

UNIT AGREEMENT

CITGO EMPIRE ABO UNIT

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COUNTY OF EDDY
STATE OF NEW MEXICO

Dated February 1, 1974

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EDDY COUNTY, NEW MEXICO

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UNIT AGREEMENT
FOR THE DEVELOPMENT AND OPERATION OF THE
CITGO EMPIRE ABO UNIT
EDDY COUNTY, NEW MEXICO
No.

THIS AGREEMENT, entered into as of the 1st day of February 1974 by and between the parties subscribing, ratifying or consenting hereto, and herein referred to as "Parties hereto";

WITNESSETH:

WHEREAS, the parties hereto are the owners of working, royalty or other oil or gas interests in the Unit Area subject to this Agreement; and

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

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 3, Chap. 88, Laws 1943 as amended by Section 1 of Chap. 162, Laws of 1951, Chap. 7, Art. 11, Sec. 39, N.M.S. 1953 Ann.) to consent to or approve this Agreement on behalf of the State of New Mexico, insofar as it covers and includes lands and mineral interests of the State of New Mexico; and

WHEREAS, the Commissioner of Public Lands of the State of New Mexico is authorized by an Act of the Legislature (Sec. 3, Chap. 88, Laws of 1943, as amended by Sec. 1, Chap. 162, Laws of 1951, Chap. 7, Art. 11, Sec. 41, N.M.S. and 1953 Ann.) to amend with the approval of the lessee, 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 unitized development and operation of State lands; and

WHEREAS, the Oil Conservation Commission of the State of New Mexico is authorized by law (Chap. 72, Laws of 1935, as amended by Chap. 193, Laws of 1937, Chap. 166, Laws of 1941, and Chap. 168, Laws of 1949) to approve this Agreement, and the conservation provisions hereof; and

WHEREAS, the parties hereto hold sufficient interests in the Citgo Empire Abo Unit covering the land hereinafter described to give reasonably effective control of operation therein; and

WHEREAS, it is the purpose of the parties hereto to conserve natural resources, to 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 of the below defined Unit Area, and agree severally among themselves as follows:

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

SECTION 2. UNIT AREA AND DEFINITIONS. For the purpose of this Agreement, the following terms and expressions as used herein shall mean:

(a) "Unit Area" is defined as those lands described in Exhibit "B" and depicted on Exhibit "A" hereof, and such land is hereby designated and recognized as constituting the Unit Area, containing 361.06 acres, more or less, in Eddy County, New Mexico.

(b) "Land 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) "Director" is defined as the Director of the United States Geological Survey.

(e) "Secretary" is defined as the Secretary of the Interior of the United States of America, or his duly authorized delegate.

(f) "Department" is defined as the Department of the Interior of the United States of America.

(g) "Supervisor" is defined as the Oil and Gas Supervisor of the United States Geological Survey for the area in which the Unit Area is situated.

(h) "Unitized Formation" shall mean that subsurface portion of the Unit Area commonly known as the Abo formation, which is that continuous stratigraphic interval occurring between the base of the Drinkard formation and the top of the Wolfcamp (limestone) formation, and which is the same formation that was encountered between the logged depths of 5325' (subsea elevation of -1784') and 6533' (subsea elevation of -2992') in Amoco Production Company's State of New Mexico "AU" Well No. 1, as shown on the Welex Radioactive log of said well dated December 21, 1958, which well is located 1980' FSL and 1830' FWL of Section 2, T-18-S, R-27-E, Eddy County, New Mexico.

(i) "Unitized Substances" are all oil, gas, gaseous substances, sulphur contained in gas, condensate, distillate and all associated and constituent liquid or liquefiable hydrocarbons within and produced from the Unitized Formation, of the Unitized Land.

(j) "Tract" is each parcel of land described as such and given a Tract Number in Exhibit "B".

(k) "Tract Participation" is defined as the percentage of participation shown on Exhibit "C" for allocating Unitized Substances to a Tract under this Agreement.

(l) "Unit Participation" is the sum of the percentages obtained by multiplying the Working Interest of a Working Interest Owner in each Tract by the Tract Participation of such Tract.

(m) "Working Interest" is the right to search for, produce and acquire Unitized Substances whether held as an incident of ownership of mineral fee simple title, under an oil and gas lease, or otherwise held, 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 and producing the Unitized Substances from the Unitized Formation and operations thereof hereunder. Provided that any royalty interest created out of a working interest subsequent to the execution of this Agreement by the Owner of the working interest shall continue to be subject to such working interest burdens and obligations.

(n) "Working Interest Owner" is any party hereto owning a Working Interest, including a carried working interest owner, holding an interest in Unitized Substances by virtue of a lease, operating agreement, fee title or otherwise. The owner of Oil and Gas Rights that are free of lease or other instrument creating a Working Interest in another shall be regarded as a Working Interest Owner to the extent of seven-eighths (7/8) of his interest in Unitized Substances, and as a Royalty Owner with respect to his remaining one-eighth (1/8) interest therein.

(o) "Royalty Interest" or "Royalty" is an interest other than a working interest in or right to receive a portion of the Unitized Substances or the pro-

ceeds thereof and includes the royalty interest reserved by the lessor by an oil and gas lease and any overriding royalty interest, oil payment interest, net profit contracts, or any other payment or burden which does not carry with it the right to search for and produce Unitized Substances.

(p) "Royalty Owner" is the owner of a Royalty Interest.

(q) "Oil and Gas Rights" is the right to explore, develop and operate lands within the Unit Area for the production of Unitized Substances, or to share in the production so obtained or the proceeds thereof.

(r) "Outside Substances" is any substance obtained from any source other than the Unitized Formation and injected into the Unitized Formation.

(s) "Unit Operator" is the party designated by Working Interest Owners to conduct Unit Operations.

(t) "Unit Operations" is any operation conducted pursuant to this Agreement.

(u) "Unit Equipment" is all personal property, lease and well equipment, plants, and other facilities and equipment taken over or otherwise acquired for use in Unit Operations.

(v) "Unit Expense" is all cost, expense, or indebtedness incurred pursuant to this Agreement for or on account of Unit Operations.

SECTION 3. EXHIBITS. Exhibit "A" attached hereto is a map showing the Unit Area and the boundaries and identity of tracts and leases in said Unit Area to the extent known to the Unit Operator. Exhibit "B" attached hereto is a schedule showing, to the extent known to the Unit Operator, the acreage comprising each Tract, percentages and kind of ownership of oil and gas interests in all land in the Unit Area. Exhibit "C" attached hereto shows the Tract Participation of each Tract in the Unit Area. However, nothing herein or in said schedule or map shall be construed as a representation by any party hereto as to the ownership of any interest other than such interest or interests as are shown in said map or schedule as owned by such party. Exhibit "D" attached hereto is the provisions of paragraphs 1 through 7 of Section 202 of Executive Order 11246. Exhibits "A", "B" and "C" shall be revised by the Unit Operator whenever changes in the Unit Area render such revision necessary or when requested by the Supervisor, and copies of such revision shall be filed with the Land Commissioner, and not less than five copies shall be filed with the Supervisor.

SECTION 4. EXPANSION. The above described 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 this unit, 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 Unit Area and in the Tract proposed to be included in the unit, setting out the basis for admission, the Tract Participation to be assigned to each Tract in the enlarged Unit Area and other pertinent data. After negotiation (at Working Interest Owners' meeting or otherwise) if Working Interest Owners having in the aggregate eighty per cent (80%) Unit Participation then in effect have agreed to inclusion of such Tract or Tracts in the Unit Area, then Unit Operator shall:

(1) After obtaining preliminary concurrence by the Director, 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 assigned thereto and the proposed effective date thereof; and

(2) Deliver copies of said notice to the Land Commissioner, the Supervisor, each Working Interest Owner and to the lessee and lessor whose interests are affected, advising such parties that thirty (30) days will be allowed for submission to the Unit Operator of any objection to such proposed expansion; and

(3) File, upon the expiration of said thirty (30) day period as set out in (2) immediately above with the Land Commissioner and Supervisor the following: (a) Evidence of mailing or delivering copies of said notice of expansion; (b) An application for approval of such expansion; (c) An instrument containing the appropriate joinders in compliance with the participation requirements of Section 12 and Section 30, *infra*; and (d) A copy of all objections received along with the operators response thereto.

