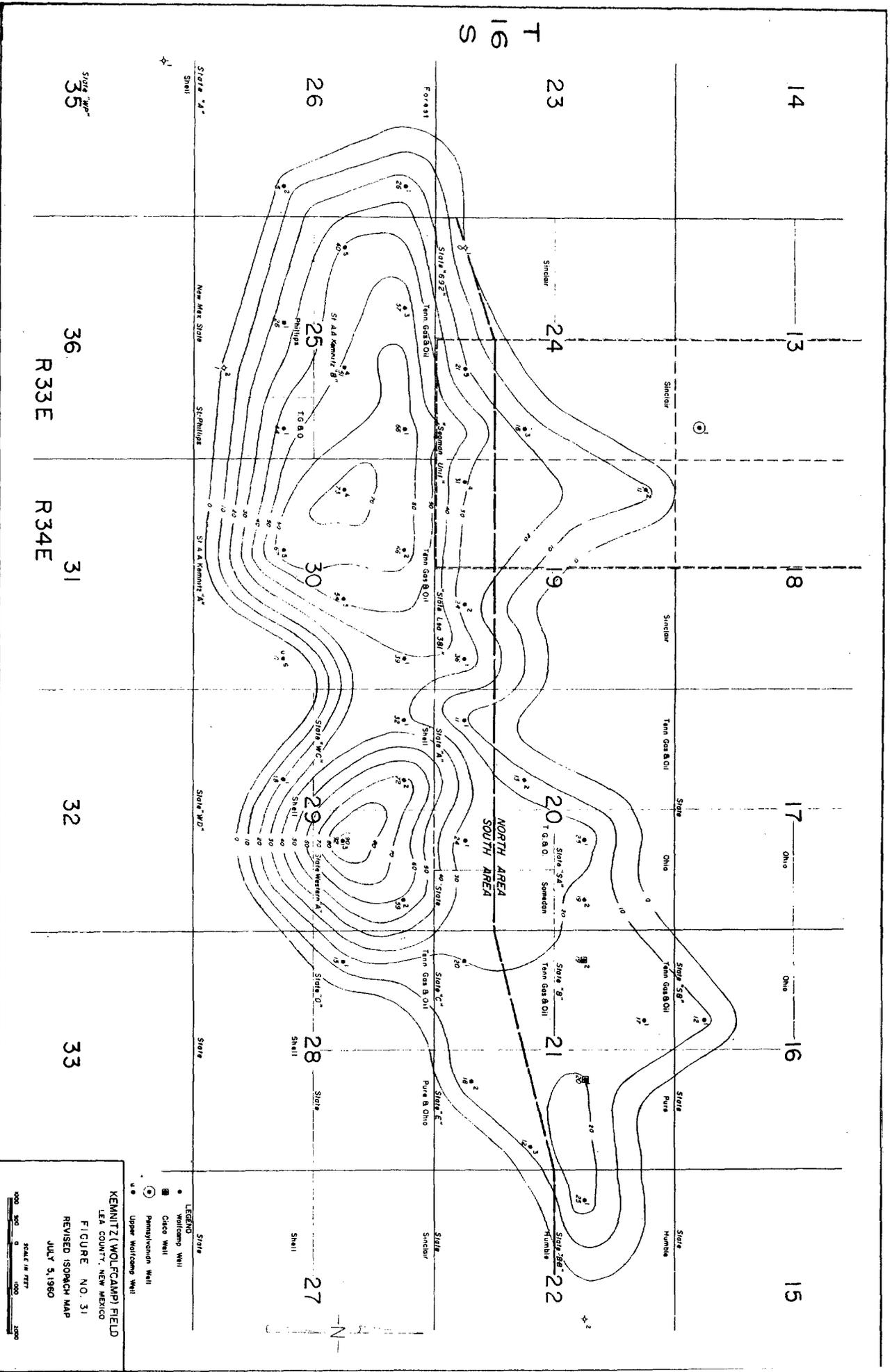
Oil Production Rate - Thousands of Stock Tank Barrels Per Month
 Water Injection Rate - Thousands of Barrels Per Month
 Reservoir Pressure - Hundreds of Pounds Per Square Inch

Oil and Water Production Volumes - Thousands of Stock Tank Barrels Per Month



FREDRICK RESERVOIR FIELD - SOUTH AREA - KEMIRE MOLECAMP POOL - WATERFLOOD MECHANISM

Figure No. 30



KENNITZ (WOLF CAMP) FIELD
 LEA COUNTY, NEW MEXICO
 FIGURE NO. 31
 REVISED ISORACH MAP
 JULY 5, 1960

SCALE IN FEET
 0 500 1000 2000