

UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

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OIL FIELD UNIT	
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UNIT AGREEMENT  
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LEA COUNTY, NEW MEXICO

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UNIT AGREEMENT  
FOR THE DEVELOPMENT AND OPERATION OF THE

NORTH VACUUM (ABO) NORTH UNIT

LEA COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the \_\_\_\_\_ day of \_\_\_\_\_, 1990, by and between the parties subscribing, ratifying or consenting hereto, and herein referred to as "parties hereto";

W I T N E S S E T H   T H A T:

WHEREAS, the parties hereto are the owner of working, royalty or other oil and 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 law (Sec. 3, Chap. 88, Laws 1943) as amended by Dec. 1 of Chapter 162, Laws of 1951, (Chap. 19, Art. 10, Sec. 45, N.M. Statutes 1978 Annot.), to consent to and approve the development of 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. 19, Art. 10, Sec. 47, N.M. Stats. 1978 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 Division of the Energy & Minerals Department of the State of New Mexico is authorized by law (Chap. 72,

Laws 1935, as amended, being Sec. 70-2-1 et seq. New Mexico Statutes, 1978 Annotated) to approve this agreement and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the North Vacuum (Abo) North Unit, comprised of the land hereinafter designated, to give reasonably effective control of operations therein; and

WHEREAS, it is the purpose of the parties hereto to enable institution and consummation of secondary and/or enhanced oil recovery operations, conserve natural resources, prevent waste and secure the 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 promises herein contained, the parties hereto commit to this agreement their respective interests in the Unitized Formation underlying the Unit Area, and agree severally among themselves as follows:

SECTION 1. ENABLING ACT AND REGULATIONS: The oil and gas operating regulations in effect as of the effective date hereof governing drilling and producing operations not inconsistent with the terms hereof or the laws of the State of New Mexico are hereby accepted and made a part of this agreement.

SECTION 2. DEFINITIONS: For the purpose of this agreement, the following terms and expressions are used herein shall mean:

(a) "Unit Area" is defined as the land depicted on Exhibit "A" and described by Tracts in Exhibit "B" attached hereto, and said land is hereby designated and recognized as constituting the Unit Area.

(b) "Commissioner" is defined as the Commissioner of Public Lands of the State of New Mexico.

(c) "Division" is defined as the Oil Conservation Division of the



State of New Mexico.

- (d) "Unitized Formation" shall mean that subsurface portion or portions of the Unit Area commonly known as the Abo Carbonate and identified as follows:

The Abo Carbonate shall be defined and construed as being that oil bearing zone the top of which was encountered at a depth of 8,440 feet and the base of which was encountered at a depth of 9,012 feet (log measurements) in the Shell Oil Company Shell State VI No. 1 Well, located 990 feet from the south line and 900 feet from the east line of Section 1, Township 17 South, Range 34 East, N.M.P.M., Lea County, New Mexico, as recorded on the Compensated Neutron Log of said well dated January 30, 1983.

- (e) "Unitized Substances" is defined as all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons within or produced from the Unitized Formation.

- (f) "Working Interest" is defined as an interest in Unitized Substances by virtue of a lease, operating agreement or otherwise, including a carried interest, which interest is chargeable with an obligation to pay or bear, either in cash or out of production or otherwise, all or a portion of the cost of drilling, developing, producing and operating the Unitized Formation. Any interest in Unitized Substances which is a Working Interest as of the date the owner thereof executes, ratifies or consents to this agreement shall thereafter be treated as a Working Interest for all purposes of this agreement.

- (g) "Royalty Interest" is defined as a right to or interest in any portion of the Unitized substances or proceeds thereof other than a Working Interest.
- (h) "Working Interest Owner" is defined as a party hereto who owns a Working Interest.
- (i) "Royalty Owner" is defined as a party hereto who owns a Royalty Interest.
- (j) "Tract" is defined as each parcel of land described as such and given a Tract number in Exhibit "B".
- (k) "Tract Participation" is defined as the percentages of Unitized Substances allocated hereunder to a Tract as hereinafter defined. The Tract Participation of the Tracts within the Unit Area is shown on Exhibit "B" attached hereto.
- (l) "Unit Participation" is defined as the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract having Tract Participation by the Tract Participation of such Tract
- (m) "Unit Operating Agreement" is defined as any agreement or agreements entered into, separately or collectively, by and between the Unit Operator and the Working Interest Owners as provided in Section 9, Accounting Provisions and Unit Operating Agreement, *infra*, and shall be styled "Unit Operating Agreement, North Vacuum (Abo) North Unit, Lea County, New Mexico".
- (n) "Unit Manager" is defined as the person or corporation appointed by the Unit Working Interest Owners to perform the duties of the Unit Operator until the selection and

qualification of a Successor Unit Operator as provided  
for in Section 8, Successor Unit Operator, hereof.

SECTION 3. UNIT AREA: The area specified on the map attached hereto marked Exhibit "A" is hereby designated and recognized constituting the Unit Area, containing 1762.79 acres, more or less, being the S/2 S/2 of Section 35 and the S/2 of Section 36, Township 16 South, Range 34 East, N.M.P.M. and also all of Section 1, E/2 and the S/2 NW/4 and the S/2 SW/4 of Section 2, and the NW/4 of Section 12, Township 17 South, Range 34 East, N.M.P.M., Lea County, New Mexico.

Exhibit "A" to the extent known to Unit Operator, shows the boundaries and identity of Tracts and leases in the Unit Area. Exhibit "B" attached hereto is a schedule showing, to the extent known to Unit Operator, the acreage comprising each Tract and the percentage of ownership of each Working Interest Owner in each Tract. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest as shown in said map or schedule as being owned by such party. Exhibit "C" attached hereto is a schedule showing the Tract Participation of each Tract in the Unit Area, which Tract Participation has been calculated upon the basis of all tracts within the Unit Area being committed to this agreement as of the effective date hereof.

Exhibits "A", "B", and "C" shall be revised by Unit Operator whenever changes render such revision necessary and not less than two copies of such revision shall be filed with the Commissioner and Divison.

SECTION 4. EXPANSION: The Unit Area may, when practicable, be expanded to include therein any additional Tract or Tracts regarded as reasonably necessary or advisable for the purpose of this agreement. Such expansion shall be effected in the following manner.

(a) The Working Interest Owner or Owners of a Tract or Tracts desiring to bring such Tract or Tracts into the Unit Area shall file an application therefor with the Unit Operator requesting

such admission.

(b) Unit Operator shall circulate a notice of the proposed expansion to each Working Interest Owner in the Tract or Tracts proposed to be included in the Unit and/or affected by the proposed expansion setting out the basis for admission, the Tract Participation proposed to be allocated to such Tract or Tracts, and other pertinent data. After negotiation (at Working Interest Owners' meeting or otherwise) if Working Interest Owners having a combined Unit Participation of ninety percent (90%) or more have agreed to such Tract or Tracts being brought into the Unit Area, then Unit Operator shall, after preliminary concurrence by the Commissioner and the Division:

- (1) Prepare a notice of proposed expansion describing the contemplated changes in the boundaries of the Unit Area, the reason therefor, the basis for admission of the additional Tract or Tracts, the Tract Participation to be allocated thereto, and the proposed effective date thereof; and
- (2) Furnish copies of said notice to the Commissioner and the Division, each Working Interest Owner and to the lessee and lessor whose interests are proposed to be committed, advising such parties that thirty (30) days will be allowed for submission to the Unit Operator of any objections to such proposed expansion; and
- (3) File, upon the expiration of said thirty-day period as set out in Subsection (2) immediately above, with the Commissioner and Division the following: (a) Evidence of mailing copies of said notice of expansion; (b) An application for such expansion; (c) An instrument containing the appropriate joinders in compliance with

containing the appropriate joinders in compliance with the qualification requirements as provided in Section 13, Tracts Qualified for Unit Participation and (d) Copies of any objections received.

The expansion shall, after due consideration of all pertinent information and upon approval by the Commissioner and Division, become effective as of the date prescribed in the notice thereof. The revised Tract Participation of the respective Tracts included within the Unit Area prior to such enlargement shall remain in the same ratio one to another.

There shall never be any retroactive allocation or adjustment of operating expenses or of interest in the Unitized Substances produced (or the proceeds of the sale thereof) by reason of an expansion of the Unit Area; provided, however, this limitation shall not prevent any adjustment of investment necessitated by such expansion.

SECTION 5. UNITIZED LAND AND UNITIZED SUBSTANCES: All land committed to this agreement, as provided in Section 13, Tracts Qualified for Unit Participation, as to the Unitized Formation defined in Section 2, Definitions, shall constitute land referred to herein as "Unitized Land" or "land subject to this agreement". All oil and gas in the Unitized Formation in the Unitized Land are unitized under the terms of this agreement and herein are called "Unitized Substances".

SECTION 6. UNIT OPERATOR: SAGE ENERGY COMPANY is hereby designated as Unit Operator, and by signing this instrument as Unit Operator it agrees and consents to accept the duties and obligations of Unit Operator for the operation, development and production of Unitized Substances as herein provided. Whenever reference is made herein to the Unit Operator, such reference means the Unit Operator acting in that capacity and not as an owner of interests in Unitized Substances, and the term "Working Interest Owner" when used herein shall include or refer to Unit Operator as the owner of a Working Interest when such an interest is owned by it.

SECTION 7. RESIGNATION OR REMOVAL OF UNIT OPERATOR: Unit Operator shall have the right to resign at any time, but such resignation shall

not become effective so as to release Unit Operator from the duties and obligations of Unit Operator and terminate Unit Operator's rights as such for a period of six (6) months after written notice of intention to resign has been given by Unit Operator to all Working Interest Owners and the Commissioner and Division unless a new Unit Operator shall have taken over and assumed the duties and obligations of Unit Operator prior to the expiration of said period.

The Unit Operator shall, upon default or failure in the performance of its duties and obligations hereunder, be subject to removal only by unanimous vote of all Working Interest Owners other than Unit Operator. Such removal shall be effective upon notice thereof to the Commissioner and Division.

In all such instances of resignation or removal, until a successor to Unit Operator is selected and approved as hereinafter provided, the Working Interest Owners shall be jointly responsible for the performance of the duties of the Unit Operator and shall, not later than thirty (30) days before such resignation or removal becomes effective, appoint a Unit Manager to represent them in any action to be taken hereunder.

The resignation or removal of Unit Operator under this agreement shall not terminate its right, title or interest as the owner of a Working Interest or other interest in Unitized Substances, but upon the resignation or removal of Unit Operator becoming effective, such Unit Operator shall deliver possession of all equipment, books and records, materials, appurtenances and other assets used in conducting the Unit operations and owned by the Working Interest Owners (including any and all data and information which it might have gained or assembled by reason of its operation of the Unit Area) to the new duly qualified successor Unit Operator or to the Unit Manager if no such new Unit Operator is elected, to be used for the purpose of conduction Unit Operations hereunder. Nothing herein shall be construed as authorizing removal of any material, equipment or appurtenances needed for the preservation of any wells. Nothing herein contained shall be construed to relieve or discharge any Unit Operator who resigns or is removed hereunder from any liability or duties accruing to or performable by it prior to the effective date of such resignation or removal.

SECTION 8. SUCCESSOR UNIT OPERATOR: Whenever Unit Operator shall tender its resignation as Unit Operator or shall be removed as hereinabove provided, the Working Interest Owners, voting in the manner provided in the Unit Operating Agreement, shall select a successor Unit Operator; provided, however, that the voting interest of the outgoing Unit Operator shall not be considered for any purpose if such outgoing Unit Operator fails to vote or votes only to succeed itself. Such selection of a successor Unit Operator shall not become effective until: (a) a Unit Operator so selected shall accept in writing the duties and responsibilities of Unit Operator, and (b) the selection shall have been approved by the Commissioner and Division. If no successor Unit Operator is selected as herein provided, the Commissioner may declare this agreement terminated.

SECTION 9. ACCOUNTING PROVISIONS AND UNIT OPERATING AGREEMENT: All costs and expenses incurred by Unit Operator in connection with the organization and formation of the Unit as well as those costs and expenses incurred in conducting Unit Operations hereunder shall be paid, apportioned among and borne by the Working Interest Owners in accordance with the Unit Operating Agreement. Such Unit Operating Agreement shall also provide the manner in which the Working Interest Owners shall be entitled to receive their respective proportionate and allocated share of the benefits accruing hereunder in conformity with their underlying operating agreements, leases or other independent contracts and such other rights and obligations as between Unit Operator and the Working Interest Owners as may be agreed upon by the Unit Operator and the Working Interest Owners; however, no such Unit Operating Agreement shall be deemed either to modify any of the terms and conditions of this Unit Agreement or to relieve the Unit Operator of any right or obligation established under this agreement, and in case of any inconsistency or conflict between this agreement and the Unit Operating Agreement, this agreement shall prevail. One true copy of any Unit Operating Agreement executed pursuant to this Section shall be filed with the Commissioner.

SECTION 10. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR: Except as otherwise specifically provided herein, the exclusive right, privilege and duty of exercising any and all rights of the parties hereto which

are necessary or convenient for prospecting for, producing, storing, allocating, and distributing the Unitized Substances are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Upon request therefor, acceptable evidence of title to said rights shall be deposited with said Unit Operator, and together with this agreement shall constitute and define the rights, privileges and obligations of Unit Operator. Nothing herein, however, shall be construed to transfer title to any land or to any lease or operating agreement, it being understood that under this agreement the Unit Operator, in its capacity as Unit Operator, shall exercise the rights of possession and use vested in the parties hereto only for the purposes herein specified.

SECTION 11. PLAN OF OPERATIONS: It is recognized and agreed by the parties hereto that all of the land subject to this agreement has been reasonably proven to be productive of Unitized Substances in paying quantities or is necessary for Unit Operations and that the object and purpose of this agreement is to formulate and to put into effect a secondary enhanced oil recovery project in order to effect a greater recovery of Unitized Substances, prevent waste and conserve natural resources. The parties hereto agree that the Unit Operator may, subject to the consent and approval of a plan of operation by the Working Interest Owners, the Division and the Commissioner, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gas, steam and any other substance or a combination of any of said substances, whether produced from the Unitized Formation or not, and that the location of input wells and the rates of injection therein and the rate of production shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. Reasonable diligence shall be exercised by Unit Operator in complying with the obligations of any approved plan of operation. The parties hereto, to the extent they have the right so to do, hereby grant Unit Operator the right to use brine or water (or both) produced from any formation underlying the Unit Area for injection into the Unitized Formation; provided, however, that this grant of said right shall not preclude the use of brine or water (or



both) produced from formations other than the Unitized Formation for injection into a formation other than the Unitized Formation. After commencement of secondary and or enhanced oil recovery operations, Unit Operator shall furnish the Commissioner and the Division monthly injection and production reports for each well in the Unit. The Working Interest Owners, the Commissioner and the Division shall be furnished periodic reports on the progress of the plan of operation and any revisions or changes thereto necessary to meet changed conditions or to protect the interests of all parties to this agreement; provided, however that any major revisions of the plan of operation involving a basic deviation from the initial plan of operation shall be subject to the consent and approval of the Working Interest Owners, the Commissioner and Division.

The initial plan of operation shall be filed with the Division and the Commissioner concurrently with the filing of this Unit Agreement for final approval. Reasonable diligence shall be exercised in complying with the obligations of said plan of operation.

Notwithstanding anything to the contrary herein contained, the Unit Operator shall commence, if not already having done so, secondary recovery operations and/or enhanced oil recovery operations on the Unit Area not later than six (6) months after the effective date of this Agreement, or any extension thereof approved by the Commissioner and Division, or this Agreement shall terminate automatically in which latter event the Unit Operator shall notify all interested parties. After such operations are commenced, Unit Operator shall carry on such operations as would a reasonably prudent operator under the same or similar circumstances.

SECTION 12. TRACT PARTICIPATION: The percentages of Tract Participation set forth in Exhibit "C" for each Tract within the Unit Area have been calculated and determined in accordance with the following formulas:

WHERE:

A = Tract Cumulative Oil Produced to 7/1/89

B = Tract Remaining Oil Reserves at 7/1/89

(Using 90 BOPM/Well Cutoff)

C = Tract Six Month Oil Rate, Jan-July, 1989

40% = Weighting factor for Six Month Rate

60% = Weighting factor for Total of

Cumulative Oil & Remaining Oil Reserves

D = Total Unit Area Cumulative Oil Production to 7/1/89

E = Total Unit Area Remaining Oil Reserves to 7/1/89

(Using 90 BOPM/Well Cutoff)

F = Total Unit Area Six Month Oil Rate Jan-July, 1989

THEN:

$$\text{Tract Participation} = \frac{0.60 (A + B)}{D + E} + \frac{0.40 \times C}{F}$$

Such percentages of Tract Participation have been calculated upon the basis of all of said Tracts within the Unit Area being committed to this agreement as of the effective date hereof, and such Tract Participations shall govern the allocation of all Unitized Substances produced after the effective date hereof, subject, however, to any revision or revisions of the Unit Area and Exhibit "C" in accordance with the provisions hereof.

In the event less than all of the Tracts are committed hereto as of the effective date hereof Unit Operator shall promptly file with the Commissioner and Division at least two copies of revised Exhibits "B" and "C" setting forth on Exhibit "C" the revised Tract Participations opposite each of the qualified tracts, which shall be calculated by using the tract factors and formula set forth hereinabove, but applying the same only to the qualified Tracts. The revised Exhibits "B" and "C" shall, effective as of the effective date of this agreement, supersede the original Exhibits "B" and "C" attached hereto and shall thereafter govern the allocation of Unitized Substances unless disapproved by the Commissioner and Division within 30 days after filing.

If, subsequent to the effective date of this agreement, any

additional tract becomes committed hereto under the provisions of Section 3, Unit Area, or Section 28, Non-Joinder and Subsequent Joinder, or any committed tract is excluded herefrom under the provisions of Section 27, Loss of Title, Unit Operator shall revise said Exhibit "B" and "C" or the latest revision thereof to show the new percentage participations of the then committed tracts, which revised exhibit shall, upon its approval by the Commissioner and the Division, supersede, as of its effective date, the last previously effective Exhibits "B" & "C". In any such revision of Exhibit "C" the revised percentage participations of the respective tracts listed in the last previously effective Exhibit "C" shall remain in the same ratio one to another.

SECTION 13. TRACTS QUALIFIED FOR UNIT PARTICIPATION: On and after the effective date hereof, the Tracts within the Unit Area that shall be entitled to participate in the production of Unitized Substances therefrom shall be the Tracts within the Unit Area that are qualified as follows:

(a) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest therein have become parties hereto and as to which Royalty Owners owning seventy-five percent (75%) or more of the Royalty Interest therein have become parties hereto.

(b) Each Tract as to which Working Interest Owners owning one hundred percent (100%) of the Working Interest therein have become parties hereto and as to which Royalty Owners owning less than seventy-five percent (75%) of the Royalty Interest therein have become parties hereto and, further, as to which:

(i) All Working Interest Owners in any such Tract have joined in a request for the commitment of such Tract to this agreement, and

(ii) Seventy-five percent (75%) of the combined voting

interest of Working Interest Owners in all Tracts meeting the requirements of Section 13 (a) hereof have voted in favor of the commitment of such Tract.

For the purposes of this Section 13 (b), a Working Interest Owner's "voting interest" shall be equal to the ratio (expressed in percent) which its aggregate Unit Participation in all tracts qualifying under Section 13 (a) bears to the total Unit Participation of all Working Interest Owners in all Tracts qualifying under Section 13 (a), as such Unit Participation is determined from the Tract Participation set out in Exhibit "C".

(c) Each tract as to which Working Interest Owners owning less than one hundred percent (100%) of the Working Interest therein have become parties hereto, regardless of the percentage of Royalty Interest therein which is committed hereto and, further, as to which:

(i) The Working Interest Owner operating any such Tract and all of the other Working Interest Owners in such Tract who have become parties hereto have joined in a request for the commitment of such Tract to this agreement and have executed and delivered an indemnity agreement indemnifying and agreeing to hold harmless the other Working Interest Owners in the Unit Area, their successors and assigns, against all claims and demands which may be made by the owners of working interests in such Tract who are not parties hereto and which arise out of the commitment of such Tract to this agreement, and

(ii) Seventy-five percent (75%) of the combined voting interests of Working Interest Owners in all Tracts meeting the requirements of Section 13 (a) and 13 (b) have voted in favor of the commitment of such Tract and acceptance of the indemnity agreement.

For the purpose of this Section 13 (c), a Working Interest Owner's "voting interest" shall be equal to the ratio (expressed in percent) which its aggregate Unit Participation in all Tracts qualifying under Section 13 (a) and (b) bears to the total Unit Participation of all Working Interest Owners in all Tracts qualifying under Section 13 (a) and 13 (b) as such Unit Participation is determined from the Tract Participation set out in Exhibit "C". Upon the commitment of such a Tract to this agreement, the Unit Participation that would have been attributed to the nonsubscribing owners of the Working Interest in such Tract, had they become parties to this agreement and the Unit Operating Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements in proportion to their respective Working interests in the Tract.

SECTION 14. ALLOCATION OF UNITIZED SUBSTANCES: All Unitized Substances produced and saved from the committed Tracts within the Unit Area (less, save and except any part of such Unitized Substances which is used in conformity with good operating practices on the Unit Area for drilling, operating, camp and other production, development and pressure maintenance purposes, or which is unavoidably lost) shall be apportioned among and allocated to the committed Tracts within the Unit Area in accordance with the Tract Participation effective hereunder as such Tract Participation is shown in Exhibit "C" or any revision thereof. The amount of Unitized Substances so allocated to each Tract, and only that amount (regardless of whether it be more or less than the amount of the actual production of Unitized Substances from the well or wells, if any, on such Tract), shall, for all intents, uses and purposes, be deemed to have been produced from such Tract.

The Unitized Substances allocated to each Tract shall be distributed among or accounted for to the parties hereto entitled to share in the production from such 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 Tract, or in the proceeds thereof, had this

agreement not been entered into, and with the same legal force and effect. No Tract committed to this Agreement and qualified for participation as heretofore provided shall be subsequently excluded from participation hereunder on account of depletion of Unitized Substances from such Tract.

If the Working Interest or the Royalty Interest in any Tract is, on or after the effective date hereof, divided with respect to separate parcels or portions of such Tract and owned severally by different persons, the Tract Participations assigned to such Tract shall, in the absence of a recordable instrument executed by all owners and furnished to Unit Operator fixing the divisions of ownership, be divided among such parcels or portions in proportion to the number of surface acres in each.

The Unitized Substances allocated to each Tract shall be delivered in kind to the respective Working Interest Owners and parties entitled thereto by virtue of the ownership of oil and gas rights therein or by purchase from such owners. Each Working Interest Owner and the parties entitled thereto shall have the continuing right to receive such production in kind at a common point within the Unit Area and to sell or dispose of the same as it sees fit. Each such party shall have the right to construct, maintain and operate all necessary facilities for that purpose on the Unit Area, provided the same are so constructed, maintained and operated as not to interfere with operations carried on pursuant hereto or with operations upon or with regard to formations other than the Unitized Formation conducted within the Unit Area. Subject to Section 16, Royalty Settlement, hereof, any extra expenditure incurred by unit Operator by reason of the delivery in kind of any portion of the Unitized Substances shall be borne by the party (excepting the State of New Mexico) receiving the same in kind.

If any party fails to take in kind or separately dispose of its proportionate share of Unitized Substances, Unit Operator shall have the right, for the time being and subject to revocation at will by the party owning the share, to purchase for its own account or sell to others such share at not less than the prevailing market price in the area for like production; provided that, all contracts of sale by Unit Operator of any

other party's share of Unitized Substances 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 contract be for a period in excess of five years. The proceeds of the Unitized Substances so disposed of by Unit Operator shall be paid to the party entitled thereto.

Any party receiving in kind or separately disposing of all or any part of the Unitized Substances allocated to any Tract or receiving the proceeds therefrom shall be responsible for making payment of all royalty to the parties entitled thereto, and shall indemnify all parties hereto, including Unit Operator, against any liability for all royalties, overriding royalties, production payments, and all other payments chargeable against or payable out of such Unitized Substances or the proceeds therefrom.

SECTION 15. OIL IN LEASE TANKAGE ON EFFECTIVE DATE: Unit Operator shall make a proper and timely gauge of all lease and other tanks within the Unit Area in order to ascertain the amount of merchantable oil above the pipeline connection in such tanks as of 7:00 A.M. on the effective date hereof. All such oil which has been produced legally shall be and remain the property of the Working Interest Owner entitled thereto the same as if the Unit had not been formed; and such Working Interest Owner shall promptly remove said oil from the Unit Area. Any such oil not so removed shall be sold by Unit Operator for the account of such Working Interest Owner, subject to the payment of all royalty to Royalty Owners under the terms and provisions of the Unit Agreement and any applicable lease or leases and other contracts. All such oil as is in excess of the prior allowable of the well or wells from which the same was produced shall be regarded and treated the same as Unitized Substances produced after the effective date hereof. If, as of the effective date, hereof, any Tract is overproduced with respect to the allowable of the well or wells on that Tract and the amount of such overproduction has been sold or otherwise disposed of, such overproduction shall be regarded and included as a part of the Unitized Substances produced after the effective date hereof and the amount thereof charged to such Tract as having been delivered to the persons entitled to Unitized

Substances allocated to such Tract.

SECTION 16. ROYALTY SETTLEMENT: The State of New Mexico and all Royalty Owners who, under existing contracts, are entitled to take in kind their share of the Unitized Substances allocated to such Tract, and Unit Operator shall make deliveries of such Royalty share taken in conformity with the applicable contracts, laws and regulations. Settlement for Royalty Interests not taken in kind shall be made by Unit Operator, or its agent, for and on behalf of the Working Interest Owners responsible therefor under existing contracts, laws and regulations, on or before sixty (60) days after the end of the calendar month in which production is sold; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any Royalty due under their leases, except that such Royalty shall be computed in accordance with the terms of this Unit Agreement.

If gas obtained from lands not subject to this Agreement is introduced into the Unitized Formation for use in pressure maintenance, stimulation of production, or increasing ultimate recovery, which shall be in conformity with a plan first approved by the Commissioner and the Division a like amount of gas, less appropriate deductions for loss from any cause may be withdrawn from the formation into which the gas was introduced, royalty free as to dry gas, but not the products extracted therefrom; provided that such withdrawal shall be pursuant to such conditions and formula as may be prescribed or approved by the Commissioner and Division; provided further, that such right of withdrawal shall terminate on the termination of this agreement. If liquefied petroleum gases obtained from lands or formations not subject to this agreement be injected into the Unitized Formation for the purpose of increasing ultimate recovery, which shall be in conformance with a plan first approved by the Commissioner and Division; part or all of such liquefied petroleum gases may be withdrawn royalty free pursuant to such conditions and formula as may be prescribed or approved by the Commissioner and Division.

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



SECTION 17. RENTAL AGREEMENT: Rentals or minimum royalties due on leases committed hereto shall be paid by Working Interest Owners responsible therefor under existing contracts, laws and regulations, provided that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for payment of any rental or minimum royalty in lieu thereof due under their leases. Rental for lands of the State of New Mexico subject to this agreement shall be paid at the rate specified in the respective leases from the State of New Mexico, or may be reduced or suspended under order of the Commissioner pursuant to applicable laws and regulations.

SECTION 18. CONSERVATION: Operations hereunder and production of Unitized Substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by State laws and regulations.

SECTION 19. DRAINAGE: The Unit Operator shall take appropriate and adequate measures to prevent drainage of Unitized Substances from unitized land by wells on land not subject to this agreement, or with consent of the Commissioner and pursuant to applicable regulations, pay a fair and reasonable compensatory royalty as determined by the Commissioner.

SECTION 20. LEASES AND CONTRACTS CONFORMED AND EXTENDED: The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas on lands committed to this agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect, and the parties hereto hereby consent that the Commissioner, as to State leases, shall by his approval hereof or by the approval hereof by his duly authorized representative, does hereby establish, alter, change or revoke the drilling, producing, rental minimum royalty and royalty requirements of State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this agreement. Without limiting the generality of the foregoing, all leases, subleases and contracts are particularly modified in accordance

with the following:

(a) The development and operation of lands subject to this agreement under the terms hereof shall be deemed full performance of all obligations for development and operation with respect to each and every part or separately owned Tract subject to this agreement, regardless of whether there is any development of any particular part or Tract of the Unit Area, notwithstanding anything to the contrary in the lease, operating agreement or other contract by and between the parties hereto, or their respective predecessors in interest, or any of them.

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

(c) Suspension of drilling or producing operations on all Unitized land pursuant to direction or consent of the Division and Commissioner or their duly authorized representatives, shall be deemed to constitute such suspension pursuant to such direction or consent as to each and every Tract of unitized lands.

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

(e) Termination of this agreement shall not affect any lease which, pursuant to the terms thereof or any applicable laws shall continue in force and effect thereafter.

(f) Any lease which is made subject to this agreement shall continue in force beyond the term provided therein as to the lands committed hereto as long as such lands remain subject hereto.

(g) Any lease embracing lands of the State of New Mexico having only a portion of its land committed hereto, shall be segregated as to that portion committed and that not committed, and the terms of such lease shall apply separately to such segregated portions commencing as of the effective date hereof; provided, however that 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 force and effect beyond the term provided therein as to all lands embraced in such lease if oil or gas is, or has heretofore been discovered in paying quantities on some part of the lands embraced in such lease committed to this agreement or, so long as a portion of the Unitized Substances produced from the Unit Area is, under the terms of this agreement, allocated to the portion of the lands covered by such lease committed to this agreement, or at any time during the term hereof, as to any lease that is then valid and subsisting and upon which the lessee or the Unit Operator is then engaged in bonafide drilling, reworking, or secondary recovery operations on any part of the lands embraced in such lease, then the same as to all lands embraced therein shall remain in full force and effect so long as such operations are diligently prosecuted, and if they result in the production of oil or gas, said lease shall continue in full force and effect as to all of the lands embraced therein, so long thereafter as oil or gas in paying quantities is being produced from any portion of said lands.

SECTION 21. CONVENANTS 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 Interest subject hereto shall be binding upon Unit Operator until the first day of the calendar month after Unit Operator is furnished with the original, or acceptable photostatic or certified copy, of the record instrument of transfer; and no assignment or transfer or any Royalty Interest subject hereto shall be binding upon the Working Interest owner responsible therefor until the first day of the calendar month after said Working Interest Owner is furnished with the original, or acceptable photostatic or certified copy, of the recorded instrument of transfer.

SECTION 22. EFFECTIVE DATE AND TERM: This agreement shall become binding upon each party who executes or ratifies it as of the date of execution or ratification by such party and shall become effective as of 7:00 A.M. of the first day of the calendar month next following:

- (a) The execution or ratification of this agreement and the Unit Operating Agreement by Working Interest Owners having a combined Unit Participation of at least eighty-five percent (85%), and the execution or ratification of this agreement by Royalty Owners owning a combined interest of at least seventy percent (70%) of the Royalty Interest in said Unit Area; and
- (b) The approval of this agreement by the Commissioner and the Commission; and
- (c) The filing of at least one counterpart of this agreement for record in the office of the County Clerk of Lea County, New Mexico, by the Unit Operator; and
- (d) The filing in the office of the County Clerk of Lea County, New Mexico, of a certificate by Unit Operator to the effect that (a), (b) and (c) above have been accomplished, and stating the effective date hereof;

and provided, further, that if (a), (b), and (d) above are not accomplished on or before \_\_\_\_\_, this agreement shall terminate ipso facto on said date (hereinafter called "termination date") and thereafter be of no further force or effect, unless prior thereto this agreement has been executed or ratified by Working Interest Owners having a combined Unit Participation of at least sixty-five percent (65%) and the Working Interest Owners having a combined Unit Participation of at least eighty percent (80%) committed to this agreement have decided to extend said termination date for a period not to exceed one (1) year (hereinafter called "extended termination date"). If said termination date is so extended and (a), (b), (c) and (d) above are not accomplished on or before said extended termination date this agreement shall terminate ipso facto on said extended termination date and thereafter be of no further force or effect.

The term of this agreement shall be for and during the time that Unitized Substances are produced in paying quantities from the Unit Area and as long thereafter as diligent drilling, reworking or other operations (including secondary recovery operations) are prosecuted thereon without cessation of more than ninety (90) consecutive days, and as long thereafter as Unitized Substances are produced as aforesaid, unless sooner terminated by Working Interest Owners in the manner hereinafter provided.

This agreement may be terminated at any time with the approval of the Commissioner by Working Interest Owners having at least ninety percent (90%) Unit Participation, as determined from Exhibit "C". Notice of such termination shall be given by Unit Operator to all parties hereto.

Unit Operator shall within thirty (30) days after the termination date of this agreement, file for record in the office where a counterpart of this agreement is recorded, a certificate to the effect that this agreement has terminated according to its terms and stating further the termination date.

If not otherwise covered by the leases unitized under this agreement, Royalty Owners hereby grant Working Interest Owners a period of six (6) months after termination of this agreement in which to

salvage, sell, distribute or otherwise dispose of the personal property and facilities used in connection with Unit Operations.

SECTION 23. APPEARANCE: Unit Operator shall have the right to appear for or on behalf of any and all interests affected hereby before the Commissioner and the Commission and to appeal from any order issued under the rules and regulations of the Commissioner or the Commission or to apply for relief from any said rules and regulations or in any proceedings relative to operations before the Commissioner or the Commission, or any other legally constituted authority; provided, however, that any other interested party shall also have the right at his or its own expense to be heard in any such proceedings.

SECTION 24. NOTICES: All notices, demands, objections or statements required hereunder to be given or rendered to the parties hereto shall be deemed fully given if made in writing and personally delivered to the party or parties or sent by postpaid 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 or parties may have furnished in writing to the party sending the notice, demand or statement.

SECTION 25. NO WAIVER OF CERTAIN RIGHTS: Nothing in this Agreement contained shall be construed as a waiver by any party hereto of the right to assert any legal or constitutional right or defense as to the validity or invalidity of any law of the State wherein said unitized lands are located, or rules or regulations issued thereunder in any way affecting such party, or as a waiver by any such party of any right beyond his or its authority to waive; provided, however, that each party hereto covenants that during the existence of this agreement such party will not resort to any action at law or in equity to partition the Unit Area or the facilities used in the development or operation hereof and to that extent waives the benefits of all laws authorizing such partition.

SECTION 26. UNAVOIDABLE DELAY: All obligations under this agreement requiring the Unit Operator to commence or continue secondary recovery operations or to operate on or produce Unitized Substances from

any of the lands covered by this agreement shall be suspended 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, acts of God, Federal, State or Municipal law or agency, 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.

SECTION 27. LOSS OF TITLE: In the event any Tract ceases to have sufficient Working Interest Owners or Royalty Owners committed to this agreement to meet the conditions of Section 13, Tracts Qualified for Unit Participation, because of failure of title of any party hereto, such Tract shall be automatically regarded as not committed to this agreement effective as of 7:00 A.M. on the first day of the calendar month in which the failure of title is finally determined; provided, however, that such Tract shall not be so regarded if said Tract can be requalified for admission under Section 13 within ninety (90) days after the date on which such title failure was finally determined.

If any such Tract cannot be so requalified, Unit Operator shall revise the schedule previously filed with the Commissioner setting forth the Tracts committed hereto, and Unit Operator shall revise Exhibit "C" to show the tracts in the Unit Area that remain committed hereto and the Tract Participation of each of said Tracts, which revised Tract Participation shall be calculated and determined on the basis that the Tract Participation of each said Tracts shall remain in the same ratio one to the other. Copies of the revised schedule and exhibit shall be filed with the Commissioner and same shall be effective as of 7:00 A.M. on the first day of the calendar month in which such failure of title is finally determined.

If title to a Working Interest fails, the rights and obligations of Working Interest Owners by reason of such failure shall be governed by the Unit Operating Agreement. If title to a Royalty Interest fails, but the Tract to which it relates remains committed to this Agreement, the party whose title failed shall not be entitled to participate hereunder insofar as its participation is based on such lost Royalty Interest.

In the event of a dispute as to the title to any Working Interest or Royalty Interest subject hereto, payment or delivery on account thereof may be withheld without liability or interest until the dispute is finally settled; provided, that as to State land or leases, no payments of funds due the State of New Mexico shall be withheld, but such funds shall be deposited as directed by the Commissioner to be held as unearned money pending final settlement of title dispute, and then applied as earned or returned in accordance with such final settlement.

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

SECTION 28. NONJOINDER AND SUBSEQUENT JOINDER: As the objective of this Unit Agreement is to have lands in the Unit Area operated and entitled to participation under the terms hereof, it is agreed that notwithstanding anything else herein, no joinder shall be considered a commitment to this Unit Agreement unless the Tract involved is qualified under Section 13 hereof, Tract Qualified for Unit Participation. Joinder in the Unit Agreement by a Working Interest Owner, at any time, must be accompanied by appropriate joinder by the owner to the Unit Operating Agreement in order for the interest to be regarded as effectively committed to this Unit Agreement. Joinder by any owner of a Royalty Interest, at any time, must be accompanied by appropriate joinder by the owner of the corresponding Working Interest Owner in order for the interest to be regarded as committed hereto.

Any oil or gas interest in the Unitized Formation in lands within the Unit Area not committed hereto prior to final approval of this agreement by the Commissioner may thereafter be committed hereto upon compliance with the applicable provisions of Section 13, Tracts Qualified for Unit Participation, hereof, within a period of two (2) months thereafter on the same basis of participation as provided for in Section 12, Tract Participation, and as set forth in Exhibit "C", by the owner or owners thereof subscribing or consenting in writing to this agreement and, if the interest is a Working Interest, by the owner of such interest subscribing also to the Unit Operating Agreement.

It is understood and agreed, however, that after two (2) months from the Effective Date hereof, the right of subsequent joinder as provided



in this Section shall be subject to such requirements or approvals and on such basis as may be agreed upon by Working Interests Owners having a combined Unit Participation of less than ninety percent (90%), provided that Tract Participation of each previously committed Tract shall remain in the same ratio one to the other. Such joinder by a Working Interest Owner must be evidenced by its execution or ratification of this Unit Agreement and the Unit Operating Agreement. Such joinder by a Royalty Owner must be evidenced by its execution or ratification of this Unit Agreement and must be consented to in writing by the Working Interest Owner responsible for the payment of any benefits that may accrue hereunder on behalf of such Royalty Owner. Except as may be otherwise herein provided, subsequent joinders shall be effective at 7:00 A.M. of the first day of the month following the filing with the Commissioner, of duly executed documents necessary to establish effective commitment unless reasonable objection to such joinder by the Commissioner is duly made within sixty (60) days after such filing. Notwithstanding any of the provisions to the contrary, all commitments of the State of New Mexico lands must be approved by the Commissioner.

SECTION 29. COUNTERPARTS: This agreement may be executed in any number of counterparts, no one of which needs to be executed by all parties and 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 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.

SECTION 30. JOINDER COMMITMENT: Execution as herein provided by any party either as a Working Interest Owner or as a Royalty Owner shall commit all interests that may be owned or controlled by such party.

SECTION 31. TAXES: Each party hereto shall, for its own account, render and pay its share of any taxes levied against or measured by the amount or value of the Unitized Substances produced from the unitized land; provided, however, that if it is required or if it be determined

that the Unit Operator or the several Working Interest Owners must pay or advance said taxes for the account of the parties hereto, it is hereby expressly agreed that the parties so paying or advancing said taxes shall be reimbursed therefor by the parties hereto, including Royalty Owners, who may be responsible for taxes on their respective allocated share of said Unitized Substances. No such taxes shall be charged to the State of New Mexico, or to any lessor who has a contract with a lessee which requires his lessee to pay such taxes.

SECTION 32. PERSONAL PROPERTY EXCEPTED: All lease and well equipment, materials and other facilities heretofore or hereafter placed by any of the Working Interest Owners on the lands covered hereby shall be deemed to be and shall remain personal property belonging to and may be removed by the Working Interest Owners. The rights and interest therein as among Working Interest Owners are covered by the Unit Operating Agreement.

SECTION 33. NO PARTNERSHIP: The duties, obligations and liabilities of the parties hereto are intended to be several and not joint or collective. This agreement is not intended to create, and shall not be construed to create, an association or trust, or to impose a partnership duty, obligation or liability with regard to any one or more of the parties hereto. Each party hereto shall be individually responsible for its own obligations as herein provided.

SECTION 34. CORRECTION OF ERRORS: It is hereby agreed by all parties to this agreement that Unit Operator is empowered to correct any mathematical or clerical errors which may exist in the pertinent exhibits to this agreement; provided, however, that correction of any error other than mathematical or clerical shall be made by Unit Operator only after first having obtained approval of Working Interest Owners having a combined Unit Participation of fifty percent (50%) or more and the Commissioner.

IN WITNESS WHEREOF, the parties hereto have caused this agreement to be executed as of the first above written and have set opposite their respective names the date of execution.

OPERATOR: SAGE ENERGY COMPANY

Attest: \_\_\_\_\_  
BY: Michael Amini  
Secretary

BY: \_\_\_\_\_  
Jesse Minor, President  
10101 Reunion Place, #800  
San Antonio, Texas 78216

INTEREST OWNERS

Witness: \_\_\_\_\_

\_\_\_\_\_  
Brian Burns

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Charles Robbins

Date Executed: \_\_\_\_\_

CULBERTSON MANAGEMENT, INC.

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

E.A. CULBERTSON TRUST

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Elizabeth Robbins

Date Executed: \_\_\_\_\_

ESTATE OF A.M. PATE, JR.

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

EXXON COMPANY, U.S.A.

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

FARGO ENERGY CORPORATION

Attest: \_\_\_\_\_

BY: \_\_\_\_\_  
Ron Amini, President

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
W. Glenn Burton

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Harold Jones

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
J.A. Davidson

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
John Eddy

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Kathleen Irwin

Date Executed: \_\_\_\_\_

MARATHON OIL COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Marshall Leaf

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Martha V. Leonard

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Nelson Breining

Date Executed: \_\_\_\_\_

OXY U.S.A., INC.

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

PENNZOIL EXPLORATION & PRODUCTION

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
R.H. Hannifin

Date Executed: \_\_\_\_\_

SCOPE INDUSTRIES

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

Sebert L. Pate

Date Executed: \_\_\_\_\_

SECA, LTD.

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

COMMISSIONER OF PUBLIC LANDS  
STATE OF NEW MEXICO

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

UNIVERSITY OIL COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

WAINOCO OIL AND GAS COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

WALLACE W. IRWIN  
TESTAMENTARY TRUST

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

WESTERN LEASING COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Gregory J. Gallagher, Individually and as Attorney-in-Fact for Marguerite G. Price, Mary Margaret Pope, Mary Catherine Taylor, Charles Raymond Gallagher, III, Stephen Lawrence Knieriem, Christopher W. Knieriem, Gregory Charles Gallagher, Michael J. Gallagher, Kathleen Marie Cooper, Natalie Pope, William G. Pope and Delphine Pope Keller

\_\_\_\_\_  
Witness

Date Executed: \_\_\_\_\_

\_\_\_\_\_  
Gregory J. Gallagher

Robin Herndon, Individually and as Attorney-in-Fact for Frances Herndon, Peter G. Herndon, Raymond Stanley Herndon, Robin C. Herndon, III, Mary Herndon Ray and Veronica Herndon

\_\_\_\_\_  
Witness

Date Executed: \_\_\_\_\_

\_\_\_\_\_  
Robin Herndon

C.R. Gallagher, Jr., Individually and as Attorney-in-Fact for Mary B. Gallagher, Mary G. Herndon, Charleen G. Knieriem, Natalie G. Pope, Charles Bernard Gallagher, Susan Gallagher Grey and Christine Gallagher Seger

\_\_\_\_\_  
Witness

Date Executed: \_\_\_\_\_

\_\_\_\_\_  
C.R. Gallagher, Jr.

STATE OF TEXAS

COUNTY OF BEXAR

This instrument was acknowledged before me on \_\_\_\_\_, 1990 by Jesse Minor, President of SAGE ENERGY COMPANY a Texas corporation, on behalf of said corporation.

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

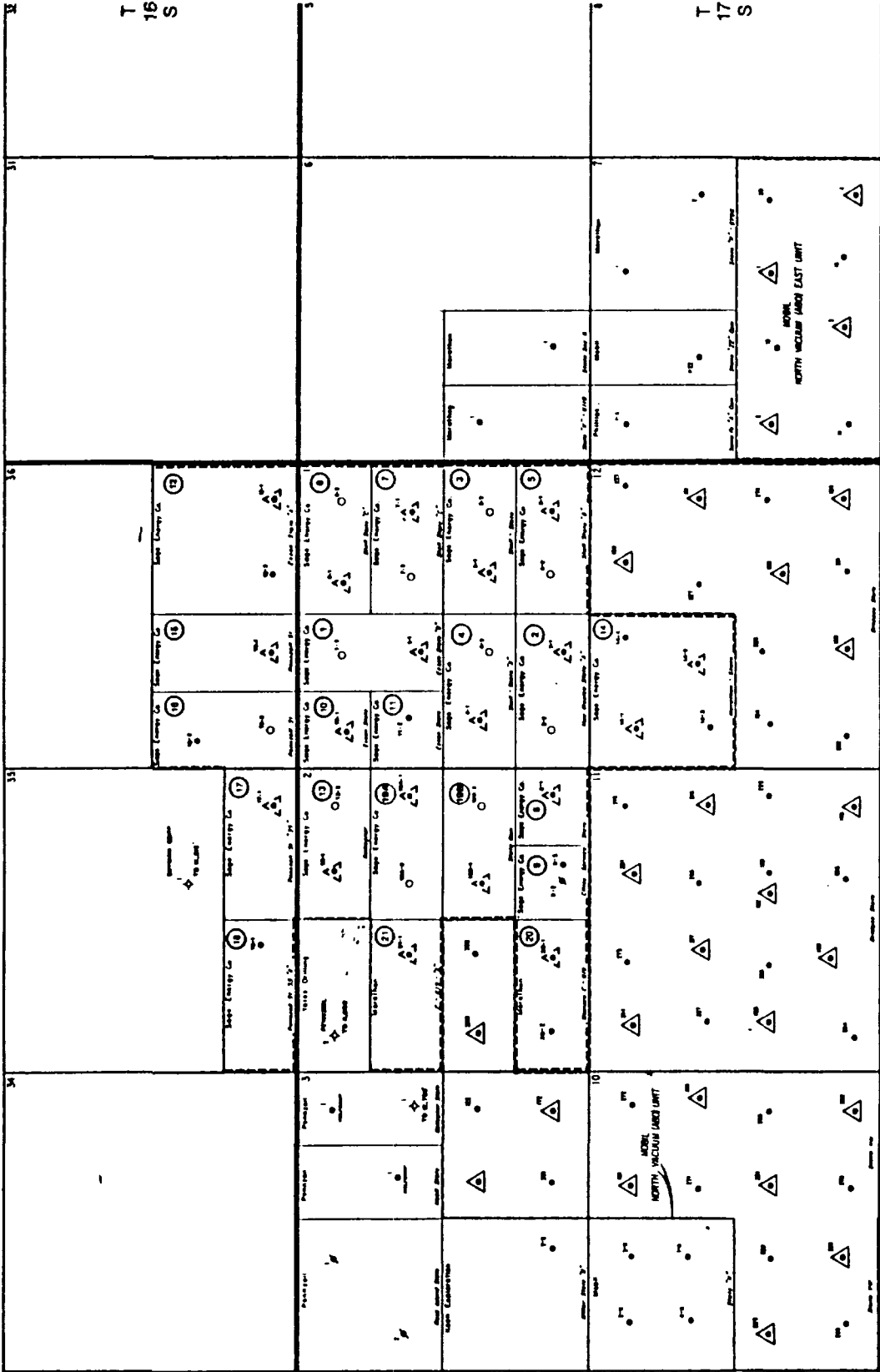
THE STATE OF TEXAS

COUNTY OF BEXAR

This instrument was acknowledged before me on \_\_\_\_\_, 1990 by Ron Amini, President of FARGO ENERGY CORPORATION a Texas corporation, on behalf of said corporation.

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

EXHIBIT "A"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT  
Lea County, New Mexico



R 34 E R 35 E  
Sage Energy Company  
Midland, Texas  
PROPOSED NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO  
T16S, R34E  
T17S, R34E  
Scale: 1" = 1/4 mile  
1988

EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
1) 3.72900	SE/4NW/4 1-17S-34E	40	New Mexico St. B-936 Exp. 11-22-33	State 12.5%	Exxon Corporation	Exxon 6.2197% Corporation	Sage Energy 73.5% Fargo Energy 9.25% Marshall Leaf 3.0% Sebert Pate 3.125% Est. of A.M. Pate Jr. 3.125%  Charles Robbins 2.0% Margaret Robbins 2.0% Seca, Ltd. 4.0%
	Lot 3 1-17S-34E	40.39	St. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage 6.2803	Sage Energy 73.5% Fargo Energy 9.25% Marshall Leaf 3.0% Sebert Pate 3.125% Est. of A.M. Pate Jr. 3.125%  Charles Robbins 2.0% Margaret Robbins 2.0% Seca, Ltd. 4.0%



EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
2) 2.57748	S/2SW/4 1-17S-34E	80.00	New Mexico ST. E-5765-5 Exp. 11-10-56	State 12.5%	Pennzoil Exploration & Production Co.	Culbertson Management, Inc. Kathleen Irwin J.A. Davidson R.H. Hannifan Pennzoil Harold Jones Scope Industries Wallace Irwin Trust E.A. Culbertson Test. Trust	Sage Energy 41.69% Fargo Energy 36.25% Wainoco 17.06% Brian Burns 2.00% Seca Ltd. 3.00%
3) 2.88135	N/2SE/4 1-17S-34E	80.0	New Mexico ST. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 70.0% Fargo Energy 18.75% Brian Burns 5.0% Estate of A.M. Pate Jr. Sebert L. Pate 3.125%
4) 3.15766	N/2SW/4 1-17S-34E	80.0	New Mexico ST. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 67.5% Fargo Energy 20.25% Seca Ltd. 6.0% Estate of A.M. Pate Jr. Sebert L. Pate 3.125%

EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
5) 4.03324	S/2SE/4 1-17S-34E	80	New Mexico St. K-4606-1 Exp. 12-15-69	12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 69.75% Fargo Energy 10.0 Seca Ltd. 12.0 Elizabeth Robbins 1.0 Charles Robbins 1.0 Estate of 3.125 A.M. Pate Jr. Sebert L. Pate 3.125
6) 3.03403	Lots 1 & 2 1-17S-34E	40.08 40.23	New Mexico St. K-4606-1 Exp. 12-15-69	12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 85.75% Fargo Energy 6.0 Estate of 3.125 A.M. Pate Jr. Sebert L. Pate 3.125 Marshall Leaf 2.0
7) 5.34556	S/2NE/4 1-17S-34E	80.0	New Mexico St. K-4606-1 Exp. 12-15-69	12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 82.75% Fargo Energy 8.00 Estate of 3.125 A.M. Pate Jr. Sebert L. Pate 3.125 Marshall Leaf 2.0 Charles Robbins 1.0
8) 3.60754	SE/4SE/4 2-17S-34E	40	New Mexico St. E-754-5 Exp. 2-11-51	12.5%	Yates Drilling Company	Sage Energy 27.4625%	Oxy USA Inc. 35.0 Martha V. Leonard 5.2 Western Leasing .65 Glenn Burton .65 Fargo Energy 26.975 University Oil 4.0625

EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
9) 12.10068	SW/4SE/4 2-17S-34E	40	New Mexico St. E-754-5 Exp. 2-11-51	State	Yates Drilling Co.		Sage Energy 28.6254% Oxy USA Inc. 36.4821 Fargo Energy 28.1173 Western Leasing .6775 Martha V. 5.4202 Leonard Glenn Burton .6775
10) 3.14340	Lot 4 1-17S-34E	40.54	New Mexico St. B-936 Exp. 11-22-33	State	Exxon Corporation		Exxon Corp. 50.0 Fargo Energy 50.0
11) 3.14010	SW/4NW/4 1-17S-34E	40	New Mexico St. B-936 Exp. 11-22-33	State	Exxon Corporation	Exxon Corporation	Fargo Energy 100.0
12) 3.95305	SE/4 36-16S-34E	160	New Mexico St. B-936 Exp. 11-22-33	State	Exxon Corporation		Sage Energy 19.75 Exxon 50.0 Fargo Energy 20.625 Martha V. 4.0 Leonard Estate of 1.5625 A.M. Pate, Jr. Sebert L. Pate 1.5625 Charles Robbins .5 Seca Ltd. 1.5 Glenn Burton .5

EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
13) 4.84999	Lots 1 & 2 2-17S-34E	40.70 40.85	New Mexico St. E-1816-3 Exp. 4-10-53	State 12.5%	C.R. Gallagher		See List
14) 22.52457	NW/4 12-17S-34E	160	New Mexico St. B-2244 Exp. 1-31-34	State 12.5%	Marathon Oil Company	Marathon 17.5%	Sage Energy 91.0% Marshall Leaf 3.0 Charles Robbins 1.0 Margaret Robbins 2.0 Seca Ltd. 3.0
15) 2.07836	E/2SW/4 36-16S-34E	80	New Mexico St. K-5275-3 Exp. 9-21-70	State 12.5%	Pennzoil Exploration & Production Company	John Eddy 3.0%	Sage Energy 54.5% Marshall Leaf 1.3333 Nelson Breining 3.3333 Seca Ltd. 2.6667 University Oil 4.1667 Charles Robbins .6667 Pennzoil 33.3333

EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
16) 1.49248	W/2SW/4 36-16S-34E	80	New Mexico St. K-5275-3 Exp. 9-21-70	12.5%	Pennzoil Exploration & Production Company	Pennzoil John Eddy	Sage Energy 81.75% Marshall Leaf 2.0 Nelson Breining 5.0 Seca Ltd. 4.0 University Oil 6.25 Charles Robbins 1.0
17) 2.01703	S/2SE/4 35-16S-34E	80	New Mexico St. L-3393-2 Exp. 8-19-74	12.5%	Pennzoil Exploration & Production Company		Sage Energy 22.425% Estate of 2.03125 A.M. Pate, Jr. Sebert L. Pate 2.03125 Pennzoil 35.0 Martha V. Leonard 5.2 Fargo Energy 33.3125
18) .75426	S/2SW/4 35-16S-34E	80	New Mexico St. L-4526-1 Exp. 5-19-75	12.5%	Pennzoil Exploration & Production Company	Pennzoil	Sage Energy 98.0% Nelson Breining 2.0

EXHIBIT "B"  
UNIT AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
19A) 3.65491	SE/4NE/4 2-17S-34E	40	New Mexico St. K-5029-2 Exp. 5-18-70	State 12.5%	Pennzoil Exploration & Production Company		Sage Energy 26.4875% Martha V. Leonard 5.2 University Oil 4.0625 Western Leasing .65 Glenn Burton .65 Fargo Energy 27.95 Pennzoil 13.5184 Wainoco Inc. 3.9816 Oxy USA 17.5
	SW/4NE/4 2-17S-34E	40	New Mexico St. E-754-5 Exp. 2-11-51		Yates Drilling Company		
19B) 3.65491	NE/4SE/4 2-17S-34E	40	New Mexico St. K-5029-2 Exp. 5-18-70	State 12.5%	Pennzoil Exploration & Production		Sage Energy 26.4875% Martha V. Leonard 5.2 Estate of A.M. Pate, Jr. 2.03125 Sebert L. Pate 2.03125
	NW/4SE/4 2-17S-34E	40	E-754-5 Exp. 2-11-51		Yates Drilling Company		Western Leasing .65 Glenn Burton .65 Fargo Energy 27.95 Pennzoil 13.5184 Wainoco Inc. 3.9816 Oxy USA 17.5
20) 6.62843	S/2SW/4 2-17-34E	80	New Mexico St. E-619-5 Exp.	State 12.5%	Yates Drilling Company	Pennzoil 4.375%	Marathon Oil 50.0 Wainoco 50.0
21) 1.64197	S/2NW/4 2-17S-34E	80	New Mexico St. E-619-5 Exp.	State 12.5%	Yates Drilling Company		Marathon Oil 100.0

NORTH VACUUM (ABO) NORTH UNIT  
UNIT AGREEMENT  
"EXHIBIT C"  
PART I  
TRACT & UNIT PARTICIPATION - TRACT BASIS

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT		UNIT	
						PARTICIPATION WI	PARTICIPATION NRI	PARTICIPATION EXPENSE WI	PARTICIPATION REVENUE NRI
-----									
TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT		UNIT	
						PARTICIPATION WI	PARTICIPATION NRI	PARTICIPATION EXPENSE WI	PARTICIPATION REVENUE NRI
-----									
1	EXXON STATE "B" #1	SAGE ENERGY COMPANY FARGO ENERGY MARSHALL LEAF ESTATE OF A M PATE JR. SEBERC L PATE CHARLES ROBBINS ELIZABETH ROBBINS SECA LTD. STATE OF NEW MEXICO SAGE ENERGY COMPANY EXXON CORPORATION	WI WI WI WI WI WI WI WI RI OER OER	0.735000 0.092500 0.030000 0.031250 0.031250 0.020000 0.020000 0.040000  1.000000	0.551249 0.069375 0.022500 0.023438 0.023438 0.015000 0.015000 0.030000 0.125000 0.062803 0.062197 1.000000	0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900	0.0205561 0.0025870 0.0008390 0.0008740 0.0008740 0.0005593 0.0005593 0.0011187 0.0046612 0.0023420 0.0023194 0.0372900	0.0274082 0.0034493 0.0011187 0.0011653 0.0011653 0.0007458 0.0007458 0.0014916   0.0372900	0.0071995 0.0062601 0.0005181 0.0003454 0.0032979 0.0004027 0.0016109 0.0002119 0.0010689 0.0032319 0.0002117 0.0002117 0.0004027 0.0004027 0.0257748
2	NEW MEXICO STATE A #1	SAGE ENERGY COMPANY FARGO ENERGY SECA LTD. BRIAN BURNS WAINOCO E A CULBERTSON WALLACE IRWIN SCOPE INDUSTRIES HAROLD JONES PENNZOIL STATE OF NEW MEXICO R H HANFELT J A DAVIDSON KATHLEEN IRWIN CULBERTSON MANAGEMENT INC.	WI WI WI WI WI OER OER OER OER OER RI OER OER OER OER	0.416900 0.362500 0.030000 0.020000 0.170600      1.000000	0.279323 0.242875 0.020100 0.013400 0.127950 0.015625 0.015625 0.062500 0.008300 0.041470 0.125000 0.008291 0.008291 0.015625 0.015625 1.000000	0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748	0.0107455 0.0093434 0.0007732 0.0005155 0.0043972       0.0257748	0.0071995 0.0062601 0.0005181 0.0003454 0.0032979 0.0004027 0.0016109 0.0002119 0.0010689 0.0032319 0.0002117 0.0002117 0.0004027 0.0004027 0.0257748	
3	SHELL STATE	FARGO ENERGY BRIAN BURNS ESTATE OF A M PATE JR. SEBERC L PATE SAGE ENERGY COMPANY	WI WI WI WI WI	0.187500 0.050000 0.031250 0.031250 0.700000	0.140624 0.037500 0.023438 0.023438 0.525000	0.0288135 0.0288135 0.0288135 0.0288135 0.0288135	0.0040519 0.0010805 0.0006753 0.0006753 0.0151271	0.0054025 0.0014407 0.0009004 0.0009004 0.0201695	0.0040519 0.0010805 0.0006753 0.0006753 0.0151271

TRACT	LEASE/INTEREST	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
4	SHELL STATE "A"	SAGE ENERGY COMPANY STATE OF NEW MEXICO	ORR RI	***** 1.000000	0.125000 0.125000 ***** 1.000000	0.0288135 0.0288135	0.0000000 0.0000000 ***** 0.0288135	0.0036017 0.0036017 ***** 0.0288135
		FARGO ENERGY ESTATE OF A M PATE JR. SEBERT L PATE SECA LTD. SAGE ENERGY STATE OF NEW MEXICO SAGE ENERGY	WI WI WI WI WI RI ORR	***** 1.000000	0.151874 0.023438 0.023438 0.045000 0.506250 0.125000 0.125000 ***** 1.000000	0.0315766 0.0315766 0.0315766 0.0315766 0.0315766 0.0315766	0.0063942 0.0009868 0.0009868 0.0018946 0.0213142	0.0047957 0.0007401 0.0007401 0.0014209 0.0159856 0.0039471 0.0039471 ***** 0.0315766
5	SHELL STATE B	SAGE ENERGY COMPANY FARGO ENERGY ESTATE OF A M PATE JR. SEBERT L PATE CHARLES ROBBINS ELIZABETH ROBBINS SECA LTD. SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI WI WI WI ORR RI	***** 1.000000	0.523124 0.075000 0.023438 0.023438 0.023438 0.007500 0.007500 0.090000 0.125000 0.125000 ***** 1.000000	0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324	0.0281318 0.0040332 0.0012604 0.0012604 0.0004033 0.0004033 0.0004033 0.0048400	0.0210988 0.0030249 0.0009453 0.0009453 0.0003025 0.0003025 0.0036299 0.0050416 0.0050416 ***** 0.0403324
6	SHELL STATE C NO. 1	FARGO ENERGY MARSHALL LEAF ESTATE OF A M PATE SEBERT L PATE SAGE ENERGY COMPANY SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI WI ORR RI	***** 1.000000	0.045000 0.015000 0.023438 0.023438 0.643124 0.125000 0.125000 ***** 1.000000	0.0303403 0.0303403 0.0303403 0.0303403 0.0303403 0.0303403 0.0303403	0.0018204 0.0006068 0.0009481 0.0009481 0.0260169	0.0011653 0.0004551 0.0007111 0.0007111 0.0195127 0.0037925 0.0037925 ***** 0.0303403
7	SHELL STATE "C" NO. FARGO ENERGY		WI	0.080000	0.060000	0.0534556	0.0042764	0.0032073





TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	PARTICIPATION WI	PARTICIPATION EXPENSE WI	PARTICIPATION REVENUE NRI
11	EXXON STATE NO. 2							
		EXXON	ORR		0.125000	0.0314010	0.0314010	0.0039251
		FARGO ENERGY	WI	1.000000	0.750000	0.0314010	0.0314010	0.0235508
		STATE OF NEW MEXICO	RI	*****	0.125000	0.0314010	*****	0.0039251
				1.000000	*****		0.0314010	*****
					1.000000			0.0314010
12	EXXON STATE "A"							
		EXXON	WI	0.500000	0.417500	0.0395305	0.0197652	0.0172947
		FARGO ENERGY	WI	0.206250	0.180469	0.0395305	0.0081532	0.0071340
		MARTHA V. LEONARD	WI	0.040000	0.035000	0.0395305	0.0015812	0.0013836
		ESTATE OF A M PATE JR.	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
		SEBERT L PATE	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
		CHARLES ROBBINS	WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
		SECA LTD.	WI	0.015000	0.013125	0.0395305	0.0005930	0.0005188
		GLENN BURTON	WI	0.005000	0.004375	0.0395305	0.0019760	0.0001729
		SAGE ENERGY COMPANY	WI	0.197500	0.172812	0.0395305	0.0078073	0.0068313
		STATE OF NEW MEXICO	RI	*****	0.125000	0.0395305	*****	0.0049413
				1.000000	*****		0.0395305	*****
					1.000000			0.0395305
13	GALLAGHER STATE							
		C R GALLAGHER	WI	0.065734	0.057518	0.0484999	0.0031881	0.0027897
		MARY B GALLAGHER	WI	0.000328	0.000287	0.0484999	0.0000159	0.0000139
		SUSAN GALLAGHER GREY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHRISTINE GALLAGHER SEGER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHARLES BERNARD GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		GREGORY J GALLAGHER	WI	0.063438	0.055507	0.0484999	0.0030767	0.0026921
		KATHLEEN GALLAGHER COOPER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		GREGORY CHARLES GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MICHAEL JOSEPH GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARGUERETTE GALLAGHER PRICE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHARLES RAYMOND GALLAGHER II	WI	0.062125	0.054360	0.0484999	0.0030130	0.0026366
		MARY G HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		ROBIN C HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		RAYMOND STANLEY HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		VERONICA HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY HERNDON RAY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		FRANCES HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		PETER GREGORY HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		NATALIE G POPE	WI	0.064750	0.056656	0.0484999	0.0031403	0.0027479
		WILLIAM G POPE JR.	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY MARGARETTE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		DELPHINE POPE KELLER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		NATALIE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHARLEEN G KNIERIEM	WI	0.066719	0.058379	0.0484999	0.0032358	0.0028314
		CHRISTOPHER W KNIERIEM	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY KNIERIEM TAYLOR	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
14	MARATHON STATE	STEPHEN LAWRENCE KNIEREIM	WI	0.000656	0.000574	0.0484999	0.0000318	0.0000279
		MARTHA V LEONARD	WI	0.052000	0.045500	0.0484999	0.0025220	0.0022068
		ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
		SEBERT L PATE	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
		FARGO ENERGY	WI	0.326625	0.285797	0.0484999	0.0158412	0.0138612
		SAGE ENERGY COMPANY	WI	0.230739	0.201894	0.0484999	0.0111907	0.0097919
		STATE OF NEW MEXICO	RI		0.125000	0.0484999		0.0060625
				*****	*****		*****	*****
				1.000000	1.000000		0.0484999	0.0484999
		MARSHALL LEAF	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
		CHARLES ROBBINS	WI	0.010000	0.007000	0.2252457	0.0022524	0.0015767
		ELIZABETH ROBBINS	WI	0.030000	0.014000	0.2252457	0.0045049	0.0031534
		SECA LTD.	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
		SAGE ENERGY COMPANY	WI	0.910000	0.637000	0.2252457	0.2049736	0.1434815
		MARATHON OIL	ORR		0.175000	0.2252457		0.0194180
		STATE OF NEW MEXICO	RI		0.125000	0.2252457		0.0281557
				*****	*****		*****	*****
				1.000000	1.000000		0.2252457	0.2252457
15	PENNZOIL STATE NO. 1	MARSHALL LEAF	WI	0.013333	0.011267	0.0207836	0.0002771	0.0002342
		NELSON BREINING	WI	0.013333	0.028167	0.0207836	0.0006928	0.0005854
		SECA LTD.	WI	0.026667	0.022533	0.0207836	0.0005542	0.0004683
		UNIVERSITY OIL.	WI	0.041667	0.035208	0.0207836	0.0008660	0.0007317
		CHARLES ROBBINS	WI	0.006667	0.005634	0.0207836	0.0001386	0.0001171
		PENNZOIL	WI	0.333333	0.281667	0.0207836	0.0069278	0.0058541
		SAGE ENERGY COMPANY	WI	0.545000	0.460524	0.0207836	0.0113271	0.0095713
		JOHN EDDY	ORR		0.030000	0.0207836		0.0006235
		STATE OF NEW MEXICO	RI		0.125000	0.0207836		0.0025980
				*****	*****		*****	*****
				1.000000	1.000000		0.0207836	0.0207836
16	PENNZOIL STATE NO. 2	MARSHALL LEAF	WI	0.020000	0.015000	0.0149248	0.0002985	0.0002239
		NELSON BREINING	WI	0.050000	0.037500	0.0149248	0.0007462	0.0005597
		SECA LTD.	WI	0.040000	0.030000	0.0149248	0.0005970	0.0004477
		UNIVERSITY OIL	WI	0.062500	0.046875	0.0149248	0.0009328	0.0006996
		CHARLES ROBBINS	WI	0.010000	0.007500	0.0149248	0.0001492	0.0001119
		SAGE ENERGY COMPANY	WI	0.817500	0.613125	0.0149248	0.0122011	0.0091508



TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACK PARTICIPATION WI	UNL1 PARTICIPATION EXPENSE WI	UNL2 PARTICIPATION REVENUE NRI
20	WAINOCO E-619	ESTATE OF A M PATE JR. SEBERT L PATE WESTERN LEASING GLENN BURTON FARGO ENERGY PENNZOIL WAINOCO OXY USA INC. SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI WI WI WI WI WI WI RI	0.0203130 0.0203130 0.0065000 0.0065000 0.2795000 0.1351840 0.0398160 0.1750000 0.2648740 ***** 1.0000000	0.0177730 0.0177730 0.0056880 0.0056880 0.2445630 0.1182860 0.0348390 0.1531250 0.2317650 0.1250000 ***** 1.0000000	0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 ***** 0.0365491	0.0007424 0.0007424 0.0002376 0.0002376 0.0102155 0.0049409 0.0014552 0.0063961 0.0096809 ***** 0.0365491	0.0006496 0.0006496 0.0002079 0.0002079 0.0089386 0.0043232 0.0012733 0.0055966 0.0084708 0.0045686 ***** 0.0365491
		PENNZOIL WAINOCO MARATHON STATE OF NEW MEXICO	ORR WI WI RI	0.500000 0.500000 ***** 1.000000	0.043750 0.393750 0.437500 0.125000 ***** 1.000000	0.0662843 0.0662843 0.0662843 0.0662843 ***** 1.000000	0.0331421 0.0331421 ***** 0.0662843	0.0028999 0.0260995 0.0289994 0.0082855 ***** 0.0662843
21	STATE E-169 "A"	MARATHON OIL STATE OF NEW MEXICO	WI RI	1.000000 ***** 1.000000	0.875000 0.125000 ***** 1.000000	0.0164197 0.0164197 ***** 1.000000	0.0164197 0.0000000 ***** 0.0164197	0.0143672 0.0020525 ***** 0.0164197
							1.0000000	1.0000000

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NORTH VACUUM (ABO) NORTH UNIT  
UNIT AGREEMENT  
EXHIBIT "C"  
PART II  
TRACT & UNIT PARTICIPATION - OWNER BASIS

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
3	BRIAN BURNS	WI	0.050000	0.037500	0.0288135	0.0014407	0.0010805
2	BRIAN BURNS	WI	0.020000	0.013400	0.0257748	0.0005155	0.0003454
TOTAL						0.0019562	0.0014259
13	C R GALLAGHER	WI	0.065734	0.057518	0.0484999	0.0031881	0.0027897
TOTAL						0.0031881	0.0027897
13	CHARLEEN C KNIERDEM	WI	0.066719	0.058379	0.0484999	0.0032358	0.0028314
TOTAL						0.0032358	0.0028314
13	CHARLES BERNARD GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13	CHARLES RAYMOND GALLAGHER II	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
1	CHARLES ROBBINS	WI	0.020000	0.015000	0.0372900	0.0007458	0.0005593
5	CHARLES ROBBINS	WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
14	CHARLES ROBBINS	WI	0.010000	0.007000	0.2252457	0.0022524	0.0015767
16	CHARLES ROBBINS	WI	0.010000	0.007500	0.0149248	0.0001492	0.0001119
7	CHARLES ROBBINS	WI	0.010000	0.007500	0.0534556	0.0005346	0.0004009
15	CHARLES ROBBINS	WI	0.006667	0.005634	0.0207836	0.0001386	0.0001171
12	CHARLES ROBBINS	WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
TOTAL						0.0044215	0.0032413
13	CHRISTINE GALLAGHER SEGER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13	CHRISTOPHER W KNIERDEM	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
2	CULBERTSON MANAGEMENT INC.	ORR		0.015625	0.0257748		0.0004027
TOTAL							
13	DELPHINE POPE KELLER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL							
2	E A CULBERTSON	ORR		0.015625	0.0257748		0.0004027
TOTAL							
1	ELIZABETH ROBBINS	WI	0.020000	0.015000	0.0372900	0.0007458	0.0005593
14	ELIZABETH ROBBINS	WI	0.020000	0.014000	0.2252457	0.0045049	0.0031534
5	ELIZABETH ROBBINS	WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
TOTAL							
5	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0403324	0.0012604	0.0009453
7	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
3	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0288135	0.0009004	0.0006753
1	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0372900	0.0011653	0.0008740
6	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0303403	0.0009481	0.0007111
4	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0315766	0.0009868	0.0007401
13	ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
17	ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0201703	0.0004097	0.0003585
198	ESTATE OF A M PATE JR.	WI	0.020313	0.017773	0.0365491	0.0007424	0.0006496
12	ESTATE OF A M PATE JR.	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
TOTAL							
10	EXXON	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
12	EXXON	WI	0.500000	0.437500	0.0395305	0.0197652	0.0172947
11	EXXON	ORR		0.125000	0.0314010		0.0039251
1	EXXON	ORR		0.062197	0.0372900		0.0023194
TOTAL							
						0.0354822	0.0372916
11	FARGO ENERGY	WI	1.000000	0.750000	0.0314010	0.0314010	0.0235508
10	FARGO ENERGY	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
2	FARGO ENERGY	WI	0.362500	0.242875	0.0257748	0.0093434	0.0062601
17	FARGO ENERGY	WI	0.333125	0.291484	0.0201703	0.0067192	0.0058793
13	FARGO ENERGY	WI	0.326625	0.285797	0.0484999	0.0158412	0.0138612
9	FARGO ENERGY	WI	0.281173	0.246026	0.1210068	0.0340239	0.0297709

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
19B	FARGO ENERGY	WI	0.279500	0.244563	0.0365491	0.0102155	0.0089386
19A	FARGO ENERGY	WI	0.279500	0.244563	0.0365491	0.0102155	0.0089386
8	FARGO ENERGY	WI	0.269750	0.236031	0.0360754	0.0097313	0.0085149
12	FARGO ENERGY	WI	0.206250	0.180469	0.0395305	0.0081532	0.0071340
4	FARGO ENERGY	WI	0.202500	0.151874	0.0315766	0.0063942	0.0047957
3	FARGO ENERGY	WI	0.187500	0.140624	0.0288135	0.0054025	0.0040519
5	FARGO ENERGY	WI	0.100000	0.075000	0.0403324	0.0040332	0.0030249
1	FARGO ENERGY	WI	0.092500	0.069375	0.0372900	0.0034493	0.0025870
7	FARGO ENERGY	WI	0.080000	0.060000	0.0534556	0.0042764	0.0032073
6	FARGO ENERGY	WI	0.060000	0.045000	0.0303403	0.0018204	0.0013653
TOTAL						0.1767372	0.1456329
*****							
13	FRANCES HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
9	GLENN BURTON	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173
19B	GLENN BURTON	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
19A	GLENN BURTON	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
8	GLENN BURTON	WI	0.006500	0.005688	0.0360754	0.0002345	0.0002052
12	GLENN BURTON	WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
TOTAL						0.0017270	0.0015112
*****							
13	GREGORY CHARLES GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
13	GREGORY J GALLAGHER	WI	0.063438	0.055507	0.0484999	0.0030767	0.0026921
TOTAL						0.0030767	0.0026921
*****							
2	HAROLD JONES	ORR		0.008300	0.0257748		0.0002139
TOTAL							0.0002139
*****							
2	J A DAVIDSON	ORR		0.008291	0.0257748		0.0002137
TOTAL							0.0002137
*****							
16	JOHN EDDY	ORR		0.030000	0.0149248		0.0004477
15	JOHN EDDY	ORR		0.030000	0.0207836		0.0006235



TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
TOTAL							0.0010712
13	KATHLEEN GALLAGHER COOPER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
2	KATHLEEN IRWIN	ORR		0.015625	0.0257748		0.0004027
TOTAL							0.0004027
20	MARATHON OIL	WI	0.500000	0.437500	0.0662843	0.0331422	0.0289994
21	MARATHON OIL	WI	1.000000	0.875000	0.0164197	0.0164197	0.0143672
14	MARATHON OIL	ORR		0.175000	0.2252457		0.0394180
TOTAL						0.0495619	0.0827846
13	MARGUERETTE GALLAGHER PRICE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
1	MARSHALL LEAF	WI	0.030000	0.022500	0.0372900	0.0011187	0.0008390
14	MARSHALL LEAF	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
7	MARSHALL LEAF	WI	0.020000	0.015000	0.0534556	0.0010691	0.0008018
16	MARSHALL LEAF	WI	0.020000	0.015000	0.0149248	0.0002985	0.0002239
6	MARSHALL LEAF	WI	0.020000	0.015000	0.0303403	0.0006068	0.0004551
15	MARSHALL LEAF	WI	0.013333	0.011267	0.0207836	0.0002771	0.0002342
TOTAL						0.0101276	0.0072842
13	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0484999	0.0025220	0.0022068
9	MARTHA V. LEONARD	WI	0.054202	0.047427	0.1210068	0.0065588	0.0057390
19A	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0365491	0.0019005	0.0016630
19B	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0365491	0.0019005	0.0016630
17	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0201703	0.0010489	0.0009177
8	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0360754	0.0018759	0.0016414
12	MARTHA V. LEONARD	WI	0.040000	0.035000	0.0395305	0.0015812	0.0013836
TOTAL						0.0173878	0.0152145
13	MARY B GALLAGHER	WI	0.000328	0.000287	0.0484999	0.0000159	0.0000139
TOTAL						0.0000159	0.0000139

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
13	MARY G HERNDON	WI	0.062125	0.054360	0.0484999	0.0030130	0.0026366
	TOTAL					0.0030130	0.0026366
13	MARY HERNDON RAY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	MARY KINTERIEM TAYLOR	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	MARY MARGARETTE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	MICHAEL JOSEPH GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	NATALIE G POPE	WI	0.064750	0.056656	0.0484999	0.0031403	0.0027479
	TOTAL					0.0031403	0.0027479
13	NATALIE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
16	NELSON BREINING	WI	0.050000	0.037500	0.0149248	0.0007462	0.0005597
15	NELSON BREINING	WI	0.033333	0.028167	0.0207836	0.0006928	0.0005854
18	NELSON BREINING	WI	0.020000	0.014400	0.0075426	0.0001509	0.0001086
	TOTAL					0.0015899	0.0012537
9	OXY USA INC.	WI	0.364821	0.319218	0.1210068	0.0441458	0.0386275
8	OXY USA INC.	WI	0.350000	0.306250	0.0360754	0.0126264	0.0110481
19A	OXY USA INC.	WI	0.175000	0.153125	0.0365491	0.0063961	0.0055966
19B	OXY USA INC.	WI	0.175000	0.153125	0.0365491	0.0063961	0.0055966
	TOTAL					0.0695644	0.0608688
17	PENNZOIL	WI	0.350000	0.306250	0.0201703	0.0070596	0.0061772

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
15 PENNZOIL		WI	0.33333	0.281667	0.0207836	0.0069278	0.0058541
198 PENNZOIL		WI	0.135184	0.118286	0.0365491	0.0049409	0.0043232
19A PENNZOIL		WI	0.135184	0.118286	0.0365491	0.0049409	0.0043232
**16 PENNZOIL		ORR		0.095000	0.0149248		0.0014179
2 PENNZOIL		ORR		0.041470	0.0257748		0.0010689
18 PENNZOIL		ORR		0.155000	0.0075426		0.0011691
20 PENNZOIL		ORR		0.043750	0.0662843		0.0028999
TOTAL						0.0238691	0.0272335
13 PETER GREGORY HERNDON		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
2 R H HANNIFIN		ORR		0.008291	0.0257748		0.0002137
TOTAL							0.0002137
13 RAYMOND STANLEY HERNDON		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13 ROBIN C HERNDON		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
4 SAGE ENERGY COMPANY		WI	0.675000	0.506250	0.0315766	0.0213142	0.0159856
18 SAGE ENERGY COMPANY		WI	0.980000	0.705600	0.0075426	0.0073917	0.0053221
14 SAGE ENERGY COMPANY		WI	0.910000	0.637000	0.2252457	0.2049736	0.1434815
6 SAGE ENERGY COMPANY		WI	0.857500	0.643124	0.0303403	0.0260169	0.0195127
7 SAGE ENERGY COMPANY		WI	0.827500	0.620624	0.0534556	0.0442350	0.0331758
16 SAGE ENERGY COMPANY		WI	0.817500	0.613125	0.0149248	0.0122011	0.0091508
1 SAGE ENERGY COMPANY		WI	0.735000	0.551249	0.0372900	0.0274082	0.0205561
3 SAGE ENERGY COMPANY		WI	0.700000	0.525000	0.0288135	0.0201695	0.0151271
5 SAGE ENERGY COMPANY		WI	0.697500	0.523124	0.0403324	0.0281318	0.0210988
15 SAGE ENERGY COMPANY		WI	0.545000	0.460524	0.0207836	0.0113271	0.0095713
2 SAGE ENERGY COMPANY		WI	0.416900	0.279323	0.0257748	0.0107455	0.0071995
9 SAGE ENERGY COMPANY		WI	0.286254	0.250473	0.1210068	0.0346387	0.0303089
8 SAGE ENERGY COMPANY		WI	0.274625	0.240296	0.0360754	0.0099072	0.0086688
19A SAGE ENERGY COMPANY		WI	0.264875	0.231765	0.0365491	0.0096809	0.0084708
19B SAGE ENERGY COMPANY		WI	0.264874	0.231765	0.0365491	0.0096809	0.0084708
13 SAGE ENERGY COMPANY		WI	0.230739	0.201894	0.0484999	0.0111907	0.0097909
17 SAGE ENERGY COMPANY		WI	0.224249	0.196218	0.0201703	0.0045232	0.0039578
12 SAGE ENERGY COMPANY		WI	0.197500	0.172812	0.0395305	0.0078073	0.0068313
3 SAGE ENERGY COMPANY		ORR		0.125000	0.0288135	0.0000000	0.0036017
1 SAGE ENERGY COMPANY		ORR		0.062803	0.0372900		0.0023420

\*\* AT PAYOUT PENNZOIL HAS THE OPTION TO CONVERT ITS ORRI TO A WI PER AN AGREEMENT BETWEEN AMINI OIL COMPANY AND PENNZOIL DATED 11/12/73.

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
7	SAGE ENERGY COMPANY	ORR		0.125000	0.0534556		0.0066820
5	SAGE ENERGY COMPANY	ORR		0.125000	0.0403324		0.0050416
4	SAGE ENERGY COMPANY	ORR		0.125000	0.0315766		0.0039471
6	SAGE ENERGY COMPANY	ORR		0.125000	0.0303403		0.0037925
	TOTAL					0.5013430	0.4020885
2	SCOPE INDUSTRIES	ORR		0.062500	0.0257748		0.0016109
	TOTAL						0.0016109
5	SEBERT L PATE	WI	0.031250	0.023438	0.0403324	0.0012604	0.0009453
7	SEBERT L PATE	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
6	SEBERT L PATE	WI	0.031250	0.023438	0.0303403	0.0009481	0.0007111
1	SEBERT L PATE	WI	0.031250	0.023438	0.0372900	0.0011653	0.0008740
4	SEBERT L PATE	WI	0.031250	0.023438	0.0315766	0.0009868	0.0007401
3	SEBERT L PATE	WI	0.031250	0.023438	0.0288135	0.0009004	0.0006753
19B	SEBERT L PATE	WI	0.020313	0.017773	0.0365491	0.0007424	0.0006496
17	SEBERT L PATE	WI	0.020313	0.017774	0.0201703	0.0004097	0.0003585
13	SEBERT L PATE	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
12	SEBERT L PATE	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
	TOTAL					0.0096865	0.0076093
5	SECA LTD.	WI	0.120000	0.090000	0.0403324	0.0048400	0.0036299
4	SECA LTD.	WI	0.060000	0.045000	0.0315766	0.0018946	0.0014209
1	SECA LTD.	WI	0.040000	0.030000	0.0372900	0.0014916	0.0011187
16	SECA LTD.	WI	0.040000	0.030000	0.0149248	0.0005970	0.0004477
14	SECA LTD.	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
2	SECA LTD.	WI	0.030000	0.020100	0.0257748	0.0007732	0.0005181
15	SECA LTD.	WI	0.026667	0.022533	0.0207836	0.0005542	0.0004683
12	SECA LTD.	WI	0.015000	0.013125	0.0395305	0.0005930	0.0005188
	TOTAL					0.0175010	0.0128526
10	STATE OF NEW MEXICO	RI		0.125000	0.0314340		0.0039292
11	STATE OF NEW MEXICO	RI		0.125000	0.0314010		0.0039251
17	STATE OF NEW MEXICO	RI		0.125000	0.0201703		0.0025213
16	STATE OF NEW MEXICO	RI		0.125000	0.0149248		0.0018656
18	STATE OF NEW MEXICO	RI		0.125000	0.0075426		0.0009428
15	STATE OF NEW MEXICO	RI		0.125000	0.0207836		0.0025980
9	STATE OF NEW MEXICO	RI		0.125000	0.1210068		0.0151259
21	STATE OF NEW MEXICO	RI		0.125000	0.0164197		0.0020525
6	STATE OF NEW MEXICO	RI		0.125000	0.0303403		0.0037925
14	STATE OF NEW MEXICO	RI		0.125000	0.2252457		0.0281557
12	STATE OF NEW MEXICO	RI		0.125000	0.0395305		0.0049413
4	STATE OF NEW MEXICO	RI		0.125000	0.0315766		0.0039471

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
3	STATE OF NEW MEXICO	RI		0.125000	0.0288135		0.0036017
1	STATE OF NEW MEXICO	RI		0.125000	0.0372900		0.0046612
7	STATE OF NEW MEXICO	RI		0.125000	0.0534556		0.0068420
5	STATE OF NEW MEXICO	RI		0.125000	0.0401324		0.0050416
19B	STATE OF NEW MEXICO	RI		0.125000	0.0365491		0.0045686
20	STATE OF NEW MEXICO	RI		0.125000	0.0662843		0.0082853
13	STATE OF NEW MEXICO	RI		0.125000	0.0484999		0.0060625
19A	STATE OF NEW MEXICO	RI		0.125000	0.0365491		0.0045686
8	STATE OF NEW MEXICO	RI		0.125000	0.0360754		0.0045094
2	STATE OF NEW MEXICO	RI		0.125000	0.0257748		0.0032219
	TOTAL						0.1250000
13	STEPHEN LAWRENCE KNIERIM	WI	0.000656	0.000574	0.0484999	0.0000318	0.0000279
	TOTAL					0.0000318	0.0000279
13	SUSAN GALLAGHER GREY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
19A	UNIVERSITY OIL	WI	0.040625	0.035546	0.0365491	0.0014848	0.0012992
16	UNIVERSITY OIL	WI	0.062500	0.046875	0.0149248	0.0009328	0.0006996
15	UNIVERSITY OIL	WI	0.041667	0.035208	0.0207836	0.0008660	0.0007317
8	UNIVERSITY OIL	WI	0.040625	0.035547	0.0360754	0.0014656	0.0012824
	TOTAL					0.0047492	0.0040129
13	VERONICA HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
20	WAINOCO	WI	0.500000	0.437500	0.0662843	0.0331421	0.0260995
2	WAINOCO	WI	0.170600	0.127950	0.0257748	0.0043972	0.0032979
19B	WAINOCO	WI	0.039816	0.034839	0.0365491	0.0014552	0.0012733
19A	WAINOCO	WI	0.039816	0.034839	0.0365491	0.0014552	0.0012733
	TOTAL					0.0404497	0.0319440
2	WALLACE IRWIN	ORR		0.015625	0.0257748		0.0004027
	TOTAL						0.0004027
9	WESTERN LEASING	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
19B	WESTERN LEASING	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
8	WESTERN LEASING	WI	0.006500	0.005688	0.0360754	0.0002343	0.0002052
19A	WESTERN LEASING	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
TOTAL						0.0015295	0.0013383
13	WILLIAM G POPE JR.	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
						1.0000000	1.0000000

UNIT OPERATING AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

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10,102 + 10,103

UNIT OPERATING AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

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UNIT OPERATING AGREEMENT - NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the \_\_\_\_ day of \_\_\_\_\_, by the parties who have signed the original of this instrument, a counterpart thereof, or other instrument agreeing to be bound by the provisions hereof;

W I T N E S S E T H ;

WHEREAS, the parties hereto as Working Interest Owners have executed, as of the date hereof, an agreement entitled, "Unit Agreement, North Vacuum (Abo) North Unit, Lea County, New Mexico," herein referred to as "Unit Agreement", which, among other things, provides for a separate agreement to be entered into by Working Interest Owners pertaining to the development and operation of the Unit Area as therein defined;

NOW THEREFORE, in consideration of the mutual agreements herein set forth, it is agreed as follows:

ARTICLE 1

CONFIRMATION OF UNIT AGREEMENT AND ADOPTION OF DEFINITIONS

1.1 Confirmation of Unit Agreement. The Unit Agreement and all exhibits attached thereto or any revisions thereof are hereby confirmed and by reference made a part of this Agreement. If there is any conflict between the Unit Agreement and this Agreement, the Unit Agreement shall govern, except as otherwise provided in Article 12 hereof.

1.2 Adoption of Definitions. The definitions in the Unit Agreement and the following additional definitions are adopted for all purposes of this Agreement:

(a) "Unit Operations" is defined as all operations conducted by Working Interest Owners or Unit Operator pursuant to this Agreement for or on account of the development and operation of the Unitized Formation for the production of Unitized Substances.

(b) "Unit Equipment" is defined as all personal property, lease and well equipment, plants, and other

facilities and equipment taken over or otherwise acquired for the joint account for use in Unit Operations.

(c) "Unit Expense" is defined as all cost, expense or indebtedness incurred by Working Interest Owners or Unit Operator pursuant to this Agreement as well as all necessary pre-unitization costs or expenses incurred for or on account of Unit Operations.

(d) "Tract Operator" is defined as the respective operator of each tract within the Unit Area prior to unitization.

## ARTICLE 2

### EXHIBITS

2.1 Exhibits. The following exhibits are incorporated herein by reference:

2.1.1 Exhibits "A", "B" and "C" of the Unit Agreement.

2.1.2 Exhibit "D", attached hereto, is a schedule showing the Unit Participation of each Working Interest Owner. Exhibit "D", or a revision thereof, shall not be conclusive as to the information therein, except it may be used to show the Unit Participation of the Working Interest Owners for purposes of this Agreement until shown to be in error or is revised as herein authorized.

2.1.3 Exhibit "E", attached hereto, which is the Accounting Procedure applicable to Unit Operations. If there is any conflict between this Agreement and Exhibit "E", this Agreement shall govern.

2.1.4 Exhibit "F", attached hereto, which contains insurance provisions applicable to Unit Operations.

2.2 Revision of Exhibits. Whenever Exhibit "B" or Exhibit "C" is revised, Exhibit "D" shall be revised accordingly and shall be effective as of the same date. Unit Operator shall also revise Exhibit "D" from time to time as required to conform to changes in ownership of which Unit Operator has been notified as provided in the Unit Agreement.

2.3 Reference to Exhibits. When reference is made herein to an exhibit, it is to the exhibit as originally attached or, if revised, to

the last revision.

### ARTICLE 3

#### SUPERVISION OF OPERATIONS BY WORKING INTEREST OWNERS

3.1 Overall Supervision. Working Interest Owners shall exercise overall supervision and control of all matters pertaining to Unit Operations pursuant to this Agreement and the Unit Agreement. In the exercise of such authority, each Working Interest Owner shall act solely in its own behalf in the capacity of an individual owner and not on behalf of the owners as an entirety.

3.2 Specific Authorities and Duties. The matters with respect to which the Working Interest Owners shall decide and take action shall include, but not be limited to, the following:

3.2.1 Method of Operation. The method of operation, including any type of pressure maintenance, secondary recovery, or other recovery program to be employed.

3.2.2 Drilling of Wells. The drilling of any well whether for production of Unitized Substances, for use as an injection well, or for other purposes.

3.2.3 Well Recompletion and Change of Status. The recompletion, abandonment or permanent change of status of any well, or the use of any well for injection for other purposes.

3.2.4 Expenditures. The making of any single expenditure in excess of Fifty Thousand Dollars (\$50,000.00), subject, however, to the provisions of Article 7.9 hereof; provided, that approval by Working Interest Owners of the drilling, reworking, deepening, or plugging back of any well shall include approval of all necessary expenditures required therefore, and for completing, testing and equipping the same, including necessary flow lines, separators and lease tankage.

3.2.5 Disposition of Unit Equipment. The Unit Operator shall have the right to sell or otherwise dispose of any item of surplus Unit Equipment.

3.2.6 Appearance Before a Court or Regulatory Agency.  
The designating of Unit Operator to appear before any court

or regulatory agency in matters pertaining to Unit Operations; provided, however, that Working Interest Owners shall in the event Unit Operator is unable to appear designate an alternate representative; and provided, further, that such designation shall not prevent any Working Interest Owner from appearing in person or from designating another representative in its own behalf.

3.2.7 Audits. The auditing of the accounts of Unit Operator pertaining to Unit Operations hereunder; provided that, the audits shall:

(a) not be conducted more than once each year except upon the resignation or removal of Unit Operator and;

(b) be made upon the approval of the Owner or Owners of a majority of Working Interest other than that of Unit Operator, at the expense of all Working Interest Owners other than Unit Operator, or;

(c) be made at the expense of those Working Interest owners requesting such audit if owners of less than a majority of Working Interest, other than that of Unit Operator, request such audit, and;

(d) be made upon not less than thirty (30) days written notice to Unit Operator.

3.2.8 Inventories. The taking of periodic inventories under the terms of Exhibit "E".

3.2.9 Technical Services. The authorizing of charges to the Joint Account for services by consultants or Unit Operator's technical personnel in excess of \$10,000.00 and not covered by the overhead charges provided by Exhibit "E".

3.2.10 Assignments to Committees. The appointment of committees to study any problems in connection with Unit Operations.

3.2.11 The removal of Unit Operator and the selection of a successor.

3.2.12 The enlargement of the Unit Area.

3.2.13 The adjustment and readjustment of investments.

3.2.14 The termination of the Unit Agreement.

3.2.15 Border Line Agreements.

#### ARTICLE 4

##### MANNER OF EXERCISING SUPERVISION

4.1 Designation of Representatives. Not later than thirty (30) days after the effective date hereof, each Working Interest Owner shall inform Unit Operator in writing of the names and addresses of the representative and alternate who are authorized to represent and bind such Working Interest Owner with respect to Unit Operations. The representative or alternate may be changed from time to time by written notice to Unit Operator.

4.2 Meetings. All meetings of Working Interest Owners shall be called by Unit Operator upon its own motion or at the request of two (2) or more Working Interest Owners having a total Unit Participation of not less than ten percent (10%). No meeting shall be called on less than fourteen (14) day's advance written notice, and an agenda for the meeting shall be attached. Working Interest Owners who attend the meeting may amend items included in the agenda and may act upon an amended item or other items presented at the meeting. The representative of Unit Operator shall be chairman of each meeting.

4.3 Voting Procedure. Working Interest Owners shall decide all matters coming before them as follows:

4.3.1 Voting Interest. Each Working Interest Owner shall have a voting interest equal to its Unit Participation in effect at the time of the vote.

4.3.2 Vote Required - Generally. Unless otherwise provided herein or in the Unit Agreement, all matters shall be decided by an affirmative vote of sixty-five percent (65%) or more of the voting interest; provided that, should any one Working Interest Owner have more than sixty-five percent (65%) voting interest, its vote must be supported by the vote of two or more Working Interest Owners having a combined voting interest of at least five percent (5%); provided, however, that if any Working Interest Owner has a voting interest of thirty-five percent (35%) or more, its negative vote or failure to vote



shall not serve to defeat any motion, and such motion shall pass if approved by a majority voting interest, unless such negatively voting or non-voting Working Interest Owner is supported by the vote of two or more Working Interest Owners having a combined voting interest of at least five (5%), and such affirmative vote shall be binding upon all parties.

4.3.3 Vote Required - For Enlargement. An enlargement of the Unit Area as provided in Section 4 of the Unit Agreement shall require an affirmative vote by the Working Interest Owners having a combined Unit Participation of ninety-percent (90%) or more.

4.3.4 Vote at Meeting by Nonattending Working Interest Owner. Any Working Interest Owner who is not represented at a meeting may vote on any agenda item by letter or telegram addressed to the representative of the Unit Operator if its vote is received prior to the actual vote at the meeting, provided the agenda items are not amended.

4.3.5 Poll Votes. Working Interest Owners may vote on and decide, by letter or telegram, any matter submitted in writing to Working Interest Owners. If a meeting is not requested, as provided in Article 4.2, within seven (7) days after a written proposal is sent to Working Interest Owners, the vote taken by letter or telegram shall become final. Unit Operator will give prompt notice of the results of such vote to all Working Interest Owners.

## ARTICLE 5

### INDIVIDUAL RIGHTS OF WORKING INTEREST OWNERS

5.1 Reservation of Rights. Working Interest Owners severally reserve to themselves all their rights, except as otherwise provided in this Agreement and the Unit Agreement.

5.2 Specific Rights. Each Working Interest Owner shall have, among others, the following specific rights:

5.2.1 Access to Unit Area. Access to the Unit Area at all reasonable times to inspect Unit Operations, all wells, and the records and data pertaining thereto.

5.2.2 Reports. The right to receive from Unit Operator, upon written request, copies of all reports to any governmental agency, reports of crude oil runs and stocks, inventory reports, and all other information pertaining to Unit Operations. The cost of gathering and furnishing information not ordinarily furnished by Unit Operator to all Working Interest Owners shall be charged to the Working Interest Owner who requests the information.

## ARTICLE 6

### UNIT OPERATOR

6.1 Initial Unit Operator. Sage Energy Company is hereby designated as Unit Operator.

6.2 Resignation or Removal and Selection of Successor. The resignation or removal of Unit Operator and the selection of a successor shall be governed by the provisions of the Unit Agreement.

## ARTICLE 7

### AUTHORITIES AND DUTIES OF UNIT OPERATOR

7.1 Exclusive Right to Operate Unit. Subject to the provisions of this Agreement and to the orders, directions and limitations rightfully given or imposed by Working Interest Owners, Unit Operator shall have the exclusive right and shall be obligated to develop and operate the Unit Area for the production of Unitized Substances.

7.2 Workmanlike Conduct. Unit Operator shall conduct Unit Operations in a good and workmanlike manner as would a prudent operator under the same or similar circumstances. Unit Operator shall freely consult with Working Interest Owners and keep them informed of all matters which Unit Operator, in the exercise of its best judgement, considers important. Unit Operator shall not be liable to Working Interest Owners for damages, unless such damages result from its gross negligence or willful misconduct.

7.3 Liens and Encumbrances. Unit Operator shall endeavor to keep the lands and leases in the Unit Area and the Unit Equipment free from all liens and encumbrances occasioned by Unit Operations, except the lien and security interest of Unit Operator and Working Interest Owners granted hereunder.

7.4 Employees. The number of employees used by Unit Operator in conducting Unit Operations, their selection, hours of labor and compensation shall be determined by Unit Operator. Such employees shall be employees of Unit Operator.

7.5 Records. Unit Operator shall keep correct books, accounts and records of Unit Operations.

7.6 Reports to Working Interest Owners. Unit Operator shall furnish to Working Interest Owners periodic reports of Unit Operations.

7.7 Reports of Governmental Authorities. Unit Operator shall make all reports to governmental authorities that it has the duty to make as Unit Operator.

7.8 Engineering and Geological Information. Unit Operator shall furnish to each Working Interest Owner, upon its written request, a copy of all logs and other engineering and geological data pertaining to wells drilled for Unit Operations.

7.9 Expenditures. Unit Operator is authorized to make single expenditures not in excess of Fifty Thousand Dollars (\$50,000.00) without prior approval of Working Interest Owners. If an emergency occurs, Unit Operator may immediately make or incur such expenditures as in its opinion are required to deal with the emergency. Unit Operator shall report to Working Interest Owners, as promptly as possible, the nature of the emergency and the action taken.

7.10 Wells Drilled by Unit Operator. All wells drilled by Unit Operator shall be at the usual rates prevailing in the area. Unit Operator may employ its own tools and equipment, but the charge therefor shall not exceed the usual prevailing rate in the area, and the work shall be performed by Unit Operator under the same terms and conditions as are usual in the area in contracts of independent contractors doing work of a similar nature.

7.11 Border Agreements. The Unit Operator, with the approval by formal vote of sixty-five (65%) or more of the voting interest, may enter into a border protection agreement or agreements with Working Interest Owners of the adjacent lands along the exterior boundary of the Unit Area with respect to any cooperative operations in the border area for the proper protection of the parties and interests.

## ARTICLE 8

### TAXES

8.1 Ad Valorem Taxes. Beginning with the first calendar year after the Effective Date hereof, Unit Operator shall make and file all necessary ad valorem tax renditions and returns with the proper taxing authorities with respect to all property of each Working Interest Owner used or held by Unit Operator for Unit Operations. Unit Operator shall settle assessments arising therefrom. All such ad valorem taxes shall be paid by Unit Operator and charged to the Joint Account; however, if the interest of a Working Interest Owner is subject to a separately assessed overriding royalty interest, production payment, or other interest in excess of one-eighth (1/8) royalty, such Working Interest Owners shall notify Unit Operator of such interest prior to the rendition date and shall be given credit for the reduction in taxes paid resulting therefrom. Any Working Interest Owner dissatisfied with any assessment of its interest in real or personal property shall have the right, at its own expense, and after due notice to the Operator, to protest and resist any such assessment.

8.2 Other Taxes. Unit Operator shall pay or cause to be paid on behalf of each Working Interest Owners all production, severance, gathering, and other taxes imposed upon or in respect of the production or handling of its share of Unitized Substances.

## ARTICLE 9

### INSURANCE

9.1 Insurance. Unit Operator, with respect to Unit Operations and at Unit Expense, shall do the following:

9.1.1 Comply with the Workmen's Compensation Act of the State of New Mexico.

9.1.2 Carry Employer's Liability and other insurance as required by the laws of the State of New Mexico.

9.1.3 Provide other insurance as set forth in Exhibit "F".

## ARTICLE 10

### ADJUSTMENT OF INVESTMENTS

10.1 Personal Property Taken Over. Upon the effective date hereof, Working Interest Owners shall deliver to Unit Operator the

following:

10.1.1 Wells. All wells completed in the Unitized Formation, together with the casing therein.

10.1.2 Well and Lease Equipment. The casing and tubing in each such well, all subsurface equipment therein including sucker rods and pumps, the wellhead connections thereon, and all other well and lease equipment that is used in the operation of such wells which Unit Operator determines is necessary or desirable for conducting Unit Operations. Unit Operator shall have up to six (6) months after the effective date in which to make such determination, and all such property that is determined to be surplus shall be returned in the same condition less usual depreciation to each Tract Operator who was responsible for delivery same to Unit Operator. There shall be no charge to the Unit for the use of any such surplus property during this six (6) month period. The individual Operators shall have ninety (90) days from the date of notification in which to remove the surplus property returned to them. Surplus property shall then be disposed of by each Tract Operator in accordance with the respective Joint Operating Agreement which governs each Tract. If the surplus property has not been removed from the Unit Area within the ninety (90) day period, then Unit Operator shall have the right to dispose of the property in a good and workmanlike manner as would a prudent operator under the same or similar circumstances. Any proceeds received upon disposition, in excess of removal and clean up costs, will be disbursed to the Working Interest Owners in the specific Tract. Any costs in excess of proceeds received upon disposition will be charged to the Working Interest Owners in the specific Tract.

10.1.3 Records. A copy of all production and well records that pertain to such wells.

10.2 Inventory and Evaluation of Personal Property. The Working

Interest Owners shall appoint an inventory committee which shall, as of the effective date hereof or as soon thereafter as feasible, cause to be taken under the supervision of the Unit Operator at Unit Expense, joint physical inventories of lease and well equipment within the Unit Area, which inventories shall be used as a basis for determining the controllable items of equipment to be taken over by the Unit Operator hereunder. In the absence of an inventory committee Unit Operator shall engage at Unit Expense a qualified independent firm to serve in place of an inventory committee. Such inventories shall include and be limited to those items of equipment normally considered controllable by operators of oil and gas properties except that certain items of equipment normally considered noncontrollable, such as sucker rods, subsurface pumps and other items as determined by the Working Interest Owners may be included in the inventories in order to insure a more equitable adjustment of investment. All other noncontrollable items of lease and well equipment installed within the Unit Area, although excluded from the inventories, which the Unit Operator decides are necessary and usable in Unit Operations, shall nevertheless be taken over by the Unit Operator. After the determination by Unit Operator as to surplus property, such inventories covering equipment taken over by the Unit Operator under Article 10.1.2 and retained for Unit Operations, shall be priced in accordance with the part hereof, or at an appraised value as determined by the inventory committee; such pricing shall be performed under the supervision of, by the personnel of, and in the offices of the Unit Operator, with the inventory committee furnishing such additional pricing help as may be available and necessary. Casing shall be included in the inventory for record purposes but shall be excluded from pricing and investment adjustment.

10.3 Investment Adjustment. Upon approval by Working Interest Owners of the inventory and evaluation, each Working Interest Owner shall be credited with the value, as determined in accordance with Article 10.2 above, of its interest in all personal property taken over by Unit Operator under Article 10.1.2, and charged with an amount equal to that obtained by multiplying the total value of all such personal property taken over by Unit Operator under Article 10.1.2 by such

Working Interest Owner's Unit Participation, as shown on Exhibit "D". If the charge against any Working Interest Owner is greater than the amount credited to such Working Interest Owner, the resulting net charge shall be paid and in all other respects be treated as any other item of Unit Expense chargeable against such Working Interest Owner. If the credit to any Working Interest Owner is greater than the amount charged against such Working Interest Owner, the resulting net credit shall be paid to such Working Interest Owner by Unit Operator out of funds received by it in settlement of the net charges described above.

10.4 General Facilities. The acquisition of general facilities which service more than one lease and which are necessary for Unit Operations shall be by negotiation between the owners thereof and Unit Operator, subject to the approval of Working Interest Owners. There shall be no adjustment for lease roads or appurtenances thereto. General facilities which are owned one-hundred percent (100%) by the Unit Operator shall be acquired by negotiation between the Unit Operator and the Working Interest Owners.

10.5 Exchange of Interest in and Ownership of Personal Property and Facilities. Each Working Interest Owner hereby exchanges, and agrees to exchange, its interest in all of the personal property and facilities described in Article 10.1.2 above for its proportionate interest, as shown on Exhibit D, from and after the time the same may hereafter become effective, in all such personal property and facilities described in Article 10.1.2. Each Working Interest Owner, individually, shall by virtue hereof own an undivided interest in all personal property and facilities taken over or otherwise acquired by Unit Operator pursuant to this agreement.

## ARTICLE 11

### DEVELOPMENT AND OPERATING COSTS

11.1 Basis of Charge to Working Interest Owners. Unit Operator initially shall pay and discharge all costs and expenses incurred in Unit Operation including all pre-unitization expenses required for organization and/or formation of the unit. Each Working Interest Owner shall reimburse Unit Operator for its share of Unit Expense in proportion to the respective Unit Participation of the parties hereto.

All charges, credits, and accounting for Unit Expense shall be in accordance with Exhibit "E".

11.2 Budgets. Before or as soon as practical after the Effective Date hereof, Unit Operator shall prepare a budget of estimated Unit Expense for the remainder of the calendar year, and, on or before, the first day of each September thereafter, shall prepare such a budget for the ensuing calendar year. A budget shall set forth the estimated Unit Expense by quarterly periods. Budgets shall be estimates only, and shall be adjusted or corrected whenever an adjustment or correction is proper. A copy of each budget and adjusted budget shall promptly be furnished to each Working Interest Owner.

11.3 Advance Billings. Unit Operator shall have the right without prejudice to any other rights or remedies, at its option to require Working Interest Owners to advance their respective proportions of such costs and expenses by submitting to Working Interest Owners, on or before the 15th day of any month, an itemized estimate of such costs and expenses for the succeeding two months with a request for payment in advance. If such advance is requested as to operating costs and expenses, the Working Interest Owners' proportionate shares thereof shall be deemed to be the same as for the preceding month, with an adjustment to be made on the basis of their actual proportionate shares thereof as determined at the end of the period for which such advance was requested. Within fifteen (15) days thereafter, each Working Interest Owner shall pay to Unit Operator its proportionate part of such estimate. Adjustment between estimates and the actual costs shall be made by Unit Operator at the close of each calendar month, and the accounts of the Working Interest Owners shall be adjusted accordingly.

11.4 Commingling of Funds. No funds received by Unit Operator under this agreement need be segregated or maintained by it as separate funds, but may be commingled with its own funds.

11.5 Lien of Unit Operator. Each Working Interest Owner grants to Unit Operator a lien upon its Working Interest in each Tract, its share of Unitized Substances when produced, and its interest in all Unit Equipment, as security for payment of its share of Unit Expense to the full extent allowed by State and Federal Statutes, together with interest



thereon at the prime rate charged by Texas Commerce Bank of San Antonio plus two percent (2%) per annum. To the extent that Unit Operator has a security interest under the Uniform Commercial Code, Unit Operator shall be entitled to exercise the rights and remedies of a secured party under the Code. Unit Operator shall have the right to bring suit to enforce collection of such indebtedness with or without seeking foreclosure of the lien. In addition, upon default by any Working Interest Owner in the payment of its share of Unit Expense, Unit Operator shall have the right to collect from the purchaser the proceeds from the sale of such Working Interest Owner's share of Unitized Substances until the amount owed by such Working Interest Owner, plus interest as aforesaid, has been paid. Each purchaser shall be entitled to rely upon Unit Operator's written statement concerning the amount of any default. Unit Operator grants a like lien and security interest to the Working Interest Owners.

11.6 Unpaid Unit Expense. If any Working Interest Owner fails to pay its share of Unit Expense within sixty (60) days after rendition of a statement therefor by Unit Operator, the non-defaulting Interest Owners, shall, upon request by Unit Operator, pay their proportionate part of the unpaid share of Unit Expense of the defaulting Working Interest Owner. The non-defaulting Working Interest Owners that pay their share of Unit Expense of a defaulting Working Interest Owner shall be reimbursed by the Unit Operator for the amount so paid, plus any interest collected thereon, upon receipt by Unit Operator of any past due amount collected from the defaulting Working Interest Owner. Any non-defaulting Working Interest Owner so paying a defaulting Working Interest Owner's share of Unit Expenses shall be subrogated to the lien and rights herein granted Unit Operator.

11.7 Uncommitted Royalty. Should an owner of a Royalty Interest in any Tract fail to become a party to the Unit Agreement, and, as a result thereof, the actual Royalty Interest payments with respect to such Tract are more or less than the Royalty Interest payments computed on the basis of the Unitized Substances that are allocated to such Tract under the Unit Agreement, the difference shall be borne by or inure to the benefit of Working Interest Owners, in proportion to their

respective Unit Participations at the time the Unitized Substances were produced; however, the difference to be borne by or inure to the benefit of the Working Interest Owners shall not exceed an amount computed on the basis of one-eighth (1/8) of the difference between the Unitized Substances allocated to the Tract and the Unitized Substances produced from the Tract. Such adjustments shall be made by charges and credits to the Joint Account.

11.8 Rentals and Minimum Royalties. The Working Interest Owner in each Tract shall, at its own expense, pay any and all rentals required to continue its lease in force, and any and all minimum royalties payable thereunder. Upon request of Unit Operator, each such Working Interest Owner shall furnish Unit Operator satisfactory evidence as to the payment of each such rental not less than thirty (30) days prior to the rental payment date and as to the payment of such minimum royalty payment when same is due. Unit Operator shall have the right, but shall be under no obligation, to pay any and all such rentals and minimum royalties on behalf of each such Working Interest Owner, and any and all amounts so paid by Unit Operator shall be charged solely to the account of such Working Interest Owner. In the event the Working Interest Owner in any Tract fails to pay any rental required to continue its lease in force as to such Tract or any minimum royalties payable under such lease and as a result said lease terminates or is cancelled as to such Tract, the termination or cancellation of said lease as to such Tract shall be considered for all purposes of this agreement and the Unit Agreement to be a failure of title to said lease for reasons other than Unit Operations.

## ARTICLE 12

### OPERATION OF NON-UNITIZED FORMATIONS

12.1 Right to Operate in Non-Unitized Formations. Any Working Interest Owner that now has, or hereafter acquires the right to drill for and produce oil, gas or other minerals, from a formation underlying the Unit Area other than the Unitized Substances, shall have the right to do so notwithstanding this Agreement or the Unit Agreement. In exercising said right, however, such Working Interest Owner shall exercise every reasonable precaution to prevent unreasonable

interference with Unit Operations hereunder. No Working Interest Owner (other than Unit Operator) shall produce Unitized Formation through any well drilled or operated by it. If any Working Interest Owner drills any well into or through the Unitized Formation, the Unitized Formation shall be protected during drilling operations by a drilling fluid satisfactory to Unit Operator, and following drilling operations, the Unitized Formation shall be protected by cement or by casing and cement and shall otherwise be protected in such a manner that the Unitized Formation and the production of Unitized Substances will not be adversely affected.

12.2 Multiple Completions. No well now or hereafter completed in Unitized Formation shall ever be completed as a multiple completion of any other formation or formations unless such multiple completion and the subsequent handling of the multiple completion is approved by Working Interest Owners in accordance with Article 4.3 of this Agreement.

## ARTICLE 13

### TITLES

13.1 Warranty and Indemnity. Each Working Interest Owner represents and warrants that it is the owner of the respective working interests set forth opposite its name in Exhibit "C" of the Unit Agreement and hereby agrees to indemnify and hold harmless the other Working Interest Owners from any loss due to failure, in whole or in part, of its title to any such interest, except failure of title arising out of Unit Operations; provided that, such indemnity shall be limited to an amount equal to the net value that has been received from the sale or receipt of Unitized Substances attributed to the Interest as to which title failed. Each failure of title will be deemed to be effective, insofar as this agreement is concerned, as of 7:00 a.m. the first day of the calendar month in which such failure is finally determined, and there shall be no retroactive adjustment of Unit Expense, or retroactive allocation of Unitized Substances or the proceeds therefrom, as a result of title failure.

## ARTICLE 14

## LIABILITY, CLAIMS AND SUITS

14.1 Individual Liability. The duties, obligations and liabilities of Working Interest Owners shall be several and not joint or collective; and nothing herein contained shall ever be construed as creating a partnership of any kind, joint venture, association or trust among Working Interest Owners.

14.2 Settlements. Unit Operator may settle any single damage claim or suit involving Unit Operations if the expenditure does not exceed Fifteen Thousand Dollars (\$15,000.00) and if the payment is in complete settlement of such claim or suit. If the amount required for settlement exceeds the above specified amount, Unit Operator shall notify Working Interest Owners and shall continue handling the claim or suit unless such authority is expressly denied by Working Interest Owners after notification. All costs and expense of handling, settling, or otherwise discharging such claim or suit shall be an item of Unit Expense. If a claim is made against any Working Interest Owner or if any Working Interest Owner is sued on account of any matter arising from Unit Operations over which such Working Interest Owner individually has no control because of the rights given Working Interest Owners and Unit Operator by this Agreement and the Unit Agreement, the Working Interest Owner shall immediately notify the Unit Operator, and the claim or suit shall be treated as any other claim or suit involving Unit Operations.

## ARTICLE 15

### INTERNAL REVENUE PROVISION

15.1 Internal Revenue Provision. Notwithstanding any provisions herein that the rights and liabilities of the parties hereunder are several and not joint or collective or that this Agreement and the operations hereunder shall not constitute a partnership, if for Federal income tax purposes this Agreement and the operations hereunder are regarded as a partnership, then each of the parties hereto hereby elects to be excluded from the application of all of the provisions of Subchapter K, Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, as permitted and authorized by Section 761 of said Code and the regulation promulgated thereunder. Unit Operator is hereby authorized and directed to execute on behalf of each of the parties hereto such

evidence of this election as may be required by the Secretary of the Treasury of the United States or by the Internal Revenue Service, including specifically, but not by way of limitation, all of the returns, statements and the data required by the Internal Revenue Service or as may be necessary to evidence this election. Each party hereto further agrees not to give any notices or take any other action inconsistent with the election made hereby. If any present or future income tax laws of the State in which the property covered by this Agreement is located, or any future income tax laws of the United States, contain, or shall hereafter contain, provisions similar to those contained in Subchapter K. Chapter 1, Subtitle A, of the Internal Revenue Code of 1954, under which an election similar to that provided by Section 761 of said Subchapter K is permitted, each of the parties hereto hereby makes such election or agrees to make such election as may be permitted by such laws. In making this election, each of the parties hereto hereby states that the income derived by it from the operations under this Agreement can be adequately determined without the computation of partnership taxable income.

#### ARTICLE 16

##### NOTICES

16.1 Notices. All notices required hereunder shall be in writing and shall be deemed to have been properly served when sent by certified mail ("return receipt requested") or telegram to the address of the representative of each Working Interest Owner as furnished to Unit Operator in accordance with Article 4.

#### ARTICLE 17

##### WITHDRAWAL OF WORKING INTEREST OWNER

17.1 Withdrawal. A Working Interest Owner may withdraw from this Agreement by transferring, without warranty of title, either express or implied, to the other Working Interest Owners, ("transferees"), all its Oil and Gas Rights, exclusive of Royalty Interests, together with its interest in all Unit Equipment and in all wells used in Unit Operations. The instrument of transfer may be delivered to Unit Operator for the transferees. Such transfer shall not relieve the Working Interest Owner from any obligation or liability incurred prior to the date of the

delivery of the instrument of transfer; however, the tender has to be accepted unless Working Interest Owners decide within ninety (90) days to terminate the Unit. The interest transferred shall be owned by the transferees in proportion to their respective Unit Participations then in effect. The transferees, in proportion to the respective interest so acquired, shall pay transferor for its interest in Unit Equipment the net salvage value thereof as determined by Working Interest Owners. In the event such withdrawing party's interest in the aforesaid fair salvage value after deducting the estimated costs of salvaging same is less than the withdrawing party's share of the estimated costs of plugging and abandoning the wells than being used or held for Unit Operations, then the withdrawing party, as condition precedent to its withdrawal, shall pay in cash to the party succeeding to its interest a sum equal to the deficiency.

Within sixty (60) days after receiving delivery of the transfer, Unit Operator shall render a final statement to the withdrawing owner for its share of Unit Expense, including any deficiency in salvage value, as determined by Working Interest Owners, incurred as of the first day of the month following the date of receipt of the transfer. Provided all Unit Expense, including any deficiency hereunder, due from the withdrawing owner has been paid in full within thirty (30) days after the rendering of such final statement by the unit Operator, the transfer shall be effective the first day of the month following its receipt by Unit Operator and, as of such effective date, withdrawing owner shall be relieved from all further obligations and liabilities hereunder and under the Unit Agreement, and the rights of the withdrawing Working Interest Owner hereunder and under the Unit Agreement shall cease insofar as they existed by virtue of the interest transferred.

17.2 Limitation on Withdrawal. Notwithstanding anything set in Article 17.1, Working Interest Owners may refuse to permit the withdrawal of a Working Interest Owner if its Working Interest is burdened by any royalties, overriding royalties, production payments, net proceeds interest, carried interest, or any other interest created out of the Working Interest in excess of one-eighth (1/8) lessor's

royalty, unless the other Working Interest Owners willing to accept the assignment agree to accept the Working Interest subject to such burdens.

#### ARTICLE 18

##### INTEREST CARVED OUT BY WORKING INTEREST OWNER

18.1 Carved-out Interest Subject to This Agreement. In the event any Working Interest Owner shall, after this Agreement becomes effective or after executing this Agreement, whichever is earlier, create an overriding royalty, production payment, net profits, or carried interest, or any other interest out of its Working Interest then subject to this Agreement, such carved-out interest shall be subject to the terms and provisions of this Agreement, specifically including, but without limitation, Article 11.5 hereof, entitled "Lien of Unit Operator". In the event the Working Interest Owner creating such carved-out interest (i) fails to pay any costs or expenses chargeable to such Working Interest Owner under this Agreement and the production of Unitized Substances accruing to the credit of such Working Interest Owner is insufficient for that purpose, or (ii) withdraws from this agreement under the terms and provisions of Article 17 hereof, the carved-out interest shall be chargeable with a prorata portion of all costs and expenses incurred hereunder and Unit Operator shall have the right to enforce against such carved-out interest the lien and all other rights granted in said Article 11.5 for the purpose of collecting the costs and expenses chargeable to said carved-out interest.

#### ARTICLE 19

##### ABANDONMENT OF WELLS

19.1 Rights of Former Owners. If Working Interest Owners decide to abandon permanently any well within the Unit Area prior to termination of the Unit Agreement, Unit Operator shall give written notice thereof to the Working Interest Owners of the Tract on which the well is located, and they shall have the option for a period of ninety (90) days after the sending of such notice to notify Unit Operator in writing of their election to take over and own the well. Within ten (10) days after the Working Interest Owners of the Tract have notified Unit Operator of their election to take over the well, they shall pay Unit

Operator, for credit to the Joint Account, the amount estimated by Working Interest Owners to be the salvage value of the casing and equipment in and on the well, except the casing therein if contributed by such Working Interest Owners of the Tract under Article 10.1.1, less salvage costs. The Working Interest Owners of the Tract, by taking over the well, agree to seal off effectively and protect the Unitized Formation, and upon abandonment to plug the well in compliance with applicable laws and regulations.

19.2 Plugging. If the Working Interest Owners of a Tract do not elect to take over a well located within the Unit Area that is proposed for abandonment, Unit Operator shall plug and abandon the well at Unit expense in compliance with applicable laws and regulations.

## ARTICLE 20

### EFFECTIVE DATE AND TERM

20.1 Effective Date. This agreement shall be binding on each party who executes or ratifies the same as of the date of execution or ratification by such party, but shall not become effective for the purpose of conducting Unit Operations hereunder until the effective date of said Unit Agreement, which date shall also be the effective date of this Agreement.

20.2 Term. This Agreement shall continue in full force and effect so long as the Unit Agreement remains in force and effect, and thereafter until (a) all Unit Wells have been abandoned and plugged or turned over to the Working Interest Owners in accordance with Article 21, (b) all Unit Equipment and real property acquired for the Joint Account have been disposed of by the Unit Operator in accordance with the instructions of the Working Interest Owners, and (c) there has been a final accounting.

## ARTICLE 21

### ABANDONMENT OF OPERATIONS

21.1 Termination. Upon termination of the Unit Agreement, the following will occur:

21.1.1 Oil and Gas Rights. The oil and gas rights in and to each separate Tract shall no longer be affected by this Agreement, and thereafter the parties shall be governed by the



terms and provisions of the leases, contracts, and other instruments affecting the separate Tracts.

21.1.2 Right to Operate. Working Interest Owners of any Tract that desire to take over and continue to operate wells located thereon may do so by paying Unit Operator, for credit to the Joint Account, the net salvage value of the casing and equipment in and on the wells taken over, except the casing therein if contributed by such Working Interest Owners under Article 10.1.1 less salvage costs as estimated by Working Interest Owners, and by agreeing upon abandonment to plug each well in compliance with applicable laws and regulations.

21.1.3 Salvaging Wells. Unit Operator shall salvage as much of the casing and equipment in or on wells not taken over by Working Interest Owners of separate Tracts as can economically and reasonably be salvaged, and shall cause the wells to be plugged and abandoned in compliance with applicable laws and regulations.

21.1.4 Cost of Salvaging & Distribution of Assets. Working Interest Owners shall share the cost of salvaging and abandonment, as well as distribution of assets and properties used in Unit Operation, in proportion to their respective Unit Participations.

## ARTICLE 22

### EXECUTION

22.1 Execution by Separate Counterparts or Ratifications. This Agreement may be executed in any number of counterparts, and each executed counterpart shall have the same force and effect as an original instrument and as if all parties to the aggregate counterparts had signed the same instrument, or may be ratified by a separate instrument in writing referring to this Agreement, each such ratification having the force and effect of an executed counterpart hereof and in effect incorporating by reference all of the provisions hereof.

## ARTICLE 23

### SUCCESSORS AND ASSIGNS

23.1 Successors and Assigns. This agreement shall constitute a

covenant running with the lands and leases covered hereby, and shall be binding upon and inure to the benefit of the heirs, devisees, legal representatives, successors, and assigns of the parties hereto, respectively. Each assignment or other transfer of Working Interest by any party hereto shall be made expressly subject to this Agreement and shall provide expressly that the transferee shall assume and be bound by all obligations accruing hereunder in respect to the Working Interest transferred from and after the assignment or other transfer.

23.2 Notice of Transfer. An assignment or other transfer of Working Interest that is subject to this Agreement shall not be binding upon Unit Operator and shall not relieve the transferor of obligations accruing hereunder, until the first day of the calendar month next succeeding receipt by Unit Operator of written notice of such assignment or transfer accompanied by certified copy of the recorded instrument evidencing the transfer.

23.3 Six or More Owners. In the event that any Tract or Tracts subject to this Agreement is owned or hereafter becomes owned by six (6) or more Working Interest Owners, then, in such event, said Working Interest Owners agree, upon request, to furnish Unit Operator with a recordable instrument executed by all such Working Interest Owners designating an agent to receive and be responsible for all costs, expenses, and credits related to Unit Operations and attributable to all such Working Interest Owners.

#### ARTICLE 24

##### GOVERNMENTAL REGULATIONS

24.1 Governmental Regulations. Working Interest Owners agree to release Unit Operator from any and all losses, damages, injuries, claims and causes of action arising out of, incident to, or resulting directly or indirectly from Unit Operator's interpretation or application of rules, regulations, or orders of any governmental agency or predecessor agencies to the extent Unit Operator's interpretation or application of such rules, rulings, regulations, or orders were made in good faith. Working Interest Owners further agree to reimburse Unit Operator for their proportionate share of any amounts Unit Operator may be required to refund, rebate or pay as a result of an incorrect interpretation or

application of the above noted rules, rulings, regulations, or orders, together with their proportionate part of interest and penalties owing by Unit Operator as a result of such incorrect interpretation or application of such rules, ruling, regulations or orders.

IN WITNESS WHEREOF, the parties hereto have executed this agreement on the dates opposite their respective signatures.

UNIT OPERATOR AND WORKING INTEREST OWNER

ATTEST:

SAGE ENERGY COMPANY

By: \_\_\_\_\_

\_\_\_\_\_

Date Executed: \_\_\_\_\_

WORKING INTEREST OWNERS

Witness: \_\_\_\_\_

\_\_\_\_\_  
Brian Burns

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Charles Robbins

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Elizabeth Robbins

Date Executed: \_\_\_\_\_

ESTATE OF A.M. PATE, JR.

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

EXXON COMPANY, U.S.A.

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

FARGO ENERGY CORPORATION

Attest: \_\_\_\_\_

BY: \_\_\_\_\_  
Ron Amini, President

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
W. Glenn Burton

Date Executed: \_\_\_\_\_

MARATHON OIL COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executd: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Marshall Leaf

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Martha V. Leonard

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Nelson Breining

Date Executed: \_\_\_\_\_

OXY U.S.A., INC.

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

PENNZOIL EXPLORATION & PRODUCTION

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Witness: \_\_\_\_\_

\_\_\_\_\_  
Sebert L. Pate

Date Executed: \_\_\_\_\_

SECA, LTD.

Witness: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

UNIVERSITY OIL COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

WAINOCO OIL AND GAS COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

WESTERN LEASING COMPANY

Attest: \_\_\_\_\_

BY: \_\_\_\_\_

Date Executed: \_\_\_\_\_

Gregory J. Gallagher, Individually and as Attorney-in-Fact for Marguerite G. Price, Mary Margaret Pope, Mary Catherine Taylor, Charles Raymond Gallagher, III, Stephen Lawrence Knieriem, Christopher W. Knieriem, Gregory Charles Gallagher, Michael J. Gallagher, Kathleen Marie Cooper, Natalie Pope, William G. Pope, Jr., and Delphine Pope Keller

\_\_\_\_\_  
Witness

Date Executed: \_\_\_\_\_

\_\_\_\_\_  
Gregory J. Gallagher

Robin Herndon, Individually and as Attorney-in-Fact for Frances Herndon, Peter G. Herndon, Raymond Stanley Herndon, Robin C. Herndon, III, Mary Herndon Ray and Veronica Herndon

\_\_\_\_\_  
Witness

Date Executed: \_\_\_\_\_

\_\_\_\_\_  
Robin Herndon

C.R. Gallagher, Jr., Individually and as Attorney-in-Fact for Mary B. Gallagher, Mary G. Herndon, Charleen G. Knieriem, Natalie G. Pope, Charles Bernard Gallagher, Susan Gallagher Grey and Christine Gallagher Seger

\_\_\_\_\_  
Witness

Date Executed: \_\_\_\_\_

\_\_\_\_\_  
C.R. Gallagher, Jr.

The map displays a 10x10 grid of sections, numbered 1 to 100. Each section contains various symbols and text labels. The symbols include triangles (some with dots inside), circles, and lines. The text labels are often in all caps and include words like 'SECTION', 'LAND', 'EAST', 'UNIT', 'NORTH', 'ICELAND', 'LAND', 'EAST', 'UNIT'. The map is oriented with North at the top. The title 'NORTH ICELAND LAND EAST UNIT' is located in the upper right corner. The map is divided into four quadrants by a central horizontal and vertical line. The sections are numbered 1 through 100. The map shows a complex pattern of land ownership, with many sections containing multiple symbols. The map is a technical drawing with a grid and various symbols.

5 E

Sage Energy Company  
Midland, Texas

PROPOSED NORTH VACUUM (ABO) NORTH UNIT

LEA COUNTY, NEW MEXICO

T108, R24E  
T17E, R24E

Scale: 1" = 100'

1908

R 34 E  
 △ INJECTION WELL  
 --- LIFT BOUNDARY  
 ▲ PROPOSED INJECTION WELL  
 ○ PROPOSED PRODUCING WELL

EXHIBIT "B"  
OPERATING AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
1) 3.72900	SE/4NW/4 1-17S-34E	40	New Mexico St. B-936 Exp. 11-22-33	State 12.5%	Exxon Corporation	Exxon 6.2197% Corporation	Sage Energy 73.5% Fargo Energy 9.25% Marshall Leaf 3.0% Sebert Pate 3.125% Est. of A.M. Pate Jr. 3.125%  Charles Robbins 2.0% Margaret Robbins 2.0% Seca, Ltd. 4.0%
	Lot 3 1-17S-34E	40.39	St. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage 6.2803	Sage Energy 73.5% Fargo Energy 9.25% Marshall Leaf 3.0% Sebert Pate 3.125% Est. of A.M. Pate Jr. 3.125%  Charles Robbins 2.0% Margaret Robbins 2.0% Seca, Ltd. 4.0%



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NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
2) 2.57748	S/2SW/4 1-17S-34E	80.00	New Mexico ST. E-5765-5 Exp. 11-10-56	State 12.5%	Pennzoil Exploration & Production Co.	Culbertson Management, Inc. Kathleen Irwin J.A. Davidson R.H. Hannifan Pennzoil Harold Jones Scope Industries Wallace Irwin Trust E.A. Culbertson Test. Trust	Sage Energy 41.69%  Fargo Energy 36.25% Wainoco 17.06% Brian Burns 2.00% Seca Ltd. 3.00%
3) 2.88135	N/2SE/4 1-17S-34E	80.0	New Mexico ST. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 70.0% Fargo Energy -18.75% Brian Burns 5.0% Estate of A.M. Pate Jr. Sebert L. Pate 3.125%
4) 3.15766	N/2SW/4 1-17S-34E	80.0	New Mexico ST. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 67.5% Fargo Energy 20.25% Seca Ltd. 6.0% Estate of A.M. Pate Jr. Sebert L. Pate 3.125%

Exhibit B  
 OPERATING AGREEMENT  
 NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
5) 4.03324	S/2SE/4 1-17S-34E	80	New Mexico St. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 69.75% Fargo Energy 10.0 Seca Ltd. 12.0 Elizabeth Robbins 1.0 Charles Robbins 1.0 Estate of 3.125 A.M. Pate Jr. Sebert L. Pate 3.125
6) 3.03403	Lots 1 & 2 1-17S-34E	40.08 40.23	New Mexico St. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 85.75% Fargo Energy 6.0 Estate of 3.125 A.M. Pate Jr. Sebert L. Pate 3.125 Marshall Leaf 2.0
7) 5.34556	S/2NE/4 1-17S-34E	80.0	New Mexico St. K-4606-1 Exp. 12-15-69	State 12.5%	Shell Western E & P Inc.	Sage Energy 12.5%	Sage Energy 82.75% Fargo Energy 8.00 Estate of 3.125 A.M. Pate Jr. Sebert L. Pate 3.125 Marshall Leaf 2.0 Charles Robbins 1.0
8) 3.60754	SE/4SE/4 2-17S-34E	40	New Mexico St. E-754-5 Exp. 2-11-51	State 12.5%	Yates Drilling Company		Sage Energy 27.4625% Oxy USA Inc. 35.0 Martha V. Leonard 5.2 Western Leasing .65 Glenn Burton .65 Fargo Energy 26.975 University Oil 4.0625

EXHIBIT "B"  
OPERATING AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
9) 12.10068	SW/4SE/4 2-17S-34E	40	New Mexico St. E-754-5 Exp. 2-11-51	12.5%	Yates Drilling Co.		Sage Energy 28.6254% Oxy USA Inc. 36.4821 Fargo Energy 28.1173 Western Leasing .6775 Martha V. 5.4202 Leonard Glenn Burton .6775
10) 3.14340	Lot 4 1-17S-34E	40.54	New Mexico St. B-936 Exp. 11-22-33	12.5%	Exxon Corporation		Exxon Corp. 50.0 Fargo Energy 50.0
11) 3.14010	SW/4NW/4 1-17S-34E	40	New Mexico St. B-936 Exp. 11-22-33	12.5%	Exxon Corporation	Exxon Corporation	Fargo Energy 100.0
12) 3.95305	SE/4 36-16S-34E	160	New Mexico St. B-936 Exp. 11-22-33	12.5%	Exxon Corporation		Sage Energy 19.75 Exxon 50.0 Fargo Energy 20.625 Martha V. 4.0 Leonard Estate of 1.5625 A.M. Pate, Jr. Sebert L. Pate 1.5625 Charles Robbins .5 Seca Ltd. 1.5 Glenn Burton .5

EXHIBIT "B"  
OPERATING AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
13) 4.84999	Lots 1 & 2 2-17S-34E	40.70 40.85	New Mexico St. E-1816-3 Exp. 4-10-53	State 12.5%	C.R. Gallagher		See List
14) 22.52457	NW/4 12-17S-34E	160	New Mexico St. B-2244 Exp. 1-31-34	State 12.5%	Marathon Oil Company	Marathon 17.5%	Sage Energy 91.0% Marshall Leaf 3.0 Charles Robbins 1.0 Margaret Robbins 2.0 Seca Ltd. 3.0
15) 2.07836	E/2SW/4 36-16S-34E	80	New Mexico St. K-5275-3 Exp. 9-21-70	State 12.5%	Pennzoil Exploration & Production Company	John Eddy 3.0%	Sage Energy 54.5% Marshall Leaf 1.3333 Nelson Breining 3.3333 Seca Ltd. 2.6667 University Oil 4.1667 Charles Robbins .6667 Pennzoil 33.3333

EXHIBIT "B"  
OPERATING AGREEMENT

NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
16) 1.49248	W/2SW/4 36-16S-34E	80	New Mexico St. K-5275-3 Exp. 9-21-70	12.5%	Pennzoil Exploration & Production Company	Pennzoil John Eddy	Sage Energy 81.75% Marshall Leaf 2.0 Nelson Breining 5.0 Seca Ltd. 4.0 University Oil 6.25 Charles Robbins 1.0
17) 2.01703	S/2SE/4 35-16S-34E	80	New Mexico St. L-3393-2 Exp. 8-19-74	12.5%	Pennzoil Exploration & Production Company		Sage Energy 22.425% Estate of 2.03125 A.M. Pate, Jr. Sebert L. Pate 2.03125 Pennzoil 35.0 Martha V. Leonard 5.2 Fargo Energy 33.3125
18) .75426	S/2SW/4 35-16S-34E	80	New Mexico St. L-4526-1 Exp. 5-19-75	12.5%	Pennzoil Exploration & Production Company	Pennzoil	Sage Energy 98.0% Nelson Breining 2.0

EXHIBIT B  
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NORTH VACUUM (ABO) NORTH UNIT

Tract Number & Participation Factor in Unit	Description of Land	Number of Acres	Name or No. & exp. date of Lease	Basic Royalty and Percentage	Lessee of Record	Overriding Royalty and Percentage	Working Interest and Percentage
19A) 3.65491	SE/4NE/4 2-17S-34E	40	New Mexico St. K-5029-2 Exp. 5-18-70	State 12.5%	Pennzoil Exploration & Production Company		Sage Energy 26.4875% Martha V. Leonard 5.2 University Oil 4.0625 Western Leasing .65 Glenn Burton .65 Fargo Energy 27.95 Pennzoil 13.5184 Wainoco Inc. 3.9816 Oxy USA 17.5
	SW/4NE/4 2-17S-34E	40	New Mexico St. E-754-5 Exp. 2-11-51		Yates Drilling Company		
19B) 3.65491	NE/4SE/4 2-17S-34E	40	New Mexico St. K-5029-2 Exp. 5-18-70	State 12.5%	Pennzoil Exploration & Production		Sage Energy 26.4875% Martha V. Leonard 5.2 Estate of A.M. Pate, Jr. 2.03125 Sebert L. Pate 2.03125
	NW/4SE/4 2-17S-34E	40	E-754-5 Exp. 2-11-51		Yates Drilling Company		Western Leasing .65 Glenn Burton .65 Fargo Energy 27.95 Pennzoil 13.5184 Wainoco Inc. 3.9816 Oxy USA 17.5
20) 6.62843	S/2SW/4 2-17-34E	80	New Mexico St. E-619-5 Exp.	State 12.5%	Yates Drilling Company	Pennzoil 4.375%	Marathon Oil 50.0 Wainoco 50.0
21) 1.64197	S/2NW/4 2-17S-34E	80	New Mexico St. E-619-5 Exp.	State 12.5%	Yates Drilling Company		Marathon Oil 100.0

NORTH VACUUM (ABO) NORTH UNIT  
OPERATING AGREEMENT  
EXHIBIT "C"

PART I

TRACT & UNIT PARTICIPATION - TRACT BASIS

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NWI	TRACT PARTICIPATION	UNIT PARTICIPATION EXPENSE	UNIT PARTICIPATION REVENUE
						WI	WI	NWI
1	ECON STATE "B" #1	SAGE ENERGY COMPANY	WI	0.735000	0.551249	0.0372900	0.0274082	0.0205561
		FARGO ENERGY	WI	0.092500	0.069375	0.0372900	0.0034493	0.0025870
		MARSHALL LEAF	WI	0.030000	0.022500	0.0372900	0.0011187	0.0008390
		ESTATE OF A M PATI JR.	WI	0.031250	0.023438	0.0372900	0.0011653	0.0008740
		SEBEC L PATI	WI	0.031250	0.023438	0.0372900	0.0011653	0.0005593
		CHARLES ROBBINS	WI	0.020000	0.015000	0.0372900	0.0007458	0.0005593
		ELIZABETH ROBBINS	WI	0.020000	0.015000	0.0372900	0.0007458	0.0011187
		SECA LTD.	WI	0.040000	0.030000	0.0372900	0.0014916	0.0046612
		STATE OF NEW MEXICO	RI		0.125000	0.0372900		0.0023420
		SAGE ENERGY COMPANY	OVER		0.062803	0.0372900		0.0023194
		ECON CORPORATION	OVER		0.062197			
				1.000000	1.000000		0.0372900	0.0372900
2	NEW MEXICO STATE A #1	SAGE ENERGY COMPANY	WI	0.416900	0.279323	0.0257748	0.0107455	0.0071995
		FARGO ENERGY	WI	0.362500	0.243875	0.0257748	0.0093434	0.0062601
		SECA LTD.	WI	0.030000	0.020100	0.0257748	0.0007732	0.0005181
		BRIAN BURNS	WI	0.020000	0.013400	0.0257748	0.0005155	0.0003454
		WALNOCO	WI	0.170600	0.127950	0.0257748	0.0043972	0.0032979
		E A CULBERTSON	OVER		0.015625	0.0257748		0.0004027
		WALLACE IRWIN	OVER		0.015625	0.0257748		0.0004027
		SCOPE INDUSTRIES	OVER		0.062500	0.0257748		0.0016109
		HAROLD JONES	OVER		0.008300	0.0257748		0.0002139
		PENNZOIL	OVER		0.041470	0.0257748		0.0010689
		STATE OF NEW MEXICO	RI		0.125000	0.0257748		0.0032219
		R B HANNIFIN	OVER		0.008291	0.0257748		0.0002137
		J A DAVIDSON	OVER		0.008291	0.0257748		0.0002137
		KATHLEEN IRWIN	OVER		0.015625	0.0257748		0.0004027
		CULBERTSON MANAGEMENT INC.	OVER		0.015625	0.0257748		0.0004027
				1.000000	1.000000		0.0257748	0.0257748
3	SHELL STATE	FARGO ENERGY	WI	0.187500	0.140624	0.0288135	0.0054025	0.0040519
		BRIAN BURNS	WI	0.050000	0.037500	0.0288135	0.0014407	0.0010805
		ESTATE OF A M PATI JR.	WI	0.031250	0.023438	0.0288135	0.0009004	0.0006753
		SEBEC L PATI	WI	0.031250	0.023438	0.0288135	0.0009004	0.0006753
		SAGE ENERGY COMPANY	WI	0.700000	0.525000	0.0288135	0.0201695	0.0151271

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
4	SHELL STATE "A"	SAGE ENERGY COMPANY STATE OF NEW MEXICO	ORR	*****	0.125000	0.0288135	0.0000000	0.0036017
			RI	1.0000000	0.125000	0.0288135	0.0000000	0.0036017
				*****	*****		*****	*****
					1.0000000		0.0288135	0.0288135
		FARGO ENERGY ESTATE OF A M PATE JR. SEBERT L PATE SECA LTD. SAGE ENERGY STATE OF NEW MEXICO SAGE ENERGY	WI	0.202500	0.151874	0.0315766	0.0063942	0.0047957
			WI	0.031250	0.023438	0.0315766	0.0009868	0.0007401
			WI	0.031250	0.023438	0.0315766	0.0009868	0.0007401
			WI	0.060000	0.045000	0.0315766	0.0018946	0.0014209
			WI	0.675000	0.506250	0.0315766	0.0213142	0.0159856
			RI	*****	0.125000	0.0315766	0.0213142	0.0039471
			ORR	1.0000000	0.125000	0.0315766	*****	0.0039471
				*****	*****		*****	*****
					1.0000000		0.0315766	0.0315766
5	SHELL STATE B	SAGE ENERGY COMPANY FARGO ENERGY ESTATE OF A M PATE JR. SEBERT L PATE CHARLES ROBBINS ELIZABETH ROBBINS SECA LTD. SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI	0.697500	0.523124	0.0403324	0.0281318	0.0210988
			WI	0.100000	0.075000	0.0403324	0.0040332	0.0030249
			WI	0.031250	0.023438	0.0403324	0.0012604	0.0009453
			WI	0.031250	0.023438	0.0403324	0.0012604	0.0009453
			WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
			WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
			WI	0.120000	0.090000	0.0403324	0.0048400	0.0036299
			ORR	*****	0.125000	0.0403324	*****	0.0050416
			RI	1.0000000	0.125000	0.0403324	*****	0.0050416
				*****	*****		*****	*****
6	SHELL STATE C NO. 1	FARGO ENERGY MARSHALL LEAF ESTATE OF A M PATE SEBERT L PATE SAGE ENERGY COMPANY SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI	0.060000	0.045000	0.0303403	0.0018204	0.0013653
			WI	0.020000	0.015000	0.0303403	0.0006068	0.0004551
			WI	0.031250	0.023438	0.0303403	0.0009481	0.0007111
			WI	0.031250	0.023438	0.0303403	0.0009481	0.0007111
			WI	0.857500	0.643124	0.0303403	0.0260169	0.0195127
			ORR	*****	0.125000	0.0303403	*****	0.0037925
			RI	1.0000000	0.125000	0.0303403	*****	0.0037925
				*****	*****		*****	*****
					1.0000000		0.0303403	0.0303403
				*****	*****		*****	*****
7	SHELL STATE "C" NO. FARGO ENERGY		WI	0.080000	0.060000	0.0534556	0.0042764	0.0032073



TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WT	NET NRI	TRACT PARTICIPATION WT	UNIT PARTICIPATION EXPENSE WT	UNIT PARTICIPATION REVENUE NRI
*****								
8 CITIES SERVICE STATE NO. 1								
		MARSHALL LEAF	WI	0.020000	0.015000	0.0534556	0.0010691	0.0008018
		ESTATE OF A M PATE	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
		SEBERT L PATE	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
		CHARLES ROBBINS	WI	0.010000	0.007500	0.0534556	0.0005346	0.0004009
		SAGE ENERGY COMPANY	WI	0.827500	0.620624	0.0534556	0.0442345	0.0331758
		SAGE ENERGY COMPANY	ORR		0.125000	0.0534556		0.0066820
		STATE OF NEW MEXICO	RI		0.125000			0.0066820
				*****	*****		*****	*****
				1.0000000	1.0000000		0.0534556	0.0534556
*****								
9 CITIES SERVICE NO. 3								
		OXY USA INC.	WI	0.364821	0.319218	0.1210068	0.0441458	0.0386275
		WESTERN LEASING	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173
		FARGO ENERGY	WI	0.281173	0.246026	0.1210068	0.0340239	0.0297709
		MARTHA V. LEONARD	WI	0.054202	0.047427	0.1210068	0.0065588	0.0057390
		GLENN BURTON	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173
		SAGE ENERGY COMPANY	WI	0.286254	0.250473	0.1210068	0.0346387	0.0303089
		STATE OF NEW MEXICO	RI		0.125		0.0000000	0.0151259
				*****	*****		*****	*****
				1.0000000	1.0000000		0.1210068	0.1210068
*****								
10 EXXON STATE NO. 1								
		EXXON	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
		FARGO ENERGY	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
		STATE OF NEW MEXICO	RI		0.125000	0.0314340		0.0039292
				*****	*****		*****	*****
				1.0000000	1.0000000		0.0314340	0.0314340

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
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TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
STEPHEN LAWRENCE KNIEREIM								
			WI	0.000656	0.000574	0.0484999	0.0000318	0.0000279
		MARTHA V LEONARD	WI	0.052000	0.045500	0.0484999	0.0025220	0.0022068
		ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
		SEBERT L PATE	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
		FARGO ENERGY	WI	0.326625	0.285797	0.0484999	0.0158412	0.0138612
		SAGE ENERGY COMPANY	WI	0.230739	0.201894	0.0484999	0.0111907	0.0097919
		STATE OF NEW MEXICO	RI	*****	0.125000	0.0484999	0.0060625	0.0060625
				1.000000	*****	*****	*****	*****
					1.000000	0.0484999	0.0484999	0.0484999
*****								
MARSHALL LEAF								
		CHARLES ROBBINS	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
		ELIZABETH ROBBINS	WI	0.010000	0.007000	0.2252457	0.0025244	0.0015767
		SECA LTD.	WI	0.020000	0.014000	0.2252457	0.0045049	0.0031534
		SAGE ENERGY COMPANY	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
		MARATHON OIL	WI	0.910000	0.637000	0.2252457	0.2049736	0.1434815
		STATE OF NEW MEXICO	ORR	*****	0.175000	0.2252457	0.0394180	0.0281557
			RI	1.000000	0.125000	0.2252457	*****	*****
					1.000000	*****	0.2252457	0.2252457
*****								
MARSHALL LEAF								
		NELSON BREINING	WI	0.013333	0.011267	0.0207836	0.0002771	0.0002342
		SECA LTD.	WI	0.033333	0.028167	0.0207836	0.0006928	0.0005854
		UNIVERSITY OIL.	WI	0.026667	0.022533	0.0207836	0.0005542	0.0004683
		CHARLES ROBBINS	WI	0.041667	0.035208	0.0207836	0.0008660	0.0007317
		PENNZOIL	WI	0.006667	0.005634	0.0207836	0.0001386	0.0001171
		SAGE ENERGY COMPANY	WI	0.333333	0.281667	0.0207836	0.0069278	0.0058541
		JOHN EDDY	ORR	0.545000	0.460524	0.0207836	0.0113271	0.0095713
		STATE OF NEW MEXICO	RI	*****	0.030000	0.0207836	0.0006235	0.0025980
				1.000000	0.125000	0.0207836	*****	*****
					1.000000	*****	0.0207836	0.0207836
*****								
MARSHALL LEAF								
		NELSON BREINING	WI	0.020000	0.015000	0.0149248	0.0002985	0.0002239
		SECA LTD.	WI	0.050000	0.037500	0.0149248	0.0007462	0.0005597
		UNIVERSITY OIL.	WI	0.040000	0.030000	0.0149248	0.0005970	0.0004477
		CHARLES ROBBINS	WI	0.062500	0.046875	0.0149248	0.0006996	0.0006996
		SAGE ENERGY COMPANY	WI	0.010000	0.007500	0.0149248	0.0001492	0.0001119
			WI	0.817500	0.613125	0.0149248	0.0122011	0.0091508

16 PENNZOIL STATE NO. 2

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION	UNIT PARTICIPATION	UNIT PARTICIPATION
						WI	WI	NRI
							EXPENSE	REVENUE

** PENNZOIL	ORR	0.095000	0.0149248	0.0014179
JOHN EDDY	ORR	0.030000	0.0149248	0.0004477
STATE OF NEW MEXICO	RI	0.125000	0.0149248	0.0018656
		*****		*****
		1.000000	1.000000	0.0149248

17 PENNZOIL STATE 35 NO. 1				
PENNZOIL	WI	0.150000	0.106250	0.0070596
MARTHA V. LEONARD	WI	0.052000	0.045500	0.0010489
ESTATE OF A M PATE	WI	0.020313	0.017774	0.0004097
SEBERT L PATE	WI	0.020313	0.017774	0.0004097
FARGO ENERGY	WI	0.33125	0.291484	0.0067192
SAGE ENERGY COMPANY	WI	0.224249	0.196218	0.0045232
STATE OF NEW MEXICO	RI	*****	0.125000	*****
		1.000000	1.000000	0.0201703

18 PENNZOIL STATE 35 "A" NO. 1				
NELSON BREINING	WI	0.020000	0.014400	0.0001509
SAGE ENERGY COMPANY	WI	0.980000	0.705600	0.0073917
PENNZOIL	ORR	*****	0.155000	*****
STATE OF NEW MEXICO	RI	*****	0.125000	*****
		1.000000	1.000000	0.0075426

19A STATE COMMUNITIZED NO. 1				
MARTHA V. LEONARD	WI	0.052000	0.045500	0.0019005
UNIVERSITY OIL	WI	0.040625	0.035546	0.0012992
WESTERN LEASING	WI	0.006500	0.005688	0.0002376
GLENN BURTON	WI	0.006500	0.005688	0.0002376
FARGO ENERGY	WI	0.279500	0.244563	0.0102155
PENNZOIL	WI	0.135184	0.118286	0.0049409
WALINOCO	WI	0.039816	0.034839	0.0014552
OXY USA INC.	WI	0.175000	0.153125	0.0063961
SAGE ENERGY COMPANY	WI	0.175000	0.153125	0.0063961
STATE OF NEW MEXICO	RI	0.264875	0.231765	0.0096809
		*****	0.125000	*****
		1.000000	1.000000	0.0365491

19B STATE COMMUNITIZED NO. 2				
MARTHA V. LEONARD	WI	0.052000	0.045500	0.0019005
			0.0365491	0.0016630

\*\* AT PAYOUT PENNZOIL HAS THE OPTION TO CONVERT ITS ORRI TO  
A WI PER AN AGREEMENT BETWEEN AMINI OIL COMPANY AND  
PENNZOIL DATED 11/12/73.

[illegible]

EXHIBIT "b"  
PART I  
UNIT OPERATING AGREEMENT  
NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

<u>OWNER</u>	<u>UNIT PARTICIPATION EXPENSE</u>
Brian Burns	.0019562
C.R. Gallagher	.0031881
Charleen G. Knieriem	.0032358
Charles Bernard Gallagher	.0000637
Charles Raymond Gallagher, II	.0000637
Charles Robbins	.0044215
Christine Gallagher Seger	.0000637
Christopher W. Knieriem	.0000637
Delphine Pope Keller	.0000637
Elizabeth Robbins	.0056540
Estate of A.M. Pate, Jr.	.0096865
Exxon Company, U.S.A.	.0354822
Fargo Energy Corporation	.1767372
Frances Herndon	.0000637
W. Glenn Burton	.0017271
Gregory Charles Gallagher	.0000637
Gregory J. Gallagher	.0030767
Kathleen Gallagher Cooper	.0000637
Marathon Oil Company	.0495619
Marguerite Gallagher Price	.0000637
Marshall Leaf	.0101276
Martha V. Leonard	.0173878
Mary B. Gallagher	.0000159
Mary G. Herndon	.0030130
Mary Herndon Ray	.0000637
Mary Knieriem Taylor	.0000637
Mary Margaret Pope	.0000637
Michael Joseph Gallagher	.0000637
Natalie G. Pope	.0031403
Natalie Pope	.0000637
Nelson Breining	.0015899
Oxy U.S.A., Inc.	.0695644
Pennzoil Exploration & Production	.0238692
Peter Gregory Herndon	.0000637
Raymond Stanley Herndon	.0000637
Robin C. Herndon	.0000637
Sage Energy Company	.5013430
Sebert L. Pate	.0096865
Seca Ltd.	.0175010
Stephen Lawrence Knieriem	.0000318
Susan Gallagher Grey	.0000637
University Oil Company	.0047492
Veronica Herndon	.0000637
Wainoco Oil & Gas Company	.0404497
Western Leasing Company	.0015295
William G. Pope, Jr.	.0000637
	<hr/> 1.0000000

NORTH VACUUM (ABO) NORTH UNIT  
OPERATING AGREEMENT  
EXHIBIT "C"  
PART II  
TRACT & UNIT PARTICIPATION - OWNER BASIS

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
3 BRIAN BURNS		WI	0.050000	0.037500	0.0288135	0.0014407	0.0010805
2 BRIAN BURNS		WI	0.020000	0.013400	0.0257748	0.0005155	0.0003454
TOTAL						0.0019562	0.0014259
13 C R GALLAGHER		WI	0.065734	0.057518	0.0484999	0.0031881	0.0027897
TOTAL						0.0031881	0.0027897
13 CHARLEEN C KNIERIM		WI	0.066719	0.058379	0.0484999	0.0032358	0.0028314
TOTAL						0.0032358	0.0028314
13 CHARLES BERNARD GALLAGHER		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13 CHARLES RAYMOND GALLAGHER II		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
1 CHARLES ROBBINS		WI	0.020000	0.015000	0.0372900	0.0007458	0.0005593
5 CHARLES ROBBINS		WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
14 CHARLES ROBBINS		WI	0.010000	0.007000	0.2252457	0.0022524	0.0015767
16 CHARLES ROBBINS		WI	0.010000	0.007500	0.0149248	0.0001492	0.0001119
7 CHARLES ROBBINS		WI	0.010000	0.007500	0.0534556	0.0005346	0.0004009
15 CHARLES ROBBINS		WI	0.006667	0.005634	0.0207836	0.0001386	0.0001171
12 CHARLES ROBBINS		WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
TOTAL						0.0044215	0.0032413
13 CHRISTINE GALLAGHER SEGER		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13 CHRISTOPHER W KNIERIM		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557

TRACT	OWNER	TYPE	GROSS	WI	NET	NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION NRI
*****									
2	CULBERTSON MANAGEMENT INC.	ORR			0.015625		0.0257748		0.0004027
TOTAL									
13	DELPHINE POPE KELLER	WI	0.001313		0.001149		0.0484999	0.0000637	0.0000557
TOTAL									
2	E A CULBERTSON	ORR			0.015625		0.0257748		0.0004027
TOTAL									
1	ELIZABETH ROBBINS	WI	0.020000		0.015000		0.0372900	0.0007458	0.0005593
14	ELIZABETH ROBBINS	WI	0.020000		0.014000		0.2252457	0.0045049	0.0031534
5	ELIZABETH ROBBINS	WI	0.010000		0.007500		0.0403324	0.0004033	0.0003025
TOTAL									
5	ESTATE OF A M PATE JR.	WI	0.031250		0.023438		0.0403324	0.0012604	0.0009453
7	ESTATE OF A M PATE JR.	WI	0.031250		0.023438		0.0534556	0.0016705	0.0012529
3	ESTATE OF A M PATE JR.	WI	0.031250		0.023438		0.0288135	0.0009004	0.0006753
1	ESTATE OF A M PATE JR.	WI	0.031250		0.023438		0.0372900	0.0011653	0.0008740
6	ESTATE OF A M PATE JR.	WI	0.031250		0.023438		0.0303403	0.0009481	0.0007111
4	ESTATE OF A M PATE JR.	WI	0.031250		0.023438		0.0315766	0.0009868	0.0007401
13	ESTATE OF A M PATE JR.	WI	0.020313		0.017774		0.0484999	0.0009852	0.0008585
17	ESTATE OF A M PATE JR.	WI	0.020313		0.017774		0.0201703	0.0004097	0.0003585
19B	ESTATE OF A M PATE JR.	WI	0.020313		0.017773		0.0365491	0.0007424	0.0006496
12	ESTATE OF A M PATE JR.	WI	0.015625		0.013672		0.0395305	0.0006177	0.0005405
TOTAL									
10	EXCON	WI	0.500000		0.437500		0.0314340	0.0157170	0.0137524
12	EXCON	WI	0.500000		0.437500		0.0395305	0.0197652	0.0172947
11	EXCON	ORR			0.125000		0.0314010		0.0039251
1	EXCON	ORR			0.062197		0.0372900		0.0023194
TOTAL									
11	FARGO ENERGY	WI	1.000000		0.750000		0.0314010	0.0314010	0.0235508
10	FARGO ENERGY	WI	0.500000		0.437500		0.0314340	0.0157170	0.0137524
2	FARGO ENERGY	WI	0.362500		0.242875		0.0257748	0.0093434	0.0062601
17	FARGO ENERGY	WI	0.333125		0.291484		0.0201703	0.0067192	0.0058793
13	FARGO ENERGY	WI	0.326625		0.285797		0.0484999	0.0158412	0.0138612
9	FARGO ENERGY	WI	0.281173		0.246026		0.1210068	0.0340239	0.0297709



TRACT	OWNER	TYPE	GROSS WT	NET NRI	TRACT PARTICIPATION WT	UNIT PARTICIPATION EXPENSE WT	UNIT PARTICIPATION REVENUE NRI
*****							
19B	FARGO ENERGY	WT	0.279500	0.244563	0.0365491	0.0102155	0.0089386
19A	FARGO ENERGY	WT	0.279500	0.244563	0.0365491	0.0102155	0.0089386
8	FARGO ENERGY	WT	0.269750	0.236031	0.0360754	0.0097313	0.0085149
12	FARGO ENERGY	WT	0.206250	0.180469	0.0395305	0.0081532	0.0071340
4	FARGO ENERGY	WT	0.202500	0.151874	0.0315766	0.0063942	0.0047957
3	FARGO ENERGY	WT	0.187500	0.140624	0.0288135	0.0054025	0.0040519
5	FARGO ENERGY	WT	0.100000	0.075000	0.0403324	0.0040332	0.0030249
1	FARGO ENERGY	WT	0.092500	0.069375	0.0372900	0.0034493	0.0025870
7	FARGO ENERGY	WT	0.080000	0.060000	0.0534556	0.0042764	0.0032073
6	FARGO ENERGY	WT	0.060000	0.045000	0.0303403	0.0018204	0.0013653
TOTAL						0.1767372	0.1456329
*****							
13	FRANCES HERNDON	WT	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
9	GLENN BURTON	WT	0.006775	0.005928	0.1210068	0.0008198	0.0007173
19B	GLENN BURTON	WT	0.006500	0.005688	0.0365491	0.0002376	0.0002079
19A	GLENN BURTON	WT	0.006500	0.005688	0.0365491	0.0002376	0.0002079
8	GLENN BURTON	WT	0.006500	0.005688	0.0360754	0.0002345	0.0002052
12	GLENN BURTON	WT	0.005000	0.004375	0.0395305	0.0001976	0.0001729
TOTAL						0.0017270	0.0015112
*****							
13	GREGORY CHARLES GALLAGHER	WT	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
13	GREGORY J GALLAGHER	WT	0.063438	0.055507	0.0484999	0.0030767	0.0026921
TOTAL						0.0030767	0.0026921
*****							
2	HAROLD JONES	ORR		0.008300	0.0257748		0.0002139
TOTAL							0.0002139
*****							
2	J A DAVIDSON	ORR		0.008291	0.0257748		0.0002137
TOTAL							0.0002137
*****							
16	JOHN EDDY	ORR		0.030000	0.0149248		0.0004477
15	JOHN EDDY	ORR		0.030000	0.0207836		0.0006235

TRACT	OWNER	TYPE	GROSS	WT	NET	NRI	TRACT	PARTICIPATION	UNIT	PARTICIPATION	UNIT
							WT	EXPENSE	WT	REVENUE	NRI
*****											
TOTAL											0.0010712
13	KATHLEEN GALLAGHER COOPER	WI	0.001313		0.001149		0.0484999		0.0000637		0.0000557
TOTAL									0.0000637		0.0000557
2	KATHLEEN IRWIN	ORR			0.015625		0.0257748				0.0004027
TOTAL											0.0004027
20	KARATHON OIL	WI	0.500000		0.437500		0.0662843		0.0331422		0.0289994
21	KARATHON OIL	WI	1.000000		0.875000		0.0164197		0.0164197		0.0143672
14	KARATHON OIL	ORR			0.175000		0.2252457		0.0495619		0.0394180
TOTAL											0.0827846
13	MARGUERITE GALLAGHER PRICE	WI	0.001313		0.001149		0.0484999		0.0000637		0.0000557
TOTAL									0.0000637		0.0000557
1	MARSHALL LEAF	WI	0.030000		0.022500		0.0372900		0.0011187		0.0008390
14	MARSHALL LEAF	WI	0.030000		0.021000		0.0252457		0.0067574		0.0047302
7	MARSHALL LEAF	WI	0.020000		0.015000		0.0534556		0.0010691		0.0008018
16	MARSHALL LEAF	WI	0.020000		0.015000		0.0149248		0.0002985		0.0002239
6	MARSHALL LEAF	WI	0.020000		0.015000		0.0303403		0.0006068		0.0004551
15	MARSHALL LEAF	WI	0.013333		0.011267		0.0207836		0.0002771		0.0002342
TOTAL									0.0101276		0.0072842
13	MARIEA V. LEONARD	WI	0.052000		0.045500		0.0484999		0.0025220		0.0022068
9	MARIEA V. LEONARD	WI	0.054202		0.047427		0.1210068		0.0057390		0.0057390
19A	MARIEA V. LEONARD	WI	0.052000		0.045500		0.0365491		0.0019005		0.0016630
19B	MARIEA V. LEONARD	WI	0.052000		0.045500		0.0365491		0.0019005		0.0016630
17	MARIEA V. LEONARD	WI	0.052000		0.045500		0.0201703		0.0010489		0.0009177
8	MARIEA V. LEONARD	WI	0.052000		0.045500		0.0360754		0.0018759		0.0016414
12	MARIEA V. LEONARD	WI	0.040000		0.035000		0.0395305		0.0015812		0.0013836
TOTAL									0.0173878		0.0152145
13	MARY B GALLAGHER	WI	0.000328		0.000287		0.0484999		0.0000159		0.0000139
TOTAL									0.0000159		0.0000139

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
13	MARY G HERNDON	WI	0.062125	0.054360	0.0484999	0.0030130	0.0026366
TOTAL							
13	MARY HERNDON RAY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL							
13	MARY KATHERINE TAYLOR	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL							
13	MARY MARGARETTE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL							
13	MICHAEL JOSEPH GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL							
13	NATALIE G POPE	WI	0.064750	0.056656	0.0484999	0.0031403	0.0027479
TOTAL							
13	NATALIE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL							
16	NELSON BREINING	WI	0.050000	0.037500	0.0149248	0.0007462	0.0005597
15	NELSON BREINING	WI	0.033333	0.028167	0.0207836	0.0006928	0.0005854
18	NELSON BREINING	WI	0.020000	0.014400	0.0075426	0.0001509	0.0001086
TOTAL							
9	OXY USA INC.	WI	0.364821	0.319218	0.1210068	0.0441458	0.0386275
8	OXY USA INC.	WI	0.350000	0.306250	0.0360754	0.0126264	0.0110481
19A	OXY USA INC.	WI	0.175000	0.153125	0.0365491	0.0063961	0.0055966
19B	OXY USA INC.	WI	0.175000	0.153125	0.0365491	0.0063961	0.0055966
TOTAL							
17	PENNZOIL	WI	0.350000	0.306250	0.0201703	0.0070596	0.0061772

TRACT	OWNER	TYPE	GROSS WT	NET WT	TRACT PARTICIPATION	UNIT PARTICIPATION EXPENSE	UNIT PARTICIPATION REVENUE
*****					WT	WT	WT
15 PENNZOIL		WT	0.333333	0.281667	0.0207836	0.0069278	0.0058541
19B PENNZOIL		WT	0.135184	0.118286	0.0365491	0.0049409	0.0043232
19A PENNZOIL		WT	0.135184	0.118286	0.0365491	0.0049409	0.0043232
**16 PENNZOIL		ORR		0.095000	0.0149248		0.0014179
2 PENNZOIL		ORR		0.041470	0.0257748		0.0010689
18 PENNZOIL		ORR		0.155000	0.0075426		0.0011691
20 PENNZOIL		ORR		0.043750	0.0662843		0.0028999
TOTAL						0.0238691	0.0272335
13 PETER GREGORY HERNDON	WT		0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
2 R E HANNIFLIN	ORR			0.008291	0.0257748		0.0002137
TOTAL							0.0002137
13 RAYMOND STANLEY HERNDON	WT		0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13 ROBIN C HERNDON	WT		0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
4 SAGE ENERGY COMPANY	WT		0.675000	0.506250	0.0315766	0.0213142	0.0159856
18 SAGE ENERGY COMPANY	WT		0.980000	0.705000	0.0075426	0.0073917	0.0053221
14 SAGE ENERGY COMPANY	WT		0.910000	0.637000	0.2252457	0.2049736	0.1434815
6 SAGE ENERGY COMPANY	WT		0.857500	0.643124	0.0303403	0.0260169	0.0195127
7 SAGE ENERGY COMPANY	WT		0.827500	0.620624	0.0534556	0.0442350	0.0331758
16 SAGE ENERGY COMPANY	WT		0.817500	0.613125	0.0149248	0.0122011	0.0091508
1 SAGE ENERGY COMPANY	WT		0.735000	0.551249	0.0372900	0.0274082	0.0205561
3 SAGE ENERGY COMPANY	WT		0.700000	0.525000	0.0288135	0.0201695	0.0151271
5 SAGE ENERGY COMPANY	WT		0.697500	0.523124	0.0403324	0.0281318	0.0210988
15 SAGE ENERGY COMPANY	WT		0.545000	0.460524	0.0207836	0.0113271	0.0095713
2 SAGE ENERGY COMPANY	WT		0.416900	0.279323	0.0257748	0.0107455	0.0071995
9 SAGE ENERGY COMPANY	WT		0.286254	0.250473	0.0360754	0.0099072	0.0084708
8 SAGE ENERGY COMPANY	WT		0.274625	0.231765	0.0365491	0.0096809	0.0084708
19A SAGE ENERGY COMPANY	WT		0.264875	0.231765	0.0365491	0.0096809	0.0084708
19B SAGE ENERGY COMPANY	WT		0.264875	0.231765	0.0365491	0.0096809	0.0084708
13 SAGE ENERGY COMPANY	WT		0.230739	0.201894	0.0484999	0.0111907	0.00939578
17 SAGE ENERGY COMPANY	WT		0.224249	0.196218	0.0201703	0.0045232	0.0068313
12 SAGE ENERGY COMPANY	WT		0.197500	0.172812	0.0395305	0.0078073	0.0036017
3 SAGE ENERGY COMPANY	ORR			0.125000	0.0288135	0.0000000	
1 SAGE ENERGY COMPANY	ORR			0.062803	0.0372900		0.0023420

\*\* AT PAYOUT PENNZOIL HAS THE OPTION TO CONVERT ITS ORRI TO A WT PER AN AGREEMENT BETWEEN AMINI OIL COMPANY AND PENNZOIL DATED 11/12/73.

TRACT	OWNER	TYPE	GROSS WT	NET NRI	TRACT PARTICIPATION WT	UNIT PARTICIPATION EXPENSE WT	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
7	SAGE ENERGY COMPANY	ORR	0.031250	0.125000	0.0534556	0.0012604	0.0009453
5	SAGE ENERGY COMPANY	ORR	0.031250	0.125000	0.0403324	0.0016705	0.0012529
4	SAGE ENERGY COMPANY	ORR	0.031250	0.125000	0.0315766	0.0007111	0.0007111
6	SAGE ENERGY COMPANY	ORR	0.031250	0.125000	0.023438	0.0011653	0.0008740
TOTAL					0.0315766	0.0009868	0.0007401
2	SCOPE INDUSTRIES	ORR	0.023438	0.023438	0.0288135	0.0009004	0.0006753
TOTAL					0.0288135	0.0007424	0.0006496
5	SEBERT L PATE	WI	0.020313	0.017774	0.0201703	0.0004097	0.0003585
7	SEBERT L PATE	WI	0.020313	0.017774	0.0484999	0.000852	0.0008620
6	SEBERT L PATE	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
1	SEBERT L PATE	WI					
4	SEBERT L PATE	WI					
3	SEBERT L PATE	WI					
198	SEBERT L PATE	WI					
17	SEBERT L PATE	WI					
13	SEBERT L PATE	WI					
12	SEBERT L PATE	WI					
TOTAL						0.0096865	0.0076093
5	SECA LTD.	WI	0.120000	0.090000	0.0403324	0.0048400	0.0036299
4	SECA LTD.	WI	0.060000	0.045000	0.0315766	0.0018946	0.0014209
1	SECA LTD.	WI	0.040000	0.030000	0.0372900	0.0014916	0.0011187
16	SECA LTD.	WI	0.040000	0.030000	0.0149248	0.0005970	0.0004477
14	SECA LTD.	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
2	SECA LTD.	WI	0.030000	0.020100	0.0257748	0.0007732	0.0005181
15	SECA LTD.	WI	0.026667	0.022533	0.0207836	0.0005542	0.0004683
12	SECA LTD.	WI	0.015000	0.013125	0.0395305	0.0005930	0.0005188
TOTAL						0.0175010	0.0128526
10	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0314340		0.0039292
11	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0314010		0.0039251
17	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0201703		0.0025213
16	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0149248		0.0018656
18	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0075426		0.0009428
15	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0207836		0.0025980
9	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.1210068		0.0151259
21	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0164197		0.0020525
6	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0303403		0.0037925
14	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.2252457		0.0281557
12	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0395305		0.0049413
4	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0315766		0.0039471

TRACT	OWNER	TYPE	GROSS WT	NET NRI	TRACT PARTICIPATION WT	UNIT PARTICIPATION EXPENSE WT	UNIT PARTICIPATION REVENUE NRI
*****							
3	STATE OF NEW MEXICO	RI		0.125000	0.0288135		0.0036017
1	STATE OF NEW MEXICO	RI		0.125000	0.0372900		0.0046612
7	STATE OF NEW MEXICO	RI		0.125000	0.0534556		0.0050416
5	STATE OF NEW MEXICO	RI		0.125000	0.0403124		0.0045686
198	STATE OF NEW MEXICO	RI		0.125000	0.0365491		0.0082855
20	STATE OF NEW MEXICO	RI		0.125000	0.0662843		0.0060625
13	STATE OF NEW MEXICO	RI		0.125000	0.0484999		0.0045686
19A	STATE OF NEW MEXICO	RI		0.125000	0.0365491		0.0045094
8	STATE OF NEW MEXICO	RI		0.125000	0.0360754		0.0032219
2	STATE OF NEW MEXICO	RI		0.125000	0.0257748		
TOTAL					5		0.1250000
*****							
13	STEPHEN LAWRENCE KINTERLIN	WI	0.000656	0.000574	0.0484999	0.0000318	0.0000279
TOTAL						0.0000318	0.0000279
*****							
13	SUSAN GALLAGHER GREY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
19A	UNIVERSITY OIL	WI	0.040625	0.035546	0.0365491	0.0014848	0.0012992
16	UNIVERSITY OIL	WI	0.062500	0.046875	0.0149248	0.0009328	0.0006996
15	UNIVERSITY OIL	WI	0.041667	0.035208	0.0207836	0.0008660	0.0007317
8	UNIVERSITY OIL	WI	0.040625	0.035547	0.0360754	0.0014656	0.0012824
TOTAL						0.0047492	0.0040129
*****							
13	VERONICA HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
20	WALINOCO	WI	0.500000	0.437500	0.0662843	0.0331421	0.0260995
2	WALINOCO	WI	0.170600	0.127950	0.0257748	0.0043972	0.0032979
19B	WALINOCO	WI	0.039816	0.034839	0.0365491	0.0014552	0.0012733
19A	WALINOCO	WI	0.039816	0.034839	0.0365491	0.0014552	0.0012733
TOTAL						0.0404497	0.0319440
*****							
2	WALLACE IRWIN	ORR		0.015625	0.0257748		0.0004027
TOTAL							0.0004027
*****							
9	WESTERN LEASING	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
198 WESTERN LEASING		WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
8 WESTERN LEASING		WI	0.006500	0.005688	0.0360754	0.0002345	0.0002052
19A WESTERN LEASING		WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
TOTAL						0.0015295	0.0013383
13 WILLIAM C POPE JR.		WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL					5	0.0000637	0.0000557
						1.0000000	1.0000000

EXHIBIT "D"  
PART II  
UNIT OPERATING AGREEMENT  
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LEA COUNTY, NEW MEXICO

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Univ. Oil Co. Acct. #4553  
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Meraux, LA 77075

EXHIBIT " E "

Attached to and made a part of Unit Operating Agreement, North Vacuum (Abo) North Unit,  
Lea County, New Mexico

**ACCOUNTING PROCEDURE  
JOINT OPERATIONS**

**I. GENERAL PROVISIONS**

**1. Definitions**

"Joint Property" shall mean the real and personal property subject to the agreement to which this Accounting Procedure is attached.

"Joint Operations" shall mean all operations necessary or proper for the development, operation, protection and maintenance of the Joint Property.

"Joint Account" shall mean the account showing the charges paid and credits received in the conduct of the Joint Operations and which are to be shared by the Parties.

"Operator" shall mean the party designated to conduct the Joint Operations.

"Non-Operators" shall mean the Parties to this agreement other than the Operator.

"Parties" shall mean Operator and Non-Operators.

"First Level Supervisors" shall mean those employees whose primary function in Joint Operations is the direct supervision of other employees and/or contract labor directly employed on the Joint Property in a field operating capacity.

"Technical Employees" shall mean those employees having special and specific engineering, geological or other professional skills, and whose primary function in Joint Operations is the handling of specific operating conditions and problems for the benefit of the Joint Property.

"Personal Expenses" shall mean travel and other reasonable reimbursable expenses of Operator's employees.

"Material" shall mean personal property, equipment or supplies acquired or held for use on the Joint Property.

"Controllable Material" shall mean Material which at the time is so classified in the Material Classification Manual as most recently recommended by the Council of Petroleum Accountants Societies.

**2. Statement and Billings**

Operator shall bill Non-Operators on or before the last day of each month for their proportionate share of the Joint Account for the preceding month. Such bills will be accompanied by statements which identify the authority for expenditure, lease or facility, and all charges and credits summarized by appropriate classifications of investment and expense except that items of Controllable Material and unusual charges and credits shall be separately identified and fully described in detail.

**3. Advances and Payments by Non-Operators**

A. Unless otherwise provided for in the agreement, the Operator may require the Non-Operators to advance their share of estimated cash outlay for the succeeding month's operation within fifteen (15) days after receipt of the billing or by the first day of the month for which the advance is required, whichever is later. Operator shall adjust each monthly billing to reflect advances received from the Non-Operators.

B. Each Non-Operator shall pay its proportion of all bills within fifteen (15) days after receipt. If payment is not made within such time, the unpaid balance shall bear interest monthly at the prime rate in effect at Texas Commerce Bank of San Antonio on the first day of the month in which delinquency occurs plus 1% or the maximum contract rate permitted by the applicable usury laws in the state in which the Joint Property is located, whichever is the lesser, plus attorney's fees, court costs, and other costs in connection with the collection of unpaid amounts.

**4. Adjustments**

Payment of any such bills shall not prejudice the right of any Non-Operator to protest or question the correctness thereof; provided, however, all bills and statements rendered to Non-Operators by Operator during any calendar year shall conclusively be presumed to be true and correct after twenty-four (24) months following the end of any such calendar year, unless within the said twenty-four (24) month period a Non-Operator takes written exception thereto and makes claim on Operator for adjustment. No adjustment favorable to Operator shall be made unless it is made within the same prescribed period. The provisions of this paragraph shall not prevent adjustments resulting from a physical inventory of Controllable Material as provided for in Section V.

5. Audits

- A. A Non-Operator, upon notice in writing to Operator and all other Non-Operators, shall have the right to audit Operator's accounts and records relating to the Joint Account for any calendar year within the twenty-four (24) month period following the end of such calendar year; provided, however, the making of an audit shall not extend the time for the taking of written exception to and the adjustments of accounts as provided for in Paragraph 4 of this Section I. Where there are two or more Non-Operators, the Non-Operators shall make every reasonable effort to conduct a joint audit in a manner which will result in a minimum of inconvenience to the Operator. Operator shall bear no portion of the Non-Operators' audit cost incurred under this paragraph unless agreed to by the Operator. The audits shall not be conducted more than once each year without prior approval of Operator, except upon the resignation or removal of the Operator, and shall be made at the expense of those Non-Operators approving such audit.
- B. The Operator shall reply in writing to an audit report within 180 days after receipt of such report. If an audit exception(s) cannot be reconciled within 180 days, the non-operator(s) shall be notified of the audit exception(s) status.
6. Approval By Non-Operators

Where an approval or other agreement of the Parties or Non-Operators is expressly required under other sections of this Accounting Procedure and if the agreement to which this Accounting Procedure is attached contains no contrary provisions in regard thereto, Operator shall notify all Non-Operators of the Operator's proposal, and the agreement or approval of a majority in interest of the Non-Operators shall be controlling on all Non-Operators.

## II. DIRECT CHARGES

Operator shall charge the Joint Account with the following items:

1. Ecological and Environmental

Costs incurred for the benefit of the Joint Property as a result of governmental or regulatory requirements to satisfy environmental considerations applicable to the Joint Operations. Such costs may include surveys of an ecological or archaeological nature and pollution control procedures as required by applicable laws and regulations.

2. Rentals and Royalties

Lease rentals and royalties paid by Operator for the Joint Operations.

3. Labor

- A. (1) Salaries and wages of Operator's field employees directly employed on the Joint Property in the conduct of Joint Operations.
- (2) Salaries of First Level Supervisors in the field.
- (3) Salaries and wages of Technical Employees directly employed on the Joint Property if such charges are excluded from the overhead rates.
- (4) Salaries and wages of Technical Employees either temporarily or permanently assigned to and directly employed in the operation of the Joint Property if such charges are excluded from the overhead rates.
- B. Operator's cost of holiday, vacation, sickness and disability benefits and other customary allowances paid to employees whose salaries and wages are chargeable to the Joint Account under Paragraph 3A of this Section II. Such costs under this Paragraph 3B may be charged on a "when and as paid basis" or by "percentage assessment" on the amount of salaries and wages chargeable to the Joint Account under Paragraph 3A of this Section II. If percentage assessment is used, the rate shall be based on the Operator's cost experience.
- C. Expenditures or contributions made pursuant to assessments imposed by governmental authority which are applicable to Operator's costs chargeable to the Joint Account under Paragraphs 3A and 3B of this Section II.
- D. Personal Expenses of those employees whose salaries and wages are chargeable to the Joint Account under Paragraph 3A of this Section II.

4. Employee Benefits

Operator's current costs of established plans for employees' group life insurance, hospitalization, pension, retirement, stock purchase, thrift, bonus, and other benefit plans of a like nature, applicable to Operator's labor cost chargeable to the Joint Account under Paragraphs 3A and 3B of this Section II shall be Operator's actual cost not to exceed the percent most recently recommended by the Council of Petroleum Accountants Societies.

5. Material

Material purchased or furnished by Operator for use on the Joint Property as provided under Section IV. Only such Material shall be purchased for or transferred to the Joint Property as may be required for immediate use and is reasonably practical and consistent with efficient and economical operations. The accumulation of surplus stocks shall be avoided.

6. Transportation

Transportation of employees and Material necessary for the Joint Operations but subject to the following limitations:

- A. If Material is moved to the Joint Property from the Operator's warehouse or other properties, no charge shall be made to the Joint Account for a distance greater than the distance from the nearest reliable supply store where like material is normally available or railway receiving point nearest the Joint Property unless agreed to by the Parties.

- B. If surplus Material is moved to Operator's warehouse or other storage point, no charge shall be made to the Joint Account for a distance greater than the distance to the nearest reliable supply store where like material is normally available, or railway receiving point nearest the Joint Property unless agreed to by the Parties. No charge shall be made to the Joint Account for moving Material to other properties belonging to Operator, unless agreed to by the Parties.
- C. In the application of subparagraphs A and B above, the option to equalize or charge actual trucking cost is available when the actual charge is \$400 or less excluding accessorial charges. The \$400 will be adjusted to the amount most recently recommended by the Council of Petroleum Accountants Societies.

**7. Services**

The cost of contract services, equipment and utilities provided by outside sources, except services excluded by Paragraph 10 of Section II and Paragraph i, ii, and iii, of Section III. The cost of professional consultant services and contract services of technical personnel directly engaged on the Joint Property if such charges are excluded from the overhead rates. The cost of professional consultant services or contract services of technical personnel not directly engaged on the Joint Property shall not be charged to the Joint Account unless previously agreed to by the Parties.

**8. Equipment and Facilities Furnished By Operator**

- A. Operator shall charge the Joint Account for use of Operator owned equipment and facilities at rates commensurate with costs of ownership and operation. Such rates shall include costs of maintenance, repairs, other operating expense, insurance, taxes, depreciation, and interest on gross investment less accumulated depreciation not to exceed twelve percent (12 %) per annum. Such rates shall not exceed average commercial rates currently prevailing in the immediate area of the Joint Property.
- B. In lieu of charges in paragraph 8A above, Operator may elect to use average commercial rates prevailing in the immediate area of the Joint Property less 20%. For automotive equipment, Operator may elect to use rates published by the Petroleum Motor Transport Association.

**9. Damages and Losses to Joint Property**

All costs or expenses necessary for the repair or replacement of Joint Property made necessary because of damages or losses incurred by fire, flood, storm, theft, accident, or other cause, except those resulting from Operator's gross negligence or willful misconduct. Operator shall furnish Non-Operator written notice of damages or losses incurred as soon as practicable after a report thereof has been received by Operator.

**10. Legal Expense**

Expense of handling, investigating and settling litigation or claims, discharging of liens, payment of judgements and amounts paid for settlement of claims incurred in or resulting from operations under the agreement or necessary to protect or recover the Joint Property, except that no charge for services of Operator's legal staff or fees or expense of outside attorneys shall be made unless previously agreed to by the Parties. All other legal expense is considered to be covered by the overhead provisions of Section III unless otherwise agreed to by the Parties, except as provided in Section I, Paragraph 3.

**11. Taxes**

All taxes of every kind and nature assessed or levied upon or in connection with the Joint Property, the operation thereof, or the production therefrom, and which taxes have been paid by the Operator for the benefit of the Parties. If the ad valorem taxes are based in whole or in part upon separate valuations of each party's working interest, then notwithstanding anything to the contrary herein, charges to the Joint Account shall be made and paid by the Parties hereto in accordance with the tax value generated by each party's working interest.

**12. Insurance**

Net premiums paid for insurance required to be carried for the Joint Operations for the protection of the Parties. In the event Joint Operations are conducted in a state in which Operator may act as self-insurer for Worker's Compensation and/or Employers Liability under the respective state's laws, Operator may, at its election, include the risk under its self-insurance program and in that event, Operator shall include a charge at Operator's cost not to exceed manual rates.

**13. Abandonment and Reclamation**

Costs incurred for abandonment of the Joint Property, including costs required by governmental or other regulatory authority.

**14. Communications**

Cost of acquiring, leasing, installing, operating, repairing and maintaining communication systems, including radio and microwave facilities directly serving the Joint Property. In the event communication facilities/systems serving the Joint Property are Operator owned, charges to the Joint Account shall be made as provided in Paragraph 8 of this Section II.

**15. Other Expenditures**

Any other expenditure not covered or dealt with in the foregoing provisions of this Section II, or in Section III and which is of direct benefit to the Joint Property and is incurred by the Operator in the necessary and proper conduct of the Joint Operations.

### III. OVERHEAD

#### 1. Overhead - Drilling and Producing Operations

- i. As compensation for administrative, supervision, office services and warehousing costs, Operator shall charge drilling and producing operations on either:

(X) Fixed Rate Basis, Paragraph 1A, or  
( ) Percentage Basis, Paragraph 1B

Unless otherwise agreed to by the Parties, such charge shall be in lieu of costs and expenses of all offices and salaries or wages plus applicable burdens and expenses of all personnel, except those directly chargeable under Paragraph 3A, Section II. The cost and expense of services from outside sources in connection with matters of taxation, traffic, accounting or matters before or involving governmental agencies shall be considered as included in the overhead rates provided for in the above selected Paragraph of this Section III unless such cost and expense are agreed to by the Parties as a direct charge to the Joint Account.

- ii. The salaries, wages and Personal Expenses of Technical Employees and/or the cost of professional consultant services and contract services of technical personnel directly employed on the Joint Property:

( ) shall be covered by the overhead rates, or  
(X) shall not be covered by the overhead rates.

- iii. The salaries, wages and Personal Expenses of Technical Employees and/or costs of professional consultant services and contract services of technical personnel either temporarily or permanently assigned to and directly employed in the operation of the Joint Property:

( ) shall be covered by the overhead rates, or  
(X) shall not be covered by the overhead rates.

#### A. Overhead - Fixed Rate Basis

- (1) Operator shall charge the Joint Account at the following rates per well per month:

Drilling Well Rate \$ 480.00  
(Prorated for less than a full month)

Producing Well Rate \$ 4800.00

- (2) Application of Overhead - Fixed Rate Basis shall be as follows:

##### (a) Drilling Well Rate

- (1) Charges for drilling wells shall begin on the date the well is spudded and terminate on the date the drilling rig, completion rig, or other units used in completion of the well is released, whichever is later, except that no charge shall be made during suspension of drilling or completion operations for fifteen (15) or more consecutive calendar days.
- (2) Charges for wells undergoing any type of workover or recompletion for a period of five (5) consecutive work days or more shall be made at the drilling well rate. Such charges shall be applied for the period from date workover operations, with rig or other units used in workover, commence through date of rig or other unit release, except that no charge shall be made during suspension of operations for fifteen (15) or more consecutive calendar days.

##### (b) Producing Well Rates

- (1) An active well either produced or injected into for any portion of the month shall be considered as a one-well charge for the entire month.
- (2) Each active completion in a multi-completed well in which production is not commingled down hole shall be considered as a one-well charge providing each completion is considered a separate well by the governing regulatory authority.
- (3) An inactive gas well shut in because of overproduction or failure of purchaser to take the production shall be considered as a one-well charge providing the gas well is directly connected to a permanent sales outlet.
- (4) A one-well charge shall be made for the month in which plugging and abandonment operations are completed on any well. This one-well charge shall be made whether or not the well has produced except when drilling well rate applies.
- (5) All other inactive wells (including but not limited to inactive wells covered by unit allowable, lease allowable, transferred allowable, etc.) shall not qualify for an overhead charge.
- (3) The well rates shall be adjusted as of the first day of April each year following the effective date of the agreement to which this Accounting Procedure is attached. The adjustment shall be computed by multiplying the rate currently in use by the percentage increase or decrease in the average weekly earnings of Crude Petroleum and Gas Production Workers for the last calendar year compared to the calendar year preceding as shown by the index of average weekly earnings of Crude Petroleum and Gas Production Workers as published by the United States Department of Labor, Bureau of Labor Statistics, or the equivalent Canadian index as published by Statistics Canada, as applicable. The adjusted rates shall be the rates currently in use, plus or minus the computed adjustment.

#### B. Overhead - Percentage Basis

- (1) Operator shall charge the Joint Account at the following rates:

## (a) Development

\_\_\_\_\_ Percent ( \_\_\_\_\_ %) of the cost of development of the Joint Property exclusive of costs provided under Paragraph 10 of Section II and all salvage credits.

## (b) Operating

\_\_\_\_\_ Percent ( \_\_\_\_\_ %) of the cost of operating the Joint Property exclusive of costs provided under Paragraphs 2 and 10 of Section II, all salvage credits, the value of injected substances purchased for secondary recovery and all taxes and assessments which are levied, assessed and paid upon the mineral interest in and to the Joint Property.

## (2) Application of Overhead - Percentage Basis shall be as follows:

For the purpose of determining charges on a percentage basis under Paragraph 1B of this Section III, development shall include all costs in connection with drilling, redrilling, deepening, or any remedial operations on any or all wells involving the use of drilling rig and crew capable of drilling to the producing interval on the Joint Property; also, preliminary expenditures necessary in preparation for drilling and expenditures incurred in abandoning when the well is not completed as a producer, and original cost of construction or installation of fixed assets, the expansion of fixed assets and any other project clearly discernible as a fixed asset, except Major Construction as defined in Paragraph 2 of this Section III. All other costs shall be considered as operating.

## 2. Overhead - Major Construction

To compensate Operator for overhead costs incurred in the construction and installation of fixed assets, the expansion of fixed assets, and any other project clearly discernible as a fixed asset required for the development and operation of the Joint Property, Operator shall either negotiate a rate prior to the beginning of construction, or shall charge the Joint Account for overhead based on the following rates for any Major Construction project in excess of \$ 50,000.00 :

- A. 5 % of first \$100,000 or total cost if less, plus
- B. 3 % of costs in excess of \$100,000 but less than \$1,000,000, plus
- C. 2 % of costs in excess of \$1,000,000.

Total cost shall mean the gross cost of any one project. For the purpose of this paragraph, the component parts of a single project shall not be treated separately and the cost of drilling and workover wells and artificial lift equipment shall be excluded.

## 3. Catastrophe Overhead

To compensate Operator for overhead costs incurred in the event of expenditures resulting from a single occurrence due to oil spill, blowout, explosion, fire, storm, hurricane, or other catastrophes as agreed to by the Parties, which are necessary to restore the Joint Property to the equivalent condition that existed prior to the event causing the expenditures, Operator shall either negotiate a rate prior to charging the Joint Account or shall charge the Joint Account for overhead based on the following rates:

- A. 5 % of total costs through \$100,000; plus
- B. 3 % of total costs in excess of \$100,000 but less than \$1,000,000; plus
- C. 2 % of total costs in excess of \$1,000,000.

Expenditures subject to the overheads above will not be reduced by insurance recoveries, and no other overhead provisions of this Section III shall apply.

## 4. Amendment of Rates

The overhead rates provided for in this Section III may be amended from time to time only by mutual agreement between the Parties hereto if, in practice, the rates are found to be insufficient or excessive.

## IV. PRICING OF JOINT ACCOUNT MATERIAL PURCHASES, TRANSFERS AND DISPOSITIONS

Operator is responsible for Joint Account Material and shall make proper and timely charges and credits for all Material movements affecting the Joint Property. Operator shall provide all Material for use on the Joint Property; however, at Operator's option, such Material may be supplied by the Non-Operator. Operator shall make timely disposition of idle and/or surplus Material, such disposal being made either through sale to Operator or Non-Operator, division in kind, or sale to outsiders. Operator may purchase, but shall be under no obligation to purchase, interest of Non-Operators in surplus condition A or B Material. The disposal of surplus Controllable Material not purchased by the Operator shall be agreed to by the Parties.

## 1. Purchases

Material purchased shall be charged at the price paid by Operator after deduction of all discounts received. In case of Material found to be defective or returned to vendor for any other reasons, credit shall be passed to the Joint Account when adjustment has been received by the Operator.

## 2. Transfers and Dispositions

Material furnished to the Joint Property and Material transferred from the Joint Property or disposed of by the Operator, unless otherwise agreed to by the Parties, shall be priced on the following basis exclusive of cash discounts:

A. New Material (Condition A)

(1) Tubular Goods Other than Line Pipe

- (a) Tubular goods, sized 2½ inches OD and larger, except line pipe, shall be priced at Eastern mill published carload base prices effective as of date of movement plus transportation cost using the 80,000 pound carload weight basis to the railway receiving point nearest the Joint Property for which published rail rates for tubular goods exist. If the 80,000 pound rail rate is not offered, the 70,000 pound or 90,000 pound rail rate may be used. Freight charges for tubing will be calculated from Lorain, Ohio and casing from Youngstown, Ohio.
- (b) For grades which are special to one mill only, prices shall be computed at the mill base of that mill plus transportation cost from that mill to the railway receiving point nearest the Joint Property as provided above in Paragraph 2.A.(1)(a). For transportation cost from points other than Eastern mills, the 30,000 pound Oil Field Haulers Association interstate truck rate shall be used.
- (c) Special end finish tubular goods shall be priced at the lowest published out-of-stock price, f.o.b. Houston, Texas, plus transportation cost, using Oil Field Haulers Association interstate 30,000 pound truck rate, to the railway receiving point nearest the Joint Property.
- (d) Macaroni tubing (size less than 2½ inch OD) shall be priced at the lowest published out-of-stock prices f.o.b. the supplier plus transportation costs, using the Oil Field Haulers Association interstate truck rate per weight of tubing transferred, to the railway receiving point nearest the Joint Property.

(2) Line Pipe

- (a) Line pipe movements (except size 24 inch OD and larger with walls ¾ inch and over) 30,000 pounds or more shall be priced under provisions of tubular goods pricing in Paragraph A.(1)(a) as provided above. Freight charges shall be calculated from Lorain, Ohio.
  - (b) Line pipe movements (except size 24 inch OD and larger with walls ¾ inch and over) less than 30,000 pounds shall be priced at Eastern mill published carload base prices effective as of date of shipment, plus 20 percent, plus transportation costs based on freight rates as set forth under provisions of tubular goods pricing in Paragraph A.(1)(a) as provided above. Freight charges shall be calculated from Lorain, Ohio.
  - (c) Line pipe 24 inch OD and over and ¾ inch wall and larger shall be priced f.o.b. the point of manufacture at current new published prices plus transportation cost to the railway receiving point nearest the Joint Property.
  - (d) Line pipe, including fabricated line pipe, drive pipe and conduit not listed on published price lists shall be priced at quoted prices plus freight to the railway receiving point nearest the Joint Property or at prices agreed to by the Parties.
- (3) Other Material shall be priced at the current new price, in effect at date of movement, as listed by a reliable supply store nearest the Joint Property, or point of manufacture, plus transportation costs, if applicable, to the railway receiving point nearest the Joint Property.
- (4) Unused new Material, except tubular goods, moved from the Joint Property shall be priced at the current new price, in effect on date of movement, as listed by a reliable supply store nearest the Joint Property, or point of manufacture, plus transportation costs, if applicable, to the railway receiving point nearest the Joint Property. Unused new tubulars will be priced as provided above in Paragraph 2 A (1) and (2).

B. Good Used Material (Condition B)

Material in sound and serviceable condition and suitable for reuse without reconditioning:

(1) Material moved to the Joint Property

At seventy-five percent (75%) of current new price, as determined by Paragraph A.

(2) Material used on and moved from the Joint Property

- (a) At seventy-five percent (75%) of current new price, as determined by Paragraph A, if Material was originally charged to the Joint Account as new Material or
- (b) At sixty-five percent (65%) of current new price, as determined by Paragraph A, if Material was originally charged to the Joint Account as used Material.

(3) Material not used on and moved from the Joint Property

At seventy-five percent (75%) of current new price as determined by Paragraph A.

The cost of reconditioning, if any, shall be absorbed by the transferring property.

C. Other Used Material

(1) Condition C

Material which is not in sound and serviceable condition and not suitable for its original function until after reconditioning shall be priced at fifty percent (50%) of current new price as determined by Paragraph A. The cost of reconditioning shall be charged to the receiving property, provided Condition C value plus cost of reconditioning does not exceed Condition B value.

## (2) Condition D

Material, excluding junk, no longer suitable for its original purpose, but usable for some other purpose shall be priced on a basis commensurate with its use. Operator may dispose of Condition D Material under procedures normally used by Operator without prior approval of Non-Operators.

- (a) Casing, tubing, or drill pipe used as line pipe shall be priced as Grade A and B seamless line pipe of comparable size and weight. Used casing, tubing or drill pipe utilized as line pipe shall be priced at used line pipe prices.
- (b) Casing, tubing or drill pipe used as higher pressure service lines than standard line pipe, e.g. power oil lines, shall be priced under normal pricing procedures for casing, tubing, or drill pipe. Upset tubular goods shall be priced on a non upset basis.

## (3) Condition E

Junk shall be priced at prevailing prices. Operator may dispose of Condition E Material under procedures normally utilized by Operator without prior approval of Non-Operators.

## D. Obsolete Material

Material which is serviceable and usable for its original function but condition and/or value of such Material is not equivalent to that which would justify a price as provided above may be specially priced as agreed to by the Parties. Such price should result in the Joint Account being charged with the value of the service rendered by such Material.

## E. Pricing Conditions

- (1) Loading or unloading costs may be charged to the Joint Account at the rate of twenty-five cents (25¢) per hundred weight on all tubular goods movements, in lieu of actual loading or unloading costs sustained at the stocking point. The above rate shall be adjusted as of the first day of April each year following January 1, 1985 by the same percentage increase or decrease used to adjust overhead rates in Section III, Paragraph 1.A(3). Each year, the rate calculated shall be rounded to the nearest cent and shall be the rate in effect until the first day of April next year. Such rate shall be published each year by the Council of Petroleum Accountants Societies.
- (2) Material involving erection costs shall be charged at applicable percentage of the current knocked-down price of new Material.

## 3. Premium Prices

Whenever Material is not readily obtainable at published or listed prices because of national emergencies, strikes or other unusual causes over which the Operator has no control, the Operator may charge the Joint Account for the required Material at the Operator's actual cost incurred in providing such Material, in making it suitable for use, and in moving it to the Joint Property; provided notice in writing is furnished to Non-Operators of the proposed charge prior to billing Non-Operators for such Material. Each Non-Operator shall have the right, by so electing and notifying Operator within ten days after receiving notice from Operator, to furnish in kind all or part of his share of such Material suitable for use and acceptable to Operator.

## 4. Warranty of Material Furnished By Operator

Operator does not warrant the Material furnished. In case of defective Material, credit shall not be passed to the Joint Account until adjustment has been received by Operator from the manufacturers or their agents.

## V. INVENTORIES

The Operator shall maintain detailed records of Controllable Material.

## 1. Periodic Inventories, Notice and Representation

At reasonable intervals, inventories shall be taken by Operator of the Joint Account Controllable Material. Written notice of intention to take inventory shall be given by Operator at least thirty (30) days before any inventory is to begin so that Non-Operators may be represented when any inventory is taken. Failure of Non-Operators to be represented at an inventory shall bind Non-Operators to accept the inventory taken by Operator.

## 2. Reconciliation and Adjustment of Inventories

Adjustments to the Joint Account resulting from the reconciliation of a physical inventory shall be made within six months following the taking of the inventory. Inventory adjustments shall be made by Operator to the Joint Account for overages and shortages, but, Operator shall be held accountable only for shortages due to lack of reasonable diligence.

## 3. Special Inventories

Special inventories may be taken whenever there is any sale, change of interest, or change of Operator in the Joint Property. It shall be the duty of the party selling to notify all other Parties as quickly as possible after the transfer of interest takes place. In such cases, both the seller and the purchaser shall be governed by such inventory. In cases involving a change of Operator, all Parties shall be governed by such inventory.

## 4. Expense of Conducting Inventories

- A. The expense of conducting periodic inventories shall not be charged to the Joint Account unless agreed to by the Parties.
- B. The expense of conducting special inventories shall be charged to the Parties requesting such inventories, except inventories required due to change of Operator shall be charged to the Joint Account.



## EXHIBIT "F"

Attached to and made a part of that certain Unit Operating Agreement,  
North Vacuum (Abo) North Unit, County of Lea, State of New Mexico.

### INSURANCE

Unit Operator and Unit Operator's contractors and subcontractors shall, during the drilling and completing of any and all well or wells drilled on the Unit Area and during the performance of all operations, carry the following described minimum insurance coverage on the Unit Area.

- A. Employer's Liability with limit of \$100,000 Bodily Injury each accident, \$500,000 Bodily Injury by disease - policy limit, \$100,000 Bodily Injury by disease each employee and Worker's Compensation Insurance covering Operator's employees and the employees of Operator's contractors and subcontractors engaged in operations under this Agreement, in compliance with the laws of the State where the work is performed.
- B. General Public Liability Insurance covering the parties hereto in connection with all operations conducted by Operator or Operator's contractors and subcontractors with a limit not less than \$500,000 each occurrence and annual aggregate combined Bodily Injury and Property Damage.
- C. Automobile Public Liability and Property Damage Insurance covering the parties hereto in connection with all operations conducted by Operator or Operator's contractors and subcontractors with a limit not less than \$500,000 each accident combined single limit for Bodily Injury and Property Damage.
- D. Such additional insurance as may hereafter be deemed necessary by the Unit Operator or as may be required by law.

Unit Operator shall require its contractors and subcontractors working and performing services on land committed hereto to carry other insurance of the types specified above and such amounts as the Unit Operator shall deem necessary. All insurance coverage shall be carried at the joint expense and for the benefit of the parties hereto.

UNITIZATION STUDY  
NORTH VACUUM (Abo) NORTH UNIT  
NORTH VACUUM (Abo) FIELD  
LEA COUNTY, NEW MEXICO

BEFORE EXAMINER	
OIL CONSERVATION DIVISION	
<u>Sage</u>	EXHIBIT NO. <u>D</u>
CASE NO.	<u>10,102 + 10,103</u>

By  
**Sage Energy Company**  
Midland, Texas

UNITIZATION STUDY  
NORTH VACUUM (Abo) NORTH UNIT  
NORTH VACUUM (Abo) FIELD  
LEA COUNTY, NEW MEXICO

By  
Technical Committee  
October, 1989

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## **List of Exhibits**

### **Exhibit**

### **Number    Item**

- 1     Base Unit Map
- 2     Typical Log
- 3     Unitization Parameters
- 4     Base Land Map
- 5     Main Pay Zone Net Isopach
- 6     Primary Decline and Flood Response Curve
- 7     Location Map of North Vacuum (Abo)Field
- 8     East-West Cross Section
- 9     Abo Structure Map
- 10    Pilot Flood Installation Map
- 11    Full Scale Flood Installation Map
- 12    Pilot Flood Economic Analysis
- 13    Full Scale Flood Economic Analysis
- 14    Waterflood Capital and Operating Costs
- 15    Waterflood Profitability Summary

## **Tables**

- 1     Unit Participation by Tract
- 2     Unit Participation by Owner

## **I. Introduction**

By a letter ballot dated January 26, 1988, operators in the North Vacuum (Abo) Field approved formation of the North Vacuum (Abo) North Unit Technical Committee and assignment of charges to the Committee. This report presents the information compiled by the Technical Committee in fulfilling the charges which are listed below. Discussion of the individual charges follows.

### **Charges Assigned to Technical Committee**

- A. Evaluate the prospects for secondary recovery, including economics, within the proposed unit area.
- B. Construct an accurate base map.
- C. Define the vertical interval to be unitized.
- D. Tabulate the following participation parameters by lease:
  - 1. Usable wellbores
  - 2. Surface acres
  - 3. Cumulative production
  - 4. Current six month production (oil and gas)
  - 5. Remaining primary oil reserves
  - 6. Main Pay zone net pay (if possible)
  - 7. Primary ultimate oil recovery
- E. Develop a plan, including incremental economics, for secondary recovery operations in the unit area.

## **II. Parameter Study**

### **A. Secondary Recovery Prospects**

The proposed unit area lies on the north flank of the large Vacuum (Abo) North Field. Within this field are three waterflood units; the North Vacuum (Abo) and the North Vacuum (Abo) East Units operated by Mobil, and the North Vacuum (Abo) West Unit operated by Texaco. Each of the three units has seen a positive waterflood response that has made them economically viable waterflood projects. Of the three floods, it was decided that the proposed unit would more closely resemble the North Vacuum (Abo) East Unit due to its structural position and pay quality.

### **B. Base Map**

The base map shown in Exhibit No. 1 was used in the Technical Committee work. This map was considered adequate for the engineering work done by the

Committee. An "accurate base map" constructed from detail survey information was not made since parameters requiring such a map were not deemed necessary.

C. Vertical Interval to be Unitized

The Technical Committee recommends that the vertical interval to be unitized be defined as that subsurface portion of the Unit Area from the top of the Abo Shale Marker to the dense zone located approximately 250 feet below the Main Pay zone. A typical log showing formation tops and the recommended unitized interval is the Shell Oil Company Shell State VI No. 1 located 900' FSL, 900' FEL in Sec 1, T-17-S, R-34-E of Lea County, New Mexico (Exhibit No. 2). In the type well, the top of the Abo Shale Marker is 8440' and the base of the unitized interval is 9012'. The waterflood objective is the Abo Formation with the main producing interval located approximately 300' below the Abo Shale Marker. Numerous other thin zones both above and below the Main Pay may or may not produce. The recommended unitized interval accounts for all these thin zones whether or not they are found to be productive.

D. Participation Parameters

Participation parameters for the Unit Area are tabulated by tract and by working interest owner in Tables 1 and 2, respectively. A summary of the unitization parameters is listed in Exhibit No. 3. Pertinent comments about each parameter follows.

1. Usable Wellbores - The term "usable wellbore" includes all wells within the Unit Area that have potential value either as injection or producing wells. Wells that are excluded are those that have been permanently abandoned, have severe downhole mechanical obstructions, or are producing from horizons other than the unitized interval.
2. Surface Acres - Since detailed tract by tract survey data was not available for this report, nominal acreage based on commercial land maps was used in this tabulation. (Exhibit No. 4)
3. Cumulative Production - Cumulative oil production to July 1, 1989, was tabulated. Cumulative gas production was not used as a participation parameter.

4. Current Six Month Production - Current production from January 1 through July 1, 1989, of both oil and gas was tabulated for this six month period. The production was obtained from NMOCD Form C-115.
5. Remaining Primary Reserves - Remaining Primary Reserves as of July 1, 1989, were estimated through the use of semi-log rate-time curves (decline curves). Individual lease decline curves were well established making reliable estimates of remaining reserves possible. The decline curves were extrapolated to an economic limit of 90 BOPM per producing well.
6. Main Pay Zone Net Pay - Due to the lack of cores and other petrophysical data, the net pay was picked from Gamma Ray-Neutron logs using a 5% porosity cutoff. The Main Pay was picked as the zone that was continuous across the field; this being the interval 8732-58' on the Shell State VI No. 1 type log. An isopach map using these net pay figures was constructed (Exhibit No. 5). The Main Pay net acre-feet was then calculated from planimetered data of the isopach map.
7. Primary Ultimate Oil Recovery - The primary ultimate was calculated by adding the remaining primary oil reserves to the cumulative oil production as of July 1, 1989.

### III. Waterflood Study

#### A. Recommendation

It is recommended that as soon as possible after unitization, a pilot waterflood consisting of seven injection wells be installed in the central portion of the unit. After response has been seen it is recommended that the full scale waterflood covering the rest of the unit acreage be installed.

#### B. Introduction and Summary

The wells located within the proposed unit acreage are, for the most part, in the late stages of primary recovery. Some wells are producing near their economic limit while a few wells along the lease line of Mobil's North Vaccum (Abo) Unit are beginning to see response. As of July 1, 1989, cumulative oil production is 3,053,527 BO with a remaining primary



of 459,700 BO based on the current 8%/yr decline (Exhibit No. 6). It is therefore, timely to unitize the recommended area and develop plans for secondary.

Both the North Vacuum (Abo) and the North Vacuum (Abo) East Units have shown that waterflooding can form an oil bank and that, though injection pressures may exceed 4000 psi, adequate water injectivity can be maintained resulting in an increase in production.

Based on a pilot and full scale waterflood, (see Exhibit No. 6), initial and ultimate capital investments of \$2,800,000 and \$6,910,000 will be required. Incremental secondary oil recovery in the pilot flood of 1,075,926 BO will result in a 3.27 year payout, 42.4% rate of return and \$12,268,865 net profit, all before taxes. Secondary recovery of 2,287,915 BO in the full scale flood will result in a 3.39 year payout, 39.13% rate of return and \$25,674,153 net profit, all before taxes.

#### C. Field Location and Discovery

The North Vacuum (Abo) Field is located twelve miles southwest of Lovington, New Mexico, on the Northwest Shelf near the entrance of the San Simon channel. The general location in relation to other fields in the area is shown on Exhibit No. 7.

Field discovery occurred in 1960 with the production from the Abo Formation at an average depth of 8800'.

#### D. Field Development History

Early development in the Unit Area began in 1971 and extended over a five year period through 1976. The typical well was perforated through casing and acidized with large volumes of hydrochloric acid ranging from 5,000 to 12,000 gallons. Currently there are thirty-three producing wells in the Unit Area.

#### E. Geology

The Vacuum (Abo) North Field is located north and behind the main Vacuum Abo reef trend in the back reef depositional environment of the Permian Abo Formation at an average depth of approximately 8800'. As is typical of back reef deposits, the Abo is comprised of thinly bedded, lenticular dolomites encapsulated by shale stringers. The productive dolomite zones average 3-8' in thickness with porosities in the range of 5 - 7%. The bulk of the field's production has come from what has been described as the Main Pay interval. This Main Pay

interval has been further broken down into four zones, labeled 1 through 4, on the attached cross section (Exhibit No. 8). The hydrocarbon accumulation is apparently controlled by the better porosity development across the structure.

Exhibit No. 9 is a structure map on the top of the Abo Shale Marker. The proposed unit area lies on the Northern flank of the structure down dip of the North Vacuum (Abo) Unit but on strike with the North Vacuum (Abo) East Unit. Being on the flanks of this structure does not pose any threat to the proposed unit since production is limited more so by porosity and permeability development rather than structural position. To this extent, no oil/water contact has been found.

#### F. Reservoir and Fluid Properties

Due to the lack of cores and the quality of logs that were run, certain reservoir properties could not be determined. Likewise, no fluid samples have been taken for running PVT analysis. Lack of any bottom hole pressures made material balance calculations impossible. The following is a list of properties that are known:

Estimated Productive Area	2240 AC
Type Drive	Solution Gas
Oil/Water Contact	None
Current GOR	1850 SCF/STB
Oil Gravity, API	36
Reservoir Temperature	128 F
Gas Gravity	.85
Average Perosity	5-7%
Average Net Pay	10-12'
Main Pay Zone Net Pay	28,763 ac-ft

#### G. Primary Production

Cumulative oil production from the Unit Area as of July 1, 1989, is 3,053,527 BO. The primary decline is 8%/yr which leaves 459,700 BO remaining as of July 1, 1989. From this point the remaining primary life is 10 years assuming a 90 BOPM economic limit per well.

#### H. Offset Waterflood Units

The Abo Formation is being waterflooded by the North Vacuum (Abo) and North Vacuum (Abo) East Units located directly south and southeast of the unit area. Both of these floods, operated by Mobil, have seen response to injection. The Technical Committee has determined that the North Vacuum (Abo) East Unit would be the best analogy for modeling a waterflood.

The North Vacuum (Abo) East Unit (herein called the East Unit) originally consisted of eleven producing wells on 880 acres. Injection began in June, 1979, with the conversion of five wells to injection forming 160 acre 5 spot patterns. Production declined for a twelve month period before beginning response. Over the next four years the response continued until reaching its peak and leveling off at approximately 7500 BOPM. From October, 1985, to April, 1986, eleven new producing wells were drilled and the remaining six producers were converted to injection for a total of eleven producers and eleven injectors on eighty acre five spot patterns. Production increased and remained level @ 14,500 BOPM. No decline in production has been seen for the past five years.

Assuming the decline will equal the response incline, the secondary oil recovery will be 1,507,000 BO. With the primary oil recovery calculated to be 1,640,000 BO, the secondary/primary ratio is 0.92.

#### I. Unit Waterflood Reserves

Due to the insufficient quantity of basic reservoir data, secondary reserves were calculated by analogy with the East Unit. Since the proposed unit will be on 80 acre 5 spot patterns, response time is estimated to be half that of the East Unit which started out on 160 acre spacing. The secondary/primary ratio will fall into the .65 to .80 range which corresponds to 2,284,000 BO to 2,811,000 BO of secondary oil depending on oil price.

#### J. Plan for Waterflood Operation

The Technical Committee recommends that installation of the waterflood be staged starting with a pilot flood consisting of eight injectors located in the central portion of the unit. The pilot flood will

require drilling six new injectors and converting two producers to injection as shown in Exhibit No. 10. When sufficient response is seen and the corresponding information obtained, estimated to be in two years, the full scale waterflood may be installed. The full scale flood will require drilling nine new injectors and converting one producer to injection as shown in Exhibit No. 11.

The cost to install the pilot flood is estimated to be \$2,800,000 which will provide for water injection at the rate of 3200 BWPD at 2700 psi. Pressured fresh water will be provided to the unit for flooding by Mobil at a cost of \$.17/bbl. Once response has been seen, the full scale flood may be installed at an estimated additional cost of \$4,110,000.

#### K. Waterflood Economics

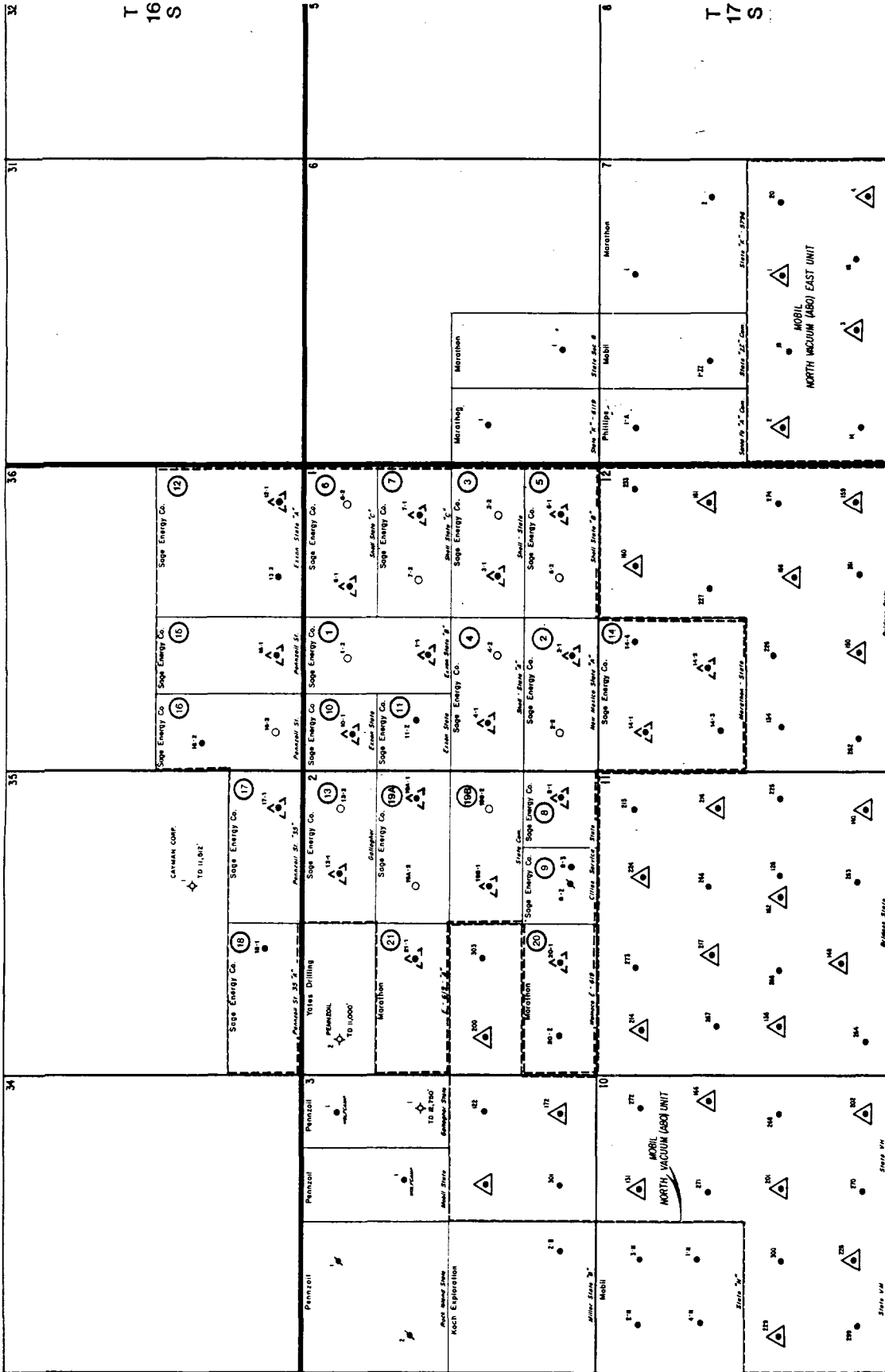
Non-escalated incremental economic analysis have been made of both the pilot and full scale floods using the current posted price of \$18.75/bbl. Operating expenses were based on \$1500/month per well plus the cost of injection water at \$.17/bbl. It was assumed that the average injection well will take 400 BWPD initially and decline as injection pressure increases.

Response to the flood was based on that of the East Unit but with response time cut in half due to closer spacing. To this end, production will decline for six months before seeing response. Production will then climb for two years before reaching its peak at 60 BOPD per 5 spot pattern. It will remain flat for a five year period before declining at the same rate it had inclined.

Exhibit No. 12 and No. 13 are the computer generated economic analysis of the pilot and full scale floods. Exhibits No. 14 and No. 15 summarize the waterflood capital and operation costs as well the waterflood economics.

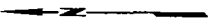
## Exhibits

1 through 15



R 34 E

R 35 E



Sage Energy Company  
Midland, Texas

INJECTION WELL

UNIT BOUNDARY

PROPOSED INJECTION WELL

PROPOSED PRODUCING WELL

PROPOSED NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

T16S, R34E  
T17S, R34E

Scale: 0 1000 2000 3000 4000  
1988

EXHIBIT NO. 2

COMPENSATED NEUTRON LOG	
COMPANY SHELL OIL COMPANY	
API# 30-025-27953	
WELL SHELL STATE VI-1	
FIELD VACUUM	
COUNTY LEA STATE ARIZONA	
LOCATION 900' F34 : 980' F64	
Other Services BWC DLG	
AP# SERIAL NO. 1	DATE 12-5-34
Permanent Datum: G.L. : Elev. 9073	
Log Measured From: K-B : 32' Ft. Above Perm. Datum	
Drilling Measured From: K-B	
Elev. F.A. 4055 D.F. 8054 G.L. 8054	
Date	1-30-33
Run No.	ONE
Depth-Driller	12250
Depth-Logger (Sd.)	12251
Run Log Interval	11800
Top Log Interval	SURFACE
Counting-Driller	8 5/8 @ 9079
Counting-Logger	9076
Bit Size	7 7/8
Type Fluid in Hole	WT. BRINE/S. MCH
Dens. Visc.	11.5 91
pH Fluid Loss	10.5 7.4 ml
Source of Sample	FLOWLINE
Run @ Meas. Temp.	69 @ 79° F
Read @ Meas. Temp.	960 @ 79° F
Rec'd @ Meas. Temp.	69 @ 79° F
Source: Read (Rec)	69
Run @ BHT	895 @ 159° F
Circulation Stopped	0230
Logger on Bottom	1700
Max. Rec. Temp.	159
Expos. Location	9279 140000
Recorded By	KANE
Witnessed By	WATSON-FOX

The well name, location and baricentric reference data were furnished by the customer.

Top of  
Abo Shale Marker

Main Pay  
Zone

Recommended Utilization Interval

REVISED EXHIBIT NO. 3  
July, 1990

GRAND TOTAL	27	100.000000	1760	100.000000	2574952	100.000000	40799	100.000000	81482	100.000000	23517	100.000000	336000	100.000000	2910952	100.000000
-------------	----	------------	------	------------	---------	------------	-------	------------	-------	------------	-------	------------	--------	------------	---------	------------



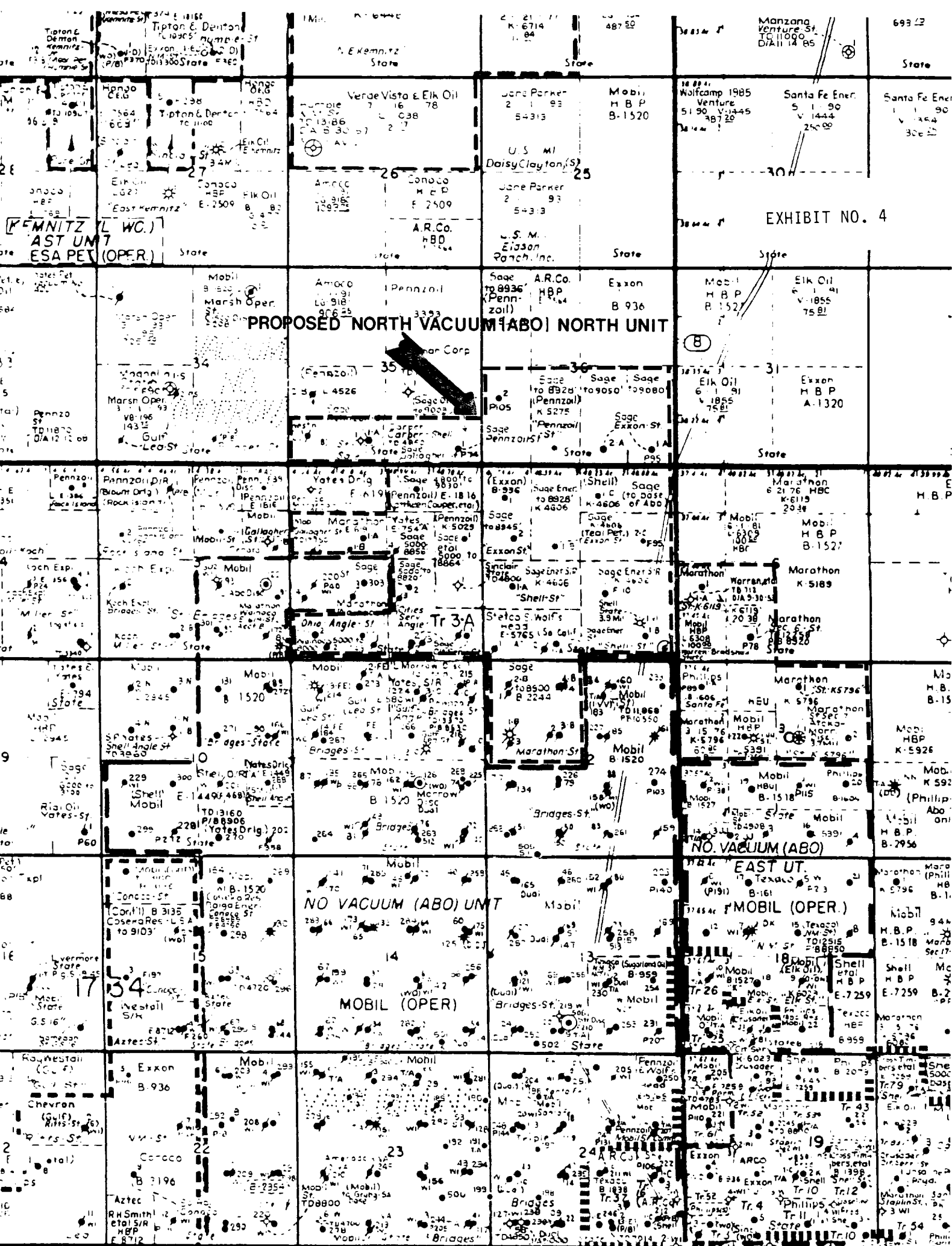


EXHIBIT NO. 4

PROPOSED NORTH VACUUM (ABO) NORTH UNIT

NO VACUUM (ABO) UNIT

MOBIL (OPER)

NO VACUUM (ABO)

EAST UT.

MOBIL (OPER.)

R 35 E

T 16 S



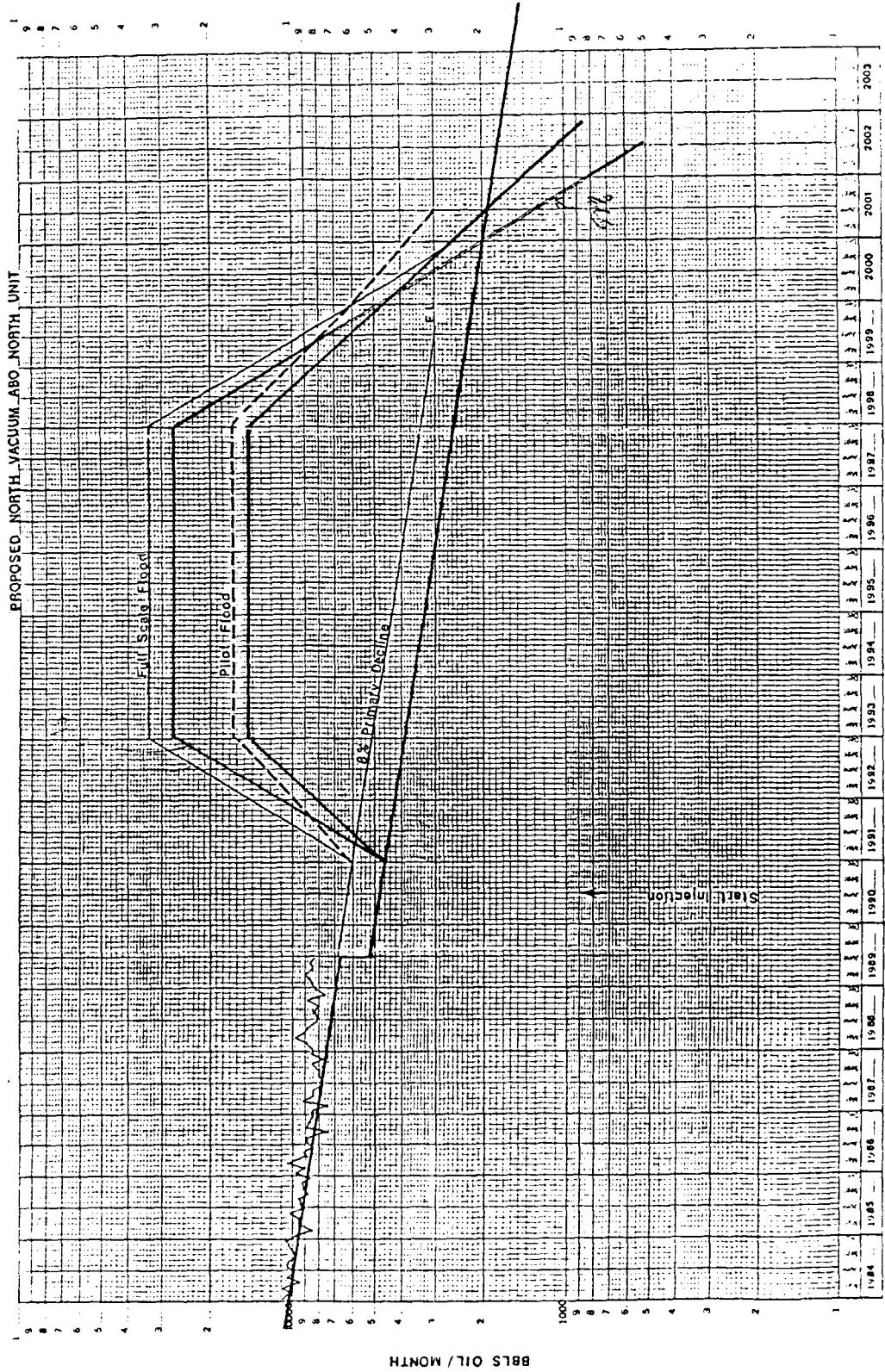
INJECTION WELL  
UNIT BOUNDARY

## LEA COUNTY, NEW MEXICO

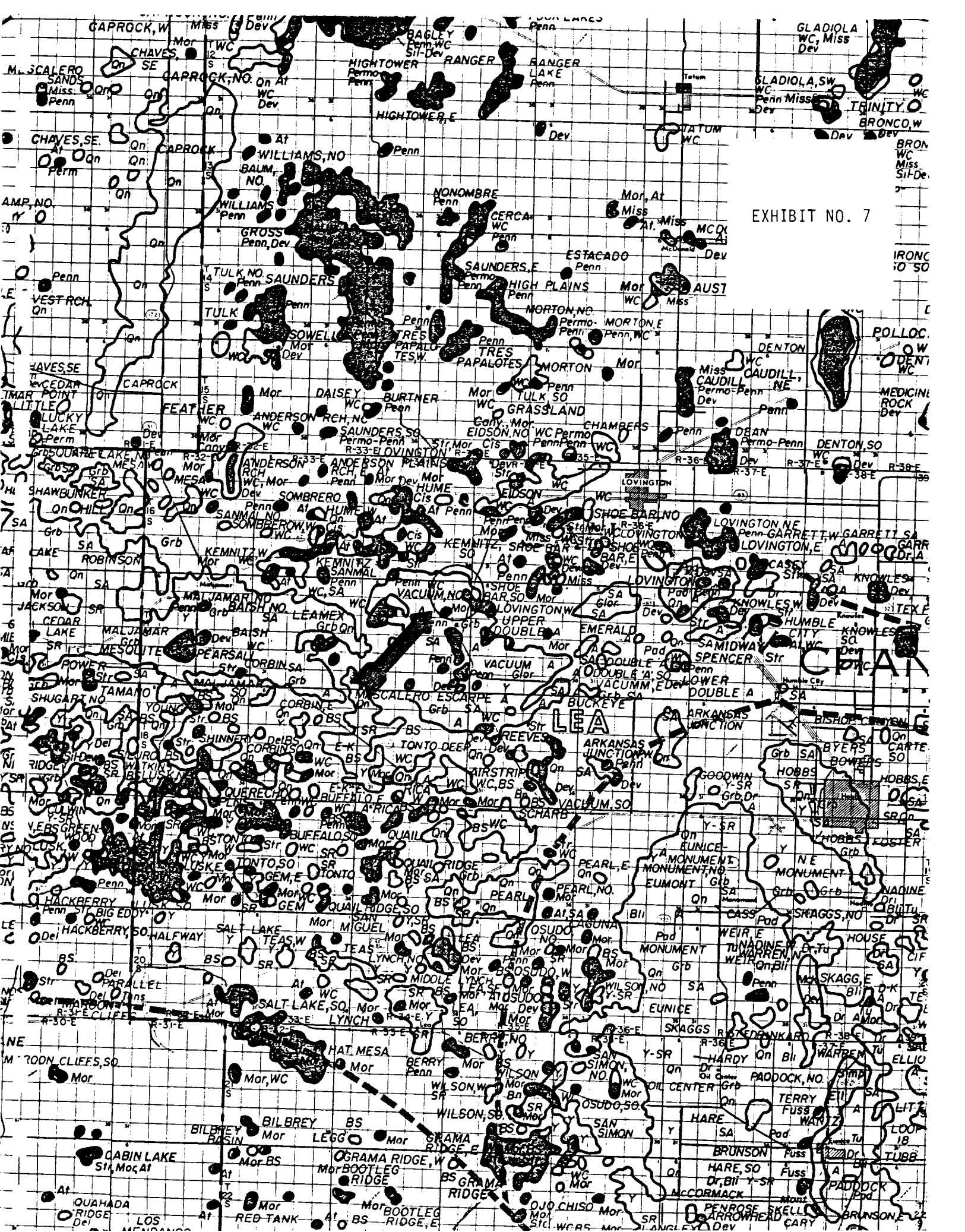
Scale: 1" = 2,000'

1989

Exb. #6



1000, 100, 500-2000



EAST  
West

1

PENNZOIL  
#1 MARATHON STATE  
L-2  
K.B. 4010

2

MOBIL  
NVA #303  
K-2  
K.B. 4067

3

AMINI  
1-A SHELL STATE  
L-1  
K.B. 4056  
TYPE LOG

4

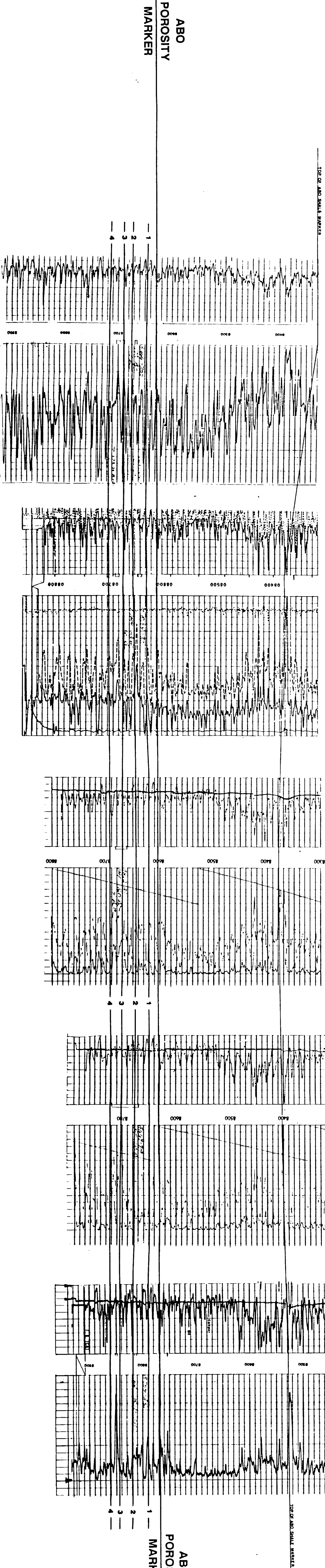
AMINI  
1-SHELL STATE  
J-1  
K.B. 4045

5

MARATHON  
STATE K #6119  
L-6  
K.B. 4040

WEST  
East

EXHIBIT NO. 8



LINE OF SECTION  
PROPOSED UNIT BOUNDARY

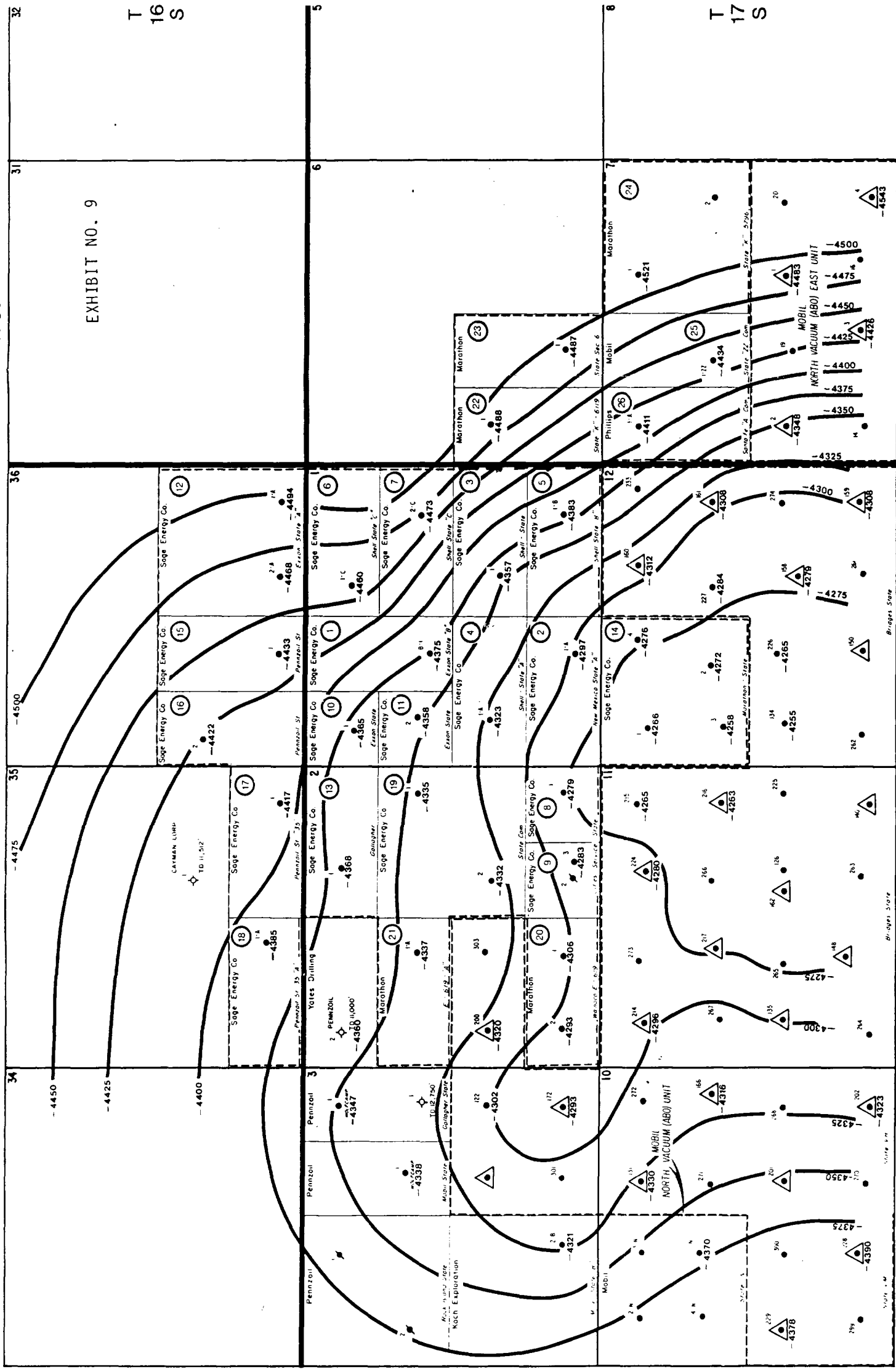
R 34 E

R 35 E

EXHIBIT NO. 9

T  
16  
S

T  
17  
S



▲ INJECTION WELL  
--- UNIT BOUNDARY

Sage Energy Company  
Midland, Texas

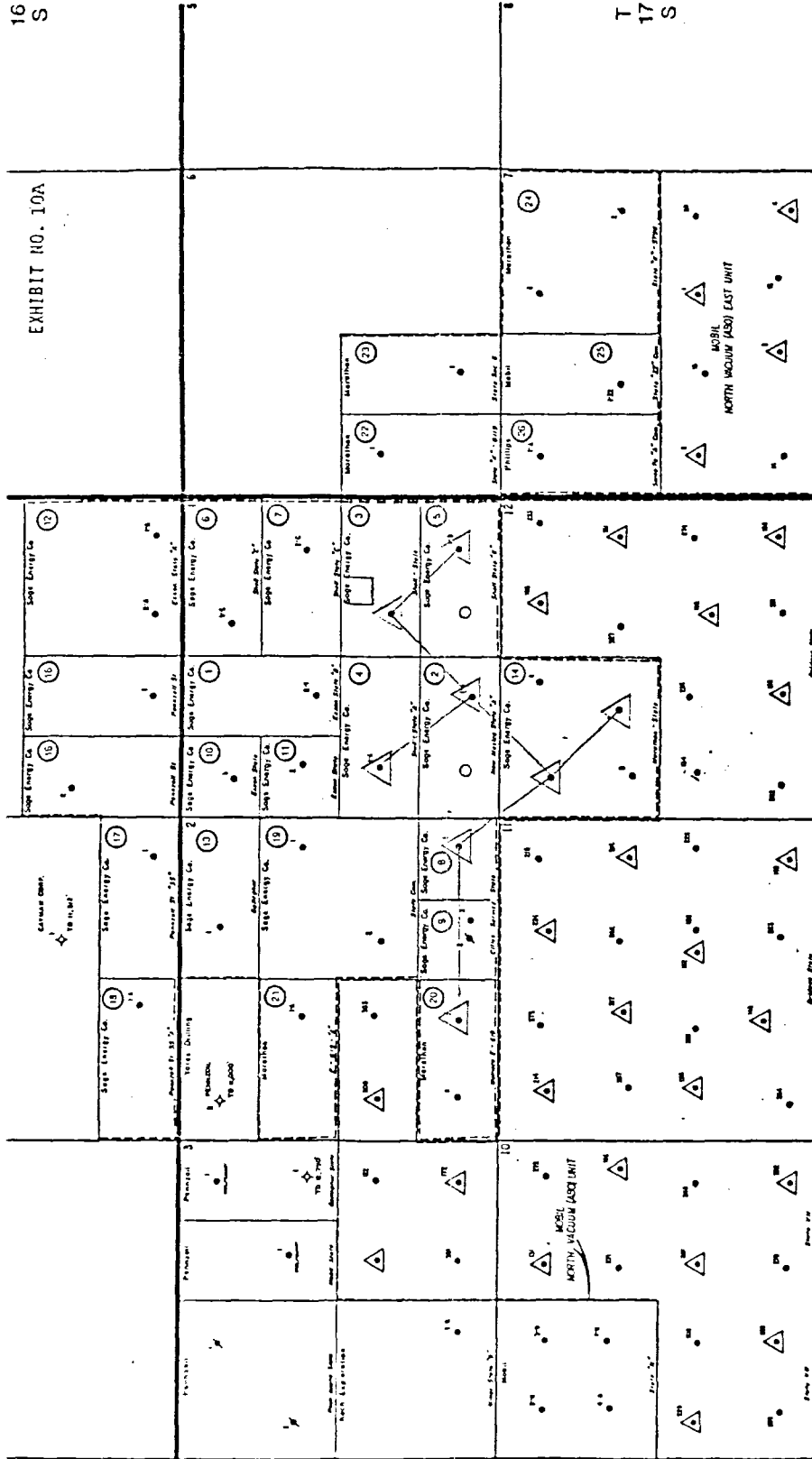
PROPOSED NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

TOP OF ABO SHALE MARKER  
Subsea Elevation  
Scale: 1" = 2,000'

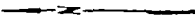
1989

16  
S

EXHIBIT NO. 10A



T  
17  
S



INJECTION WELL  
UNIT BOUNDARY

Drill 2 wells  
Convert 6 wells to WI

Sage Energy Company  
Midland, Texas  
Proposed North Vacuum (ABO) North Unit  
12/8/97  
LEA COUNTY, NEW MEXICO

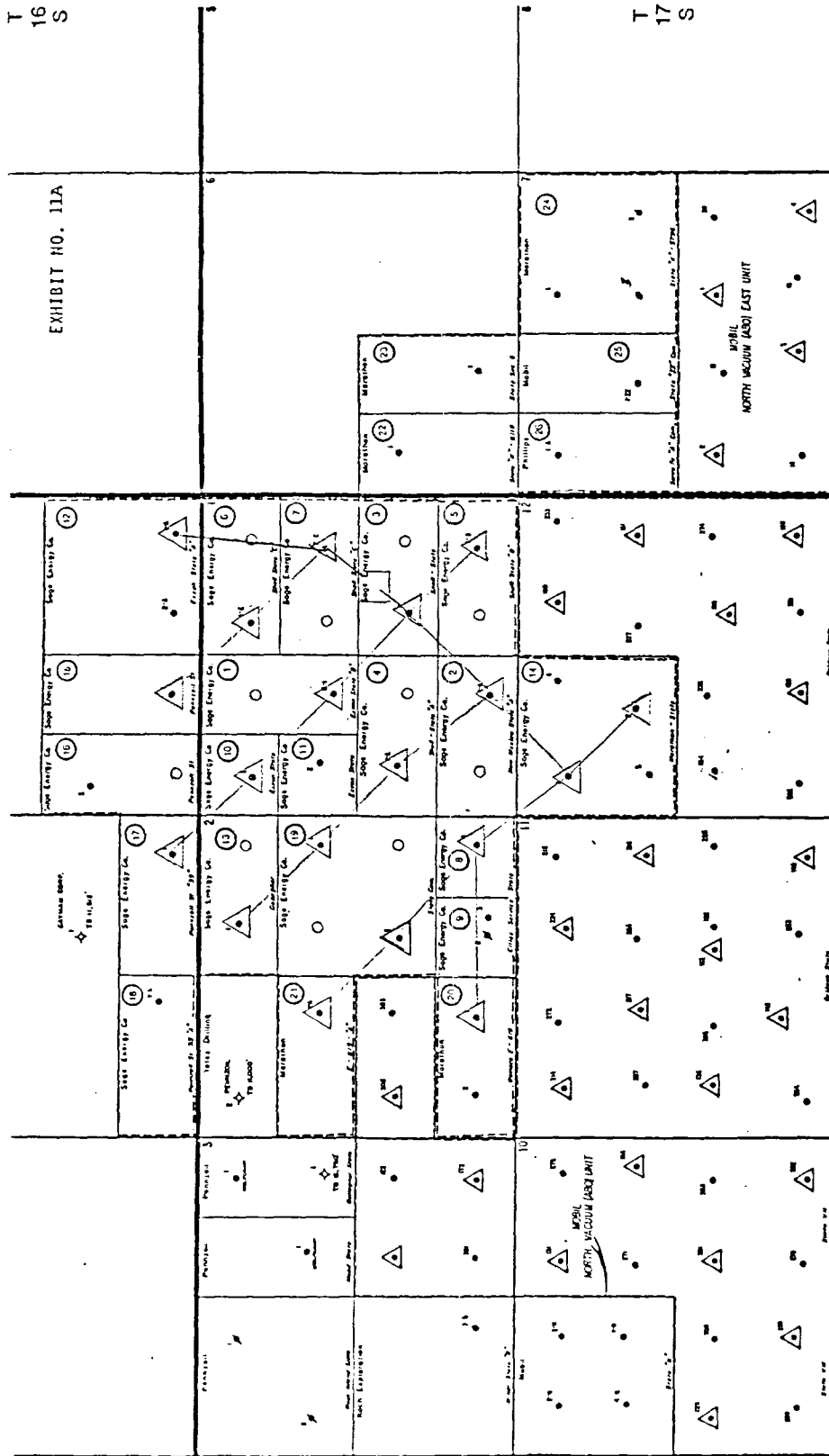
Scale: 1" = 2,000'

1918



T 16 S

EXHIBIT NO. 11A



T 17 S

Cont. 11 Wells to WZ = Sage Energy Company  
 Midland, Texas  
 Drill 9 Pending Wells = 0 *Spot 18/11/11*  
 Proposed North Vacuum (ABO) North Unit  
 Lea County, New Mexico  
 Revised 12/18/9  
 Revised 6/190



DATE: 07/30/90  
TIME: 11:05.56  
FILE: J612  
GET#: 0

RESESS REESES AND ECONOMIC

EXHIBIT NO. 12

END- MO-YR	GROSS PRODUCTION		NET PRODUCTION		PRICES		OPERATIONS			CAPITAL COSTS, M\$	CASH FLOW BTAX, M\$	10.00 PCT CUM. DISC BTAX, M\$
	OIL, MBRL	GAS, MMCF	OIL, MBRL	GAS, MMCF	OIL \$/B	GAS \$/M	NET OPER REVENUES	SEV+ADV+ WF TAXES	NET OPER EXPENSES			
6-91	.000	.000	.000	.000	.00	.00	.000	.000	303.600	1527.000	-1830.600	-1816.471
6-92	4.963	8.685	4.301	7.536	18.75	1.50	91.933	6.303	303.600	.000	-217.970	-2005.404
6-93	48.934	85.617	42.395	74.191	18.75	1.50	906.192	62.138	303.600	.000	540.454	-1579.534
6-94	117.045	204.829	101.424	177.432	18.75	1.50	2167.938	148.656	303.600	.000	1715.682	-350.504
6-95	132.310	231.543	114.652	200.641	18.75	1.50	2450.687	168.044	303.600	.000	1979.043	938.304
6-96	135.741	237.547	117.625	205.844	18.75	1.50	2514.235	172.402	303.600	.000	2038.233	2144.989
6-97	138.898	243.071	120.361	210.631	18.75	1.50	2572.716	176.412	303.600	.000	2092.704	3271.292
6-98	170.652	298.641	147.877	258.784	18.75	1.50	3160.870	216.742	819.556	.000	2124.572	4310.788
6-99	164.907	288.587	142.899	250.072	18.75	1.50	3054.464	209.445	897.600	.000	1947.419	5176.995
6-0	106.567	185.967	92.085	161.148	18.75	1.50	1968.316	134.967	897.600	.000	935.749	5555.376
6-1	57.549	100.711	49.869	87.270	18.75	1.50	1065.949	73.092	787.040	.000	205.817	5631.480
6-2												
6-3												
6-4												
6-5												
6-6												
S TOT	1077.256	1885.198	933.488	1633.599	18.75	1.50	19953.300	1368.201	5526.996	1527.000	11531.103	5631.480
REM.	.000	.000	.000	.000	.00	.00	.000	.000	.000	.000	.000	5631.480
TOTAL	1077.256	1885.198	933.488	1633.599	18.75	1.50	19953.300	1368.201	5526.996	1527.000	11531.103	5631.480
CUM.	.000	.000										
ULT.	1077.256	1885.198										
BTAX RATE OF RETURN (PCT)			42.56					10.877	.0	11531.103	30.0	1091.546
BTAX PAYOUT YEARS			3.88					10.000	2.0	9973.848	35.0	568.405
BTAX PAYOUT YEARS (DISC)			4.27					6.000	5.0	8042.453	40.0	163.158
BTAX NET INCOME/INVEST			8.55					.000	8.0	6494.486	45.0	-154.917
BTAX NET INCOME/INVEST (DISC)			4.69					6.000	10.0	5631.480	50.0	-407.567
									12.0	4879.549	60.0	-774.951
									15.0	3924.286	70.0	-1020.617
									18.0	3137.253	80.0	-1190.171
									20.0	2688.735	90.0	-1310.327
									25.0	1776.751	100.0	-1397.379

DATE: 08/23/90  
TIME: 09:45.07  
FILE: JG1E  
GET #: 0

## Full Scale Flood

EXHIBIT NO. 13

END-MO-YR	GROSS PRODUCTION		NET PRODUCTION		PRICES		OPERATIONS			CASH FLOW		10.00 PCT CUM. DISC BTAX, M\$
	OIL, MBL	GAS, MMCF	OIL, MBL	GAS, MMCF	OIL \$/B	GAS \$/M	NET OPER REVENUES	SEV+ADV+ WF TAXES	NET OPER EXPENSES	CAPITAL COSTS, M\$	BTAX, M\$	
6-91	.000	.000	.000	.000	.00	.00	.000	.000	735.120	6272.400	-7007.520	-6373.309
6-92	7.737	13.540	6.704	11.733	18.75	1.50	143.300	9.826	735.120	.000	-601.046	-7434.807
6-93	88.293	154.512	76.510	133.891	18.75	1.50	1635.398	112.140	735.120	.000	788.138	-6873.765
6-94	249.956	437.423	216.597	379.044	18.75	1.50	4629.759	317.464	735.120	.000	3577.175	-4311.254
6-95	285.430	499.503	247.336	432.839	18.75	1.50	5286.809	362.517	735.120	.000	4189.172	-1583.149
6-96	288.861	505.507	250.309	438.042	18.75	1.50	5350.357	366.875	735.120	.000	4248.362	931.988
6-97	292.018	511.031	253.045	442.829	18.75	1.50	5408.838	370.885	735.120	.000	4502.833	3247.793
6-98	323.772	566.601	280.561	490.982	18.75	1.50	5996.992	411.215	1251.076	.000	4334.701	5368.654
6-99	297.352	520.366	257.667	450.918	18.75	1.50	5507.633	377.659	1329.120	.000	3800.854	7059.264
6-0	142.259	248.953	123.273	215.728	18.75	1.50	2634.961	180.679	1329.120	.000	1125.162	7514.236
6-1	14.208	24.864	12.312	21.546	18.75	1.50	263.169	18.046	227.377	.000	17.746	7521.022
6-2												
6-3												
6-4												
6-5												
6-6												
S TOT	1989.886	3482.300	1724.314	3017.552	18.75	1.50	36857.216	2527.306	9282.533	6272.400	18774.977	7521.022
REM.	.000	.000	.000	.000	.00	.00	.000	.000	.000	.000	.000	7521.022
TOTAL	1989.886	3482.300	1724.314	3017.552	18.75	1.50	36857.216	2527.306	9282.533	6272.400	18774.977	7521.022
CUM.	.000	.000										
ULT.	1989.886	3482.300										
-----PRESENT WORTH PROFILE-----												
BTAX RATE OF RETURN (PCT)			25.14				NET OIL REVENUES (M\$)	32330.887	DISC RATE	PW OF NET BTAX, M\$		
BTAX PAYOUT YEARS			4.77				NET GAS REVENUES (M\$)	4526.329				
BTAX PAYOUT YEARS (DISC)			5.63				TOTAL REVENUES (M\$)	36857.216				
BTAX NET INCOME/INVEST			3.99				PROJECT LIFE (YEARS)					
BTAX NET INCOME/INVEST (DISC)			2.20				DISCOUNT RATE (PCT)					
							GROSS OIL WELLS					
							GROSS GAS WELLS					
							GROSS GAS WELLS					
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EXHIBIT No. 14 A

Waterflood Capital Investment

(Revised 12/89)

Pilot Flood

Cement lined injection lines (13,400')	\$	107,000
Ditching and burying		28,200
Connections, valves and meters		8,000
Roustabout labor		30,000
Drill two producing wells at \$432,000 per well		864,000
Convert eight producing wells to injection at \$25,000 per well		200,000
Misc.		<u>34,800</u>
	\$	1,272,000

Fresh Water Station

Drill and equip two fresh water wells (4800 BPD)	\$	10,000
2 J-165 National Triplexes 150 HP electric motors skid mounted.		150,000
Piping and triplex hookup		50,000
1 500 bbl fresh water tank		15,000
Misc.		<u>30,000</u>
	\$	255,000

Total Pilot \$ 1,527,000

# SAGE ENERGY COMPANY

P. O. DRAWER 3068

MIDLAND, TEXAS 79702

915/683-5271

EXHIBIT NO. 15

July 18, 1990

Working Interest Owners  
North Vacuum (Abo) North Unit  
Lea County, New Mexico

Formation of  
Subj: Revised Unit

Gentlemen:

Since Sage's last Technical Committee meeting of January 3, 1990, Marathon has proposed forming the North Vacuum (Abo) Northeast Unit consisting of Tracts 22 through 26. Consequently, Sage has revised the unit size (see attached plat) and has recalculated each working interest owner's expense and revenue interest based on the Unit participation formula of 60% x Ultimate Primary plus 40% x Current Rate.

Enclosed is a revised Exhibit No. 3 based on the reduced unit size, a new unit boundary plat, and new Tables 3 and 4. Table 3 shows Unit participation by Tract for the working interest and net revenue interest ownership. Table 4 sums the working and net revenue interest Unit participation by working interest owner as shown in the last two columns. Also, enclosed is a ballot requesting that the owners approve the formation of the revised Unit. Concurrently, Sage is preparing a Unit agreement.

The non-escalated incremental economics (BFIT) based on the posted price of \$18.75/bbl are as follows:

	<u>Pilot Flood</u>	<u>Full Scale</u>
Capital Investment	\$ 1,527,000	\$ 4,745,400
Cash Flow	\$11,531,103	\$20,301,977
Present Worth @ 10%	\$ 5,631,480	\$ 9,048,022
Payout years	3.88	4.41
Rate of Return	42.56%	31.08%
Gross Oil Reserves	1,077,256 bbls	1,989,886 bbls

**SAGE ENERGY COMPANY**

P. O. DRAWER 3068

MIDLAND, TEXAS 79702

—  
915/683-5271

*Erb. 15-A*

August 30, 1990

Working Interest Owners  
North Vacuum (Abo) North Unit  
Lea County, New Mexico

Subject: Revision of Full Scale Economics

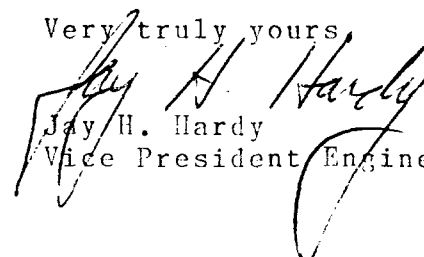
Gentlemen:

Sage Energy Company's letter of July 18, 1990, incorrectly stated the capital investment for the full scale waterflood. Instead of being \$4,272,400, it should have been \$6,272,400. The revised full scale incremental economics are as follows:

	<u>Pilot Flood</u>	<u>Full Scale</u>
Capital Investment	\$1,527,000	\$6,272,400
Cash Flow	\$11,531,103	\$18,774,977
Present Worth @ 10%	\$5,361,480	\$7,521,022
Payout, Years	3.88	4.77
Rate of Return	42.56%	25.14%
Gross Oil Reserves	1,077,256 Bbls	1,989,886 Bbls

Since this more than meets Sage's economic criteria, Sage plans to proceed as outlined in its letter of July 18th.

Very truly yours,

  
Jay H. Hardy  
Vice President Engineering

Tables

3 and 4

402 CR + 608 UP

Table 3  
Revised 9/28/90

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
1	EXXON STATE "B" #1	SAGE ENERGY COMPANY FARGO ENERGY MARSHALL LEAF ESTATE OF A M PATE JR. SEBERT L PATE CHARLES ROBBINS ELIZABETH ROBBINS SECA LTD. STATE OF NEW MEXICO SAGE ENERGY COMPANY EXXON CORPORATION	WI WI WI WI WI WI WI RI ORR ORR	0.735000 0.092500 0.030000 0.031250 0.031250 0.020000 0.020000 0.040000 ***** 1.000000	0.551249 0.069375 0.022500 0.023438 0.023438 0.015000 0.015000 0.030000 0.125000 0.062803 0.062197 ***** 1.000000	0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 0.0372900 ***** 0.0372900	0.0274082 0.0034493 0.0011187 0.0011653 0.0008740 0.0005593 0.0007458 0.0011187 0.0046611 0.0023420 0.0023193 ***** 0.0372900	0.0205561 0.0025870 0.0008390 0.0008740 0.0008740 0.0005593 0.0005593 0.0011187 0.0046611 0.0023420 0.0023193 ***** 0.0372900
2	NEW MEXICO STATE A #1	SAGE ENERGY COMPANY FARGO ENERGY SECA LTD. BRIAN BURNS WAINOCO E A CULBERTSON WALLACE IRWIN SCOPE INDUSTRIES HAROLD JONES PENNZOIL STATE OF NEW MEXICO R H HANLFIN J A DAVIDSON KATHLEEN IRWIN CULBERTSON MANAGEMENT INC.	WI WI WI WI ORR ORR ORR ORR ORR RI ORR ORR ORR ORR	0.416900 0.362500 0.030000 0.020000 0.170600 0.008300 0.041470 0.125000 0.008291 0.008291 0.015625 ***** 1.000000	0.279323 0.242875 0.020100 0.013400 0.127950 0.015625 0.015625 0.062500 0.062500 0.008300 0.041470 0.125000 0.008291 0.015625 ***** 1.000000	0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 0.0257748 ***** 0.0257748	0.0107455 0.0093434 0.0005181 0.0003454 0.0032379 0.0004027 0.0004027 0.0016109 0.002139 0.0010689 0.0032319 0.0002137 0.0002137 0.0004027 0.0004027 ***** 0.0257748	0.0071995 0.0062601 0.0005181 0.0003454 0.0032379 0.0004027 0.0004027 0.0016109 0.002139 0.0010689 0.0032319 0.0002137 0.0002137 0.0004027 0.0004027 ***** 0.0257748
3	SHELL STATE	FARGO ENERGY BRIAN BURNS ESTATE OF A M PATE JR. SEBERT L PATE SAGE ENERGY COMPANY	WI WI WI WI WI	0.187500 0.050000 0.031250 0.031250 0.700000	0.140624 0.037500 0.023438 0.023438 0.525000	0.0288135 0.0288135 0.0288135 0.0288135 0.0288135	0.0054025 0.0014407 0.0003004 0.0003004 0.0201695	0.0040519 0.0010805 0.0006753 0.0006753 0.0151271

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
4	SHELL STATE "A"	SAGE ENERGY COMPANY STATE OF NEW MEXICO	ORR RI	***** 1.000000	0.125000 0.125000 ***** 1.000000	0.0288135 0.0288135	0.0000000 0.0000000 ***** 0.0288135	0.0036017 0.0036017 ***** 0.0288135
		FARGO ENERGY ESTATE OF A M PATE JR. SEBERT L PATE SECA LTD. SAGE ENERGY STATE OF NEW MEXICO SAGE ENERGY	WI WI WI WI RI ORR	0.202500 0.031250 0.031250 0.060000 0.675000 ***** 1.000000	0.151874 0.023438 0.023438 0.045000 0.506250 0.125000 0.125000 ***** 1.000000	0.0315766 0.0315766 0.0315766 0.0315766 0.0315766 0.0315766	0.0063942 0.0009868 0.0009868 0.0018946 0.0213142 ***** 0.0315766	0.0047957 0.0007401 0.0007401 0.0014209 0.0159856 0.0019471 0.0019471 ***** 0.0315766
5	SHELL STATE B	SAGE ENERGY COMPANY FARGO ENERGY ESTATE OF A M PATE JR. SEBERT L PATE CHARLES ROBBINS ELIZABETH ROBBINS SECA LTD. SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI WI WI RI	0.697500 0.100000 0.031250 0.031250 0.010000 0.010000 0.120000 ***** 1.000000	0.523124 0.075000 0.023438 0.023438 0.007500 0.007500 0.090000 0.125000 0.125000 ***** 1.000000	0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324 0.0403324	0.0281318 0.0040312 0.0012604 0.0012604 0.0009453 0.0004033 0.0004033 0.0048400 ***** 0.0403324	0.0210988 0.0030249 0.0009453 0.0009453 0.0003025 0.0003025 0.0036299 0.0050416 0.0050416 ***** 0.0403324
6	SHELL STATE C NO. 1	FARGO ENERGY MARSHALL LEAF ESTATE OF A M PATE SEBERT L PATE SAGE ENERGY COMPANY SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI ORR RI	0.060000 0.020000 0.031250 0.031250 0.857500 ***** 1.000000	0.045000 0.015000 0.023438 0.023438 0.643124 0.125000 0.125000 ***** 1.000000	0.0303403 0.0303403 0.0303403 0.0303403 0.0303403 0.0303403 0.0303403	0.0018204 0.0006068 0.0009481 0.0009481 0.0260169 ***** 0.0303403	0.0013653 0.0004551 0.0007111 0.0007111 0.0195127 0.0037925 0.0037925 ***** 0.0303403
7	SHELL STATE "C" NO.	FARGO ENERGY	WI	0.080000	0.060000	0.0534556	0.0042764	0.0032073



TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
		MARSHALL LEAF	WI	0.020000	0.015000	0.0534556	0.0010691	0.0008018
		ESTATE OF A M PATE	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
		SEBERT L PATE	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
		CHARLES ROBBINS	WI	0.010000	0.007500	0.0534556	0.0005346	0.0004009
		SAGE ENERGY COMPANY	WI	0.827500	0.620624	0.0534556	0.042345	0.0131758
		SAGE ENERGY COMPANY	ORR		0.125000	0.0534556		0.006820
		STATE OF NEW MEXICO	RI		0.125000	0.0534556		0.006820
				*****	*****		*****	*****
				1.000000	1.000000		0.0534556	0.0534556

8 CITIES SERVICE STATE NO. 1

		OXY USA INC.	WI	0.350000	0.306250	0.0360754	0.0126264	0.0110481
		MARTHA V. LEONARD	WI	0.052000	0.043500	0.0360754	0.0018759	0.0016414
		WESTERN LEASING	WI	0.006500	0.005688	0.0360754	0.0002345	0.0002052
		GLENN BURTON	WI	0.006500	0.005688	0.0360754	0.0002345	0.0002052
		FARGO ENERGY	WI	0.269750	0.236031	0.0360754	0.0097313	0.0085149
		UNIVERSITY OIL	WI	0.040625	0.035547	0.0360754	0.0014656	0.0012824
		SAGE ENERGY COMPANY	WI	0.274625	0.240296	0.0360754	0.0099072	0.0086688
		STATE OF NEW MEXICO	RI		0.125000	0.0360754		0.0045094
				*****	*****		*****	*****
				1.000000	1.000000		0.0360754	0.0360754

9 CITIES SERVICE STATE NO. 3

		OXY USA INC.	WI	0.364821	0.319218	0.1210068	0.0441458	0.0386275
		WESTERN LEASING	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173
		FARGO ENERGY	WI	0.281173	0.246026	0.1210068	0.0340239	0.0297709
		MARTHA V. LEONARD	WI	0.054202	0.047427	0.1210068	0.0065588	0.0057390
		GLENN BURTON	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173
		SAGE ENERGY COMPANY	WI	0.286254	0.250473	0.1210068	0.0346387	0.0303089
		STATE OF NEW MEXICO	RI		0.125	0.1210068	0.0000000	0.0151259
				*****	*****		*****	*****
				1.000000	1.000000		0.1210068	0.1210068

10 FXXON STATE NO. 1

		EXXON	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
		FARGO ENERGY	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
		STATE OF NEW MEXICO	RI		0.125000	0.0314340	*****	0.0039292
				*****	*****		*****	*****
				1.000000	1.000000		0.0314340	0.0314340

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
11	EXXON STATE NO. 2	EXXON	ORR		0.125000	0.0314010		0.0039251
		FARGO ENERGY	WI		0.750000	0.0314010	0.0314010	0.0235508
		STATE OF NEW MEXICO	RI	1.000000	0.125000	0.0314010	*****	0.0039251
				*****	*****		*****	*****
				1.000000	1.000000		0.0314010	0.0314010
12	EXXON STATE "A"	EXXON	WI	0.500000	0.437500	0.0395305	0.0197652	0.0172947
		FARGO ENERGY	WI	0.206250	0.180469	0.0395305	0.0081532	0.0071340
		MARTHA V. LEONARD	WI	0.040000	0.035000	0.0395305	0.0015812	0.0013836
		ESTATE OF A M PATE JR.	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
		SERBERT L PATE	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
		CHARLES ROBBINS	WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
		SECA LTD.	WI	0.015000	0.013125	0.0395305	0.0005930	0.0005188
		GLENN BURTON	WI	0.005000	0.004375	0.0395305	0.0019760	0.0001729
		SAGE ENERGY COMPANY	WI	0.197500	0.172812	0.0395305	0.0078073	0.0068313
		STATE OF NEW MEXICO	RI		0.125000	0.0395305	*****	0.0049413
				*****	*****		*****	*****
				1.000000	1.000000		0.0395305	0.0395305
13	GALLAGHER STATE	C R GALLAGHER	WI	0.065734	0.057518	0.0484999	0.0031881	0.0027897
		MARY B GALLAGHER	WI	0.000328	0.000287	0.0484999	0.0000159	0.0000139
		SUSAN GALLAGHER GREY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHRISTINE GALLAGHER SEGER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHARLES BERNARD GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		GREGORY J GALLAGHER	WI	0.063438	0.055507	0.0484999	0.0030767	0.0026921
		KATHLEEN GALLAGHER COOPER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		GREGORY CHARLES GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MICHAEL JOSEPH GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARGUERETTE GALLAGHER PRICE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHARLES RAYMOND GALLAGHER II	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY G HERNDON	WI	0.062125	0.054360	0.0484999	0.00310130	0.0026366
		ROBIN C HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		RAYMOND STANLEY HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		VERONICA HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY HERNDON RAY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		FRANCES HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		PETER GREGORY HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		NATALIE G POPE JR.	WI	0.064750	0.056656	0.0484999	0.0031403	0.0027479
		WILLIAM G POPE JR.	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY MARGARETTE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		DELPHINE POPE KELLER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		NATALIE POPE	WI	0.066719	0.058379	0.0484999	0.0032358	0.0028314
		CHARLEEN G KNIERIEM	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		CHRISTOPHER W KNIERIEM	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
		MARY KNIERIEM TAYLOR	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
		STEPHEN LAWRENCE KNIEREIM	WI	0.000656	0.000574	0.0484999	0.0000318	0.0000279
		MARTHA V LEONARD	WI	0.052000	0.045500	0.0484999	0.0025220	0.0022068
		ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
		SEBETH L PATE	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
		FARGO ENERGY	WI	0.326625	0.285797	0.0484999	0.0158412	0.0138612
		SAGE ENERGY COMPANY	WI	0.201894	0.201894	0.0484999	0.0111907	0.0097919
		STATE OF NEW MEXICO	RI	0.230739	0.125000	0.0484999	0.0111907	0.0060625
				*****	*****		*****	*****
				1.000000	1.000000		0.0484999	0.0484999

#### 14 MARATHON STATE

		MARSHALL LEAF	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
		CHARLES ROBBINS	WI	0.010000	0.007000	0.2252457	0.0022524	0.0015767
		ELIZABETH ROBBINS	WI	0.020000	0.014000	0.2252457	0.0045049	0.0031534
		SECA LTD.	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
		SAGE ENERGY COMPANY	WI	0.910000	0.637000	0.2252457	0.2049736	0.144815
		MARATHON OIL	ORR		0.175000	0.2252457		0.0394180
		STATE OF NEW MEXICO	RI	*****	0.125000	0.2252457	*****	0.0281557
				1.000000	1.000000		0.2252457	0.2252457

#### 15 PENNZOIL STATE NO. 1

		MARSHALL LEAF	WI	0.013333	0.011267	0.0207836	0.0002771	0.0002342
		NELSON BREINING	WI	0.033333	0.028167	0.0207836	0.0006928	0.0005854
		SECA LTD.	WI	0.026667	0.022533	0.0207836	0.0005542	0.0004683
		UNIVERSITY OIL	WI	0.041667	0.035208	0.0207836	0.0008660	0.0007317
		CHARLES ROBBINS	WI	0.006667	0.005634	0.0207836	0.0001386	0.0001171
		PENNZOIL	WI	0.333333	0.281667	0.0207836	0.0069278	0.0038541
		SAGE ENERGY COMPANY	WI	0.545000	0.460524	0.0207836	0.0113271	0.0095713
		JOHN EDDY	ORR		0.030000	0.0207836		0.0006235
		STATE OF NEW MEXICO	RI	*****	0.125000	0.0207836	*****	0.0025980
				1.000000	1.000000		0.0207836	0.0207836

#### 16 PENNZOIL STATE NO. 2

		MARSHALL LEAF	WI	0.020000	0.015000	0.0149248	0.0002985	0.0002239
		NELSON BREINING	WI	0.050000	0.037500	0.0149248	0.0007462	0.0005597
		SECA LTD.	WI	0.040000	0.030000	0.0149248	0.0005970	0.0004477
		UNIVERSITY OIL	WI	0.062500	0.046875	0.0149248	0.0009328	0.0006996
		CHARLES ROBBINS	WI	0.010000	0.007500	0.0149248	0.0001492	0.0001119
		SAGE ENERGY COMPANY	WI	0.817500	0.613125	0.0149248	0.0122011	0.0091508

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
17	PENNZOIL STATE 35 NO. 1	PENNZOIL JOHN EDDY STATE OF NEW MEXICO	ORR ORR RI	0.095000 0.030000 0.125000 ***** 1.000000	0.0149248 0.0149248 0.0149248 ***** 0.0149248	0.0014179 0.0004477 0.0018656 ***** 0.0149248		
18	PENNZOIL STATE 35 "A" NO. 1	PENNZOIL MARTHA V. LEONARD ESTATE OF A M PATE SEBASTIAN L. PATE FARGO ENERGY SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI WI WI RI	0.306250 0.045500 0.017774 0.0201703 0.0201703 0.0201703 0.0201703 0.0201703 0.0201703 0.0201703 ***** 1.000000	0.0070596 0.0010489 0.0004097 0.0004097 0.0004097 0.0067192 0.0045232 ***** 0.0201703	0.0061772 0.0009177 0.0003585 0.0003585 0.0003585 0.0058793 0.0039578 0.0025213 ***** 0.0201703		
19A	STATE COMMUNITIZED NO. 1	MARTHA V. LEONARD UNIVERSITY OIL WESTERN LEASING GLENN BURTON FARGO ENERGY PENNZOIL WAINOCO OXY USA INC. SAGE ENERGY COMPANY STATE OF NEW MEXICO	WI WI WI WI WI WI WI WI WI RI	0.014400 0.705600 0.155000 0.125000 ***** 1.000000	0.0075426 0.0075426 0.0075426 0.0075426 ***** 0.0075426	0.0001509 0.00073917 ***** 0.0075426	0.0001086 0.0053221 0.0011691 0.0009428 ***** 0.0075426	
19B	STATE COMMUNITIZED NO. 2	MARTHA V. LEONARD	WI	0.045500 0.03546 0.005688 0.005688 0.005688 0.244563 0.118286 0.034839 0.15125 0.231765 0.125000 ***** 1.000000	0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 0.0365491 ***** 1.000000	0.0019005 0.0014848 0.0002376 0.0002376 0.0102155 0.0049409 0.0014552 0.0063961 0.0096809 ***** 0.0365491	0.0016630 0.0012092 0.0002079 0.0002079 0.0089386 0.0043232 0.0012733 0.0055966 0.0084708 0.0045686 ***** 0.0365491	

TRACT	LEASE/WELLS	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****								
20 WAINOCO E-619		ESTATE OF A M PATE JR.	WI	0.0203130	0.0177730	0.0365491	0.0007424	0.0006496
		SEBERT L PATE	WI	0.0203130	0.0177730	0.0365491	0.0007424	0.0006496
		WESTERN LEASING	WI	0.0065000	0.0056880	0.0365491	0.0002376	0.0002079
		GLENN BURTON	WI	0.0065000	0.0056880	0.0365491	0.0002376	0.0002079
		FARGO ENERGY	WI	0.2795000	0.2445630	0.0365491	0.0102155	0.0089186
		PENNZOIL	WI	0.1351840	0.1182860	0.0365491	0.0049409	0.0043232
		WAINOCO	WI	0.0398160	0.0348390	0.0365491	0.0014552	0.0012733
		OXY USA INC.	WI	0.1750000	0.1531250	0.0365491	0.0063961	0.0059666
		SAGE ENERGY COMPANY	WI	0.2648740	0.2317650	0.0365491	0.0096809	0.0084708
		STATE OF NEW MEXICO	RI	*****	0.1250000	0.0365491	*****	0.0045686
				*****	*****	*****	*****	*****
				1.0000000	1.0000000	0.0365491	0.0365491	0.0365491
		21 STATE E-169 "A"		PENNZOIL	ORR		0.0437500	0.0662843
WAINOCO	WI			0.5000000	0.3937500	0.0662843	0.0331421	0.0260995
MARATHON	WI			0.5000000	0.4375000	0.0662843	0.0331422	0.0289994
STATE OF NEW MEXICO	RI			*****	0.1250000	0.0662843	*****	0.0082855
				1.0000000	1.0000000	0.0662843	0.0662843	0.0662843
21 STATE E-169 "A"		MARATHON OIL	WI	1.0000000	0.8750000	0.0164197	0.0164197	0.0143672
		STATE OF NEW MEXICO	RI	*****	0.1250000	0.0164197	0.0000000	0.0020525
				1.0000000	*****	*****	*****	*****
				*****	*****	0.0164197	0.0164197	0.0164197
				1.0000000	1.0000000	1.0000000	1.0000000	1.0000000

402 CR + 602 GP

Table 4  
Revised 9/28/90

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
3	BRIAN BURNS	WI	0.050000	0.037500	0.0288135	0.0014407	0.0010805
2	BRIAN BURNS	WI	0.020000	0.013400	0.0257748	0.0005155	0.0003454
	TOTAL					0.0019562	0.0014259
13	C R GALLAGHER	WI	0.065734	0.057518	0.0484999	0.0031881	0.0027897
	TOTAL					0.0031881	0.0027897
13	CHARLEEN G KNIERIEM	WI	0.066719	0.058379	0.0484999	0.0032358	0.0028314
	TOTAL					0.0032358	0.0028314
13	CHARLES BERNARD GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	CHARLES RAYMOND GALLAGHER II	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
1	CHARLES ROBBINS	WI	0.020000	0.015000	0.0372900	0.0007458	0.0005593
5	CHARLES ROBBINS	WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
14	CHARLES ROBBINS	WI	0.010000	0.007000	0.2252457	0.0022524	0.0015767
16	CHARLES ROBBINS	WI	0.010000	0.007500	0.0149248	0.0001492	0.0001119
7	CHARLES ROBBINS	WI	0.010000	0.007500	0.0534556	0.0005346	0.0004009
15	CHARLES ROBBINS	WI	0.006667	0.005634	0.0207836	0.0001386	0.0001171
12	CHARLES ROBBINS	WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
	TOTAL					0.0044215	0.0032413
13	CHRISTINE GALLAGHER SEGER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	CHRISTOPHER W KNIERIEM	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
2	CULBERTSON MANAGEMENT INC.	ORR		0.015625	0.0257748		0.0004027
TOTAL							0.0004027
13	DELPHINE POPE KELLER	WI	0.001149		0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
2	E A CULBERTSON	ORR		0.015625	0.0257748		0.0004027
TOTAL							0.0004027
1	ELIZABETH ROBBINS	WI	0.020000	0.015000	0.0372900	0.0007458	0.0005593
14	ELIZABETH ROBBINS	WI	0.020000	0.014000	0.2252457	0.0045049	0.0031534
5	ELIZABETH ROBBINS	WI	0.010000	0.007500	0.0403324	0.0004033	0.0003025
TOTAL						0.00056540	0.0040152
5	ESTATE OF A M PATE JR.	WI	0.011250	0.023438	0.0403324	0.0012604	0.0009453
7	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
3	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0288135	0.0009004	0.0006753
1	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0372900	0.0011653	0.0008740
6	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0303403	0.0009481	0.0007111
4	ESTATE OF A M PATE JR.	WI	0.031250	0.023438	0.0315766	0.0009868	0.0007401
13	ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
17	ESTATE OF A M PATE JR.	WI	0.020313	0.017774	0.0201703	0.0004097	0.0003585
19B	ESTATE OF A M PATE JR.	WI	0.020313	0.017773	0.0365491	0.0007424	0.0006496
12	ESTATE OF A M PATE JR.	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
TOTAL						0.0096865	0.0076093
10	EXXON	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
12	EXXON	WI	0.500000	0.437500	0.0395305	0.0197652	0.0172947
11	EXXON	ORR		0.125000	0.0314010		0.039251
1	EXXON	ORR		0.062197	0.0372900		0.0023193
TOTAL						0.0354822	0.0372915
11	FARGO ENERGY	WI	1.000000	0.750000	0.0314010	0.0314010	0.0235508
10	FARGO ENERGY	WI	0.500000	0.437500	0.0314340	0.0157170	0.0137524
2	FARGO ENERGY	WI	0.362500	0.242875	0.0257748	0.0093434	0.0062601
17	FARGO ENERGY	WI	0.33125	0.291484	0.0201703	0.0067192	0.0058793
13	FARGO ENERGY	WI	0.326625	0.285797	0.0484999	0.0158412	0.0138612
9	FARGO ENERGY	WI	0.281173	0.246026	0.1210068	0.0340239	0.0297709

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
19B	FARGO ENERGY	WI	0.279500	0.244563	0.0365491	0.0102155	0.0089386
19A	FARGO ENERGY	WI	0.279500	0.244563	0.0365491	0.0102155	0.0089386
8	FARGO ENERGY	WI	0.269750	0.236031	0.0360754	0.0097313	0.0085149
12	FARGO ENERGY	WI	0.206250	0.180469	0.0395305	0.0081532	0.0071340
4	FARGO ENERGY	WI	0.202500	0.151874	0.0315766	0.0063942	0.0047957
3	FARGO ENERGY	WI	0.187500	0.140624	0.0288135	0.0054025	0.0040519
5	FARGO ENERGY	WI	0.100000	0.075000	0.0403324	0.0040332	0.0030249
1	FARGO ENERGY	WI	0.092500	0.069375	0.0372900	0.0034493	0.0025870
7	FARGO ENERGY	WI	0.080000	0.060000	0.0534556	0.0042764	0.0032073
6	FARGO ENERGY	WI	0.060000	0.045000	0.0303403	0.0018204	0.0013653
TOTAL						0.1767372	0.1456329
*****							
13	FRANCES HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
9	GLENN BURTON	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173
19B	GLENN BURTON	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
19A	GLENN BURTON	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079
8	GLENN BURTON	WI	0.006500	0.005688	0.0360754	0.0002345	0.0002052
12	GLENN BURTON	WI	0.005000	0.004375	0.0395305	0.0001976	0.0001729
TOTAL						0.0017270	0.0015112
*****							
13	GREGORY CHARLES GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
*****							
13	GREGORY J GALLAGHER	WI	0.063438	0.055507	0.0484999	0.0030767	0.0026921
TOTAL						0.0030767	0.0026921
*****							
2	HAROLD JONES	ORR		0.008300	0.0257748		0.0002139
TOTAL							0.0002139
*****							
2	J A DAVIDSON	ORR		0.008291	0.0257748		0.0002137
TOTAL							0.0002137
*****							
16	JOHN EDDY	ORR		0.030000	0.0149248		0.0004477
15	JOHN EDDY	ORR		0.030000	0.0207836		0.0006235



TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
TOTAL							0.0010712
13	KATHLEEN GALLAGHER COOPER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
2	KATHLEEN IRWIN	ORR		0.015625	0.0257748		0.0004027
TOTAL							0.0004027
20	MARATHON OIL	WI	0.500000	0.437500	0.0662843	0.031422	0.0289994
21	MARATHON OIL	WI	1.000000	0.875000	0.0164197	0.0164197	0.0143672
14	MARATHON OIL	ORR		0.175000	0.2252457		0.0344180
TOTAL						0.0495619	0.0827846
13	MARGUERETTE GALLAGHER PRICE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
1	MARSHALL LEAF	WI	0.030000	0.022500	0.0372900	0.0011187	0.0008390
14	MARSHALL LEAF	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
7	MARSHALL LEAF	WI	0.020000	0.015000	0.0534556	0.0010691	0.0008018
16	MARSHALL LEAF	WI	0.020000	0.015000	0.0149248	0.0002985	0.0002239
6	MARSHALL LEAF	WI	0.020000	0.015000	0.0303403	0.0006068	0.0004551
15	MARSHALL LEAF	WI	0.013333	0.011267	0.0207836	0.0002771	0.0002342
TOTAL						0.0101276	0.0072842
13	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0484999	0.0025220	0.0022068
9	MARTHA V. LEONARD	WI	0.054202	0.047427	0.1210068	0.0065588	0.0057390
19A	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0365491	0.0019005	0.0016630
19B	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0365491	0.0019005	0.0016630
17	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0201703	0.0010489	0.0009177
8	MARTHA V. LEONARD	WI	0.052000	0.045500	0.0360754	0.0018759	0.0016414
12	MARTHA V. LEONARD	WI	0.040000	0.035000	0.0395305	0.0015812	0.0013836
TOTAL						0.0173878	0.0152145
13	MARY B GALLAGHER	WI	0.000328	0.000287	0.0484999	0.0000159	0.0000139
TOTAL						0.0000159	0.0000139

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
13	MARY G HERNDON	WI	0.062125	0.054360	0.0484999	0.0030130	0.0026366
	TOTAL					0.0030130	0.0026366
13	MARY HERNDON RAY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	MARY KNIERIEM TAYLOR	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	MARY MARGARETTE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	MICHAEL JOSEPH GALLAGHER	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
13	NATALIE G POPE	WI	0.064750	0.056656	0.0484999	0.0031403	0.0027479
	TOTAL					0.0031403	0.0027479
13	NATALIE POPE	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
16	NELSON BREINING	WI	0.050000	0.037500	0.0149248	0.0007462	0.0005597
15	NELSON BREINING	WI	0.033333	0.028167	0.0207836	0.0006928	0.0005854
18	NELSON BREINING	WI	0.020000	0.014400	0.0075426	0.0001509	0.0001086
	TOTAL					0.0015899	0.0012537
9	OXY USA INC.	WI	0.364821	0.319218	0.1210068	0.0441458	0.0386275
8	OXY USA INC.	WI	0.350000	0.306250	0.0360754	0.0126264	0.0110481
19A	OXY USA INC.	WI	0.175000	0.153125	0.0365491	0.0063961	0.0055966
19B	OXY USA INC.	WI	0.175000	0.153125	0.0365491	0.0063961	0.0055966
	TOTAL					0.0695644	0.0608688
17	PENNZOIL	WI	0.350000	0.306250	0.0201703	0.0070596	0.0061772

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
15	PENNZOIL	WI	0.33333	0.281667	0.0207836	0.0069278	0.0058541
19B	PENNZOIL	WI	0.135184	0.118286	0.0365491	0.0049409	0.0043232
19A	PENNZOIL	WI	0.135184	0.118286	0.0365491	0.0049409	0.0043232
16	PENNZOIL	ORR		0.095000	0.0149248		0.0014179
12	PENNZOIL	ORR		0.041470	0.0257748		0.0010689
18	PENNZOIL	ORR		0.155000	0.0075426		0.0011691
20	PENNZOIL	ORR		0.0433750	0.0662843		0.0028999
TOTAL						0.0238691	0.0272335
13	PETER GREGORY HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
2	R H HANNIFIN	ORR		0.008291	0.0257748		0.0002137
TOTAL							0.0002137
13	RAYMOND STANLEY HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
13	ROBIN C HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
TOTAL						0.0000637	0.0000557
4	SAGE ENERGY COMPANY	WI	0.675000	0.506250	0.0315766	0.0213142	0.0159856
18	SAGE ENERGY COMPANY	WI	0.980000	0.705600	0.0075426	0.0071917	0.0053221
14	SAGE ENERGY COMPANY	WI	0.910000	0.637000	0.2252457	0.2049736	0.1434815
6	SAGE ENERGY COMPANY	WI	0.857500	0.643124	0.0303403	0.0260169	0.0195127
7	SAGE ENERGY COMPANY	WI	0.827500	0.620624	0.0534556	0.0442350	0.0331758
16	SAGE ENERGY COMPANY	WI	0.735000	0.613125	0.0149248	0.0122011	0.0091508
1	SAGE ENERGY COMPANY	WI	0.700000	0.551249	0.0372900	0.0274082	0.0205561
3	SAGE ENERGY COMPANY	WI	0.700000	0.525000	0.0288135	0.0201695	0.0151271
5	SAGE ENERGY COMPANY	WI	0.697500	0.523124	0.0403324	0.0281318	0.0210988
15	SAGE ENERGY COMPANY	WI	0.545000	0.460524	0.0207836	0.0113271	0.0095713
2	SAGE ENERGY COMPANY	WI	0.416900	0.279323	0.0257748	0.0107455	0.0071995
9	SAGE ENERGY COMPANY	WI	0.286254	0.250473	0.1210068	0.0346387	0.0303089
8	SAGE ENERGY COMPANY	WI	0.274625	0.240296	0.0360754	0.0099072	0.0086688
19A	SAGE ENERGY COMPANY	WI	0.264875	0.231765	0.0365491	0.0096809	0.0084708
19B	SAGE ENERGY COMPANY	WI	0.264875	0.231765	0.0365491	0.0096809	0.0084708
13	SAGE ENERGY COMPANY	WI	0.230739	0.201894	0.0484999	0.0111907	0.0097909
17	SAGE ENERGY COMPANY	WI	0.224249	0.196218	0.0201703	0.0045232	0.0039578
12	SAGE ENERGY COMPANY	WI	0.197500	0.172812	0.0395305	0.0078073	0.0068313
1	SAGE ENERGY COMPANY	ORR		0.125000	0.0288135	0.0000000	0.0036017
1	SAGE ENERGY COMPANY	ORR		0.062803	0.0372900		0.0023420

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****							
7	SAGE ENERGY COMPANY	ORR	0.125000	0.125000	0.0534556		0.0006820
5	SAGE ENERGY COMPANY	ORR	0.125000	0.125000	0.0403324		0.0050416
4	SAGE ENERGY COMPANY	ORR	0.125000	0.125000	0.0315766		0.0039471
6	SAGE ENERGY COMPANY	ORR	0.125000	0.125000	0.0303403		0.0037925
*****							
TOTAL						0.5013430	0.4020885
*****							
2	SCOPE INDUSTRIES	ORR	0.062500	0.062500	0.0257748		0.0016109
*****							
TOTAL							0.0016109
*****							
5	SEBERT L PATE	WI	0.031250	0.023438	0.0403324	0.0012604	0.0009453
7	SEBERT L PATE	WI	0.031250	0.023438	0.0534556	0.0016705	0.0012529
6	SEBERT L PATE	WI	0.031250	0.023438	0.0303403	0.0009481	0.0007111
1	SEBERT L PATE	WI	0.031250	0.023438	0.0372900	0.0011653	0.0008740
4	SEBERT L PATE	WI	0.031250	0.023438	0.0315766	0.0009868	0.0007401
3	SEBERT L PATE	WI	0.031250	0.023438	0.0288135	0.0009004	0.0006753
19B	SEBERT L PATE	WI	0.020313	0.017773	0.0365491	0.0007424	0.0006496
17	SEBERT L PATE	WI	0.020313	0.017774	0.0201703	0.0004097	0.0003585
13	SEBERT L PATE	WI	0.020313	0.017774	0.0484999	0.0009852	0.0008620
12	SEBERT L PATE	WI	0.015625	0.013672	0.0395305	0.0006177	0.0005405
*****							
TOTAL						0.0096865	0.0076093
*****							
5	SECA LTD.	WI	0.120000	0.090000	0.0403324	0.0048400	0.0036299
4	SECA LTD.	WI	0.060000	0.045000	0.0315766	0.0018946	0.0014209
1	SECA LTD.	WI	0.040000	0.030000	0.0372900	0.0014916	0.0011187
16	SECA LTD.	WI	0.040000	0.030000	0.0149248	0.0005970	0.0004477
14	SECA LTD.	WI	0.030000	0.021000	0.2252457	0.0067574	0.0047302
2	SECA LTD.	WI	0.030000	0.020100	0.0257748	0.0007732	0.0005181
15	SECA LTD.	WI	0.026667	0.022533	0.0207836	0.0005542	0.0004683
12	SECA LTD.	WI	0.015000	0.013125	0.0395305	0.0005930	0.0005188
*****							
TOTAL						0.0175010	0.0128526
*****							
10	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0314340		0.0039292
11	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0314010		0.0039251
17	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0201703		0.0025213
16	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0149248		0.0018656
18	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0075426		0.0009428
15	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0207836		0.0025980
9	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.1210068		0.0151259
21	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0184197		0.0020525
6	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0303403		0.0037925
14	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.2252457		0.0281557
12	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0395305		0.0049413
4	STATE OF NEW MEXICO	RI	0.125000	0.125000	0.0315766		0.0039471

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	UNIT PARTICIPATION EXPENSE WI	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****
3	STATE OF NEW MEXICO	RI		0.125000	0.0288135		0.0036017
1	STATE OF NEW MEXICO	RI		0.125000	0.0372900		0.0046613
7	STATE OF NEW MEXICO	RI		0.125000	0.0534556		0.0066820
5	STATE OF NEW MEXICO	RI		0.125000	0.0403324		0.0050416
19B	STATE OF NEW MEXICO	RI		0.125000	0.0365491		0.0045686
20	STATE OF NEW MEXICO	RI		0.125000	0.0662841		0.0082855
13	STATE OF NEW MEXICO	RI		0.125000	0.0484999		0.0060625
19A	STATE OF NEW MEXICO	RI		0.125000	0.0365491		0.0045686
8	STATE OF NEW MEXICO	RI		0.125000	0.0360754		0.0045094
2	STATE OF NEW MEXICO	RI		0.125000	0.0257748		0.0032219
	TOTAL						0.1250000
13	STEPHEN LAWRENCE KNIEREIM	WI	0.000656	0.000574	0.0484999	0.0000318	0.0000279
	TOTAL					0.0000318	0.0000279
13	SUSAN GALLAGHER GREY	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
19A	UNIVERSITY OIL	WI	0.040625	0.035546	0.0365491	0.0014848	0.0012992
16	UNIVERSITY OIL	WI	0.062500	0.046875	0.0149248	0.0009328	0.0006996
15	UNIVERSITY OIL	WI	0.041667	0.035208	0.0207836	0.0008660	0.0007317
8	UNIVERSITY OIL	WI	0.040625	0.035547	0.0360754	0.0014656	0.0012824
	TOTAL					0.0047492	0.0040129
13	VERONICA HERNDON	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557
	TOTAL					0.0000637	0.0000557
20	WAINOCO	WI	0.500000	0.437500	0.0662843	0.0311421	0.0260995
2	WAINOCO	WI	0.170600	0.127950	0.0257748	0.0043972	0.0032979
19B	WAINOCO	WI	0.039816	0.034839	0.0365491	0.0014552	0.0012733
19A	WAINOCO	WI	0.039816	0.034839	0.0365491	0.0014552	0.0012733
	TOTAL					0.0404497	0.0319440
2	WALLACE IRWIN	ORR		0.015625	0.0257748		0.0004027
	TOTAL						0.0004027
9	WESTERN LEASING	WI	0.006775	0.005928	0.1210068	0.0008198	0.0007173

TRACT	OWNER	TYPE	GROSS WI	NET NRI	TRACT PARTICIPATION WI	PARTICIPATION EXPENSE WI	UNIT PARTICIPATION EXPENSE	UNIT PARTICIPATION REVENUE NRI
*****	*****	*****	*****	*****	*****	*****	*****	*****
19B	WESTERN LEASING	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079	0.0002079
8	WESTERN LEASING	WI	0.006500	0.005688	0.0360754	0.0002345	0.0002052	0.0002052
19A	WESTERN LEASING	WI	0.006500	0.005688	0.0365491	0.0002376	0.0002079	0.0002079
TOTAL						0.0015295	0.0013383	
13	WILLIAM G POPE JR.	WI	0.001313	0.001149	0.0484999	0.0000637	0.0000557	0.0000557
TOTAL						0.0000637	0.0000557	
						1.0000000	1.0000000	



RECEIVED

SAGE ENERGY COMPANY

P. O. DRAWER 3068

MIDLAND, TEXAS 79702

915/683-5271

AUG 15 '90

MINNIE COX, EATON,  
COFFIELD & HENSLEY

August 10, 1990

Surface Owner and Leasehold Operators  
North Vacuum (Abo) Field  
Lea County, New Mexico

Subject: Proposed North Vacuum (Abo) North Unit  
Lea County, New Mexico

Dear Sirs:

As shown by the enclosed C-108 application Sage Energy Company has applied to convert 19 wells to water injection in the proposed North Vacuum (Abo) North Unit waterflood located in sections 35 and 36, T-16-S, R-24-E and sections 1 and 2, T-17-S, R-34-E in Lea County, New Mexico. Sage intends to inject fresh and formation water into the Abo formation at 8500'. Maximum rates are 400 BWPD/well and at a maximum pressure of 4500 psi. Interested parties must file objections or request for a hearing with the Oil Conservation Commission, PO Box 2088, Santa Fe, New Mexico, 87501, within 15 days of receipt of this application.

Very truly yours,

*Jay W. Hardy*  
Jay W. Hardy

Vice President Sage Energy

BEFORE EXAMINER	
OIL CONSERVATION COMMISSION	
<i>Sage</i>	<i>E</i>
10,102 + 10,103	



Proof of Notice  
Return Receipt Requested  
North Vacuum (Abo) North Unit  
Lea County, New Mexico

Mobil Production TX-NM  
PO Box 633  
Midland, Texas 79702

New Mexico Oil Conservation Commission  
PO Box 1980  
Hobbs, New Mexico 88240

Marathon Oil Company  
PO Box 552  
midland, Texas 79702

Chevron, USA  
PO Box 1150  
Midland, Texas 79702

Commissioner of Public Lands  
State of New Mexico  
Attn: Frank Prado - Oil and Gas Division  
PO Box 1148  
Santa Fe, New Mexico 87501

New Mexico Oil Conservation Commission  
Attn: Mike Stogner  
PO Box 2088  
Santa Fe, New Mexico 87501

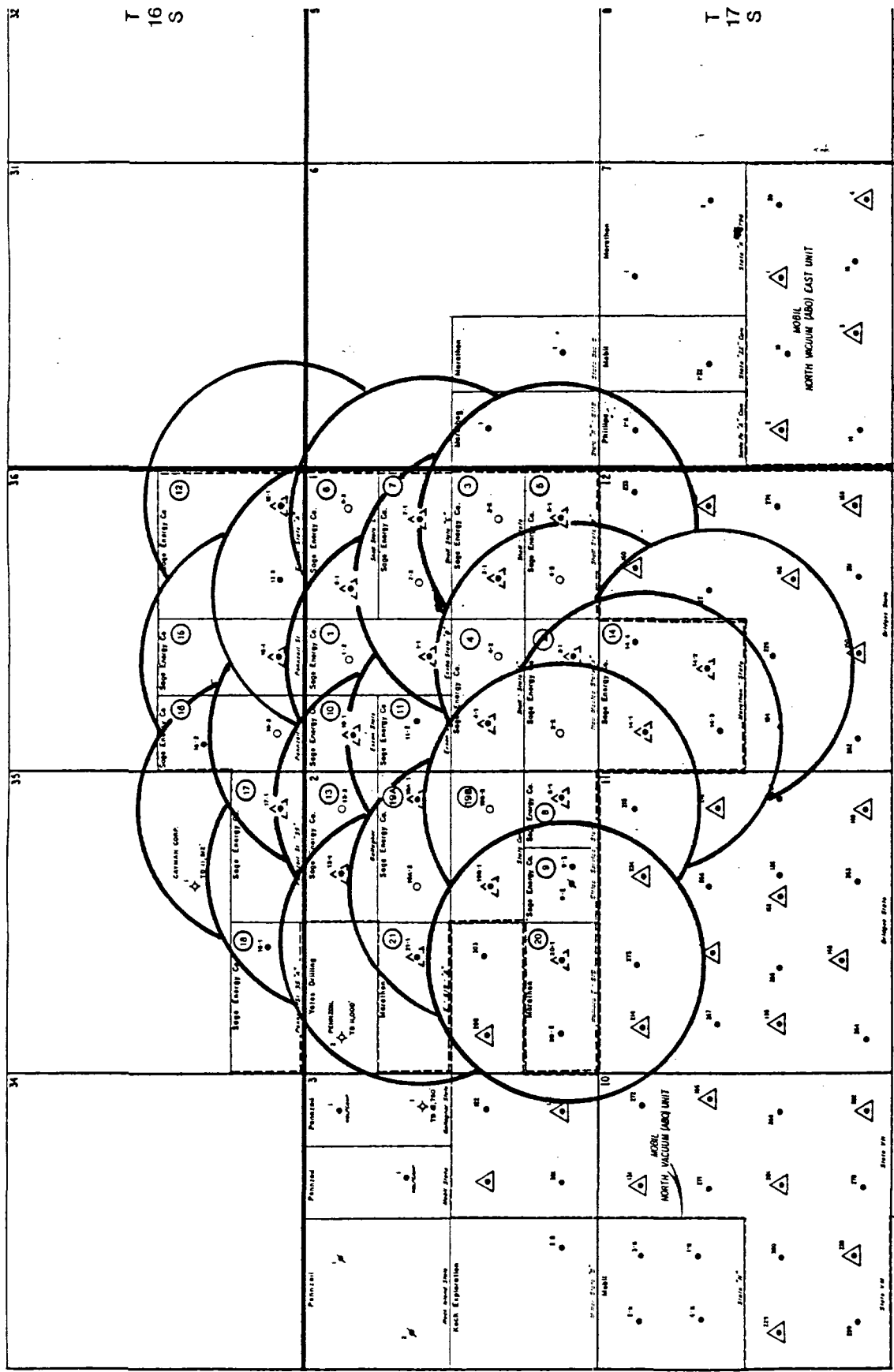
Shell Western E&P, Inc.  
PO Box 576  
Houston, Texas 77001

Mr. Bob Eidson  
West Star Route Box 490  
Lovington, New Mexico 88260

Yates Drilling Company  
207 South 4th Street  
Artesia, New Mexico 88210

## APPLICATION FOR AUTHORIZATION TO INJECT

- I. Purpose: ☒ Secondary Recovery ☐ Pressure Maintenance ☐ Disposal ☐ Storage  
Application qualifies for administrative approval? ☐ yes ☒ no
- II. Operator: Sage Energy Company  
Address: P.O. Drawer 3068, Midland, Texas 79702  
Contact party: Jay H. Hardy Phone: (915) 683-5271
- III. Well data: Complete the data required on the reverse side of this form for each well proposed for injection. Additional sheets may be attached if necessary.
- IV. Is this an expansion of an existing project? ☐ yes ☒ no  
If yes, give the Division order number authorizing the project \_\_\_\_\_
- V. Attach a map that identifies all wells and leases within two miles of any proposed injection well with a one-half mile radius circle drawn around each proposed injection well. This circle identifies the well's area of review.
- VI. Attach a tabulation of data on all wells of public record within the area of review which penetrate the proposed injection zone. Such data shall include a description of each well's type, construction, date drilled, location, depth, record of completion, and a schematic of any plugged well illustrating all plugging detail.
- VII. Attach data on the proposed operation, including:
1. Proposed average and maximum daily rate and volume of fluids to be injected;
  2. Whether the system is open or closed;
  3. Proposed average and maximum injection pressure;
  4. Sources and an appropriate analysis of injection fluid and compatibility with the receiving formation if other than reinjected produced water; and
  5. If injection is for disposal purposes into a zone not productive of oil or gas at or within one mile of the proposed well, attach a chemical analysis of the disposal zone formation water (may be measured or inferred from existing literature, studies, nearby wells, etc.).
- \*VIII. Attach appropriate geological data on the injection zone including appropriate lithologic detail, geological name, thickness, and depth. Give the geologic name, and depth to bottom of all underground sources of drinking water (aquifers containing waters with total dissolved solids concentrations of 10,000 mg/l or less) overlying the proposed injection zone as well as any such source known to be immediately underlying the injection interval.
- IX. Describe the proposed stimulation program, if any.
- X. Attach appropriate logging and test data on the well. (If well logs have been filed with the Division they need not be resubmitted.)
- XI. Attach a chemical analysis of fresh water from two or more fresh water wells (if available and producing) within one mile of any injection or disposal well showing location of wells and dates samples were taken.
- XII. Applicants for disposal wells must make an affirmative statement that they have examined available geologic and engineering data and find no evidence of open faults or any other hydrologic connection between the disposal zone and any underground source of drinking water.
- XIII. Applicants must complete the "Proof of Notice" section on the reverse side of this form.
- XIV. Certification
- I hereby certify that the information submitted with this application is true and correct to the best of my knowledge and belief.
- Name: Jay H. Hardy Title: Vice President  
Signature: Jay H. Hardy Date: August 10, 1990
- \* If the information required under Sections VI, VIII, X, and XI above has been previously submitted, it need not be duplicated and resubmitted. Please show the date and circumstance of the earlier submittal.



R 34 E

R 35 E

Sage Energy Company  
Midland, Texas

PROPOSED NORTH VACUUM (ABO) NORTH UNIT  
LEA COUNTY, NEW MEXICO

T16S, R34E  
T17S, R34E

Scale: 0 500 1000 1500 2000  
1988



OF REVIEW -NORTH VACUUM (Ado) NORTH UNIT

TABULATION OF WELLS IN AREA

PERFORATIONS

CASING PROGRAM & CEMENT

COMPLETION TYPE

DATE

PE/TD

LOCATION

WELL

OPERATOR

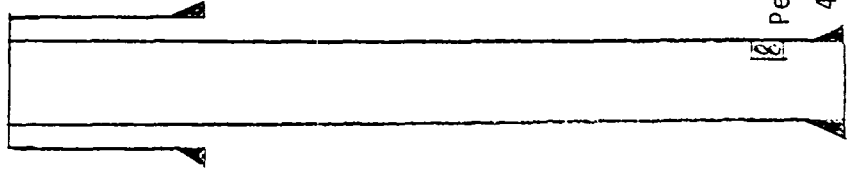
MOBIL PRODUCTION TX-NM	NORTH VACUUM (Ado) UNIT #172	SEC. 1, T-17S, R-34E	WIN	4/15/72	-/8800'	1200 SX @ 286', 450 SX; 8-5/8" @ 1080', 1400 SX; 5-1/2" @ 8800', 2300 SX	8643' - 8681'
MOBIL PRODUCTION TX-NM	NORTH VACUUM (Ado) UNIT #103	SEC. 2, T-17S, R-34E	OIL	7/24/86	8607'/8850'	12-3/4" @ 405', 500 SX, 9-5/8" @ 5000', 2400 SX; 5-1/2" LINER @ 4224-8850', 950 SX	8654' - 8710'
PENNZOIL	GALLAGHER STATE COR. #1	SEC. 1, T-17S, R-34H	D+A	5/17/77	-/12750'	8-5/8" @ 4830', 2500 SX; 8-5/8" @ 4095', 675 SX	
PENNZOIL	ANGLE - STATE #2	SEC. 2, T-17S, R-34D	D+A	8/14/67	-/11000'	11-3/4" @ 401', 275 SX; 8-5/8" @ 4095', 675 SX	
CAYMAN CORPORATION	J FEATHERSTONE - STATE #1	SEC. 35, T-16S, R-34	D+A	7/05/69	-/11512'	13-3/8" @ 245', 150 SX; 8-5/8" @ 1305', 350 SX	
SHELL WESTERN E & P	STATE VI #1	SEC. 1, T-17S, R-34E	GAS	3/17/83	12141'/12250'	20" @ 36', 30 SX; 13-3/8" @ 400', 425 SX, 8-5/8" @ 4879', 950 SX; 5-1/2" @ 12232	11902' - 11914'
SAGE ENERGY COMPANY	CITIES STATE NO. 2	SEC. 2, T-17S, R-34E	OIL	10/13/75	-/8830'	5-1/2" @ 12232', 1975 SX	8660' - 8680'
			P+A	3/18/85		8-5/8" @ 1677', 860 SX; 4-1/2" @ 8830', 1000 SX	

Typical  
INJECTION WELL DATA SHEET

SIDE 1

<u>OPERATOR</u> Sage Energy Company		<u>Cities State</u> LEASE	
<u>WELL NO.</u> 1	<u>FOOTAGE LOCATION</u> 660' FSL and 460' FEL	<u>SECTION</u> Sec. 2	<u>TOWNSHIP</u> T-17-S
			<u>RANGE</u> R-34-E
<u>Lea County, New Mexico</u>			

Schematic



Tabular Data

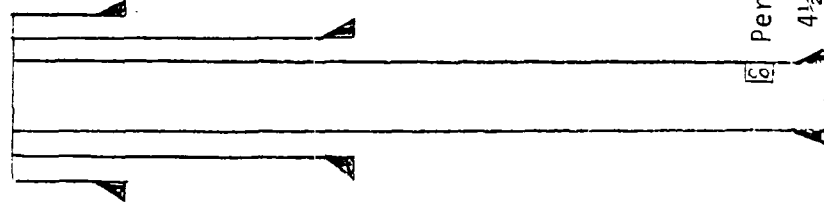
<u>Surface Casing</u>	
Size _____ "	Cemented with _____ sx.
TOC _____	feet determined by _____
Hole size _____	
8 5/8" @ 1757', 1350 sx. <u>Intermediate Casing</u>	
Size 8 5/8" @ 1757' "	Cemented with 1350 _____ sx.
TOC _____	feet determined by Visual _____
Hole size 11"	
<u>Long string</u>	
Size 4 1/2" @ 8714' "	Cemented with 700 _____ sx.
TOC 4725	feet determined by Calculations _____
Hole size 7 7/8"	
Total depth 8714'	
<u>Injection interval</u>	
Perforations 8617' - 8639'	
4 1/2" @ 8714', 700 sx.	
8617	feet to 8639 feet
(perforated or open-hole, indicate which)	

# Typical INJECTION WELL DATA SHEET

SIDE 1

Sage Energy Company  
OPERATOR  
Marathon State  
LEASE  
3 2180' FNL, 660' FWL  
WELL NO. FOOTAGE LOCATION  
12 SECTION  
T-17-S TOWNSHIP  
R-34-E RANGE  
Lea County, New Mexico

## Schematic



## Tabular Data

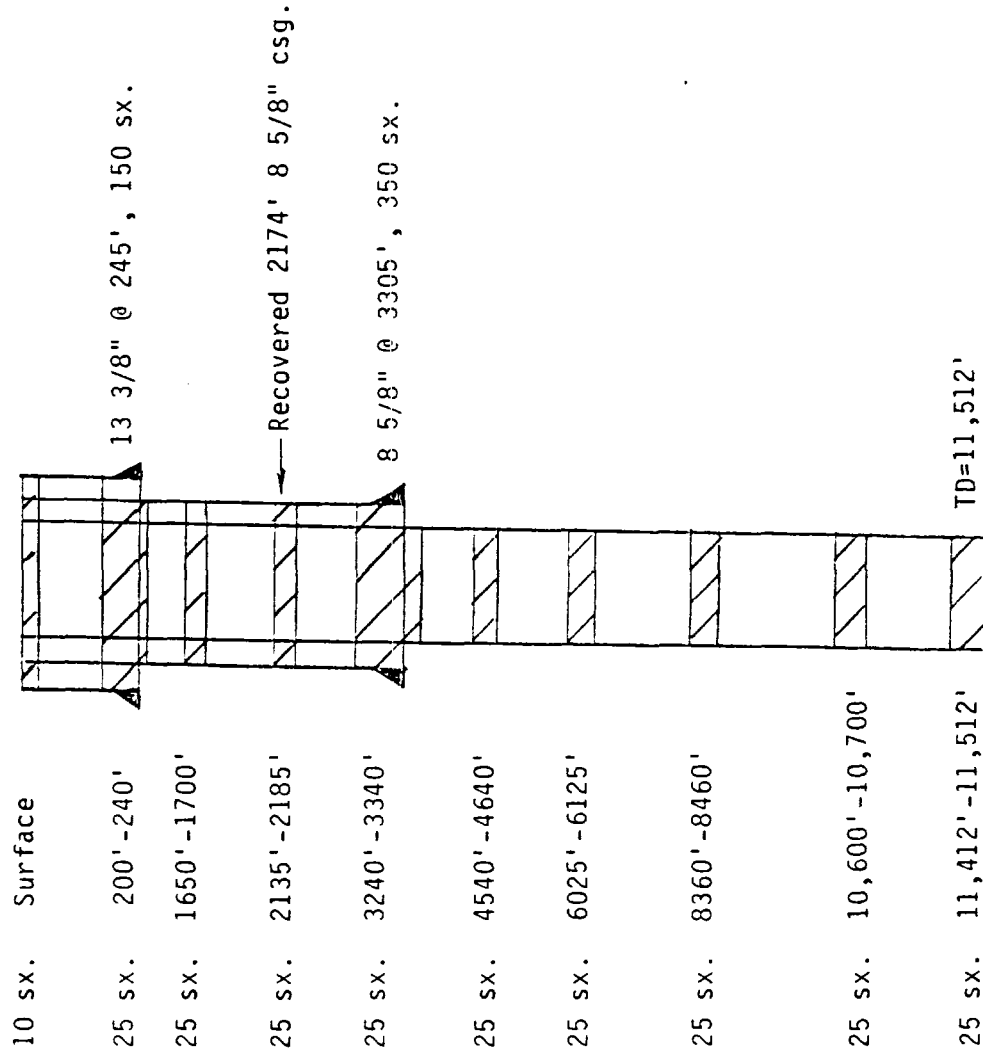
<u>Surface Casing</u>	
Size 12 3/4 @ 390'	Cemented with 450 sx.
TOC Circulated	feet determined by Visual
Hole size 17 1/2"	
<u>Intermediate Casing</u>	
Size 8 5/8" @ 3218'	Cemented with 1000 sx.
TOC 390'	feet determined by Calculations
Hole size 12 1/4"	
<u>Long string</u>	
Size 4 1/2" @ 8750'	Cemented with 1050 sx.
TOC 3200	feet determined by Calculations
Hole size 7 7/8"	
Total depth 8750'	
<u>Injection interval</u>	
8542	feet to 8584 feet
(perforated or open-hole, indicate which)	

Perforated 8542'-8584'  
4 1/2" @ 8750', 1050 sx.

# PLUGGED WELL DATA

Operator Name Cayman Corporation Lease Name Featherstone-State Well No. 1  
 Footage Location 1980' FSL and FEL Section 35 Township 16 S Range 34 E  
 County Lea Date P&A 7/5/69

## SCHEMATIC



## TABULAR DATA

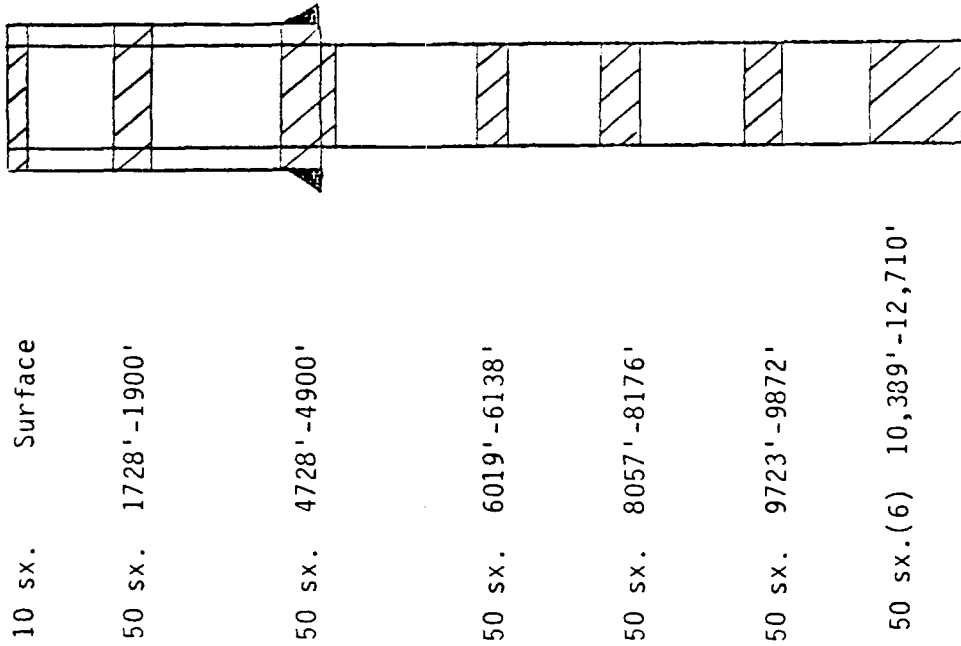
Surface Casing: Size 13 3/8" set at 245'  
 Cemented with 150 sx. TOC Circulated  
 Feet determined by Calculations. Hole Size 17 1/2"  
 Intermediate Casing:  
 Size 8 5/8" set at 3305'  
 Cemented with 350 sx. TOC 1653'  
 Feet determined by Calculations. Hole size 11"  
 Long String:  
 Size \_\_\_\_\_ set at \_\_\_\_\_  
 Cemented with \_\_\_\_\_ sx. TOC \_\_\_\_\_  
 Feet determined by \_\_\_\_\_ . Hole size \_\_\_\_\_  
 Total Depth \_\_\_\_\_  
 Producing Intervals; perforated or open hole  
 \_\_\_\_\_ feet to \_\_\_\_\_ feet.



# PLUGGED WELL DATA

Operator Name Mobil Oil Corporation Lease Name Gallagher State Well No. 1  
 Footage Location 1980' FNL and 660' FEL Section 3 Township 17 S Range 34 E  
 County Lea Date P&A 5/17/77

## SCHEMATIC



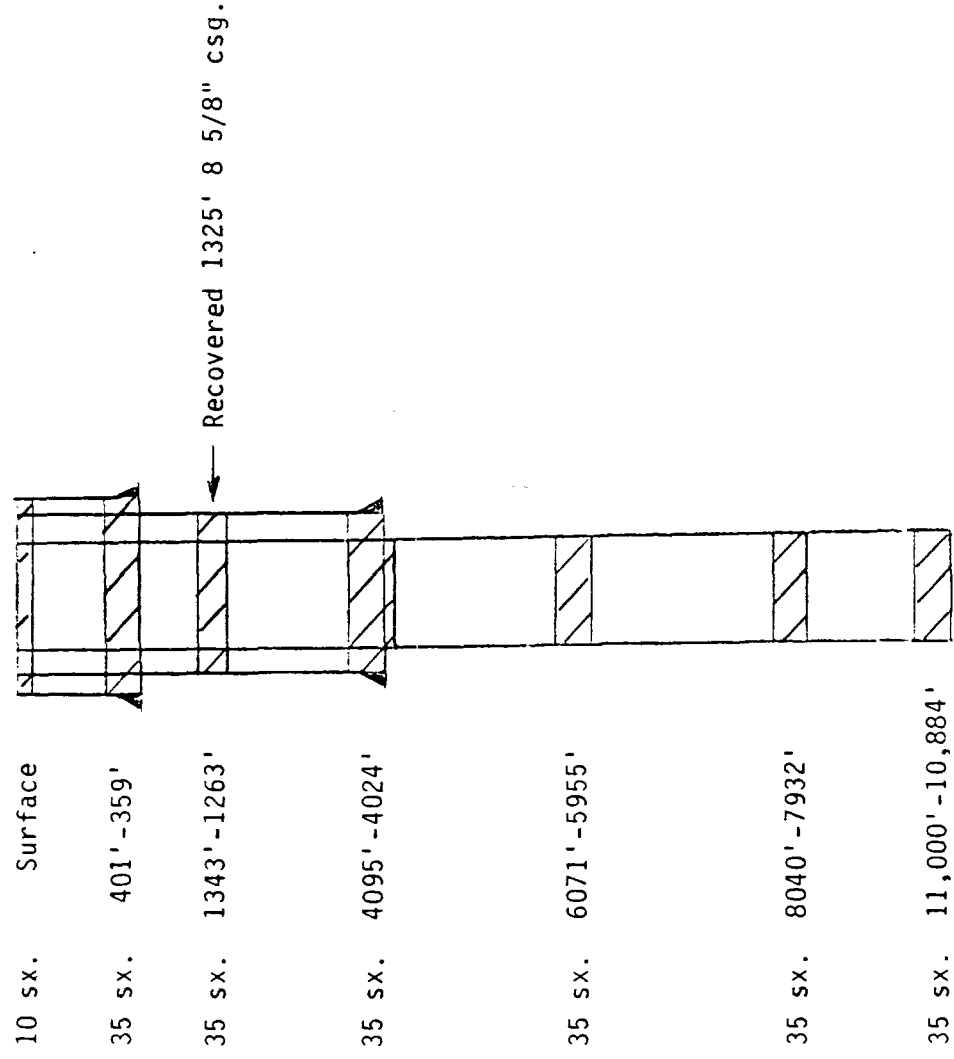
## TABULAR DATA

Surface Casing: Size \_\_\_\_\_ set at \_\_\_\_\_  
 Cemented with \_\_\_\_\_ sx. TOC \_\_\_\_\_  
 Feet determined by \_\_\_\_\_. Hole Size \_\_\_\_\_  
Intermediate Casing:  
 Size 8 5/8" set at 4850'  
 Cemented with 2500 sx. TOC Circulated \_\_\_\_\_  
 Feet determined by Calculations \_\_\_\_\_. Hole size 12 1/4"  
Long String:  
 Size \_\_\_\_\_ set at \_\_\_\_\_  
 Cemented with \_\_\_\_\_ sx. TOC \_\_\_\_\_  
 Feet determined by \_\_\_\_\_ . Hole size \_\_\_\_\_  
 Total Depth \_\_\_\_\_  
 Producing Intervals; perforated or open hole \_\_\_\_\_  
 \_\_\_\_\_ feet to \_\_\_\_\_ feet.

# PLUGGED WELL DATA

Operator Name Pennzoil Company Lease Name Marathon State Well No. 2  
 Footage Location 660' FN and WL Section 2 Township T-17-S Range R-34-E  
 County Lea Date P&A 8/13/67

## SCHEMATIC



## TABULAR DATA

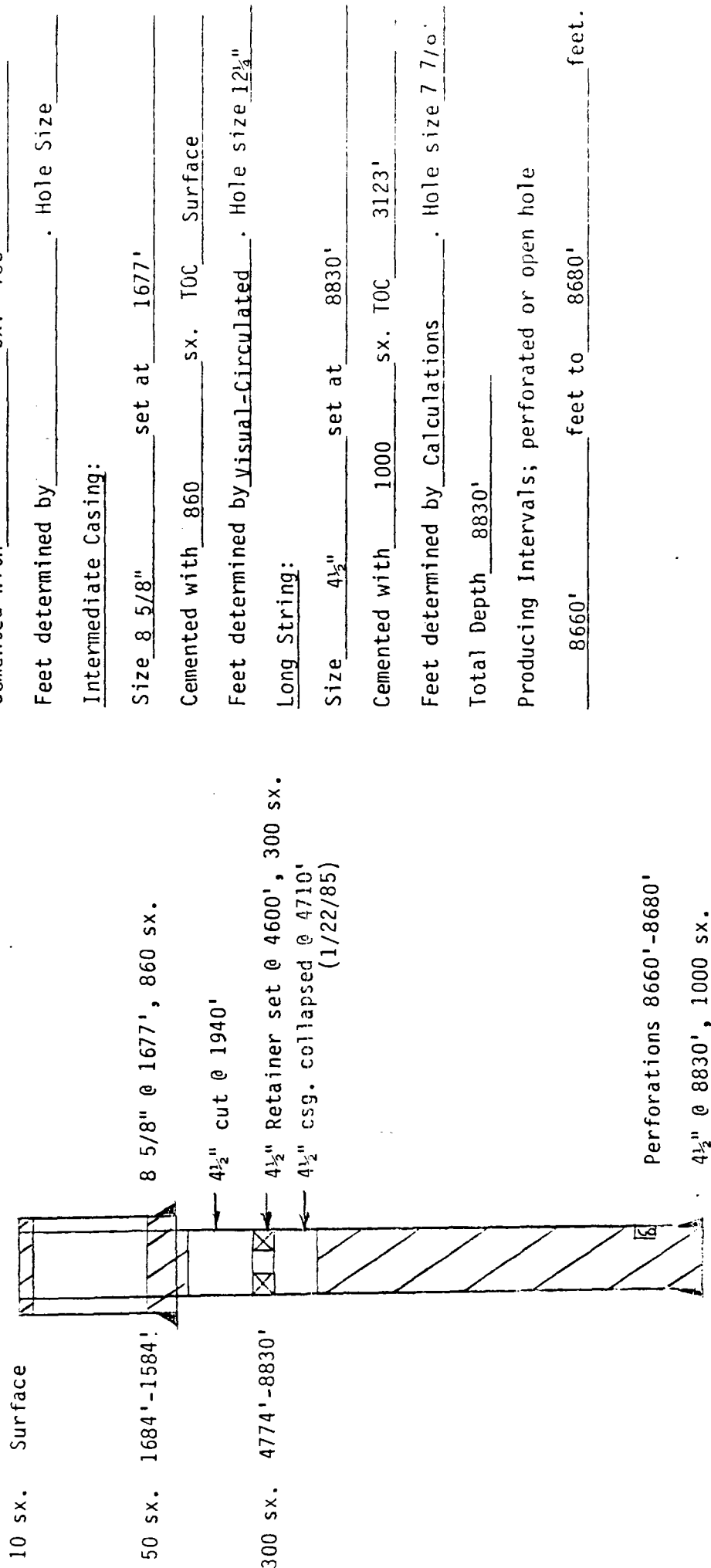
Surface Casing: Size 11 3/4" set at 403'  
 Cemented with 275 sx. TOC Circulated  
 Feet determined by Calculations. Hole Size 17"  
Intermediate Casing:  
 Size 8 5/8" set at 4095'  
 Cemented with 675 sx. TOC 1969'  
 Feet determined by Calculated. Hole size 12 1/4"  
Long String:  
 Size \_\_\_\_\_ set at \_\_\_\_\_  
 Cemented with \_\_\_\_\_ sx. TOC \_\_\_\_\_  
 Feet determined by \_\_\_\_\_ . Hole size \_\_\_\_\_  
 Total Depth \_\_\_\_\_  
 Producing Intervals; perforated or open hole \_\_\_\_\_ feet to \_\_\_\_\_ feet.

TD= 11,000'

# PLUGGED WELL DATA

Operator Name Sage Energy Company Lease Name Cities Service State Well No. 2  
 Footage Location 460' FSL ad 1980' FEL Section 2 Township 17-S Range 34-E  
 County Lea Date P&A 3/18/85

## SCHEMATIC



## TABULAR DATA

Surface Casing: Size \_\_\_\_\_ set at \_\_\_\_\_  
 Cemented with \_\_\_\_\_ sx. TOC \_\_\_\_\_  
 Feet determined by \_\_\_\_\_ . Hole Size \_\_\_\_\_  
 Intermediate Casing:  
 Size 8 5/8" \_\_\_\_\_ set at 1677'  
 Cemented with 860 \_\_\_\_\_ sx. TOC Surface  
 Feet determined by visual-Circulated . Hole size 12 1/4"  
 Long String:  
 Size 4 1/2" \_\_\_\_\_ set at 8830'  
 Cemented with 1000 \_\_\_\_\_ sx. TOC 3123'  
 Feet determined by Calculations . Hole size 7 7/8'  
 Total Depth 8830'  
 Producing Intervals; perforated or open hole  
 8660' \_\_\_\_\_ feet to 8680' \_\_\_\_\_ feet.

Data on Proposed Operation  
North Vacuum (Abo) North Unit  
Lea County, New Mexico

Form C-108 (Rev. 7-1-81)

VII.

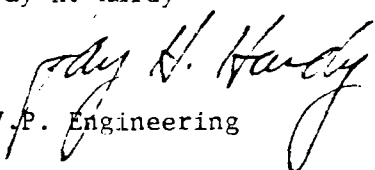
1. Proposed average daily water injection rate = 200 BWPD/well.  
Proposed maximum daily water injection rate = 400 BWPD/well.  
Estimated total volume = 7,300,000 BW.
2. The system will be closed.
3. Proposed average injection pressure = 2500 psi.  
Proposed maximum injection pressure = 4500 psi.
4. Injection fluid will be fresh and produced water. Analysis of fresh water is attached. Water is compatible with produced water.
5. Not applicable.

VIII.

The injection zone is the Abo formation at 8450'±. The Vacuum (Abo) North Field is located North and behind the main Vacuum Abo reef trend in a back reef depositional environment. The Abo is comprised of thinly bedded, lenticular dolomites encapsulated by shale stringers. The productive dolomite zones average 3-8' in thickness with porosities in the range of 5-7%.

- IX. No stimulation program needed.
- X. Logs and test data on file with the NMOCD.
- XI. Fresh water analysis attached

Jay H. Hardy

  
V.P. Engineering

HALLIBURTON SERVICES  
MIDLAND DIVISION  
HOBBS, NEW MEXICO 88240  
LABORATORY WATER ANALYSIS

No. 205

To Sage Energy

Date 9-11-90

Drawer 3068

Midland, Texas 88240

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management; it may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

Submitted by \_\_\_\_\_ Date Rec. 9-11-90

Well No. East Exxon State A Depth 200' Formation \_\_\_\_\_

County SE/4 SE/4 Sec 36 Field T16 S R34 E Source Ogallala  
Lea Co, N. Mexico Commercial Fresh Water Well

Resistivity 1.8 @ 70° F

Specific Gravity 1.00

pH 6.8

Calcium (Ca) 900 \*MPL

Magnesium (Mg) nil

Chlorides (Cl) 2,000

Sulfates (SO<sub>4</sub>) very light

Bicarbonates (HCO<sub>3</sub>) 18

Soluble Iron (Fe) nil

Remarks: \_\_\_\_\_

REPORT EXAMINED  
OIL CONSULTANT SERVICE  
Sage  
EXPIRATION DATE 10/10/92 + 10/10/93  
\*Milligrams per liter

Respectfully submitted,

Analyst: Daniel Rodumeo

HALLIBURTON COMPANY

cc:

By \_\_\_\_\_  
CHEMIST

NOTICE

THIS REPORT IS LIMITED TO THE DESCRIBED SAMPLE TESTED. ANY USER OF THIS REPORT AGREES THAT HALLIBURTON SHALL NOT BE LIABLE FOR ANY LOSS OR DAMAGE, WHETHER IT BE TO ACT OR OMISSION, RESULTING FROM SUCH REPORT OR ITS USE.

SAGE ENERGY  
EAST EXXON STATE A  
SCALE PROFILE FOR INJECTION WATER AND FORMATION WATER  
SEPTEMBER 28, 1990

TEMPERATURE(F)= 100.0

ION	CONCENTRATION (MG/L)	
	WATER NO. 1	WATER NO. 2
SODIUM	1013.	20700.
CALCIUM	900.	3000.
MAGNESIUM	0.	1410.
STRONTIUM	0.	0.
IRON(FERROUS)	0.	0.
IRON(FERRIC)	0.	80.
CHLORIDE	2000.	39000.
BICARBONATE	13.	36.
CARBONATE	0.	0.
SULFATE	1550.	3364.
PH	6.80	7.20
SPECIFIC GRAVITY	1.0000	1.0500
RESISTIVITY	1.80	0.12
IONIC STRENGTH	0.1276	1.3429
TDS	5481.	67590.

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
100.0 % WATER NO. 1	0.0 % WATER NO. 2			
CALCIUM SULFATE	1004.	-0.02	-32.	NONE
CALCIUM CARBONATE	46.	-0.67	-36.	NONE
STRONTIUM SULFATE	16.	-10.00	-16.	NONE
90.0 % WATER NO. 1	10.0 % WATER NO. 2			
CALCIUM SULFATE	1233.	-0.07	-147.	NONE
CALCIUM CARBONATE	67.	-0.80	-56.	NONE
STRONTIUM SULFATE	22.	-10.00	-22.	NONE
80.0 % WATER NO. 1	20.0 % WATER NO. 2			
CALCIUM SULFATE	1397.	-0.11	-197.	NONE
CALCIUM CARBONATE	80.	-0.84	-68.	NONE
STRONTIUM SULFATE	26.	-10.00	-26.	NONE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

*Sage* *G*  
10,102 + 10,103

SAGE ENERGY  
EAST EXXON STATE A  
SCALE PROFILE FOR INJECTION WATER AND FORMATION WATER  
SEPTEMBER 28, 1990

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
<hr/>				
70.0 % WATER NO. 1	30.0 % WATER NO. 2			
CALCIUM SULFATE	1522.	-0.10	-208.	NONE
CALCIUM CARBONATE	85.	-0.82	-72.	NONE
STRONTIUM SULFATE	28.	-10.00	-28.	NONE
60.0 % WATER NO. 1	40.0 % WATER NO. 2			
CALCIUM SULFATE	1619.	-0.09	-191.	NONE
CALCIUM CARBONATE	89.	-0.81	-74.	NONE
STRONTIUM SULFATE	31.	-10.00	-31.	NONE
50.0 % WATER NO. 1	50.0 % WATER NO. 2			
CALCIUM SULFATE	1695.	-0.06	-154.	NONE
CALCIUM CARBONATE	85.	-0.75	-69.	NONE
STRONTIUM SULFATE	33.	-10.00	-33.	NONE
40.0 % WATER NO. 1	60.0 % WATER NO. 2			
CALCIUM SULFATE	1756.	-0.04	-101.	NONE
CALCIUM CARBONATE	79.	-0.69	-62.	NONE
STRONTIUM SULFATE	34.	-10.00	-34.	NONE
30.0 % WATER NO. 1	70.0 % WATER NO. 2			
CALCIUM SULFATE	1804.	-0.01	-35.	NONE
CALCIUM CARBONATE	71.	-0.62	-53.	NONE
STRONTIUM SULFATE	35.	-10.00	-35.	NONE
20.0 % WATER NO. 1	80.0 % WATER NO. 2			
CALCIUM SULFATE	1837.	0.02	46.	SLIGHT
CALCIUM CARBONATE	61.	-0.53	-43.	NONE
STRONTIUM SULFATE	36.	-10.00	-36.	NONE

NOTE: PTB = POUNDS PER THOUSAND BARRELS

SAGE ENERGY  
 EAST EXXON STATE A  
 SCALE PROFILE FOR INJECTION WATER AND FORMATION WATER  
 SEPTEMBER 28, 1990

TYPE OF SCALE	SOLUBILITY (PTB)	SCALE INDEX	SCALE (PTB)	SCALING TENDENCY
10.0 % WATER NO. 1	90.0 % WATER NO. 2			
CALCIUM SULFATE	1866.	0.04	131.	MODERATE
CALCIUM CARBONATE	53.	-0.43	-33.	NONE
STRONTIUM SULFATE	36.	-10.00	-36.	NONE

0.0 % WATER NO. 1	100.0 % WATER NO. 2			
CALCIUM SULFATE	1883.	0.07	228.	MODERATE
CALCIUM CARBONATE	44.	-0.33	-23.	NONE
STRONTIUM SULFATE	37.	-10.00	-37.	NONE

NOTE: PTB = POUNDS PER THOUSAND BARRELS



Proof of Notice  
Return Receipt Requested  
North Vacuum (Abo) North Unit  
Lea County, New Mexico

Mobil Production TX-NM  
PO Box 633  
Midland, Texas 79702

New Mexico Oil Conservation Commission  
PO Box 1980  
Hobbs, New Mexico 88240

Marathon Oil Company  
PO Box 552  
midland, Texas 79702

Chevron, USA  
PO Box 1150  
Midland, Texas 79702

Commissioner of Public Lands  
State of New Mexico  
Attn: Frank Prado - Oil and Gas Division  
PO Box 1148  
Santa Fe, New Mexico 87501

New Mexico Oil Conservation Commission  
Attn: Mike Stogner  
PO Box 2088  
Santa Fe, New Mexico 87501

Shell Western E&P, Inc.  
PO Box 576  
Houston, Texas 77001

Mr. Bob Eidson  
West Star Route Box 490  
Lovington, New Mexico 88260

Yates Drilling Company  
207 South 4th Street  
Artesia, New Mexico 88210

*Sage*

*H*  
*10,102 + 10,103*

## RECEIPT FOR CERTIFIED MAIL

P 248 625 592

NO POSTAGE  
NECESSARY  
IF MAILED  
IN THE  
UNITED STATES

To: Mobil Production TX-NM	
PO Box 633	
Midland, TX 79702	
Postage	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt Showing to whom Date and Address of Delivery	
Return Receipt Showing to whom Date and Address of Delivery	
Postmark	

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

3. Article Addressed to:  Mobil Production TX-NM PO Box 633 Midland, TX 79702	4. Article Number P 248 625 592  Type of Service: <input checked="" type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> COD  Always obtain signature of addressee or agent and <b>DATE DELIVERED</b> .
5. Signature - Addressee X	8. Addressee's Address (ONLY if requested and fee paid)  SAME
6. Signature - Agent X <i>James Beyers</i>	
7. Date of Delivery AUG 13 1990	

P 248 625 593

## RECEIPT FOR CERTIFIED MAIL

See Reverse

Marathon Oil Co. PO Box 552 Midland TX 79702	240
--	-----

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. <input checked="" type="checkbox"/> Show to whom delivered, date, and addressee's address.	2. <input type="checkbox"/> Restricted Delivery.
3. Article Addressed to:  Marathon Oil Company PO Box 552 Midland, TX 79702	4. Article Number P 248 625 593 Type of Service: <input type="checkbox"/> Registered <input type="checkbox"/> Insured <input checked="" type="checkbox"/> Certified <input type="checkbox"/> COD <input type="checkbox"/> Express Mail
5. Signature — Addressee X	Always obtain signature of addressee or agent and <b>DATE DELIVERED.</b>
6. Signature — Agent <i>Sammy Edwards</i>	8. Addressee's Address (ONLY if requested and fee paid) SAME
7. Date of Delivery AUG 13 1990	

[illegible]

P 243 625 5911  
RECEIPT FOR CERTIFIED MAIL

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address.      2. ☐ Restricted Delivery.

<p>3. Article Addressed to:</p> <p>Chevron, USA PO Box 1150 Midland, TX 79702</p>	<p>4. Article Number P 248 625 594</p> <p>Type of Service:</p> <p><input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail</p> <p><input type="checkbox"/> Insured <input type="checkbox"/> COD</p> <p>Always obtain signature of addressee or agent and <u>DATE DELIVERED</u>.</p>
<p>5. Signature — Addressee X</p> <p>6. Signature — Agent X</p> <p>7. Date of Delivery</p> <p><i>[Signature]</i></p> <p>AUG 13 1990</p>	<p>8. Addressee's Address (ONLY if requested and fee paid)</p> <p>SAME</p>

RECEIPT FOR CERTIFIED MAIL

P 248 625 595

Commissioner of Public Lands/NM  
Attn: Frank Prado, Oil & Gas Div  
PO Box 1148  
Sante Fe, NM 87501

Postage	
Postage and Fees	2.42
Return Receipt showing to whom delivered and Date Delivered	
Return Receipt showing to whom Date and Address of Delivery	

**SENDER: Complete Items 1 and 2 when additional services are desired, and complete items 3 and 4.**  
Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

3. Article Addressed to:  
Commissioner of Public Lands  
State of New Mexico  
Attn: Frank Prado, Oil & Gas Div.  
PO Box 1148  
Sante Fe, New Mexico 87501

4. Article Number  
P 248 625 595

Type of Service:  
☒ Registered ☐ Insured  
☒ Certified ☐ COD  
☐ Express Mail

Always obtain signature of addressee or agent and **DATE DELIVERED**.

5. Signature - Addressee  
X *Mike L*

6. Signature - Agent  
X

7. Date of Delivery

8. Addressee's Address (ONLY if requested and fee paid)

PS Form 3811, Feb. 1986

DOMESTIC RETURN RECEIPT

Postage	Postage
Registered Delivery Fee	Registered Delivery Fee
Insurance (if shown on label)	Insurance (if shown on label)
Return Receipt (if shown on label)	Return Receipt (if shown on label)
Other (if shown on label)	Other (if shown on label)
Postmark of Date	280

P 248 625 596  
 RECEIPT FOR CERTIFIED MAIL

NO GUARANTEE OF DELIVERY PROVIDED  
 FOR INTERNATIONAL MAIL  
 (See Reverse)

**SENDER: Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.**  
 Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. <input checked="" type="checkbox"/> Show to whom delivered, date, and addressee's address.	2. <input type="checkbox"/> Restricted Delivery.
3. Article Addressed to:  New Mexico Oil Conservation Comm. Attn: Mike Stogner PO Box 2088 Sante Fe, NM 87501	4. Article Number P 248 625 596 Type of Service: <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> COD Always obtain signature of addressee or agent and <b>DELIVERED</b> .
5. Signature — Addressee X	8. Address (if different from above) (ONLY if requested and fee paid)
6. Signature — Agent X	
7. Date of Delivery	

RECEIPT FOR CERTIFIED MAIL

P 248 625 597

Stene Bolander

To:	
Shell Western E & P, Inc.	
PO Box 576	
Shreveport, La 70701	
Houston, TX	77001
Folio No	5
Referral Fee	
Sponsor's Discount Fee	
Agent's Cash Delivery Fee	
Redemption Award Paying Co. Admin and Entry Delivered	
Return Receipt showing to whom Date and Addressed Correctly	
TOTAL Points and Fees	240
Paid to Agent or Field	

<p><b>SENDER:</b> Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. <u>The return receipt fee will provide you the name of the person delivered to and the date of delivery.</u> For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.</p>	
<p>1. <input checked="" type="checkbox"/> Show to whom delivered, date, and addressee's address.</p>	<p>2. <input type="checkbox"/> Restricted Delivery.</p>
<p>3. Article Addressed to:</p> <p style="margin-top: 20px;">Shell Western E&amp;P, Inc. PO Box 576 Houston, TX 77001</p>	<p>4. Article Number P 248 625 597</p> <p>Type of Service:</p> <div style="display: flex; justify-content: space-between;"> <div style="width: 45%;"> <p><input type="checkbox"/> Registered</p> <p><input checked="" type="checkbox"/> Certified</p> <p><input type="checkbox"/> Express Mail</p> </div> <div style="width: 45%;"> <p><input type="checkbox"/> Insured</p> <p><input type="checkbox"/> COD</p> </div> </div> <p>Always obtain signature of addressee or agent and <u>DATE DELIVERED.</u></p>
<p>5. Signature — Addressee</p> <p>X</p>	<p>8. Addressee's Address (<i>ONLY if requested and fee paid</i>)</p>
<p>6. Signature — Agent</p> <p>X</p>	
<p>7. Date of Delivery</p> <p style="font-size: 2em; text-align: center;">AUG 13 1990</p>	

PS Form 3811, Feb. 1986

**DOMESTIC RETURN RECEIPT**

Sent to	Mr. Bob Eidson
Street and No.	West Star Rt. Box 490
P.O. State and ZIP Code	Lovington NM 88260
Postage	\$
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom Date and Address of Delivery	
TOTAL Postage and Fees	\$ 4.00
Postmark (Date)	

P 248 625 598

## RECEIPT FOR CERTIFIED MAIL

NO INSURANCE COVERAGE PROVIDED  
NOT FOR INTERNATIONAL MAIL  
(See Reverse)

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

<b>3. Article Addressed to:</b>  Mr. Bob Eidson West Star Route Box 490 Lovington, NM 88260	<b>4. Article Number</b> P 248 625 598  <b>Type of Service:</b> <input type="checkbox"/> Registered <input checked="" type="checkbox"/> Certified <input type="checkbox"/> Express Mail <input type="checkbox"/> Insured <input type="checkbox"/> COD
<b>5. Signature — Addressee</b> X <i>Bob Eidson</i>	Always obtain signature of addressee or agent and <b>DATE DELIVERED</b>
<b>6. Signature — Agent</b> X	<b>8. Addressee's Address (ONLY if requested and fee paid)</b>
<b>7. Date of Delivery</b>	



## RECEIPT FOR CERTIFIED MAIL

P 248 625 599

NO SIGNATURE COULD BE PROVIDED  
NOT FOR INTERNATIONAL MAIL

(See Reverse)

Sent to	Yates Drilling Co
Postage and No.	207 S 4th Street
Postage	Artesia, NM 88210
Postage and ZIP Code	
Certified Fee	
Special Delivery Fee	
Restricted Delivery Fee	
Return Receipt showing to whom and Date Delivered	
Return Receipt showing to whom Date and Address of Delivery	
TOTAL Postage and Fees	0.40
Date of Delivery	

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4. Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

## 3. Article Addressed to:

Yates Drilling Company  
207 South 4th Street  
Artesia, NM 88210

## 4. Article Number

P 248 625 599

## Type of Service:

☐ Registered☒ Certified☐ Express Mail☐ Insured  
☐ COD

Always obtain signature of addressee or agent and **DATE DELIVERED.**

## 5. Signature — Addressee

X

## 6. Signature — Agent

X Mike Burd

## 7. Date of Delivery

8-13-90

## 8. Addressee's Address (ONLY if requested and fee paid)

## RECEIPT FOR CERTIFIED MAIL

NO POSTAGE NECESSARY IF MAILED IN THE UNITED STATES

P 248 625 600

(See Reverse)

Postage	
Insured Fee	
Registered Fee	
Restricted Delivery Fee	
Return Receipt Showing	
Signature of Addressee	
Signature of Agent	
Signature of Postmaster	
Signature of Recipient	
Signature of Sender	

● **SENDER:** Complete items 1 and 2 when additional services are desired, and complete items 3 and 4.

Put your address in the "RETURN TO" space on the reverse side. Failure to do this will prevent this card from being returned to you. The return receipt fee will provide you the name of the person delivered to and the date of delivery. For additional fees the following services are available. Consult postmaster for fees and check box(es) for additional service(s) requested.

1. ☒ Show to whom delivered, date, and addressee's address. 2. ☐ Restricted Delivery.

## 3. Article Addressed to:

New Mexico Oil Conservation Comm.  
PO Box 1980  
Hobbs, NM 88240

## 4. Article Number

P 248 625 600

## Type of Service:

☐ Registered  
☒ Certified  
☐ Express Mail

☐ Insured  
☐ COD

Always obtain signature of addressee or agent and **DATE DELIVERED**.

## 5. Signature — Addressee

X

## 6. Signature — Agent

X

## 7. Date of Delivery

8-13-90

## 8. Addressee's Address (ONLY if requested and fee paid)

# Affidavit of Publication

STATE OF NEW MEXICO )

) ss.

COUNTY OF LEA )

Joyce Clemens being first duly sworn on oath deposes and says that he is Adv. Director of THE LOVINGTON DAILY LEADER, a daily newspaper of general paid circulation published in the English language at Lovington, Lea County, New Mexico; that said newspaper has been so published in such county continuously and uninterruptedly for a period in excess of Twenty-six (26) consecutive weeks next prior to the first publication of the notice hereto attached as hereinafter shown; and that said newspaper is in all things duly qualified to publish legal notices within the meaning of Chapter 167 of the 1937 Session Laws of the State of New Mexico.

That the notice which is hereto attached, entitled

Legal Notice

and numbered ..... in the

..... Court of Lea County, New Mexico, was published in a regular and entire issue of THE LOVINGTON DAILY LEADER and not in any supplement thereof, once each week on the same day of the week, for two (2)

consecutive weeks, beginning with the issue of

August 17, 1990

and ending with the issue of

August 24, 1990

And that the cost of publishing said notice is the sum of \$ 11.40

which sum has been (Paid) (X) as Court Costs

Subscribed and sworn to before me this 24th

day of August, 1990

Notary Public, Lea County, New Mexico

My Commission Expires Sept. 28, 1990

## LEGAL NOTICE

SAGE ENERGY COMPANY, P.O. Drawer 3068, Midland, Texas, 79702, has applied to convert 19 wells to water injection in the proposed North Vacuum (Abo) North Unit waterflood located in Sections 35 and 36, T-16-S, R-34-E, and Sections 1 and 2, T-17-S, R-34-E, Lea County, New Mexico. The operator intends to inject fresh and formation water into the Abo formation at 8500'. Maximum rates are 400 BWPD/well at a maximum pressure of 4500 psi. Interested parties must file objections or request for hearing with the Oil Conservation Commission, P.O. Box 2088, Santa Fe, New Mexico, 87501 within 15 days of today's date.

Tammy L. Williams  
Production Clerk  
Published in the Lovington Daily Leader  
August 17 and 24, 1990.

Sage

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10/10/90 + 10/10/90