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

SECTION 5. UNITIZED LAND. All land committed to this Agreement as to the Unitized Formation shall constitute land referred to herein as "Unitized Land" or "Land subject to this Agreement." Nothing herein shall be construed to unitize, pool, or in any way affect the oil, gas and other minerals contained in or that may be produced from any formation other than the Unitized Formation as defined in Section 2(h) of this Agreement.

SECTION 6. UNIT OPERATOR. Cities Service Oil Company is hereby designated the Unit Operator, and by signing this instrument as Unit Operator

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, when such interests are owned by it and the term "Working Interest Owner" when used herein shall include or refer to the Unit Operator as the owner of a Working Interest when such an interest is owned by it.

SECTION 7. ACCOUNTING PROVISIONS. Costs and expenses incurred by Unit Operator in conducting Unit Operations hereunder shall be paid, apportioned among and borne by the Working Interest Owners.

SECTION 8. RIGHTS AND OBLIGATIONS OF UNIT OPERATOR. Except as otherwise specifically provided herein the exclusive right, privilege and duty of exercising any and all rights of the parties hereto which are necessary or convenient for prospecting for, producing, storing, allocating and distributing the Unitized Substances are hereby delegated to and shall be exercised by the Unit Operator as herein provided. Upon request, 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 9. PLAN OF OPERATIONS. It is recognized and agreed by the parties hereto that all of the land subject to this Agreement is reasonably proved to be productive of Unitized Substances and that the object and purpose of this Agreement is to formulate and to put into effect an improved recovery project in order to effect additional 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 Supervisor, the Land Commissioner and the Commission, inject into the Unitized Formation, through any well or wells completed therein, brine, water, air, gas, oil, liquefied petroleum gases and any one or more other substances or combination of substances whether produced from the Unitized Land or not, and that the location of input wells and the rates of injection therein shall be governed by standards of good geologic and petroleum engineering practices and conservation methods. Subject to like approval the Plan of Operation may be revised as conditions may warrant.

The initial Plan of Operation shall be filed with the Supervisor, the Land Commissioner and the Commission concurrently with the filing of this Unit Agreement for final approval. Said initial plan of operations and all revisions thereof shall be as complete and adequate as the Supervisor, the Land Commissioner and the Commission may determine to be necessary for timely operation

consistent herewith. Said initial plan shall provide for the injection of a portion of the gas produced from the Unitized Formation commencing within twelve months from the effective date hereof and continuing until such time as the initial plan is terminated or modified by a subsequent plan with the approval of all necessary parties, including the Supervisor, the Land Commissioner and the Commission. Upon approval of this Agreement and the initial plan by the Supervisor and Commissioner, said plan, and all subsequently approved plans shall constitute the operating obligations of the Unit Operator under this Agreement for the period specified therein. Thereafter, from time to time before the expiration of any existing plan, the Unit Operator shall submit for like approval a plan for an additional specified period of operation. After such operations are commenced, reasonable diligence shall be exercised by the Unit Operator in complying with the obligations of the approved Plan of Operation.

Notwithstanding anything to the contrary herein contained, should the Unit Operator fail to commence operation of an improved recovery project incorporating the injection of produced gas within one (1) year after the effective date of this Agreement, or any extension thereof approved by the Supervisor, this Agreement shall terminate automatically as of the date of default.

SECTION 10. USE OF SURFACE AND USE OF WATER. The parties have to the extent of their rights and interests, hereby granted to Unit Operator the right to use as much of the surface of the Unitized Land as may reasonably be necessary for Unit Operations; provided that nothing herein shall be construed as leasing or otherwise conveying to the Unit Operator a site for water, gas injection or other plants or camp site.

Unit Operator shall have free use of water or brine or both from the Unitized Land for Unit Operations, except water from any well, lake, pond or irrigation ditch of a surface owner, unless approval for such use is granted by the surface owner.

Unit Operator shall pay the Owner for damages to growing crops, timber, fences, improvements and structures on the Unitized Land that result from Unit Operations.

SECTION 11. TRACT PARTICIPATION. In Exhibit "C" attached hereto there are listed and numbered the various Tracts within the Unit Area, and set forth opposite each Tract are figures which represent the Tract Participation if all Tracts in the Unit Area qualify as provided herein. The Tract Participations of each Tract as shown in Exhibit "C" were determined in accordance with the following formula:

Tract Participation = $10\% A + 22.5\% B + 22.5\% C + 22.5\% D + 22.5\% E$

Where A = The ratio of gas production from each tract to the total for all tracts during the period February 1, 1973,

to July 31, 1973.

- B = The ratio of gross acre feet underlying each tract to the total for all tracts as determined by the Empire Abo Field Engineering Subcommittee and shown in the report dated August 1968.
- C = The ratio of oil produced from each tract to the total from all tracts during the period February 1, 1973, to July 31, 1973.
- D = The ratio of original oil in place under each tract to the total in all tracts as reported in the Field Management Study, Empire Abo Field, dated October 2, 1970.
- E = The ratio of oil and gas revenue from each tract to the total from all tracts during the period February 1, 1973, to July 31, 1973.

In the event less than all Tracts are qualified on the Effective Date hereof, the Tract Participations shall be calculated on the basis of all such qualified Tracts rather than all Tracts in the Unit Area.

SECTION 12. TRACTS QUALIFIED FOR PARTICIPATION. On and after the Effective Date hereof the Tracts within the Unit Area which shall be entitled to participation in the production of Unitized Substances shall be those Tracts more particularly described in Exhibit "B" that corner or have a common boundary (Tracts separated only by a public highway or a railroad right-of-way shall be considered to have a common boundary), and that otherwise qualify as follows:

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

(b) Each Tract as to which Working Interest Owners owning one hundred per cent (100%) of the Working Interest have become parties to this Agreement, and as to which Royalty Owners owning less than seventy-five per cent (75%) of the Royalty Interest have become parties to this Agreement, and as to which (1) the Working Interest Owner who operates the Tract and at least seventy-five per cent (75%) of all other Working Interest Owners in such Tract have joined in a request for the inclusion of such Tract, and as to which (2) owners of seventy-five per cent (75%) of the combined Unit Participation in all Tracts that meet the requirements of Section 12 (a) above have voted in favor of the inclusion of such tract.

(c) Each Tract as to which Working Interest Owners owning less than one hundred per cent (100%) of the Working Interest have become parties to this Agreement, regardless of the percentage of Royalty Interest therein that is committed hereto; and as to which (1) the Working Interest Owner who operates the Tract and a total of seventy-five per cent (75%) or more of the

other Working Interest Owners in such Tract who have become parties to this Agreement have joined in a request for inclusion of such Tract, and have executed and delivered, or obligated themselves to execute and deliver, an indemnity agreement indemnifying and agreeing to hold harmless the other owners of committed Working Interests, their successors and assigns, against all claims and demands that may be made by the owners of Working Interest in such Tract who are not parties to this Agreement, and which arise out of the inclusion of the Tract; and as to which (2) the owners of seventy-five per cent (75%) of the Unit Participation in all Tracts that meet the requirements of Section 12 (a) and 12 (b) have voted in favor of the inclusion of such tract and to accept the indemnity agreement. Upon the inclusion of such a Tract, the Tract Participations which would have been attributed to the non-subscribing owners of Working Interest in such Tract, had they become parties to this Agreement, shall be attributed to the Working Interest Owners in such Tract who have become parties to such agreements, and joined in the indemnity agreement, in proportion to their respective Working Interests in the Tract.

If on the Effective Date of this Agreement there is any Tract or Tracts which have not been effectively committed to or made subject to this Agreement by qualifying as above provided, then such Tract or Tracts shall not be entitled to participate hereunder. Unit Operator shall, when submitting this Agreement for final approval by the Land Commissioner and the Supervisor, file therewith a schedule of those Tracts which have been committed and made subject to this Agreement and are entitled to participate in Unitized Substances. Said schedule shall set forth opposite each such committed Tract the lease number or assignment number, the owner of record of the lease, and the percentage participation of such Tract which shall be computed according to the participation formula set out in Section 11 (Tract Participation) above. This schedule of participation shall be Revised Exhibit "C" and upon approval thereof by the Land Commissioner and the Supervisor shall become a part of this Agreement and shall govern the allocation of production of Unitized Substances until a new schedule is approved by the Land Commissioner and Supervisor.

SECTION 13. ALLOCATION OF UNITIZED SUBSTANCES. All Unitized Substances produced and saved (less, save and except any part of such Unitized Substances used in conformity with good operating practices on unitized land for drilling, operating, camp and other production or development purposes and for injection or unavoidable loss in accordance with a Plan of Operation approved by the Supervisor) shall be apportioned among and allocated to the qualified Tracts in accordance with the respective Tract Participations as set forth in the schedule of participation in Exhibit "C". 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 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 Tracts, 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 above provided shall be subsequently excluded from participation hereunder on account of depletion of Unitized Substances.

If the Working Interest and/or the Royalty Interest in any Tract are divided with respect to separate parcels or portions of such Tract and owned now or hereafter in severalty by different persons, the Tract Participation 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. Each Working Interest Owner and the parties entitled thereto shall have the continuing right to receive such production in kind at a common point within the Unit Area and to sell or dispose of the same as it sees fit. Each such party shall have the right to construct, maintain and operate all necessary facilities for that purpose on unitized land, provided the same are so constructed, maintained and operated as not to interfere with operations carried on pursuant hereto. Subject to Section 15 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 responsible therefor under the controlling lease or contract. In the event any Interest Owner shall fail to take or otherwise adequately dispose of its proportionate share of the production from the Unitized Formation currently as and when produced, then so long as such condition continues, Unit Operator, for the account and at the expense of the Working Interest Owner of the Tract or Tracts concerned, and in order to avoid curtailing the operation of the Unit Area, may, but shall not be required to, sell or otherwise dispose of such production to itself or to others on a day-to-day basis, 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, and at not less than the prevailing market price in the area for like production, and the account of such Working Interest Owner shall be charged therewith as having received such production. The net proceeds, if any, of the Unitized Substances so disposed of by Unit Operator shall be paid to the Working Interest Owners of the Tract or Tracts concerned. Notwithstanding the foregoing, Unit Operator shall not make a sale into interstate commerce of any Working Interest Owner's share of gas production without first giving such Working Interest Owner sixty (60) days notice of such intended sale.

Any Working Interest Owner receiving in kind or separately disposing of all or any part of the Unitized Substances allocated to any Tract, or receiving the proceeds therefrom if the same is sold or purchased by Unit Operator, shall be responsible for the payment of all Royalty, overriding royalty and production payments due thereon, and each such party shall hold each other Working Interest Owner harmless against all claims, demands and causes of action by owners of such Royalty, overriding royalty and production payments.

If, after the Effective Date of this Agreement, there is any Tract or Tracts that are subsequently committed hereto, as provided in Section 4 (Expansion) hereof, or any Tract or Tracts within the Unit Area not committed hereto as of the Effective Date hereof but which are subsequently committed hereto under the provisions of Section 12 (Tracts Qualified for Participation) and Section 30 (Nonjoinder and Subsequent Joinder), or if any Tract is excluded from this Agreement as provided for in Section 29 (Loss of Title), the schedule of participation as shown in Exhibit "C", shall be revised by the Unit Operator; and the revised Exhibit "C", upon approval by the Land Commissioner and the Supervisor, shall govern the allocation of production on and after the effective date thereof until a revised schedule is approved as hereinabove provided.

If the Unit Area is enlarged, the revised Tract Participations of the Tracts which were within the Unit Area prior to the enlargement shall remain in the same ratio one to another.

SECTION 14. OUTSIDE SUBSTANCES. If gas obtained from formations not subject to this Agreement is introduced into the Unitized Formation for use in repressuring, stimulating of production or increasing ultimate recovery which shall be in conformity with a Plan of Operation first approved by the Land Commissioner and the Supervisor, a like amount of gas with appropriate deduction for loss or depletion from any cause may be withdrawn from unit wells completed in the Unitized Formation royalty free as to dry gas, but not royalty free as to the products extracted therefrom; provided that such withdrawal shall be at such time as may be provided in the approved Plan of Operation or as otherwise may be consented to or prescribed by the Land Commissioner and the Supervisor as conforming to good petroleum engineering practices and provided further that such right of withdrawal shall terminate on the termination date of this Agreement.

SECTION 15. ROYALTY SETTLEMENT. The State of New Mexico and United States of America and all Royalty Owners who, under an existing contract, are entitled to take in kind a share of the substances produced from any Tract unitized hereunder, shall continue to be entitled to such right 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 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 on Unitized Substances as allocated to each Tract in accordance with the terms of this Agreement. With respect to Federal leases committed hereto on which the royalty rate depends upon the daily average production per well, such average production shall be determined in accordance with the operating regulations pertaining to Federal leases as though the committed Tracts were included in a single consolidated lease.

If the amount of production or the proceeds thereof accruing to any Royalty Owner (except the United States of America) in a Tract depends upon the average production per well or the average pipeline runs per well from such Tract during any period of time, then such production shall be determined from and after the effective date hereof by dividing the quantity of Unitized Substances allocated hereunder to such Tract during such period of time by the number of wells located thereon capable of producing Unitized Substances as of the Effective Date hereof, provided that any Tract not having any well so capable of producing Unitized Substances on the Effective Date hereof shall be considered as having one such well for the purpose of this provision.

All Royalty due the State of New Mexico and the United States of America and the other Royalty Owners hereunder shall be computed and paid on the basis of all Unitized Substances allocated to the respective Tract or Tracts committed hereto, in lieu of actual production from such Tract or Tracts.

Each Royalty Owner (other than the State of New Mexico and the United States of America) that executes this Agreement represents and warrants that it is the owner of a Royalty Interest in a Tract or Tracts within the Unit Area as its interest appears in Exhibit "B" attached hereto. If any Royalty Interest in a Tract or Tracts should be lost by title failure or otherwise in whole or in part, during the term of this Agreement, then the Royalty Interest of the party representing himself to be the owner thereof shall be reduced proportionately and the interests of all parties shall be adjusted accordingly.

SECTION 16. 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. Rental or minimum Royalty for lands of the United States of America subject to this Agreement shall be paid at the rate specified in the respective leases from the United States of America, unless such rental or minimum Royalty is waived, suspended or reduced by law or by approval of the Secretary or his duly authorized representative.

SECTION 17. CONSERVATION. Operations hereunder and production of Unitized Substances shall be conducted to provide for the most economical and efficient recovery of said substances without waste, as defined by or pursuant to Federal and State laws and regulations.

SECTION 18. 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.

The Unit Operator, upon approval by the Working Interest Owners, the Supervisor and the Land Commissioner, is hereby empowered to enter into a border line agreement or agreements with working interest owners of adjoining lands not subject to this Agreement with respect to operation in the border area for the maximum economic recovery, conservation purposes and proper protection of the parties and interest affected.

SECTION 19. LEASES AND CONTRACTS CONFORMED AND EXTENDED. The terms, conditions and provisions of all leases, subleases and other contracts relating to exploration, drilling, development or operation for oil or gas on lands committed to this Agreement are hereby expressly modified and amended to the extent necessary to make the same conform to the provisions hereof, but otherwise to remain in full force and effect, and the parties hereto hereby consent that the Secretary and the Land Commissioner, respectively, shall and by their approval hereof, or by the approval hereof by their duly authorized representatives, do hereby establish, alter, change or revoke the drilling, producing, rental, minimum Royalty and Royalty requirements of Federal and State leases committed hereto and the regulations in respect thereto to conform said requirements to the provisions of this Agreement.

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 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 any 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 improved recovery operations performed hereunder shall be deemed to be performed upon and for the benefit of each Tract, and no lease shall be deemed to expire by reason of failure to drill or produce wells situated on the land therein embraced.

(c) Suspension of drilling or producing operations on all unitized lands pursuant to direction or consent of the Land Commissioner and the Secretary,

or their duly authorized representatives, shall be deemed to constitute such suspension pursuant to such direction or consent as to each Tract of unitized lands.

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

(e) