

EXHIBIT No 1

CASE 3789

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION
OF THE
MESA QUEEN UNIT
COUNTY OF LEA
STATE OF NEW MEXICO

6, 21

UNIT AGREEMENT
MESA QUEEN UNIT
LEA COUNTY, NEW MEXICO

Table of Contents

Section		Page
	Preamble	1
1	Enabling Act and Regulations	2
2	Definitions.	2
3	Unit Area.	4
4	Expansion.	4
5	Unitized Land and Unitized Substances.	5
6	Unit Operator	5
7	Resignation or Removal of Unit Operator.	6
8	Successor Unit Operator.	7
9	Accounting Provisions and Unit Operating Agreement	7
10	Rights and Obligations of Unit Operator.	8
11	Plan of Operations	8
12	Tract Participation.	9
13	Tracts Qualified for Unit Participation.	11
14	Allocation of Unitized Substances.	12
15	Oil in Lease Tankage on Effective Date	14
16	Royalty Settlement	15
17	Rental Settlement.	16
18	Conservation	16
19	Drainage	16
20	Leases and Contracts Conformed and Extended.	16
21	Covenants Run With Land.	18
22	Effective Date and Term.	18
23	Appearances.	20
24	Notices.	20
25	No Waiver of Certain Rights.	21
26	Unavoidable Delay.	21
27	Loss of Title.	21
28	Nonjoinder and Subsequent Joinder.	22
29	Counterparts	24
30	Joinder Commitment	24
31	Taxes	24
32	Conflict of Supervision.	25
33	Personal Property Excepted	25
34	No Partnership	25
35	Correction of Errors	25
	Exhibit "A" (Map of Unit Area)	
	Exhibit "B" (Schedule of Ownership)	
	Exhibit "C" (Schedule of Tract Participation)	

UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION OF THE
MESA QUEEN UNIT
LEA COUNTY, NEW MEXICO

THIS AGREEMENT, entered into as of the 1st day of May,
1968, 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 owners 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 (Volume 2, Chapter 7, Article 11, New Mexico Statutes,
1953 Annotated) to consent to and approve the development or operation of
State lands under agreements made by lessees of State land jointly or
severally with other lessees where such agreements provide for the unit
operation or development of part of or all of any oil or gas pool, field
or area; and

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

WHEREAS, the Oil Conservation Commission of the State of New Mexico
is authorized by law (Volume 9, Part 2, Chapter 65, Article 3, New Mexico
Statutes, 1953 Annotated) to approve this agreement and the conservation
provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the Mesa Queen Unit Area, 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 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 as 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) "Commission" is defined as the Oil Conservation Commission of the State of New Mexico.
- (d) "Unitized Formation" is defined as that stratigraphic interval occurring between a point 100 feet above the top of the Queen Sand and 100 feet below the base of the Queen Sand, said Queen Sand interval occurring between 3389 feet and 3420 feet in the Tenneco Oil Company Sinclair State Well No. 2 located 660 feet from the east line and 660 feet from the north line of Section 16, Township 16 South, Range 32 East, N.M.P.M., Lea County, New Mexico as recorded on the sonic log of said well dated September 2, 1963.

- (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 and obligated 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 during Phase I and Phase II, as hereinafter defined. The Tract Participation of the Tracts within the Unit Area is shown on Exhibit "C" 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) "Phase I" means the period of time beginning as of 7:00 A.M. on the effective date hereof and continuing until the first day of the month following such time as the cumulative number of barrels of oil produced, saved and removed from the Unitized Formation underlying all Tracts described in the original Exhibit "B" equals 786,162 barrels, as determined from the official production reports filed with the New Mexico Conservation Commission. If less than all Tracts described in original Exhibit "B" qualify for inclusion in the Unit Area under the provisions of Section 13, Tracts Qualified For Unit Participation, said barrels shall be reduced by a percentage equal to the total Phase I Tract Participation, as shown on the original Exhibit "B" of all of the unqualified Tracts.
- (n) "Phase II" means the remainder of the term of this agreement after the end of Phase I.
- (o) "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, Mesa Queen Unit, Lea County, New Mexico".

- (p) "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 as constituting the Unit Area, containing 1,040 acres, more or less.

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 or interests as are 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 during Phase I and Phase II, 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.

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 purposes 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 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

Phase II 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 Commission:

- (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 Commission, 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 Commission 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 the qualification requirements of Section 13, Tracts Qualified For Unit Participation, infra; and (d) Copies of any objections received.

The expansion shall, after due consideration of all pertinent information and upon approval by the Commissioner and Commission, 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: Tenneco Oil 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 Commission 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.

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 any 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 conducting 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. 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: Costs and expenses incurred by Unit Operator 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 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 Commission and the Commissioner, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gas, 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 any formation other than the Unitized Formation for injection into formations other than the Unitized Formation. After commencement of secondary operations, Unit Operator shall furnish the Commissioner and the Commission monthly injection and production reports for each well in the Unit. The Working Interest Owners, the Commissioner and the Commission 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 the Commission.

The initial plan of operation shall be filed with the Commission 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 secondary recovery operations on the Unit Area within six (6) months after the effective date of this Agreement, or any extension thereof approved by the Commissioner and Commission, 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 for Phase I and Phase II hereof in accordance with the following formulas:

Phase I
Tract Participation
Percentage=(Equals):

$$100 \times (\text{times}) \left[\begin{array}{l} .98 \times \frac{\text{Tract Remaining Primary Reserves as of 9-1-67}}{\text{Unit Area Remaining Primary Reserves as of 9-1-67}} \\ + .02 \times \frac{\text{Tract Acres}}{\text{Total Unit Area Acres}} \end{array} \right]$$

Phase II
Tract Participation
Percentage=(Equals):

$$100 \times (\text{times}) \left[\begin{array}{l} .98 \times \frac{\text{Tract Ultimate Primary Reserves}}{\text{Unit Area Ultimate Primary Reserves}} \\ + .02 \times \frac{\text{Tract Acres}}{\text{Total Unit Area Acres}} \end{array} \right]$$

Such percentages of Tract Participation during Phase I and Phase II 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 Commission 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 Commission 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 Exhibits "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 Commission, 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 per cent (100%) of the Working Interest therein have become parties hereto and as to which Royalty Owners owning seventy-five per cent (75%) or more of the Royalty Interest therein have become parties hereto.

(b) Each Tract as to which Working Interest Owners owning one hundred per cent (100%) of the Working Interest therein have become parties hereto and as to which Royalty Owners owning less than seventy-five per cent (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 per cent (75%) of the combined voting interests 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 per cent) which its aggregate Phase II Unit Participation in all Tracts qualifying under Section 13 (a) bears to the total Phase II 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 per cent (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 per cent (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 per cent) which its aggregate Phase II Unit Participation in all Tracts qualifying under Section 13 (a) and 13 (b) bears to the total Phase II 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 Participations 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 during the respective periods, either Phase I or Phase II, in which such Unitized Substances were produced, 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 Participation 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 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 such contract be for a period in excess of one year. 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 pipe line connection in such tanks as of 7:00 A.M. on the effective date hereof. All such oil which has then 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 a share of the substances produced from any Tract unitized hereunder, shall hereafter be 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 kind in conformity with the applicable contracts, laws and regulations. Settlement for Royalty Interests not taken in kind shall be made by Working Interest Owners responsible therefor under existing contracts, laws and regulations, on or before the last day of each month for Unitized Substances produced during the preceding calendar month; provided, however, that nothing herein contained shall operate to relieve the lessees of any land from their respective lease obligations for the payment of any 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 Commission, 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 as to the products extracted therefrom; provided that such withdrawal shall be pursuant to such conditions and formulae as may be prescribed or approved by the Commissioner; 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, part or all of such liquefied petroleum gases may be withdrawn royalty free pursuant to such conditions and formulae as may be prescribed or approved by the Commissioner.

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 SETTLEMENT: 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 the 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 or secondary recovery operations performed hereunder upon any Tract of unitized land 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 Supervisor and the 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 land.

(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 term 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, such lease shall continue in full force and effect beyond the term provided therein as to all lands embraced in such lease if oil or gas is, 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 bona fide 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. COVENANTS RUN WITH LAND: The covenants herein shall be construed to be covenants running with the land with respect to the interests of the parties hereto and their successors in interest until this agreement terminates, and any grant, transfer or conveyance of interest in land or leases subject hereto shall be and hereby is conditioned upon the assumption of all privileges and obligations hereunder by the grantee, transferee, or other successor in interest. No assignment or transfer of any Working 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 recorded instrument of transfer; and no assignment or transfer of 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 month next following:

(a) The execution or ratification of this agreement and the Unit Operating Agreement by Working Interest Owners having a combined Phase II Unit Participation of at least eighty-five per cent (85%), and the execution or ratification of this agreement by Royalty Owners owning a combined interest of at least seventy per cent (70%) of the Phase II 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), (c) and (d) above are not accomplished on or before January 1, 1969, 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 Phase II Unit Participation of at least sixty-five per cent (65%) and the Working Interest Owners having a combined Phase II Unit Participation of at least eighty per cent (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 per cent (90%) Phase II 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. APPEARANCES: 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 of 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 of 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. NONJOINER AND SUBSEQUENT JOINER: 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, Tracts Qualified for Unit Participation. Joinder in the Unit Agreement by a Working Interest Owner, at any time, must be accompanied by appropriate joinder 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 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 Interest Owners having a combined Phase II Unit Participation of not less than ninety per cent (90%), provided that the 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 in 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 State of New Mexico land 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 the 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. CONFLICT OF SUPERVISION: Neither the Unit Operator nor the Working Interest Owners, nor any of them, shall be subject to any forfeiture, termination or expiration of any rights hereunder or under any leases or contracts subject hereto, or to any penalty or liability on account of delay or failure in whole or in part to comply with any applicable provisions thereof to the extent that the said Unit Operator or the Working Interest Owners, or any of them, are hindered, delayed or prevented from complying therewith by reason of failure of the Unit Operator to obtain, in the exercise of due diligence, the concurrence of proper representatives of the State of New Mexico in and about any matters or things concerning which it is required herein that such concurrence be obtained.

SECTION 33. 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 34. 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 35. 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 Phase II Unit Participation of fifty per cent (50%) or more and the Commissioner.

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

ATTEST:

W. J. O'Neil
Assistant Secretary

Date: _____

TENNECO OIL COMPANY

By: Joe Collins
Vice President

Address: P. O. Box 2410
Denver, Colorado 80201

UNIT OPERATOR AND WORKING INTEREST OWNER

ATTEST:

Date: _____

By: _____

Address: _____

ATTEST:

Date: _____

By: _____

Address: _____

ATTEST:

Date: _____

By: _____

Address: _____

OTHER WORKING INTEREST OWNERS

Date: _____

Address: _____

Date: _____

Address: _____

ROYALTY OWNERS

STATE OF COLORADO

CITY AND COUNTY OF DENVER

The foregoing instrument was acknowledged before me this 22nd day of May, 1968, by J. S. Collins, Vice President of TENNECO OIL COMPANY, a Delaware corporation, on behalf of said corporation.

Elaine C. Middaugh
Notary Public in and for the City
and County of Denver, State of
Colorado **Elaine C. Middaugh**

My commission expires:

My Commission expires July 10, 1970

STATE OF _____
COUNTY OF _____

ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1968, by _____,
a _____ of _____,
Corporation, on behalf of said corporation.

My commission expires:

Notary Public in and for
_____ County _____

STATE OF _____
COUNTY OF _____

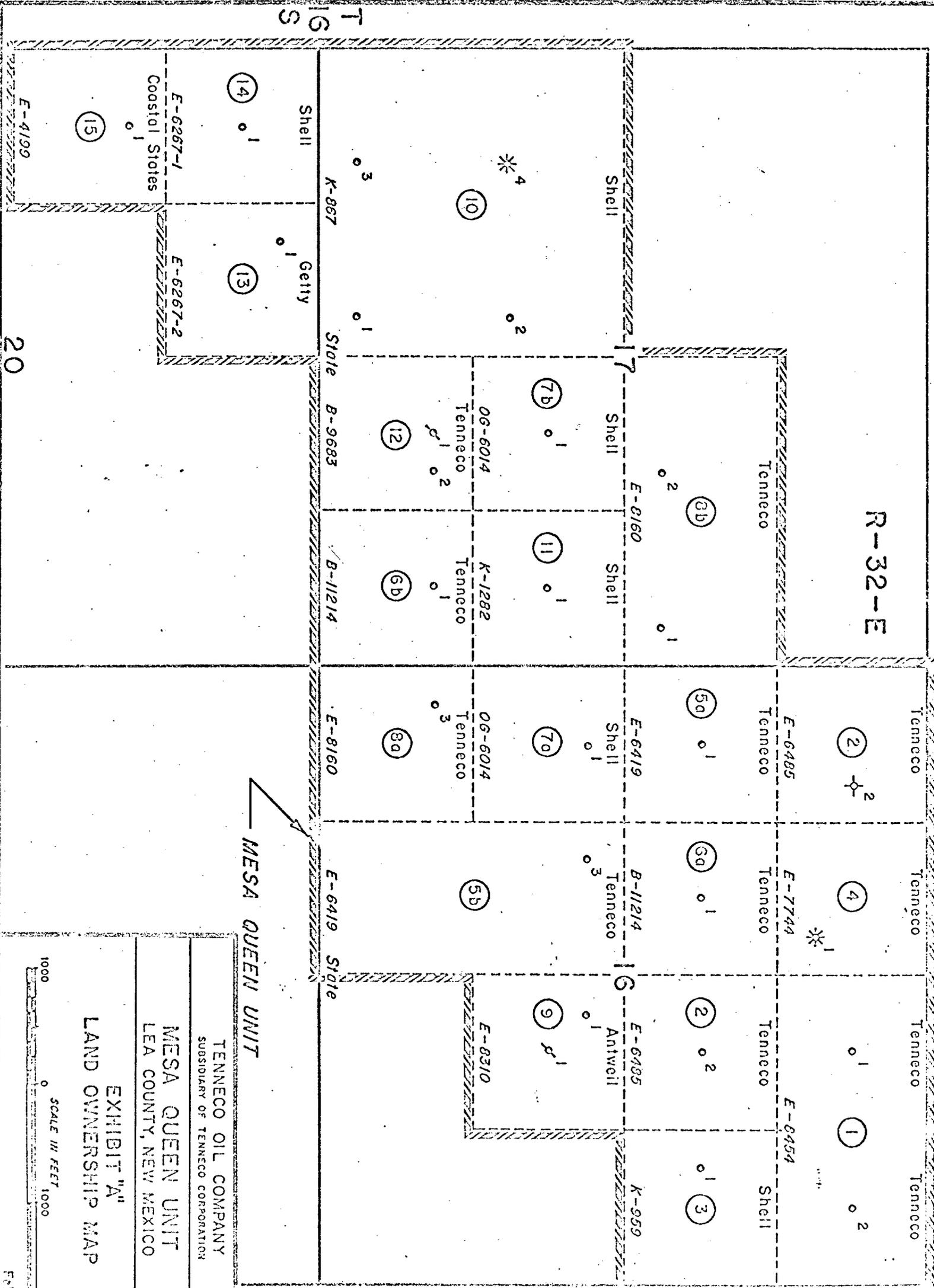
ss.

The foregoing instrument was acknowledged before me this _____
day of _____, 1968, by _____
_____.

My commission expires:

Notary Public in and for
_____ County _____

R-32-E



MESA QUEEN UNIT

TENNECO OIL COMPANY
 SUBSIDIARY OF TENNECO CORPORATION
MESA QUEEN UNIT
 LEA COUNTY, NEW MEXICO

EXHIBIT "A"
LAND OWNERSHIP MAP

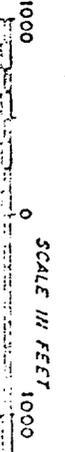


EXHIBIT "B"

MESA QUEEN UNIT AREA, LEA COUNTY, NEW MEXICO

Tract No.	Description of Land	Number of Acres	Lease No. & Date of Lease	Basic Royalty Percentage	Lessee of Record	Overriding Royalty Owner(s) and Percentage (See Note 1)	Working Interest Owner(s) and Percentage (See Note 1)
<u>ALL OF UNIT STATE LANDS</u>							
<u>T-16-S, R-32-E, NMPM</u>							
1	Sec. 16: NE/4 NE/4 NW/4 NE/4	80.00	E-8454 8-17-54	12.50%	Sinclair Oil & Gas Company	Sinclair Oil & Gas Company	Tenneco Oil Company 100%
2	Sec. 16: SW/4 NE/4 NW/4 NW/4	80.00	E-6485 9-10-52	12.50%	Mobil Oil Corporation	Mobil Oil Corporation	Tenneco Oil Company 100%
3	Sec. 16: SE/4 NE/4	40.00	K-959 11-15-60	12.50%	Shell Oil Company	None	Shell Oil Company 100%
4	Sec. 16: NE/4 NW/4	40.00	E-7744 1-19-54	12.50%	Continental Oil Company	Continental Oil Company* G. W. Baker	Tenneco Oil Company 100%
5a	Sec. 16: SW/4 NW/4	120.00	E-6419	12.50%	Mobil Oil Corporation	Mobil Oil Corporation	Tenneco Oil Company 100%
5b	Sec. 16: E/2 SW/4		8-11-52				
6a	Sec. 16: SE/4 NW/4	40.00	B-11214 5-10-44	12.50%	Mobil Oil Corporation	Mobil Oil Corporation	Tenneco Oil Company 100%
6b	Sec. 17: SE/4 SE/4	40.00	B-11214 5-10-44	12.50%	Mobil Oil Corporation	Mobil Oil** Corporation	Tenneco Oil Company 100%
7a	Sec. 16: NW/4 SW/4	80.00	06-6014	12.50%	Shell Oil Company	None	Shell Oil Company 100%
7b	Sec. 17: NW/4 SE/4		10-20-59				

Tract No.	Description of Land	Number of Acres	Lease No. & Date of Lease	Basic Royalty Percentage	Lessee of Record	Overriding Royalty Owner(s) and Percentage (See Note 1)	Working Interest Owner(s) and Percentage (See Note 1)
8a	Sec. 16: SW/4 SW/4	120.00	E-8160	12.50%	Sinclair Oil & Gas Company	Sinclair Oil & Gas Company	Tenneco Oil Company 100%
8b	Sec. 17: S/2 NE/4		5-18-54				
9	Sec. 16: NW/4 SE/4	40.00	E-8310	12.50%	Humble Oil & Refining Company	Humble Oil & Refining Company	Morris R. Antweil 100%
10	Sec. 17: SW/4	160.00	K-867 10-18-60	12.50%	Shell Oil Company	None	Shell Oil Company 100%
11	Sec. 17: NE/4 SE/4	40.00	K-1282 3-21-61	12.50%	Shell Oil Company	None	Shell Oil Company 100%
12	Sec. 17: SW/4 SE/4	40.00	B-9683 6-10-42	12.50%	Continental Oil Company	*Continental Oil Company G. W. Baker	Tenneco Oil Company 100%
13	Sec. 20: NE/4 NW/4	40.00	E-6267-2 6-10-52	12.50%	Getty Oil Company	None	Getty Oil Company 100%
14	Sec. 20: NW/4 NW/4	40.00	E-6267-1 6-10-52	12.50%	Getty Oil Company	Getty Oil Company Paul Declava	Shell Oil Company 87-1/2% Stoltz and Company 12-1/2%
15	Sec. 20: SW/4 NW/4	40.00	E-4199 9-11-50	12.50%	Gulf Oil Corporation	Gulf Oil Corporation (increasing to 25.00% when 35,000 barrels of oil produced) Robert E. Paddock (decreasing to 1.00% when 35,000 barrels of oil produced)	Coastal States Gas Prod. Co. 100%
		1,040.00	Total Acres in Unit				

NOTE 1: The overriding royalty and working interest owners shown above are the owners of such interests as to the unitized formations under the lands described. In certain instances, such owners may not own the same interests in other formations.

*Continental has option to convert his 10.00% ORR to a 50% WI if secondary recovery operations are instigated.
 **Mobil has option to convert this 12.50% ORR to a 25.00% WI if secondary recovery operations are instigated.

EXHIBIT "C"
 ATTACHED TO UNIT AGREEMENT
 MESA QUEEN UNIT
 LEA COUNTY, NEW MEXICO

Schedule of Tract Participation

<u>Tract No.</u>	<u>Tract Participation</u>	
	<u>Phase I (%)</u>	<u>Phase II (%)</u>
1	0.15385	10.81433
2	0.15384	6.51916
3	4.04774	5.17489
4	0.07692	0.07692
5a	2.09169	5.50839
5b	0.15385	5.86209
6a	0.77786	6.10614
6b	3.21905	4.83752
7a	54.63263	11.58585
7b	0.07692	3.40950
8a	0.07692	4.15852
8b	0.34030	7.03412
9	0.07693	1.32055
10	5.99806	9.91052
11	22.52072	6.76696
12	0.07692	1.57471
13	3.35719	4.36335
14	1.57721	3.90111
15	<u>0.59140</u>	<u>1.07537</u>
	100.00000	100.00000

PROPOSED SUMMARY OF TESTIMONYApplication for Approval of Unit AgreementStatus of Sign Up (Based on Phase II Participation)

<u>Working Interest Ownership</u>	<u>Unit Participation Phase II %</u>	<u>Status Approval</u>
Antweil	1.32	
Coastal States	1.08	
Shell	40.26	verbal approval
Getty	4.36	
Stoltz	0.49	approved
Tenneco	52.49	approved
	<u>100.00</u>	

<u>SUMMARY</u>	<u>PHASE II %</u>
written approval	52.98
verbal approval	40.26
no reply yet	6.76
	<u>100.00</u>

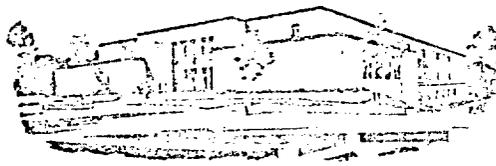
Royalty Ownership

<u>Type Royalty</u>	<u>Royalty Owner</u>	<u>% of Unit 8/8</u>	<u>% of Total Royalty</u>	<u>Approval Status</u>
Basic	State of New Mexico	12.50	64.94	Approval Assumed
ORRI	Sinclair	2.75	14.29	
ORRI	Mobil	3.25	16.88	
ORRI	Continental	0.16	0.83	
ORRI	Baker	0.04	0.21	Approved
ORRI	Humble	0.16	0.83	
ORRI	Decleva	0.24	1.25	Approved
ORRI	Gulf	0.13	0.68	Approved
ORRI	Paddock	0.02	0.10	
		<u>19.25</u>	<u>100.01</u>	

<u>SUMMARY</u>	<u>% of Total Royalty</u>
Assumed Approval	64.94
Written Approval	2.14
No Reply Yet	32.93
	<u>100.01</u>

State of New Mexico

EXHIBIT #3
CASE 3789



Commissioner of Public Lands

GUYTON B. HAYS
COMMISSIONER



May 4, 1968

RECEIVED

P. O. BOX 1148
SANTA FE, NEW MEXICO

MAY 6 1968

TOC-DENVER-LEA CO

Tenneco Oil Company
P. O. Box 2410
Denver, Colorado 80201

Re: Mesa Queen Unit
Lea County, New Mexico

ATTENTION: Mr. Millard F. Carr
Division Attorney

Gentlemen:

The Commissioner of Public Lands has this date approved as to form and content your proposed Mesa Queen Unit, Lea County, New Mexico, subject to making the required corrections as marked in red on the enclosed copy of the Agreement and Exhibits.

Enclosed is your Official Receipt No. I 31050 in the amount of Fifteen (\$15.00) Dollars which covers the filing fee.

Very truly yours,

GUYTON B. HAYS
COMMISSIONER OF PUBLIC LANDS

BY: *Eddie Lopez*
Eddie Lopez, Supervisor
Unit Division

GBH/TB/EL/s
encls.

BEFORE EXAMINER UTZ
WATER CONSERVATION COMMISSION
EXHIBIT NO. _____
CASE NO. _____

EXHIBITS

MESA QUEEN UNIT WATERFLOOD HEARING

JUNE 26, 1968

SANTA FE, NEW MEXICO

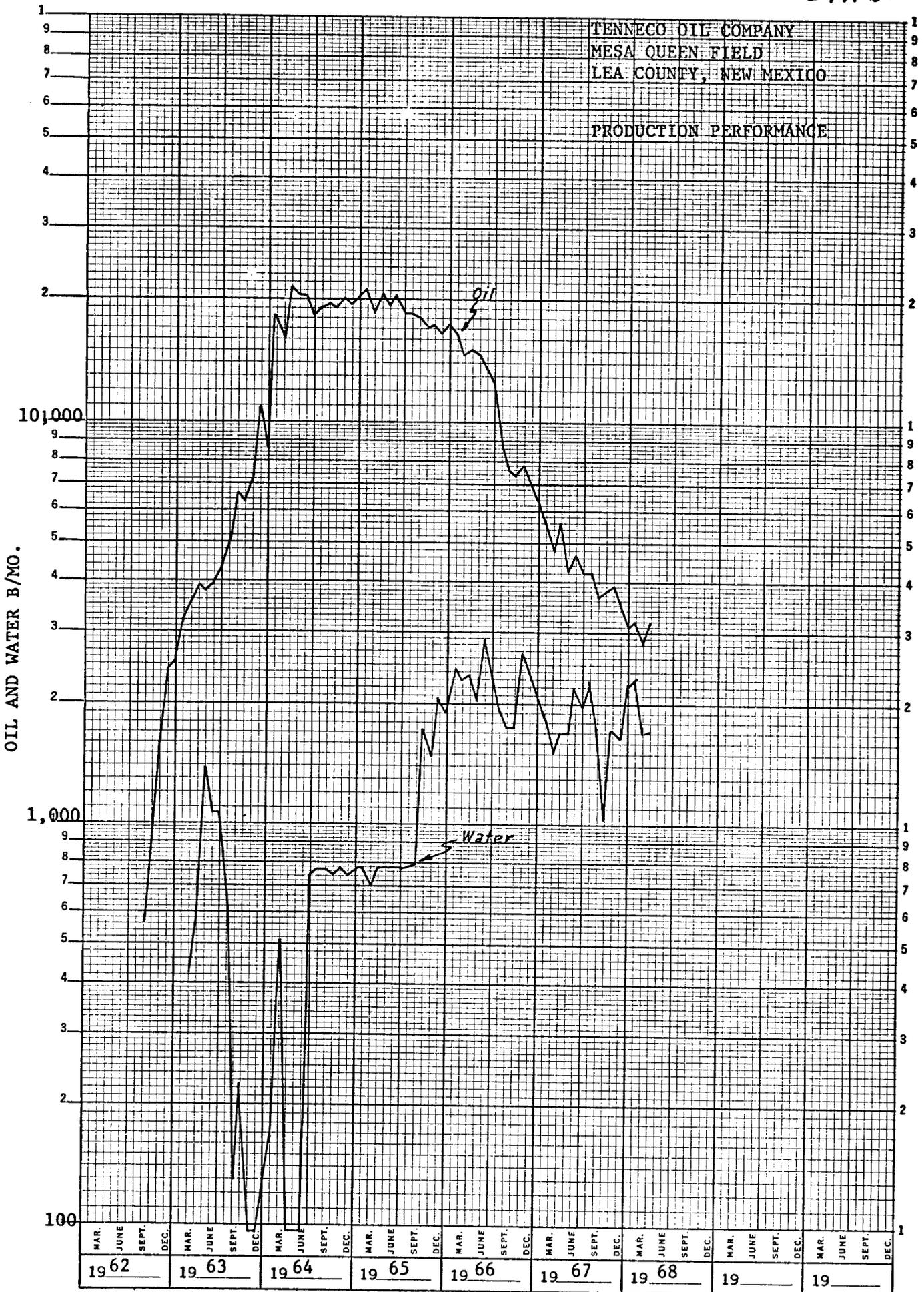
MESA QUEEN FIELD
PRODUCTION HISTORY

YEAR	MONTH	OIL BBLs.	GAS MCF	WATER BBLs.	GOR	C U M U L A T I V E		
						OIL	GAS	WATER
<u>1962</u>	Aug.	575						
	Sept.	1,031						
	Oct.	1,637						
	Nov.	2,453						
	Dec.	<u>2,559</u>						
	TOTALS	8,255					8,255	
<u>1963</u>	Jan.	3,276		88				
	Feb.	3,569	35,230	437	9,871			
	Mar.	3,970	39,306	566	9,901			
	Apr.	3,848	33,683	1,386	8,753			
	May	3,999	6,786	1,092	1,697			
	June	4,344	33,660	1,071	7,749			
	July	5,091	34,863	653	6,848			
	Aug.	6,677	38,268	133	5,731			
	Sept.	6,414	34,836	221	5,431			
	Oct.	7,281	36,146	0	4,964			
	Nov.	10,767	42,222	30	3,921			
	Dec.	<u>8,719</u>	<u>33,351</u>	<u>118</u>	<u>3,825</u>			
TOTALS	67,955	368,351	5,795		76,210	368,351	5,795	
<u>1964</u>	Jan.	18,194	93,720	168	6,424			
	Feb.	16,243	76,124	511	4,687			
	Mar.	21,507	78,542	0	3,652			
	Apr.	20,927	100,934	0	4,823			
	May	20,697	129,356	0	6,250			
	June	18,345	106,041	750	5,780			
	July	19,079	115,380	775	6,047			
	Aug.	19,856	108,001	778	5,439			
	Sept.	19,175	98,063	754	5,114			
	Oct.	20,179	100,794	780	4,995			
	Nov.	19,647	99,969	754	5,088			
	Dec.	<u>20,349</u>	<u>95,057</u>	<u>779</u>	<u>4,671</u>			
TOTALS	234,198	1,201,981	6,049		310,408	1,570,332	11,844	
<u>1965</u>	Jan.	21,140	98,894	779	4,680			
	Feb.	18,997	72,600	703	3,820			
	Mar.	20,616	99,313	780	4,820			
	Apr.	19,523	115,174	779	5,910			
	May	20,164	112,257	786	5,570			
	June	18,843	113,029	780	6,010			
	July	18,846	101,222	787	5,370			
	Aug.	18,176	124,877	792	6,870			
	Sept.	17,099	105,987	1,723	6,200			
	Oct.	17,124	125,628	1,503	7,330			
	Nov.	16,896	113,040	2,050	6,680			
	Dec.	<u>17,409</u>	<u>117,339</u>	<u>1,947</u>	<u>6,750</u>			
TOTALS	224,833	1,299,360	13,409		535,291	2,869,692	25,253	

MESA QUEEN FIELD
PRODUCTION HISTORY

YEAR	MONTH	OIL BBLs.	GAS MCF	WATER BBLs.	GOR	CUMULATIVE		
						OIL	GAS	WATER
<u>1966</u>	Jan.	16,494	110,197	2,478	6,680			
	Feb.	14,710	90,691	2,314	6,170			
	Mar.	15,151	127,647	2,347	8,425			
	Apr.	14,885	137,453	2,134	9,230			
	May	13,442	138,386	2,863	10,300			
	June	12,627	140,727	2,368	11,120			
	July	8,850	102,738	1,925	16,780			
	Aug.	7,629	123,273	1,775	16,170			
	Sept.	7,444	121,425	1,754	16,340			
	Oct.	7,855	116,278	2,655	14,800			
	Nov.	7,130	166,899	2,389	23,400			
	Dec.	6,478	143,228	2,053	22,100			
	TOTALS		132,695	1,518,942	27,055		667,986	4,388,634
<u>1967</u>	Jan.	5,668	139,721	1,848	24,650			
	Feb.	4,861	137,544	1,524	28,300			
	Mar.	5,640	154,108	1,710	27,300			
	Apr.	4,378	142,838	1,721	32,600			
	May	4,709	117,404	2,201	24,930			
	June	4,254	41,492	1,998	9,754			
	July	4,245	38,439	2,221	9,055			
	Aug.	3,748	88,350	1,763	23,572			
	Sept.	3,806	86,518	1,052	22,732			
	Oct.	3,993	145,633	1,733	36,472			
	Nov.	3,578	87,178	1,697	24,365			
	Dec.	3,160	85,702	2,218	27,121			
	TOTALS		52,040	1,264,927	21,686		720,026	5,653,561
<u>1968</u>	Jan.	3,222	80,362	2,324	24,942			
	Feb.	2,869	69,549	1,711	24,242			
	Mar.	3,199	72,764	1,734	22,746			

20 YEARS BY MONTHS
X 3 LOG CYCLES
KEUFFEL & ESSER CO.
47 6843
MADE IN U.S.A.



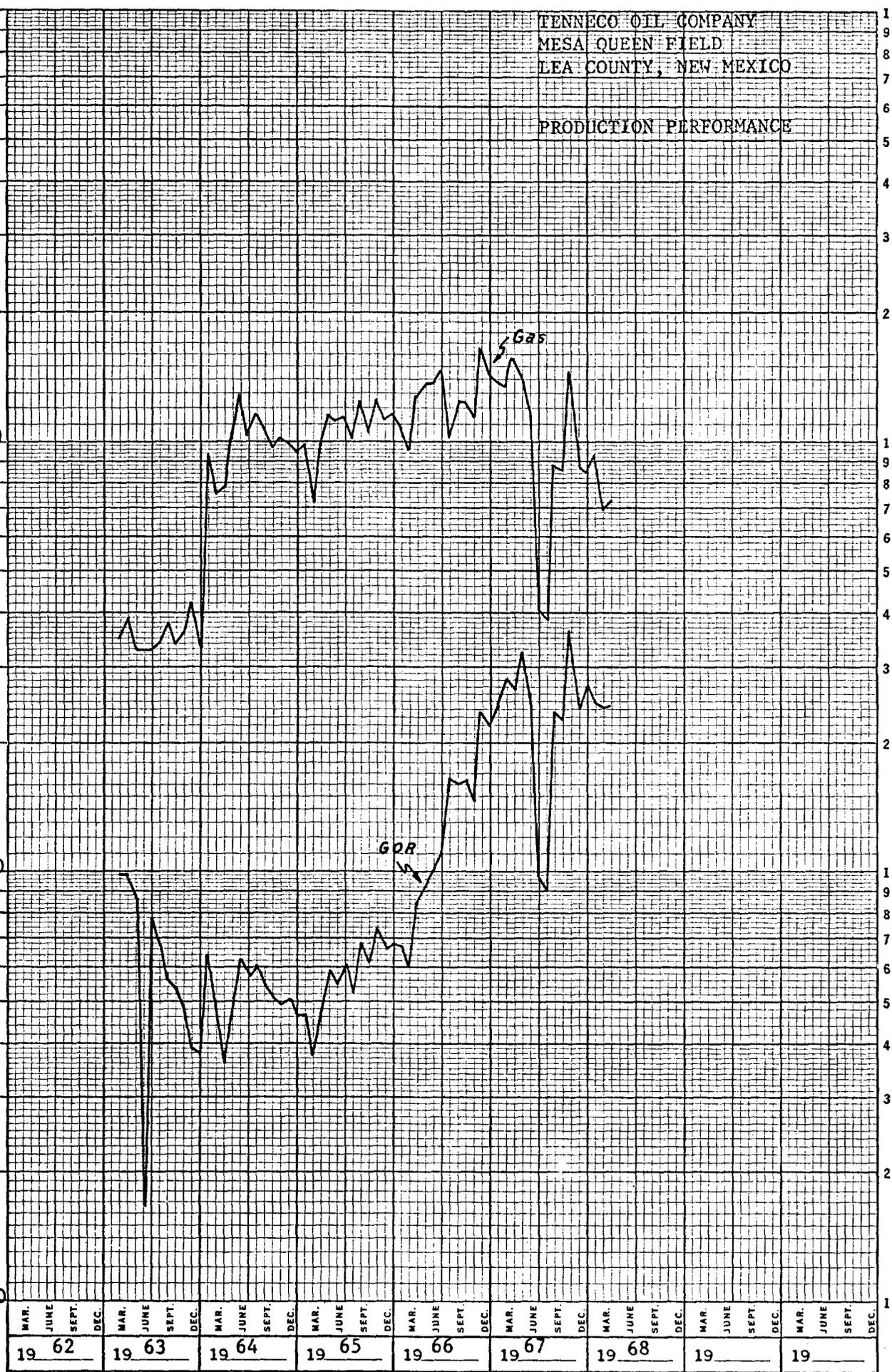
TENNECO OIL COMPANY
 MESA QUEEN FIELD
 LEA COUNTY, NEW MEXICO
 PRODUCTION PERFORMANCE

GOR CF/BBL.
 GAS MCF/MO.

100,000

10,000

1,000

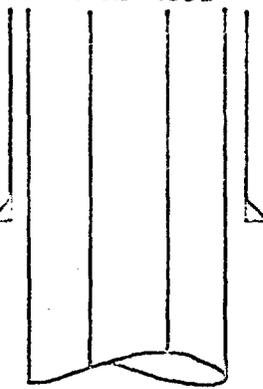


K&E 20 YEARS BY MONTHS 47 6843
 X 3 LOG CYCLES
 MADE IN U.S.A.
 KEUFFEL & ESSER CO.

Elev. KB 4351'

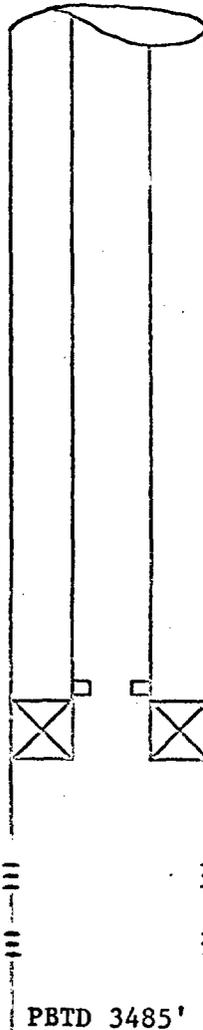
TYPICAL INJECTION WELL

8-5/8", 23#, csg. cmt'd.
@ 388' w/200 sax circ'd.
to surface



annulus loaded with
corrosion inhibited fluid

Est. top cement 2500'



seating nipple
2-3/8", 4.7#, J-55 tbg. on
tension packer at 3340'

top Queen Sand 3379'

Pay: Queen sand

3389-3395

Perforations

3404-3409

PBD 3485'

4-1/2", 10.5#, csg. cmt'd.
w/125 sax cmt. in 6-3/4"
hole @ 3502'

TD 3502'



TENNECO OIL COMPANY SUBSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
Cactus Continental State No. 1 PROPOSED WATER INJECTION WELL 990' FNL 2310' FWL Sec. 16 T-16-S, R-32-E

EXHIBIT 9

COUNTY LEA
FIELD or LOCATION MESA QUEEN
WELL CONOCO STATE # 1

COMPANY CACTUS DRILLING COMPANY

COMPANY CACTUS DRILLING COMPANY

COMPANY

WELL CONOCO STATE # 1

FIELD MESA QUEEN

LOCATION SEC. 16-16S-32E

COUNTY LEA

STATE NEW MEXICO

Other Surveys

Location of Well

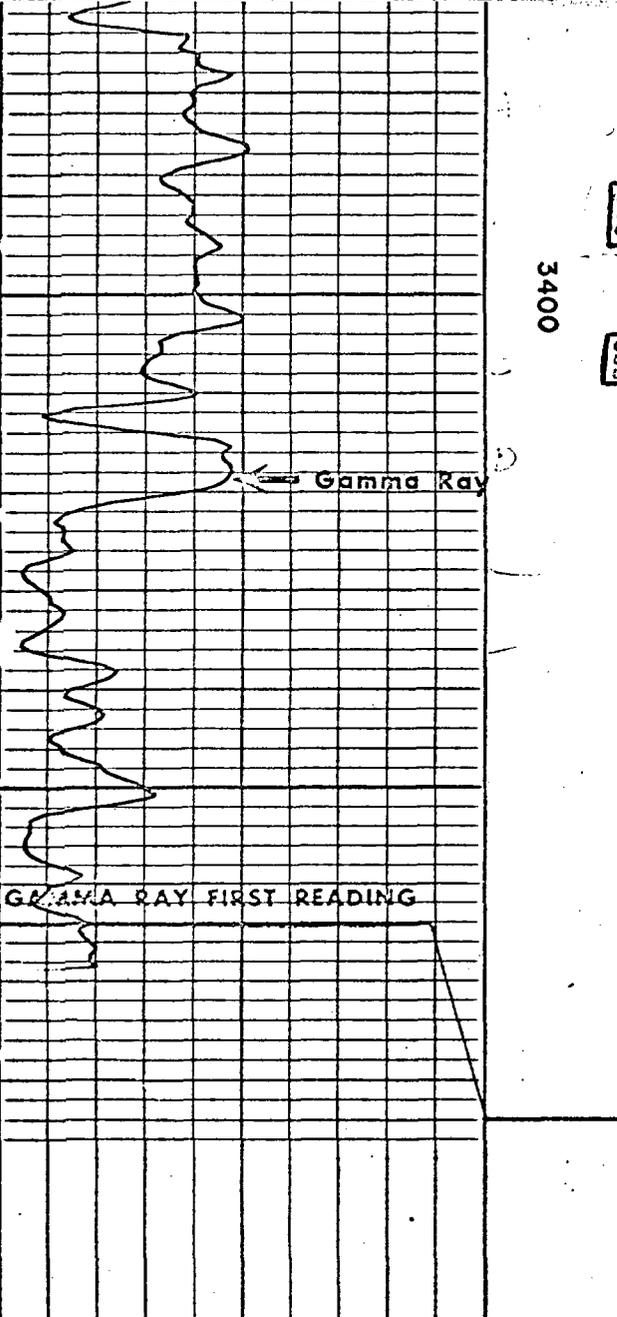
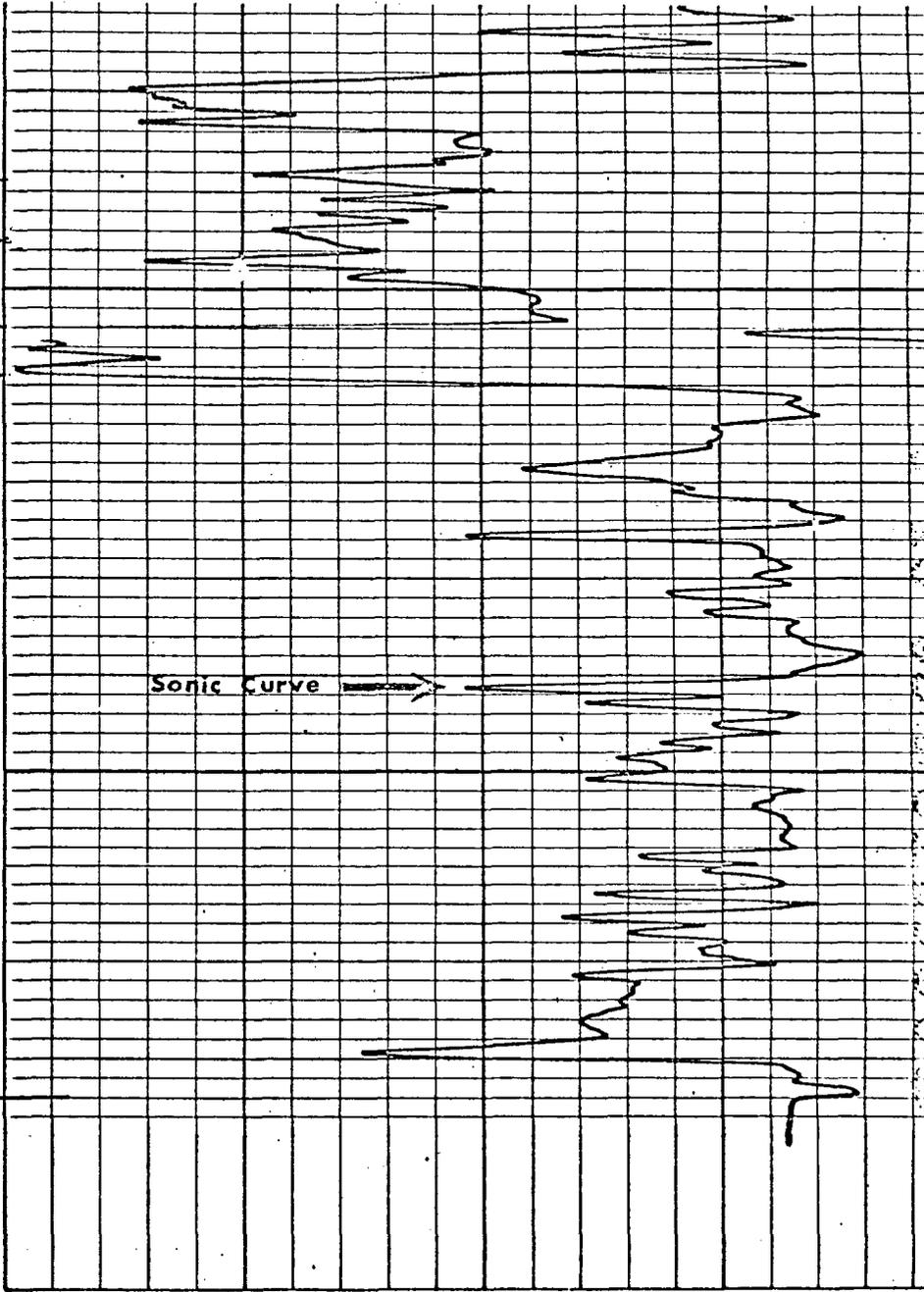
990' FROM N/L
2310' FROM E/L

Elevation: K.B.: 4351
D.F.: 4341
or G.L.: 4341

Log Depths Measured from 10 Ft. above GL

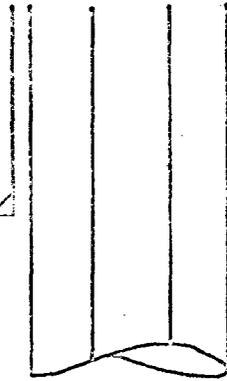
RUN No.	ONE
Date	9-12-63
First Reading	3484
Last Reading	100
Feet Measured	3384
Csg. Schlum.	-
Csg. Driller	388
Depth Reached	3491
Bottom Driller	3500
Fluid Nat.	SALT GEL
Dens.	10.2
Visc.	32
Fluid Resist.	-
Res. BHT	-
pH	-
V/tr. Loss	7.2
Rmf	-
Bit Size	6 7/8"
Spacing:	
T3 R1 R2	2950 To 10
T3 R3 R4	CSG. To 2950
Dr. Rig Time	2 HOURS
Truck No.	3701-HOBBS
Recorded By	WENDLAND
Witness	SHARP

FOLD HERE



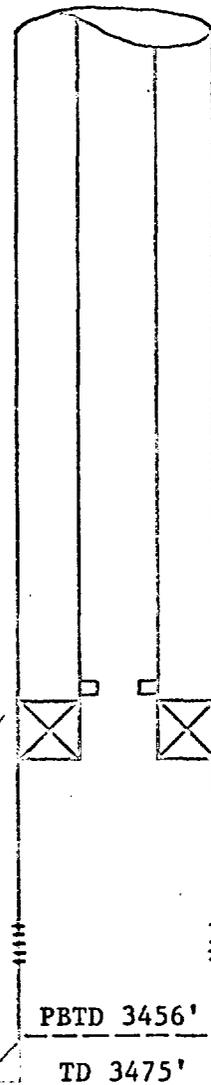
Elev. KB 4360'

8-5/8" 24# csg. cmt'd. @
377' w/200 sacks circ'd. Δ
to surface



RESERVE EXAMINATION
CONSERVATION
EXHIBIT
NO. 1

annulus loaded with
corrosion inhibited fluid



Est. top cmt. 2850'

seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer at 3365'

Top Queen sand 3393'

Pay: Queen Sand

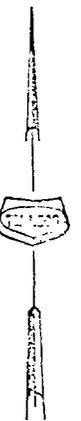
4-1/2" 10.5# csg. cmt'd.
@ 3475' w/125 sax in
7-7/8" hole

PBTD 3456'

TD 3475'

3404' - 3408
Perforations
3410' - 3415

39'



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Sinclair State "A" No. 2
PROPOSED WATER INJECTION WELL
2310 FNL 1650 FEL Sec. 17 T-16-S, R-32-E

EXHIBIT

SCHLUMBERGER

SCHLUMBERGER WELL SURVEYING CORPORATION
Houston, Texas

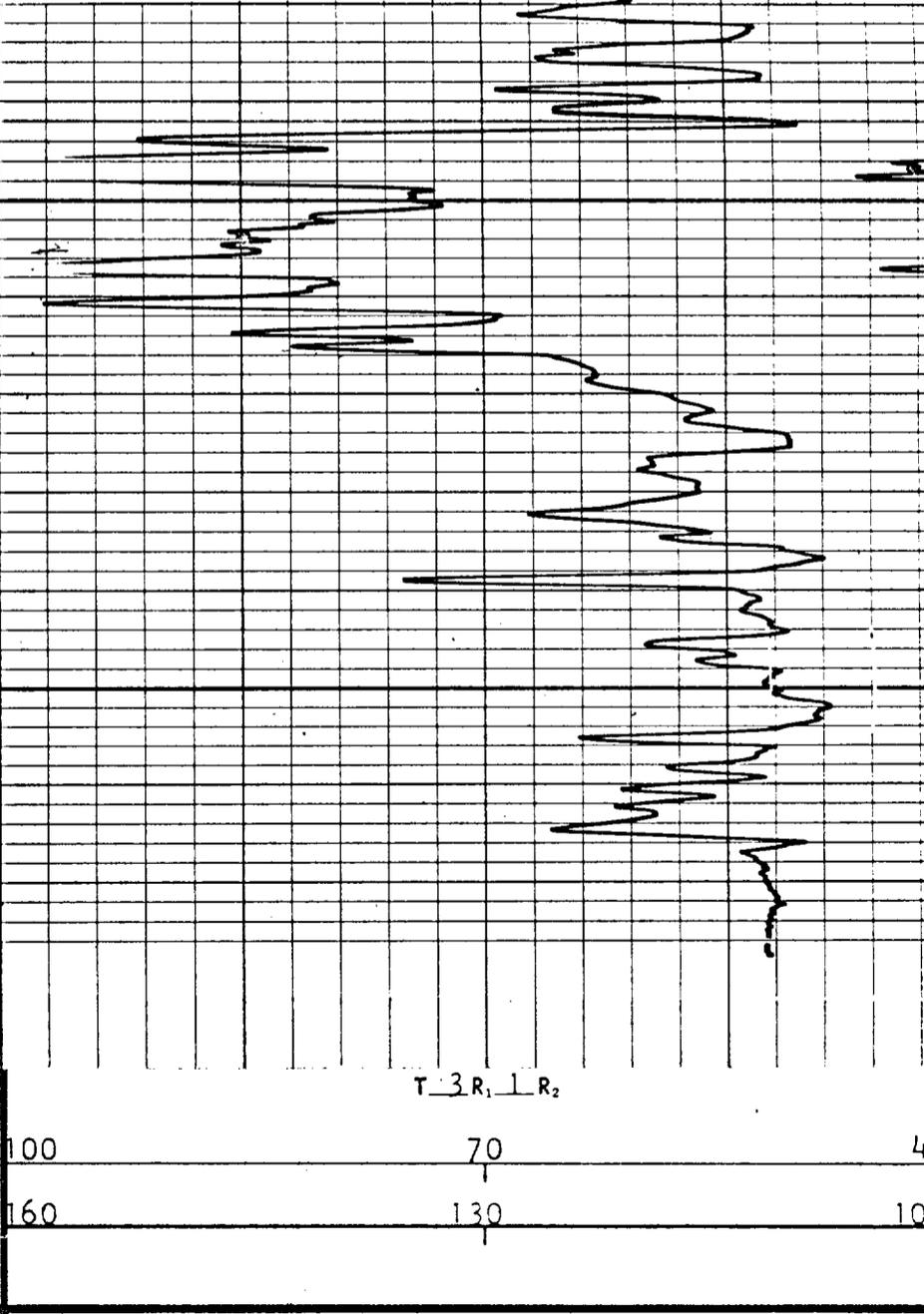
Well file

COUNTY LEA
FIELD or LOCATION MESA QUEEN
WELL #2 SINCLAIR STATE "A"
COMPANY CACTUS DRLG. CO.

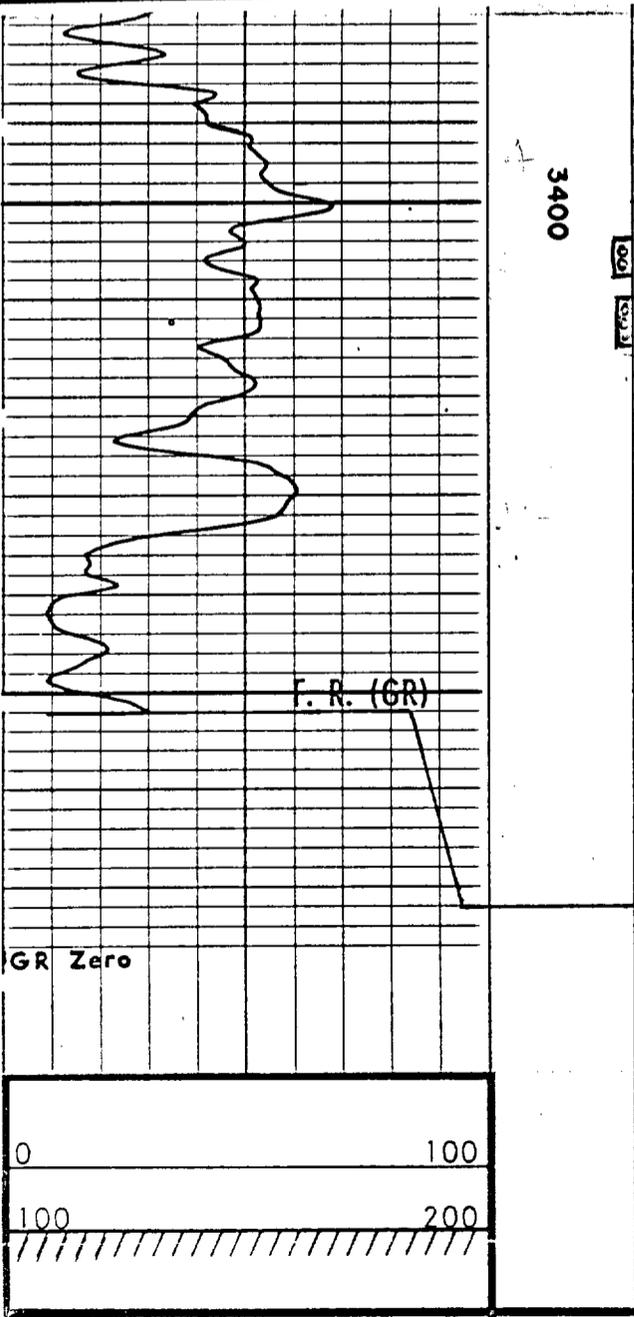
COMPANY CACTUS DRILLING COMPANY
WELL #2 SINCLAIR STATE "A"
FIELD MESA QUEEN
COUNTY LEA STATE NEW MEXICO
LOCATION 2310' FNL
1650' FEL
Sec. 17 Twp. 16-S Rge. 32-E
Other Services: NONE

Permanent Datum: GROUND LEVEL, Elev. 4350
Log Measured From KB, 10 Ft. Above Perm. Datum
Drilling Measured From KB
Elev.: K.B. 4360
D.F. -
G.L. 4350

Date	1-7-64
Run No.	ONE
Depth—Driller	3475
Depth—Logger	3475
Btm. Log Interval	3472
Top Log Interval	10
Casing—Driller	8-5/8"@370
Casing—Logger	--
Bit Size	7-7/8"x6-11/16"
Type Fluid in Hole	NATURAL-STARCH W/OIL
Dens. Visc.	10.2 33
pH Fluid Loss	-- 10.2 ml
Source of Sample	PIT
Rm @ Meas. Temp.	.05 @ 65 °F
Rmt @ Meas. Temp.	.05 @ 65 °F
Rmc @ Meas. Temp.	NONE @ °F
Source: Rmt Rmc	M --
Rm @ BHT	.04 @ 89 °F
Time Since Circ.	2-HOURS
Max. Rec. Temp.	89 °F
Equip. Location	3855-ARTESIA VANN
Recorded By	MR. SHARP



INTERVAL TRANSIT TIME
MICROSECONDS PER FOOT

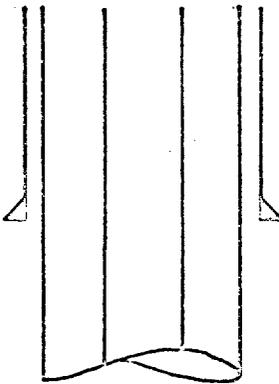


GAMMA RAY
API UNITS

DEPTHS

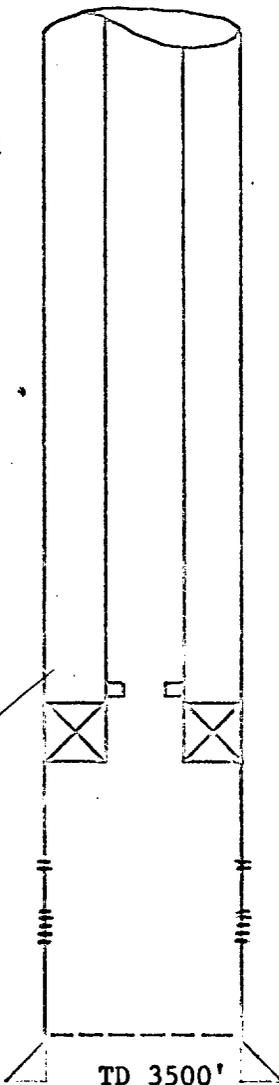
Elev. 4360' KB

8-5/8" 24# csg. cmt'd. @
375' w/200 sax circ'd.
to surface



annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2500'



seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer @ 3350'

55

Top Queen Sand 3404'

Pay: Queen Sand

3405-3408

Perforations

3414-3424

4-1/2" 11.6# csg. cmt'd.
@ 3500' w/125 sax in
6-3/4" hole

TD 3500'



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Mobil State "C" No. 1
PROPOSED WATER INJECTION WELL
990 FSL 670 FEL Sec. 17 T-16-S, R-32-E

EXHIBIT



A DIVISION OF DRESSER INDUSTRIES, INC.

Handwritten: Handed to
M. J. ...

FILE NO. _____

COMPANY CACTUS DRILLING COMPANY

WELL MOBIL "C" NO. 1

FIELD MESA QUEEN

COUNTY LEA STATE NEW MEXICO

LOCATION: 990' FSL & 670' FEL

Other Services _____

SEC 17 TWP 16-S RGE 32-E

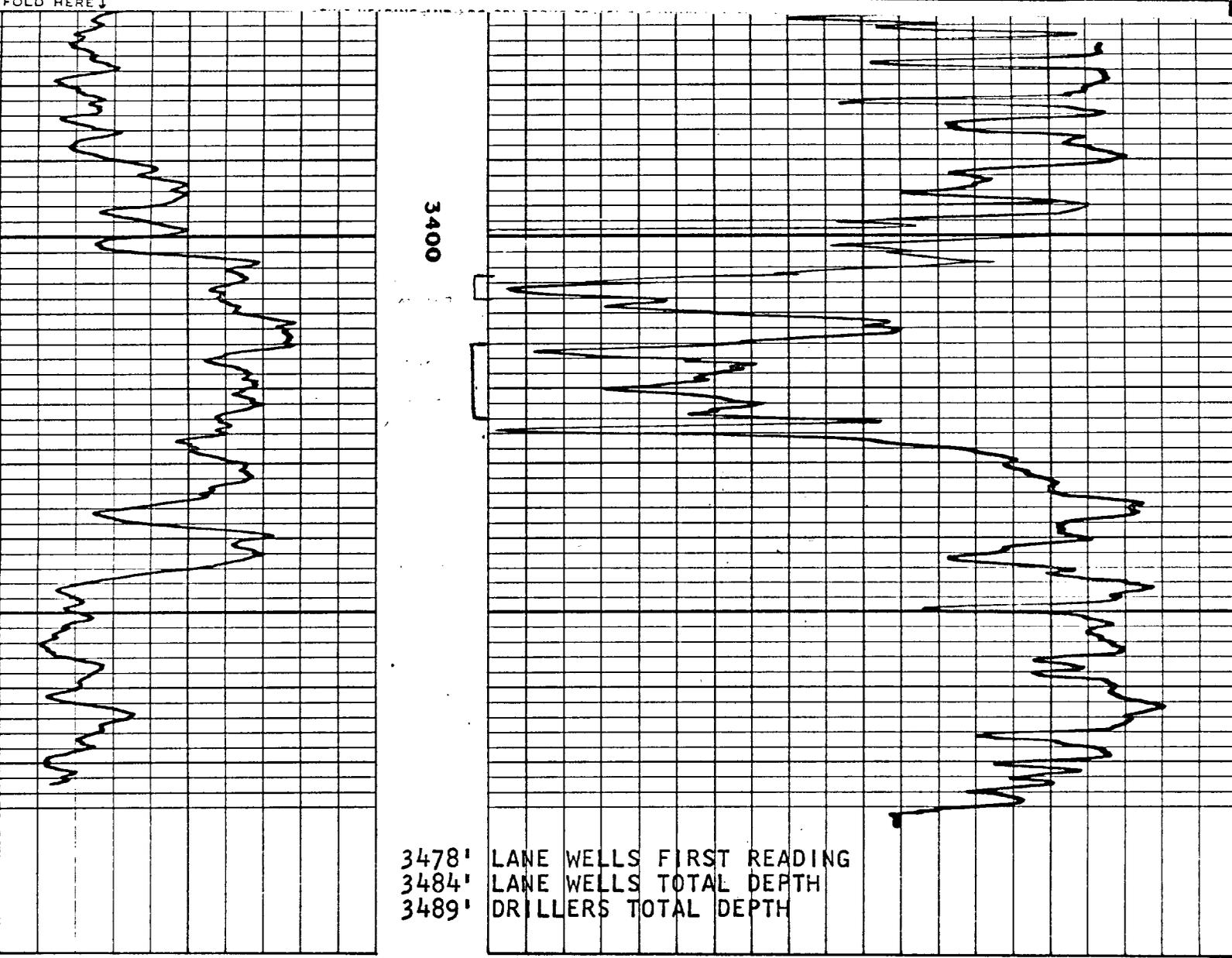
Permanent Datum GROUND LEVEL Elev. 4350

Log Measured from K. B. 10 Ft. Above Permanent Datum

Drilling Measured from K. B.

Elevations:
KB 4360
DF 4359
GL 4350

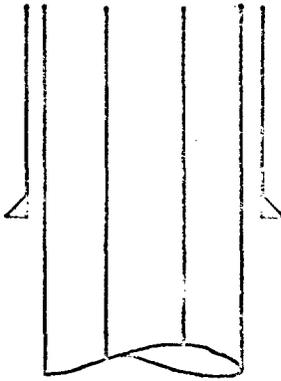
Date	2-19-64		
Run No.	ONE		
Depth—Driller	3489		
Depth—Logger	3484		
Bottom Logged Interval	3478		
Top Logged Interval	SURFACE		
Casing—Driller	7 5/8 @ 376	@	@
Casing—Logger	376		
Bit Size	6 3/4"		
Type Fluid in Hole	SALT GEL		
Density and Viscosity	10.1 35		
pH and Fluid Loss	12.8 cc	cc	cc
Source of Sample	CIRCULATED		
Rm @ Meas. Temp.	.080 @ 54 °F	@	@
Rmf @ Meas. Temp.	.064 @ 54 °F	@	@
Rmc @ Meas. Temp.	.096 @ 54 °F	@	@
Source of Rmf and Rmc	MEAS.		
Rm @ BHT	.040 @ 103 °F	@	@
Time Since Circ.			
Max. Rec. Temp. Deg. F.	103 °F	°F	°F
Equip. No. and Location	X9900 HOBBS		
Recorded By	SCHLOTTERBACK - SHANKS		
Witnessed By	SHARP		



CACTUS DRILLING COMPANY
MOBIL "C" NO. 1
MESA QUEEN
LEA COUNTY, NEW MEXICO

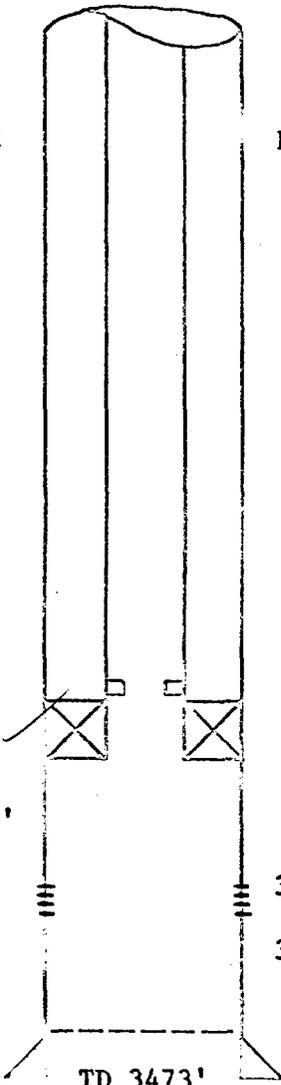
Elev. KB 4354'

8-5/8" 23# csg. cmt'd. @
378 w/225 sacks circ'd.
to surface



annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2473'



seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer at 3360'

Top Queen Sand 3404'

Pay: Queen Sand

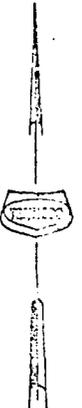
4-1/2" 10.5# csg. cmt'd.
@ 3473' w/125 sacks in
6-3/4" hole

TD 3473'

3412
3418

Perforations

52'



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Mobil State No. 3
PROPOSED WATER INJECTION WELL
1650' FWL 2310 FSL Sec. 16 T-16-S, R-32-E

EXHIBIT

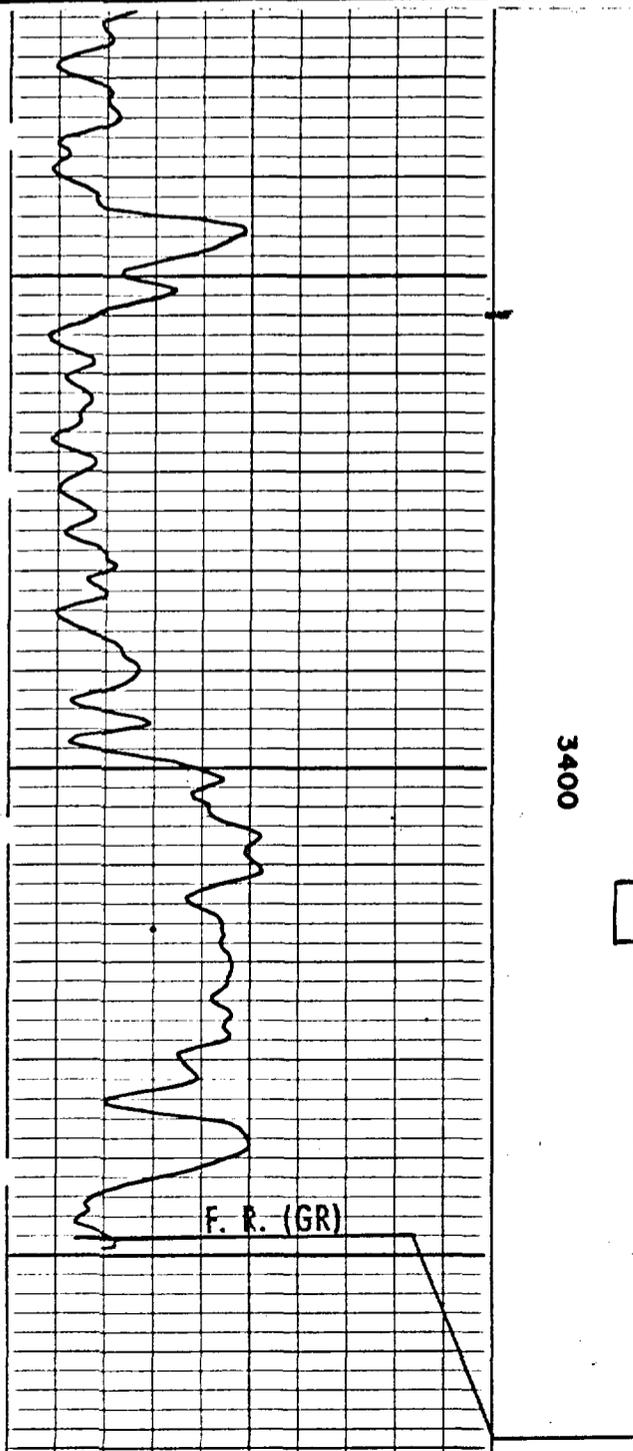
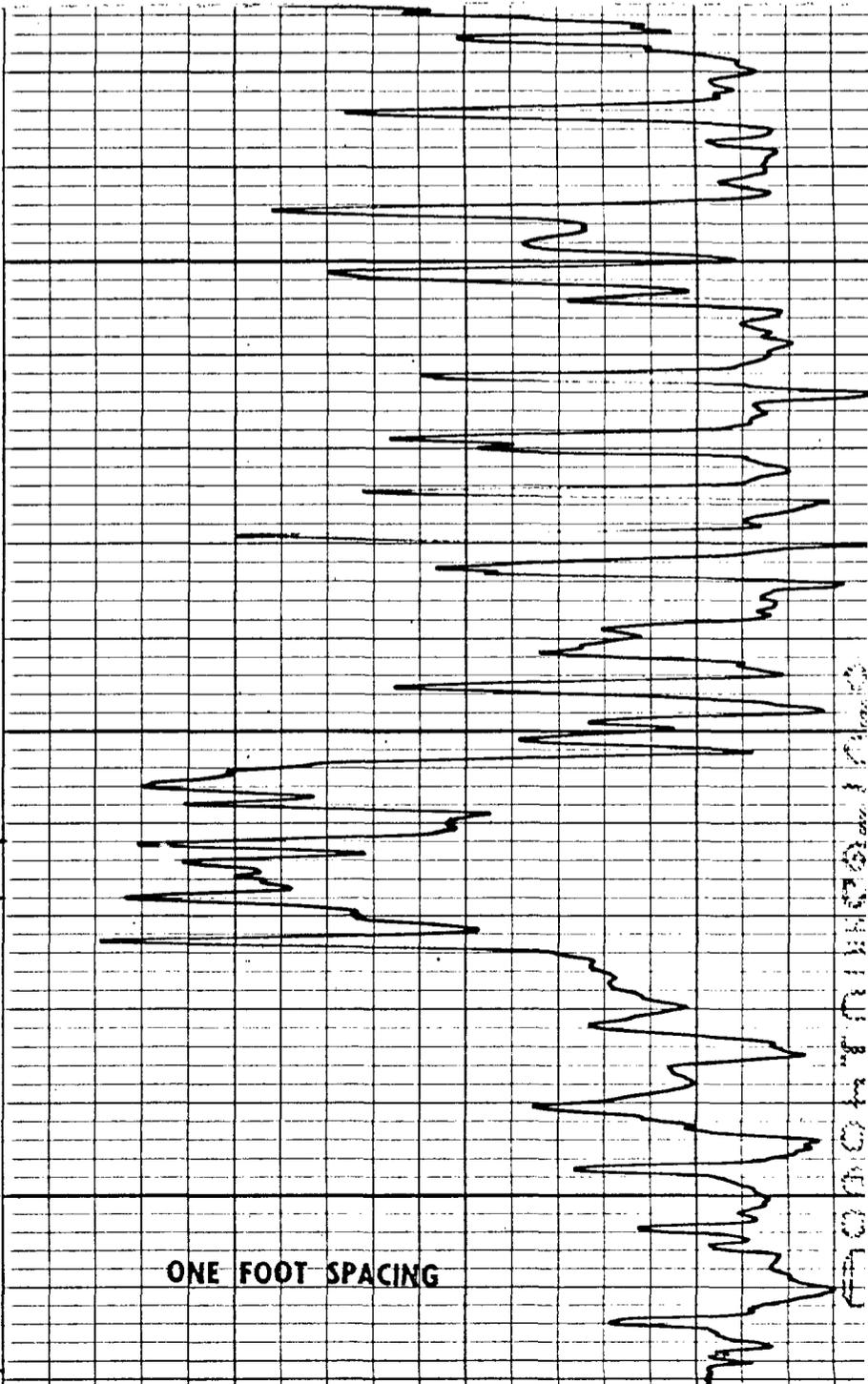
COUNTY LEA
 FIELD or LOCATION WILDCAT
 WELL MOBIL STATE #3
 COMPANY CACTUS DRILLING CO.

COMPANY CACTUS DRILLING CO.
 WELL MOBIL STATE #3
 FIELD WILDCAT
 LOCATION SEC. 16 16S-32E
 COUNTY LEA
 STATE NEW MEXICO

Other Surveys
 NONE
 Location of Well
 1650' FR. WL
 2310' FR. SL
FILE COPY
 Elevation: K.B.: 4354
 D.F.: 4353
 or G.L.: 4344

Log Depths Measured From KB 10 Ft. above GL

RUN No.	ONE
Date	8-2-63
First Reading	3469
Last Reading	10
Feet Measured	3459
Csg. Schlum.	- - -
Csg. Driller	8-5/8" @ 377
Depth Reached	3472
Bottom Driller	3472
Mud Nat.	SALT GEL
Dens. Visc.	10.4 39
Mud Resist.	.05 @ 84 °F
" Res. BHT	.045 @ 90 °F
" PH	- - - @ °F
" Wtr. Loss	127 CC 30 min
" Rmf	.04 @ 80 °F
Bit Size	6-3/4"
Spacing:	
T 3 R. 3 R ₂	CSG To 2650
T 3 R. 1 R ₂	To 3469
Opr. Rig Time	2-HOURS
Truck No.	2524-ARTESIA
Recorded By	VANN
Witness	SHARP



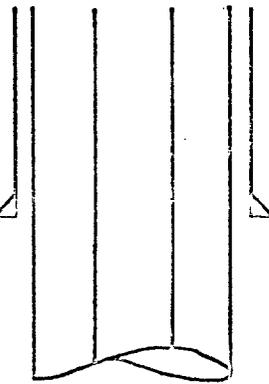
3400

ONE FOOT SPACING

F. R. (GR)

Elev. DF 4349'

8-5/8", 23#, csg. cmt'd.
@ 328 w/150 sax circ'd.
to surface

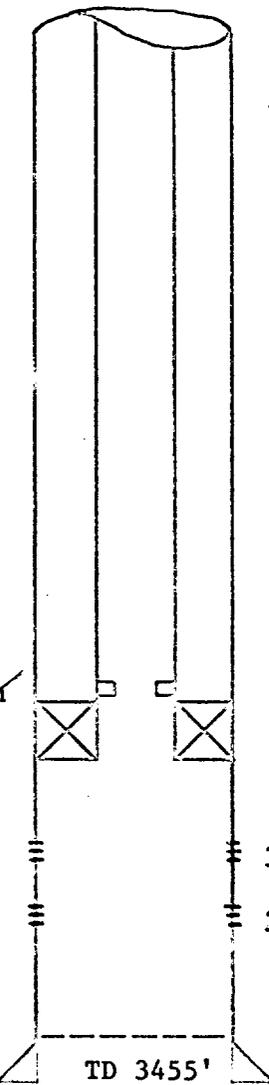


annulus loaded with
corrosion inhibited fluid

top of cement 2255'

seating nipple

2-3/8", 4.7#, J-55 tbg. on
tension packer @ 3360'



48'

Top Queen Sand 3396'

Pay: Queen Sand

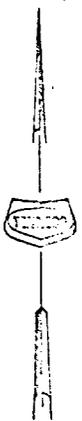
3408-11

Perforations

3414-16

4-1/2", 10.5#, J-55 csg.
cmt'd. @ 3455' w/150 sax
in 6-3/4" hole

TD 3455'



TENNECO OIL COMPANY SUSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
Cactus Mobil State No. 1 PROPOSED WATER INJECTION WELL 1980 FNL 660 FWL Sec. 16, T-16-S, R-32-E

EXHIBIT

COUNTY LEA
 FIELD or LOCATION WILDCAT
 WELL MOBIL STATE # 1
 COMPANY CACTUS DRILLING CO.

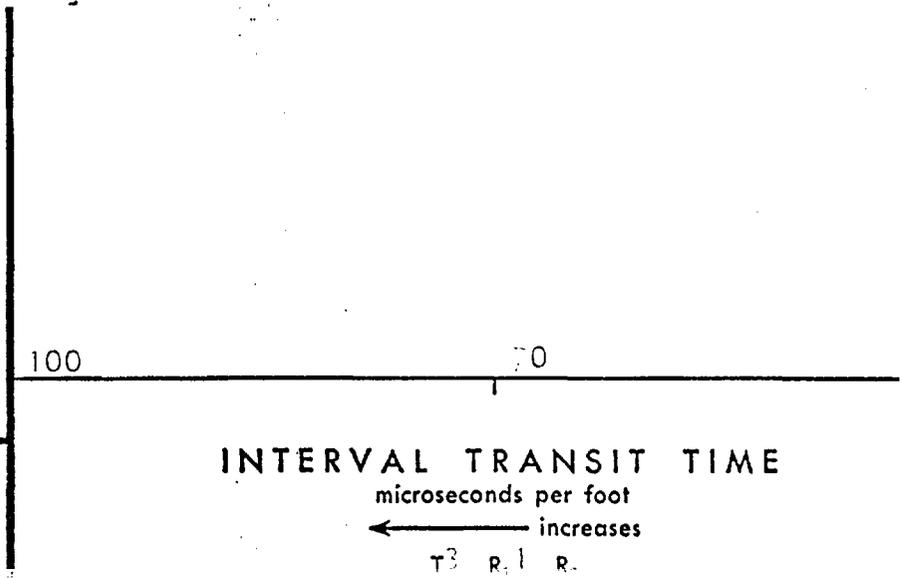
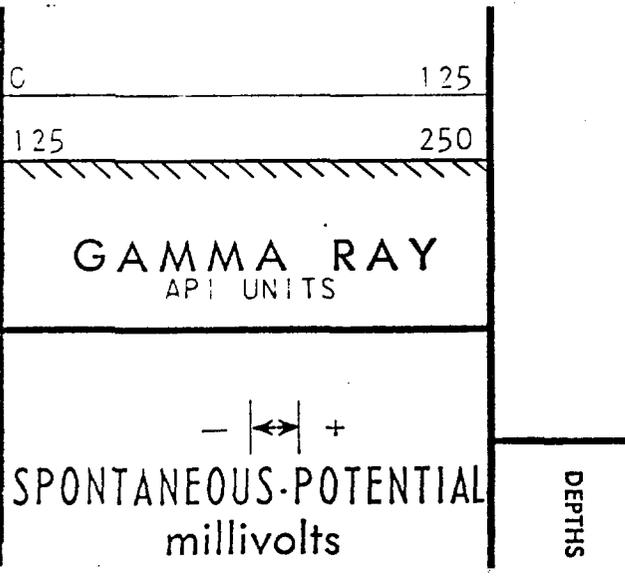
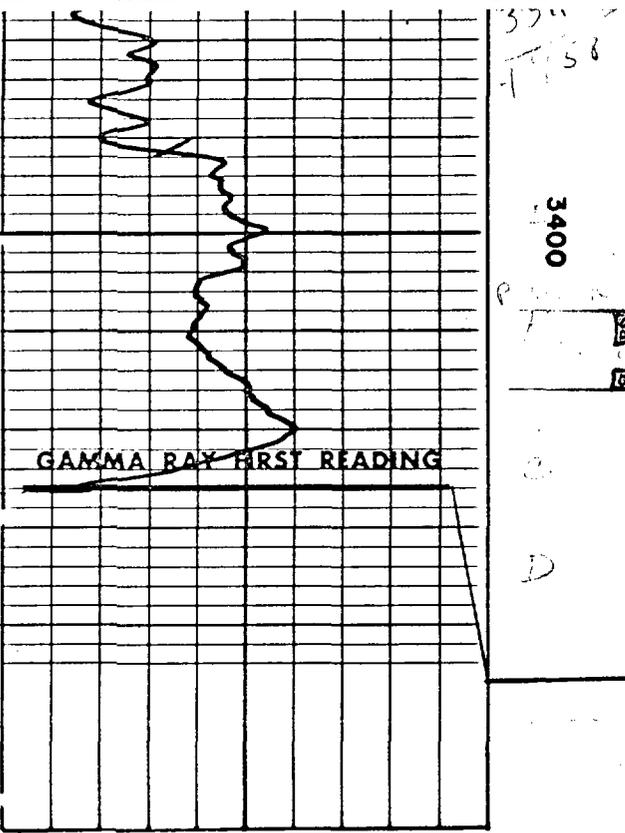
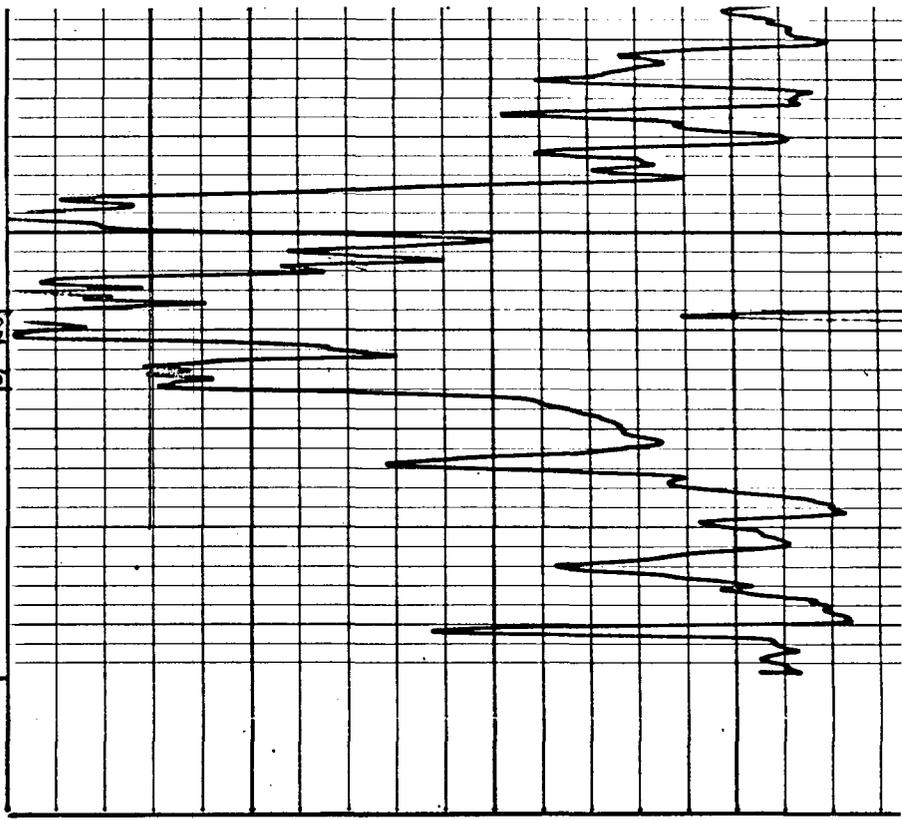
COMPANY CACTUS DRILLING
 COMPANY
 WELL MOBIL STATE # 1
 FIELD WILDCAT
 LOCATION SEC 16-16S 32E
 COUNTY LEA
 STATE NEW MEXICO

Other Surveys
Well file
 Location of Well
 1980' FROM N/L
 660' FROM W/L
 Elevation: K.B.: 4349
 D.F.: 4348
 or G.L.: 4339

Log Depths Measured From KB 10 Ft. above GL

RUN No.	ONE
Date	8-15-62
First Reading	3446
Last Reading	0
Feet Measured	3446
Csg. Schlum.	330
Csg. Driller	3452
Depth Reached	3455
Bottom Driller	SALT GEL, STARCH
Mud Nat.	10.2
Dens. Visc.	34
Mud Resist.	0.038 @ 83°F
" Res. BHT	0.038 @ 83°F
" pH	@ °F
" Wtr. Loss	8.4 CC 30 min
" Rmf (C)	0.03 @ 83°F
Bit Size	6 1/2"
Spacings:	
T ₃ R ₁ R ₂	CSG. To 2400 To
T ₃ R ₁ R ₂	2400 To FR To
Opt. Rig Time	3 HOURS
Truck No.	3701-HOBBS
Recorded By	SCHAEFFER
Witness	PROCTER

"CONFIDENTIAL"

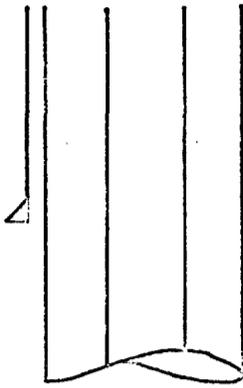


125 250

GAMMA RAY
 API UNITS
 SPONTANEOUS-POTENTIAL
 millivolts

100 70
 INTERVAL TRANSIT TIME
 microseconds per foot
 increases
 T₃ R₁ R₂

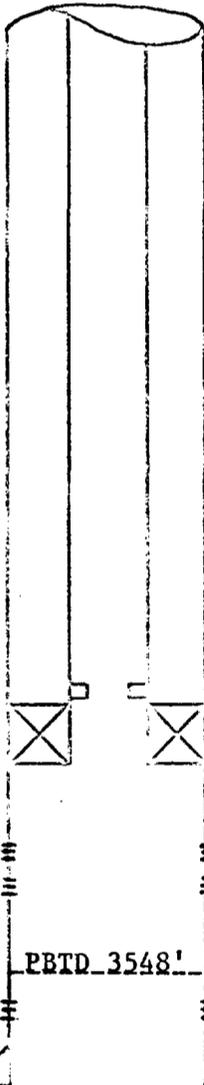
Elev. KB 4345'



8-5/8", 24#, csg. cmt'd. @ 382'
with 200 sacks circ'd. to surface

Est. top cmt. 2200'

annulus loaded with
corrosion inhibited fluid



seating nipple

2-3/8", 4.7# J-55 tbg. on
tension packer at 3350'

top Queen sand 3378'

Pay: Queen sand

40'

Perfs. 3390-3396
3403-3408

PBTD 3548'

Perfs. 3664-3680 plugged
with mud

4-1/2", 10.5#, csg. cmt'd.
@ 3792' w/200 sax in 6-3/4"
hole

TD 4347'



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

Cactus Sinclair State No. 1
PROPOSED WATER INJECTION WELL
1980' FEL, 660' FNL, Sec. 16, T-16-S,
R-32-E

EXHIBIT

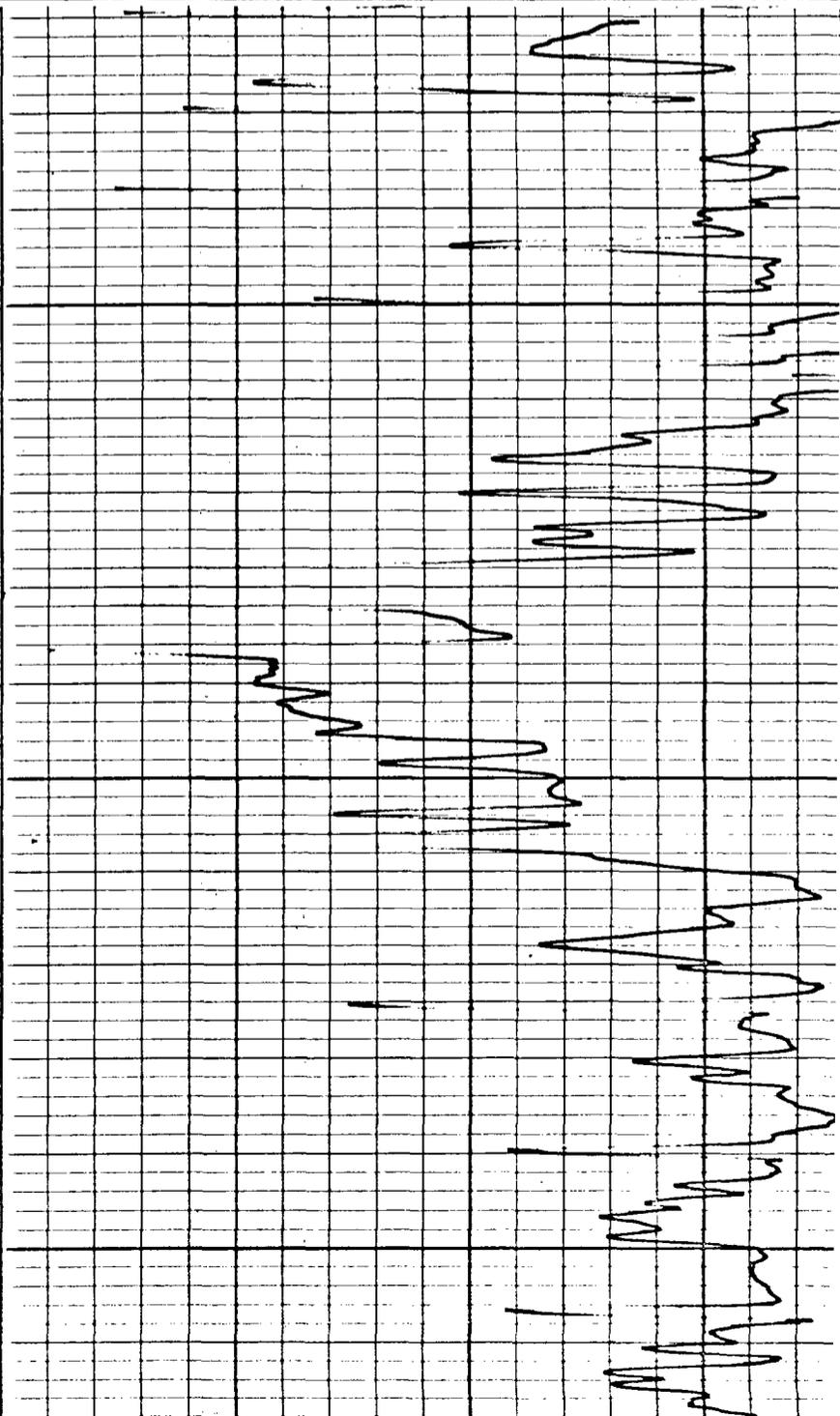
COUNTY LEA
 FIELD or LOCATION MESA QUEEN
 WELL #1 SINCLAIR STATE
 COMPANY CACTUS DRILLING CO.

COMPANY CACTUS DRILLING
 COMPANY CACTUS
 WELL #1 SINCLAIR STATE
 FIELD MESA QUEEN
 LOCATION SEC. 16-16S-32E
 COUNTY LEA
 STATE NEW MEXICO

Other Surveys NONE
 Location of Well 1980' FEL
660' FNL.
 Elevation: K.B.: 4345
 D.F.: 74
 or G.L.: 4335

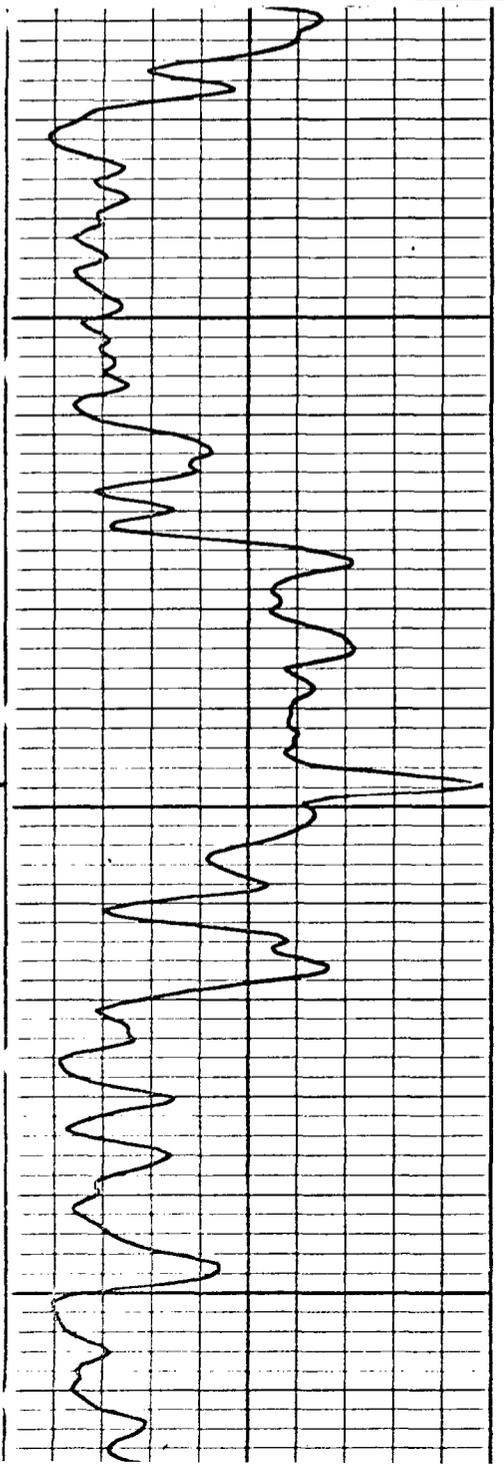
Log Depths Measured From KB 10 Ft. above GL

RUN No.	ONE
Date	6-9-63
First Reading	4328
Last Reading	0
Feet Measured	4328
Csg. Schlum.	-
Csg. Driller	382
Depth Reached	4331
Bottom Driller	4347
Mud Nat.	SALT-GEL-STARCH
Dens. Visc.	10.3 30
Mud Resist.	.043 @ 77 °F
" Res. BHT	.036 @ 94 °F
" PH	-- @ -- °F
" Wtr. Loss	10 CC 30 min @ 76 °F
" Rmf	.025 @ 76 °F
Bit Size	6-3/4"
Spacing:	
T ₃ R ₁ R ₂	382 To 3000 To
T ₂ R ₁ R ₂	3000 To 4328 To
Op. Rig Time	3-HOURS
Truck No.	2524-ARTESIA
Recorded By	MILLER
Witness	SHARP



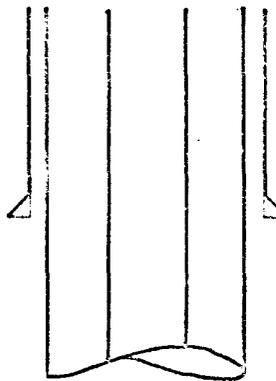
000 00

3400



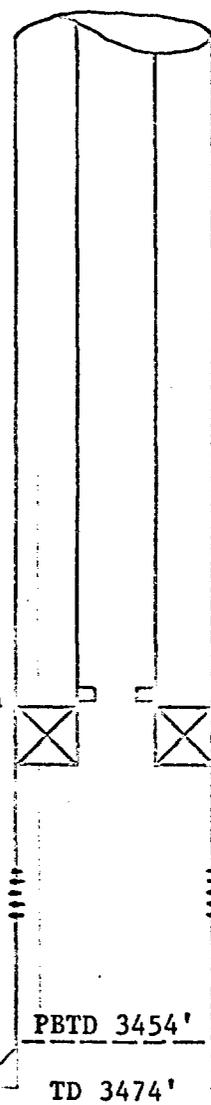
Elev. DF 4359'

8-5/8" 24# csg. cmt'd. @
383' w/200 sax circ'd.
to surface



annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2640'



seating nipple
2-3/8" 4.7# J-55 on tension
packer at 3350'

Top Queen Sand 3393'

Pay: Queen Sand

5-1/2" 15.5 & 18# csg.
cmt'd. @ 3474' w/125 sax
in 7-7/8" hole

PBT 3454'

TD 3474'

3404'
3410'

perforations

54'



TENNECO OIL COMPANY SUSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
Cactus Sinclair State "A" No. 1 PROPOSED WATER INJECTION WELL 2310 FNL & 330 FEL Sec. 17 T-16-S, R-32-E
EXHIBIT

well file

COUNTY LEA
 FIELD or LOCATION MESA (QUEEN)
 WELL SINCLAIR STATE "A" #1
 COMPANY CACTUS DRLG. CO.

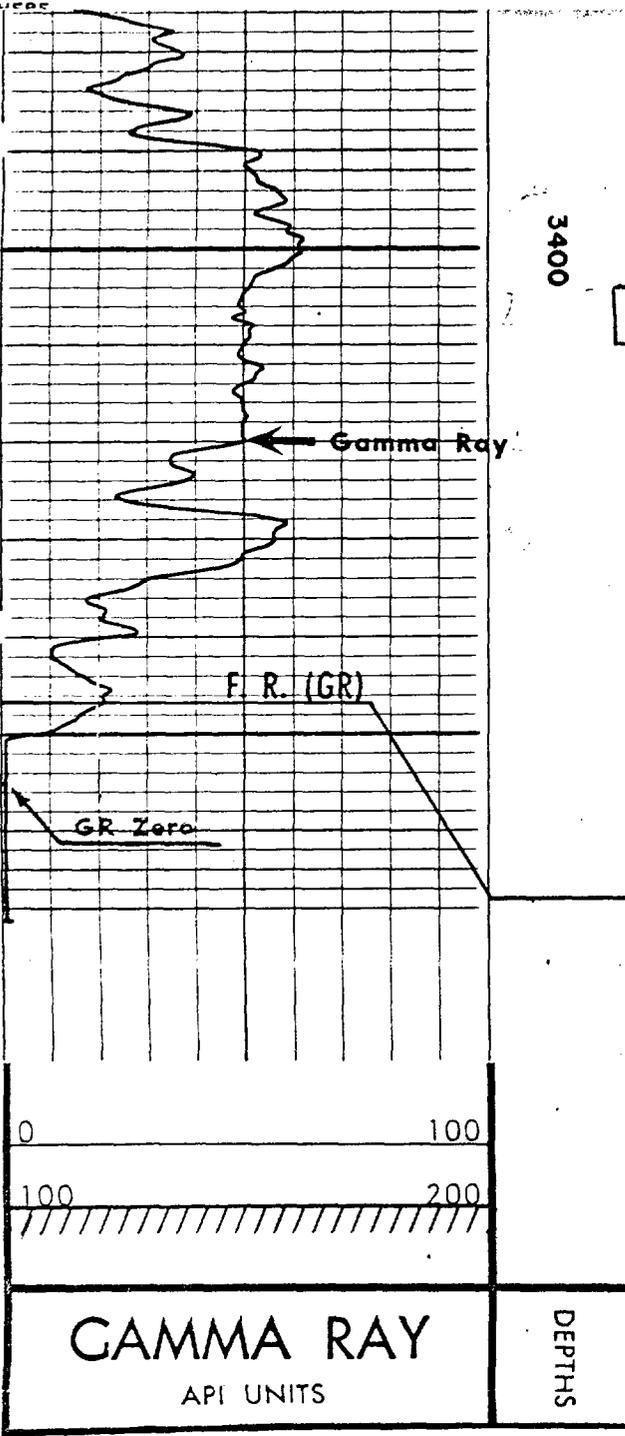
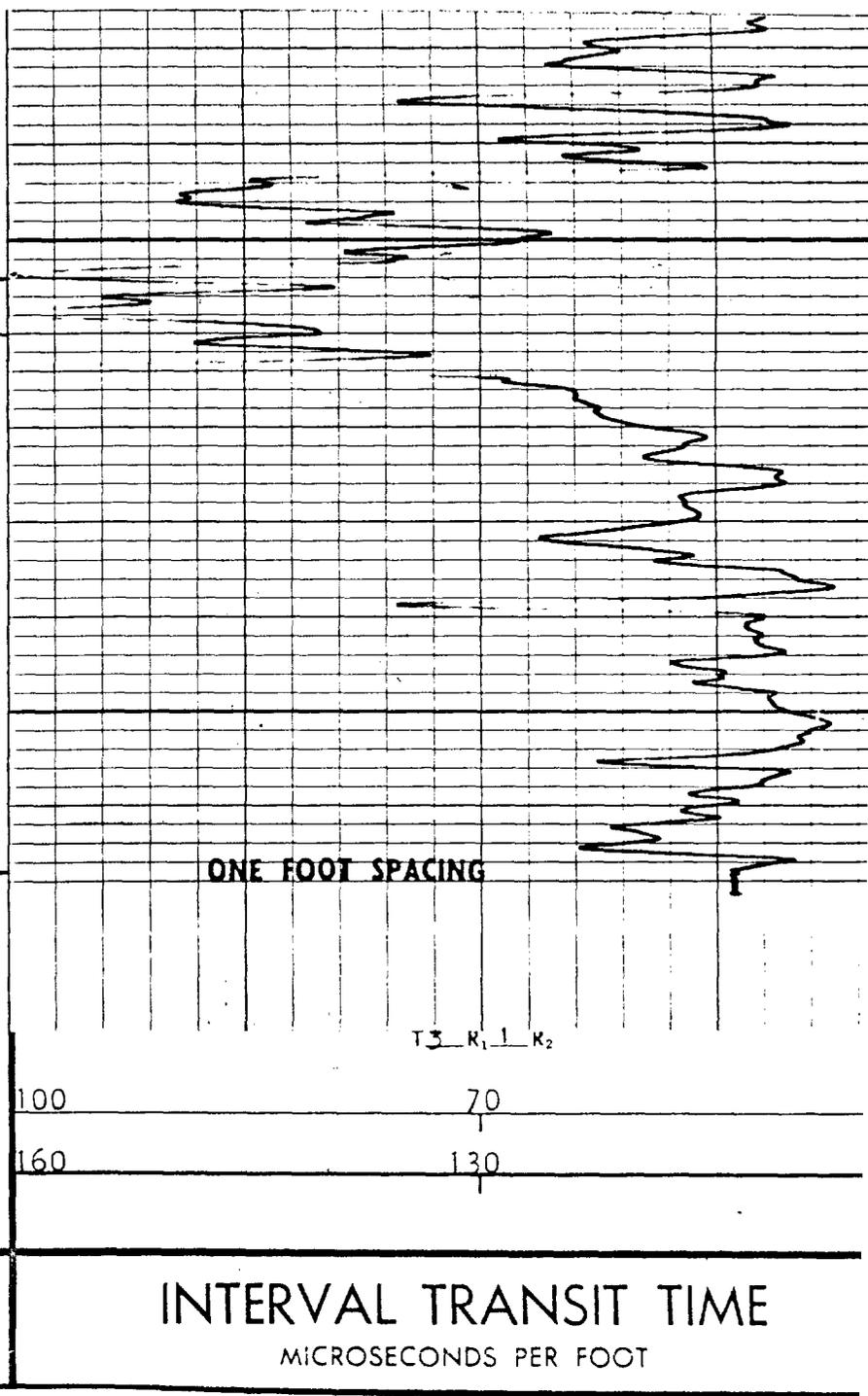
COMPANY CACTUS DRILLING COMPANY
 WELL SINCLAIR STATE "A" #1
 FIELD MESA (QUEEN)
 COUNTY LEA STATE NEW MEXICO

LOCATION 2310' FNL
 330' FEL
 Other Services: NONE

Sec. 17 Twp. 16-S Rge. 32-E

Permanent Datum: GROUND LEVEL, Elev. 4349
 Log Measured From KB, 10 Ft. Above Perm. Datum
 Drilling Measured From KB
 Elev.: K.B. 4359
 D.F. ---
 G.L. 4349

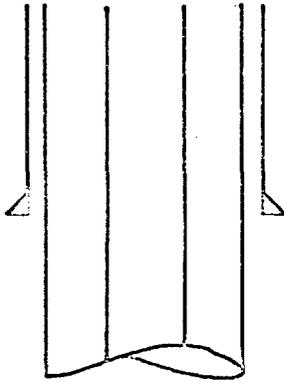
Date	1-1-64	Run No.	ONE
Depth—Driller	3474	Depth—Logger	3471
Btm. Log Interval	3467	Top Log Interval	100
Casing—Driller	8-5/8" @ 385	Casing—Logger	--
Bit Size	7-7/8"	Type Fluid in Hole	SALT GEL
Dens.	10.2	Visc.	36
pH	Fluid Loss		10.5 ml
Source of Sample	PIT		ml
R _m @ Meas. Temp.	.065 @ 65 °F		ml
R _{mt} @ Meas. Temp.	-- @ -- °F		ml
R _{mc} @ Meas. Temp.	-- @ -- °F		ml
Source: R _{mt}	--		ml
R _m @ BHT	048 @ 91 °F		ml
Time Since Circ.	4-HOURS		ml
Max. Rec. Temp.	91 °F		ml
Equip. Location	3855 ARTESIA		ml
Recorded By	HAMPTON		ml
Witnessed By	SHARP		ml



Elev. KB 4351'

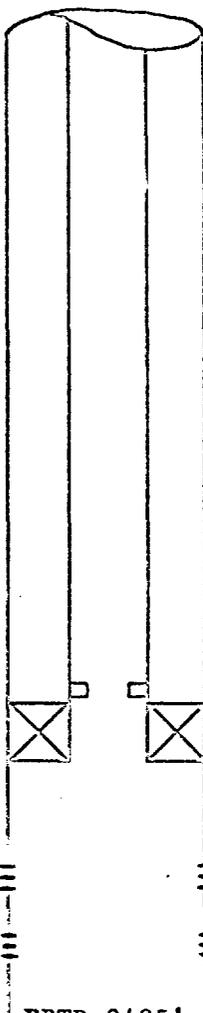
TYPICAL INJECTION WELL

8-5/8", 23#, csg. cmt'd.
@ 388' w/200 sax circ'd.
to surface



annulus loaded with
corrosion inhibited fluid

Est. top cement 2500'



seating nipple
2-3/8", 4.7#, J-55 tbg. on
tension packer at 3340'

+9

top Queen Sand 3379'

3389-3395

Perforations

Pay: Queen sand

3404-3409

PBTD 3485'

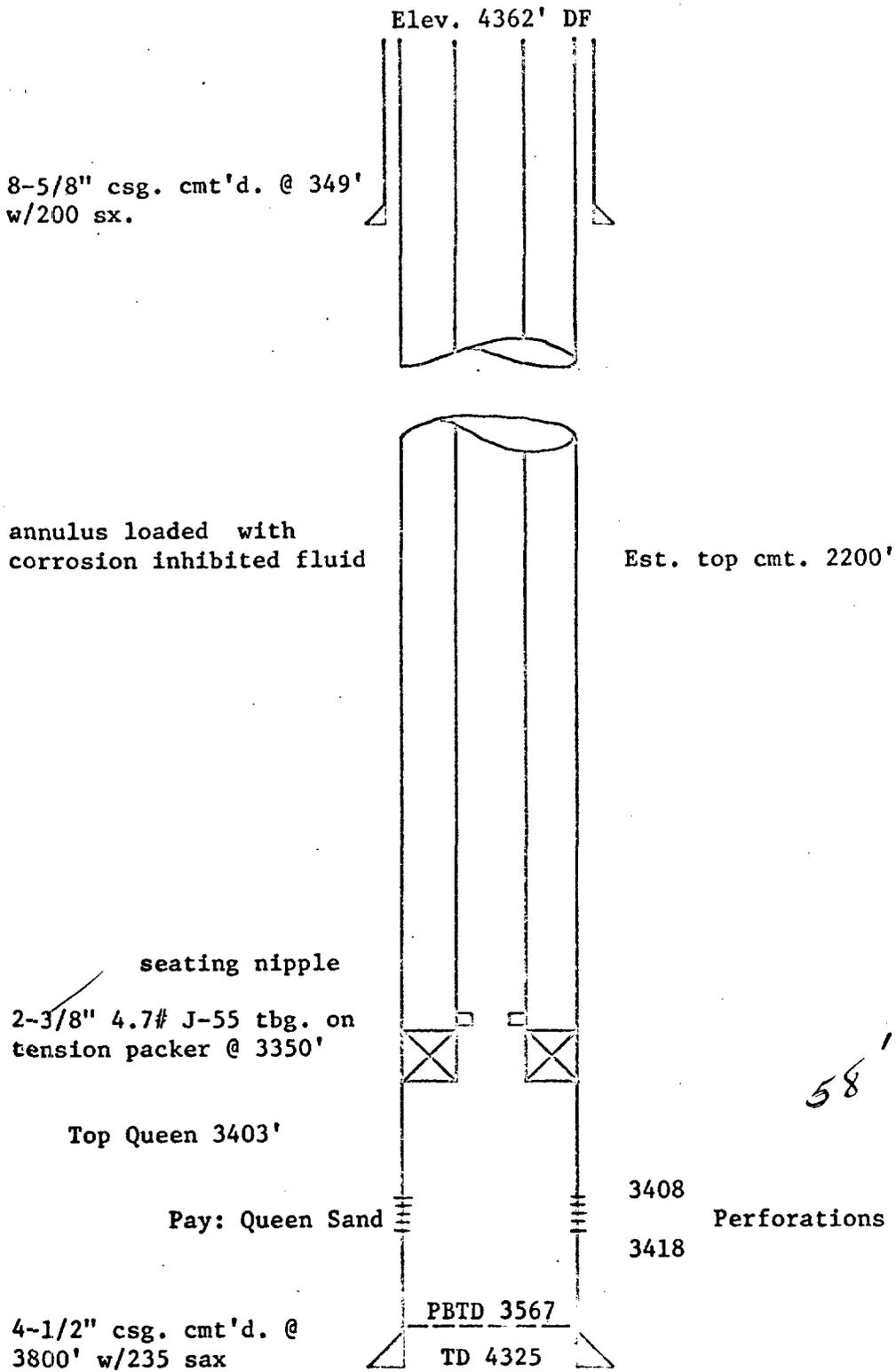
4-1/2", 10.5#, csg. cmt'd.
w/125 sax cmt. in 6-3/4"
hole @ 3502'

TD 3502'



TENNECO OIL COMPANY SUBSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
Cactus Continental State No. 1 PROPOSED WATER INJECTION WELL 990' FNL 2310' FWL Sec. 16 T-16-S, R-32-E

EXHIBIT



Note: This well was originally the Paul DeCleva No. 1 Tidewater State "B" P&A 1-31-63. Worked over and completed by Shell 1-27-64.

TENNECO OIL COMPANY SUBSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
DeCleva State Well No. 1 PROPOSED WATER INJECTION WELL 660 FNL & 660 FWL Sec. 20, T-16-S, R-32-E

EXHIBIT

SCHLUMBERGER

SERVICE LOG

COUNTY LEA FIELD or LOCATION WILLOCAT WELL TIDEWATER STATE B # 1 COMPANY PAUL DE CLEVA	COMPANY PAUL DE CLEVA	Other Surveys LL, MLL
	WELL TIDEWATER STATE B # 1	Location of Well 660' FROM N/L 660' FROM W/L
	FIELD WILLOCAT	
	LOCATION SEC. 20-16S 32E	
	COUNTY LEA STATE NEW MEXICO	Elevation: K.B. 4374 D.F. 4373 or O.L. 4364
Log Depths Measured From KB 10.7 Ft. above GL		
RUN No.	ONE	
Date	12-19-62	
First Reading	4309	
Last Reading	0	
Feet Measured	4309	
Csg. Schlum.	-	
Csg. Driller	349	
Depth Reached	4316	
Bottom Driller	4325	
Mud Mat.	SALT GEL STARCH	
Dens. Visc.	10.1 35	
Mud Resist.	.048 @ 62 °F	⊙ °F ⊙ °F
" Res. BHT	.034 @ 90 °F	⊙ °F ⊙ °F
" pH	@ °F	⊙ °F
" Wtr. Loss	25.6 CC 30 min	⊙ CC 30 min ⊙ CC 30 min
" Rmf (M)	.048 @ 62 °F	⊙ °F ⊙ °F
Bit Size	7-7/8"	
Spacing		
T. R. 1 R.	CSG. To 3200	To To
T. R. 2 R.	3200 To 4309	To To
Op. Rig Time	3 HOURS	
Truck No.	3701-HOBBS	
Recorded By	SCHAEFFER	
Witness	WAGNER	

Reproduced By
 West Texas Electrical Log Service
 Dallas 2, Texas

REFERENCE W4319M

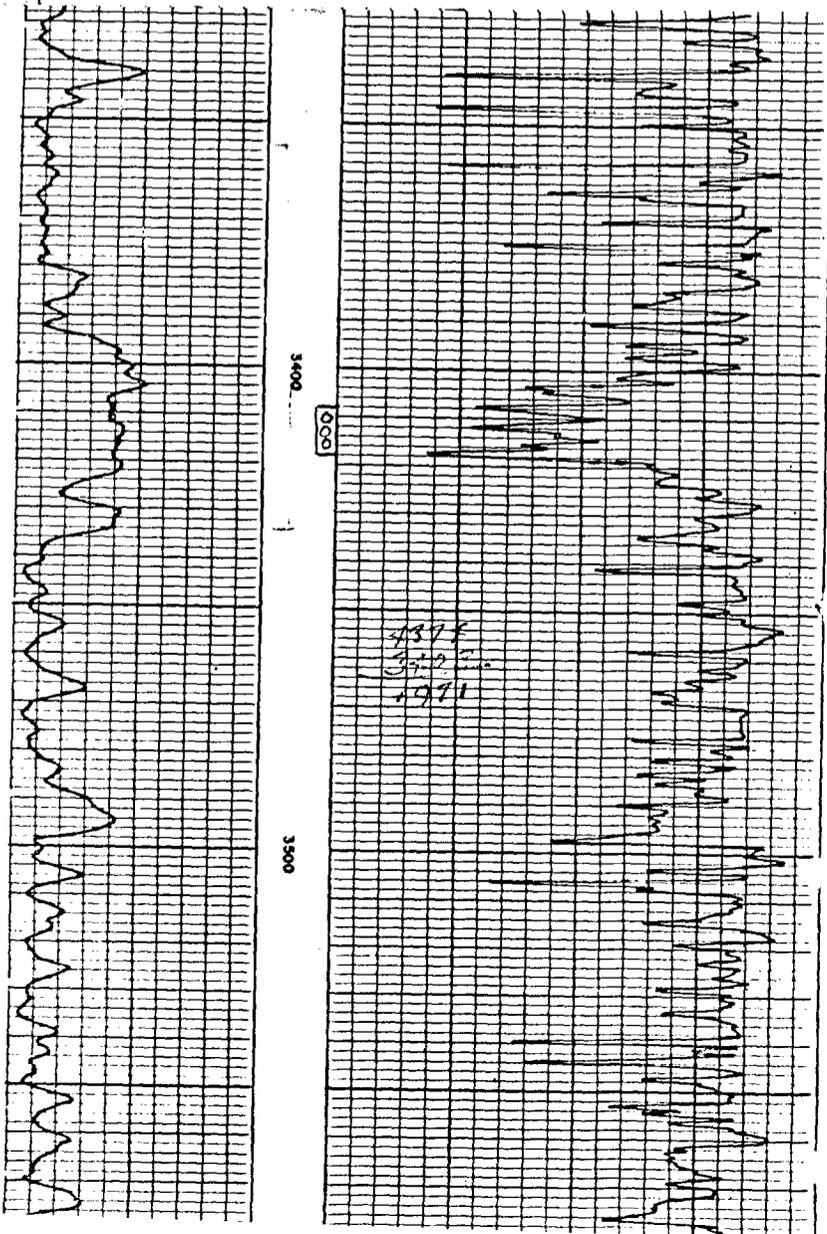


COMPLETION RECORD

SPUD DATE

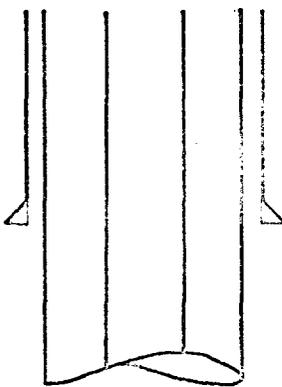
COMP DATE

DST RECORD



Elev. 4356' KB

7-5/8" cmt'd. @ 390'



annulus loaded with corrosion inhibited fluid

Est. top cmt. 2070'



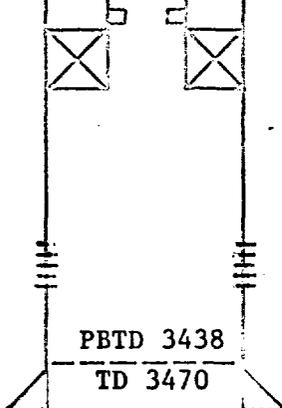
seating nipple

2-3/8" 4.7# J-55 tbg. on tension packer at 3340'

Top Queen: 3378'

Pay: Queen Sand

4-1/2" cmt'd. @ 3470' w/200 sax



3387

Perforations

3397

PBD 3438

TD 3470

47'



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

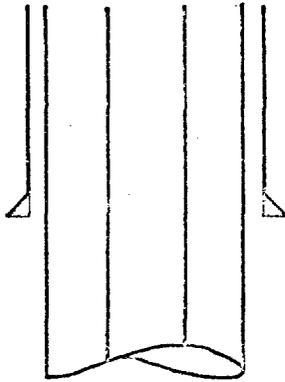
MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

State "MQD" Well No. 4
1650 FSL & 990 FWL Sec. 17, T-16-S, R-32-E

EXHIBIT

Elev. 4327'

7-5/8" csg. cmt'd. @
381' w/250 sax



annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2050'

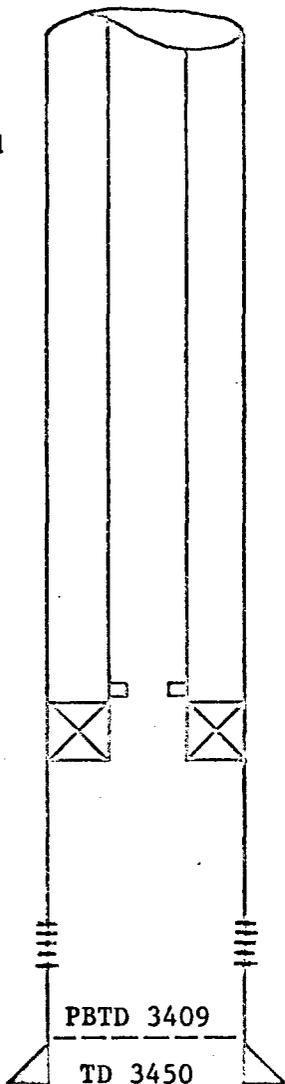
seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer @ 3320'

Top Queen: 3361'

Pay: Queen Sand

4-1/2" csg. cmt'd. @
3450' w/200 sax



3369

Perforations

3380

PBD 3409

TD 3450

49



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

State "MQD" Well No. 2
PROPOSED WATER INJECTION WELL
1650 FSL, 2310 FWL, Sec. 17, T-16-S,R-32-E

EXHIBIT

LANE WELLS FOCUSED LOG
 STANDARD FORM

FILE NO.	COMPANY SHELL OIL COMPANY		
	WELL SHELL STATE MOD NO. 2		
	FIELD MESA QUEEN		
	COUNTY LEA	STATE NEW MEXICO	
LOCATION:	1650' FSL & 2310' FWL		Other Services MF/L-CAL. G/R-A/L
	SEC 17	TWP 16-S	RGE 32-E
Permanent Datum	GROUND LEVEL		Elev. 4317
Log Measured from	D. F.	10	Ft. Above Permanent Datum
Drilling Measured from	D. F.		
			KB Elevations: DF 4327 GL 4317
Date	12-26-63		
Run No.	ONE		
Depth-Driller	3450		
Depth-Logger	3448		
Bottom Logged Interval	3440		
Top Logged Interval	2400		
Casing-Driller	7 5/8" 381		
Casing-Logger	381		
Bit Size	6 3/4"		
Type fluid in Hole	SALT MUD		
Density and Viscosity	10.4 37		
pH and Fluid Loss	10.4 cc		
Source of Sample	CIRCULATED		
Rm @ Meas. Temp.	.08 @ 62 °F		
Rmf @ Meas. Temp.	.054 @ 62 °F		
Rmc @ Meas. Temp.	.096 @ 62 °F		
Source of Rmf and Rmc	MEAS.		
Rm @ BHT	.05 @ 95 °F		
Time Since Circ.	3 HOURS		
Max. Rec. Temp. Deg. F.	95 °F		
Equip. No. and Location	4596 HOBBS		
Recorded By	WASSELL & TAYLOR		
Witnessed By	MR. CARLSON		

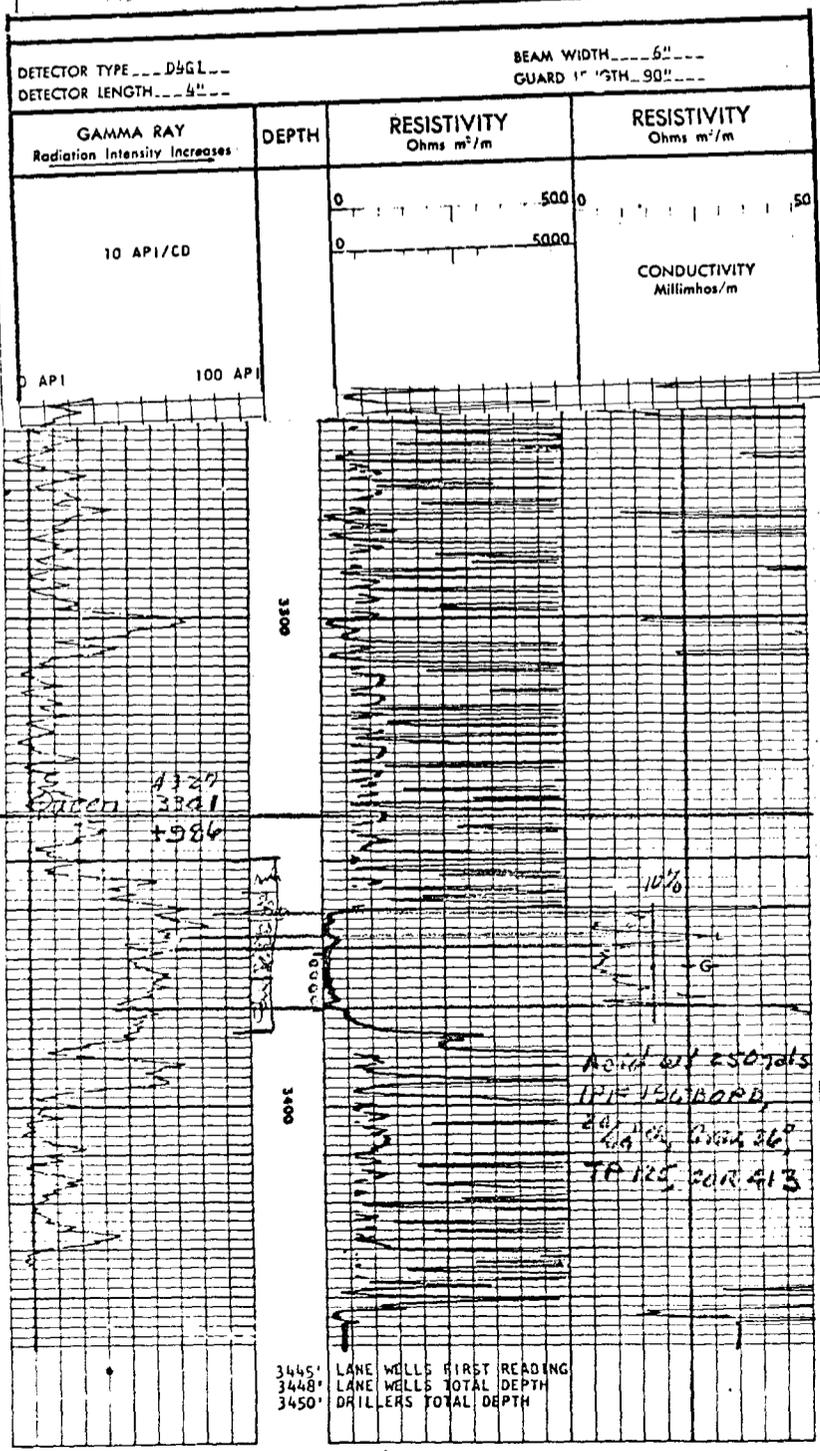
Reproduced by
West Texas Electrical Log Service
 Dallas 2, Texas

Run @ 95 = .05
Rmf @ 95 = .075
Rmc @ 95 = .042

REFERENCE W3761L

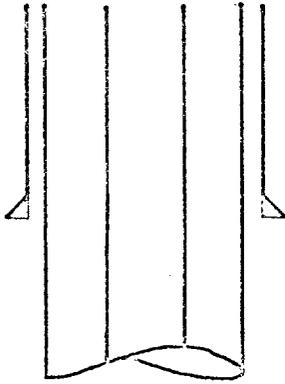


COMPLETION RECORD



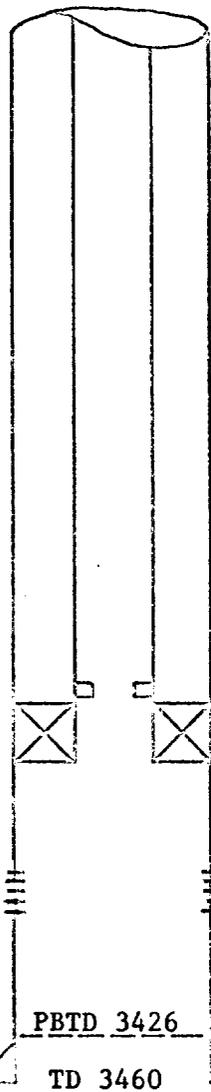
Elev. 4337'

7-5/8" csg. cmt'd. 384'
w/250 sax



annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2060'



seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer @ 3340'

Top Queen Sand: 3380'

Pay: Queen Sand

3388

3400

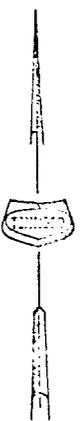
Perforations

48"

4-1/2" csg. cmt'd. @
3459' w/200 sax

PBTD 3426

TD 3460



TENNECO OIL COMPANY
SUBSIDIARY OF TENNECO CORPORATION

MESA QUEEN FIELD
LEA COUNTY, NEW MEXICO

State "MQD" Well No. 1
PROPOSED WATER INJECTION WELL
330 FSL & 2310 FWL Sec. 17, T-16-S, R-32-E

EXHIBIT

John

FILE NO.	COMPANY SHELL OIL COMPANY		
	WELL STATE "MOO" NO. 1		
	FIELD MESA QUEEN		
	COUNTY LEA	STATE NEW MEXICO	
LOCATION:	330' FSL & 2310' FWL		
SEC 17	TWP 16 S	RGE 32 E	
Permanent Datum	GROUND LEVEL	Elev. 4327	Other Services
Log Measured from	D. F. 10	Ft. Above Permanent Datum	MF/L CALIPEL F/L
Drilling Measured from	D. F.		KB 4337 GL 4327
Date	12-12-63		
Run No	ONE		
Depth-Driller	3460		
Depth-Logger	3454		
Bottom Logged Interval	3450		
Top Logged Interval	SURFACE		
Casing-Driller	7 7/8" 386		
Casing-Logger			
Bit Size	6 3/4"		
Type Fluid in Hole	SW GEI		
	STARCH		
Density and Viscosity	10.2 33		
pH and Fluid Loss	10.2 10 cc		
Source of Sample	CIRCULATED		
Rm @ Meas. Temp.	.05 @ 68°F		
Rmf @ Meas. Temp.	.048 @ 68°F		
Rmc @ Meas. Temp.	.072 @ 68°F		
Source of Rmf and Rmc	MEAS.		
Rm @ BHT	.045 @ 95°F		
Time Since Circ.			
Max. Rec. Temp. Deg. F.	95		
Equip. No. and Location	X900 HOBBS		
Recorded By	SCHLOTTERBACK SHANKS		
Witnessed By	IMS, ALEXANDER		

THIS RECORDING AND LOG CONFORM TO API RECOMMENDED STANDARD PRACTICE 89-1

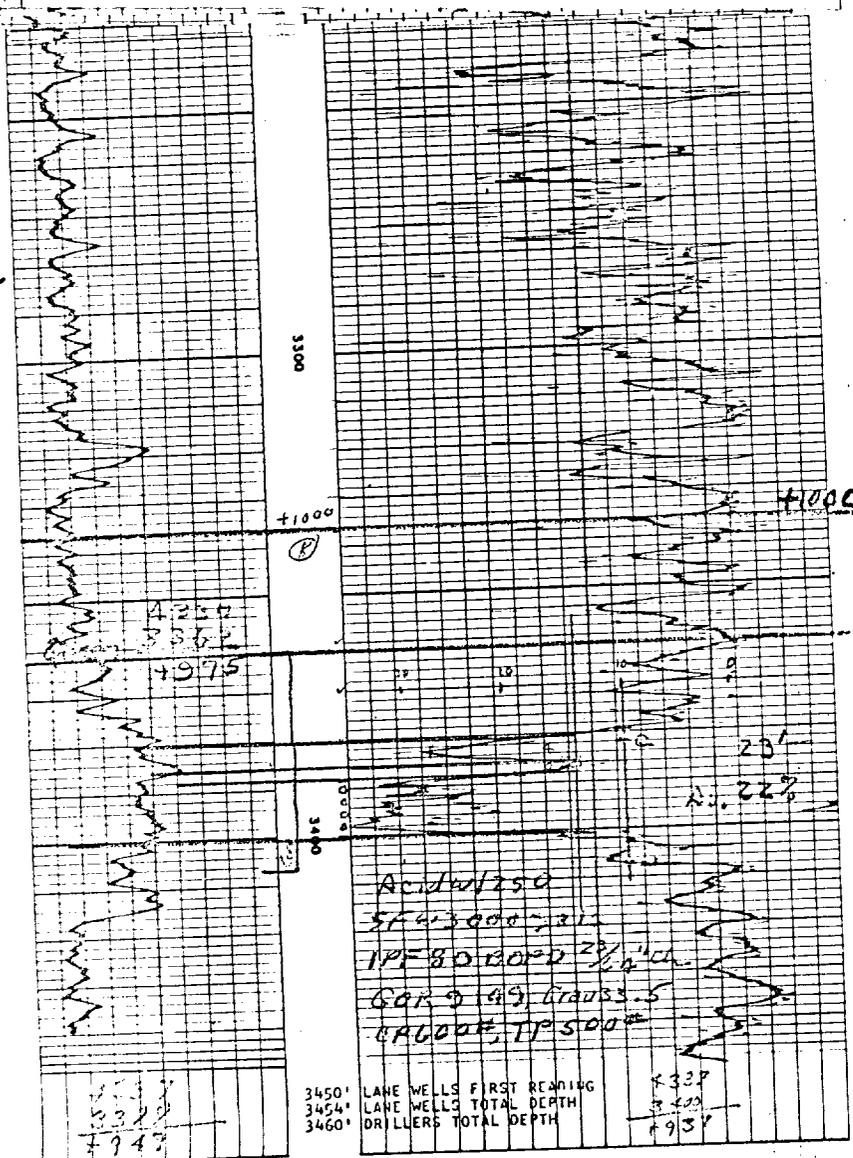
Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE W3704H



COMPLETION RECORD

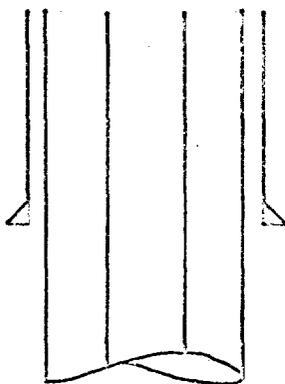
SPUD DATE
COMP DATE
DST RECORD
CASING RECORD



SHELL OIL COMPANY
STATE "MOO" NO. 1
MESA QUEEN
LEA COUNTY, NEW MEXICO

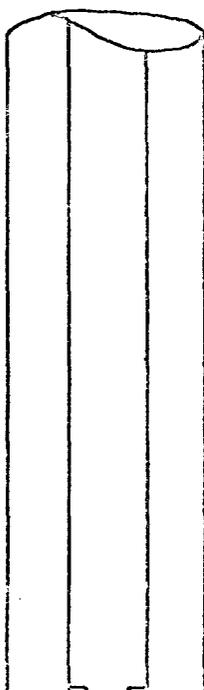
Elev. 4341' DF

7-5/8" csg. cmt'd. @
373' w/250 sax



annulus loaded with
corrosion inhibited fluid

Est. top cmt. 2060'



seating nipple

2-3/8" 4.7# J-55 tbg. on
tension packer @ 3350

58'

Top Queen 3399'

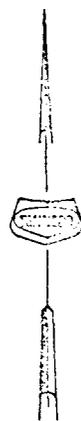
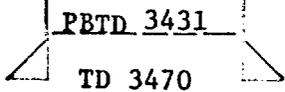
Pay: Queen Sand

3408-14

Perforations

3423-3428

4-1/2" csg. cmt'd. @
3466 w/200 sax



TENNECO OIL COMPANY SUBSIDIARY OF TENNECO CORPORATION
MESA QUEEN FIELD LEA COUNTY, NEW MEXICO
State "MQA" No. 1 PROPOSED WATER INJECTION WELL 1890 FNL & 990 FEL, Sec. 16, T-16-S,R-32-E

EXHIBIT

FILE NO.	COMPANY SHELL OIL COMPANY		
	WELL SHELL STATE "MQ" NO. A-1		
	FIELD MESA QUEEN		
	COUNTY LEA	STATE NEW MEXICO	
LOCATION:	1880' FNL & 990' FEL		Other Services
	SEC 16	TWP 16-S	RGE 32-E
Permanent Datum	D. F.	Elev. 4341	KB
Log Measured from	D. F.	Ft. Above Permanent Datum	DF 4341
Drilling Measured from	D. F.		GL 4331
Date	12-5-62		
Run No.	ONE		
Depth-Driller	3470		
Depth-Logger	3471		
Bottom Logged Interval	3467		
Top Logged Interval	SURFACE		
Casing-Driller	7 7/8 @ 373		
Casing-Logger	373		
Bit Size	5 3/4"		
Type Fluid in Hole	SALT MUD GEL & STARCH		
Density and Viscosity	10.5 33		
pH and Fluid Loss	10.4 sec		
Source of Sample	CIRCULATED		
Rm @ Meas. Temp.	07 @ 68 °F		
Rmf @ Meas. Temp.	056 @ 68 °F		
Rmc @ Meas. Temp.	084 @ 68 °F		
Source of Rmf and Rmc	MEAS		
Rm @ BHT	05 @ 95 °F		
Time Since Circ.	2 HOURS		
Max. Rec. Temp. Osg. F.	95 °F		
Equip. No. and Location	4596 HOBBS		
Recorded By	TAYLOR & WASSILL		
Witnessed By	MR. ALEXANDER		

Reproduced By
West Texas Electrical Log Service
Dallas 2, Texas

REFERENCE W3668H 

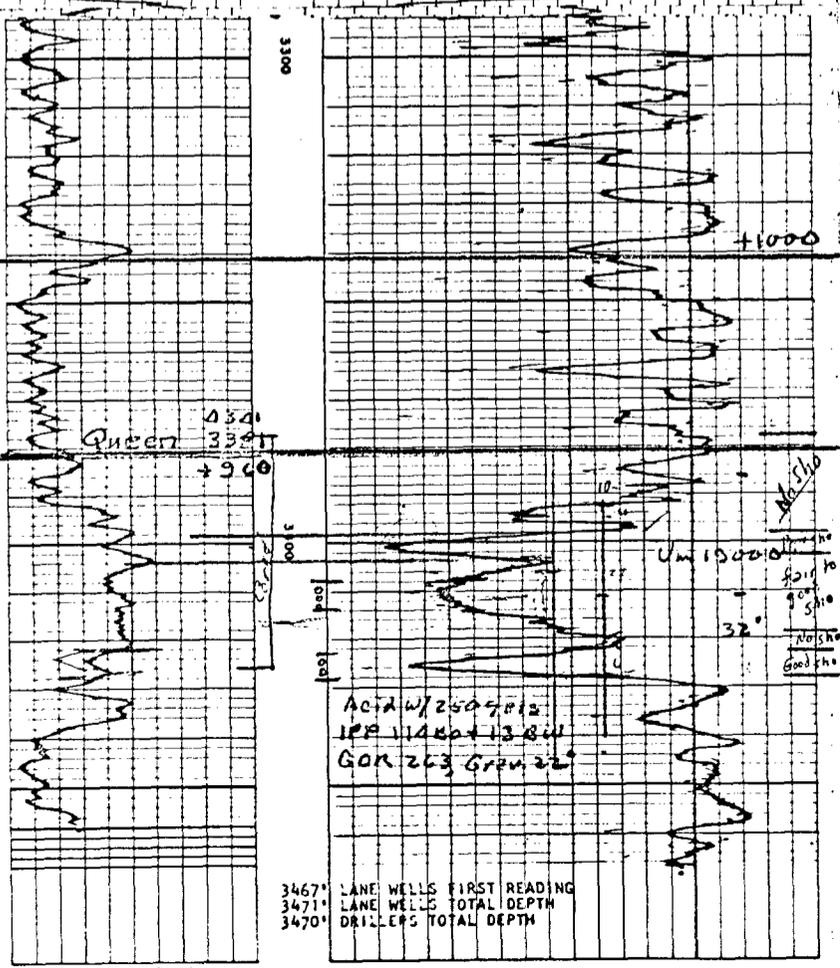
8 COMPLETION RECORD

SPUD DATE _____

COMP DATE _____

DST RECORD _____

CASING RECORD _____



SHELL OIL COMPANY
SHELL STATE "MQ" NO. A-1
MESA QUEEN
LEA COUNTY, NEW MEXICO

4341 4341
3923 3428
+918 +913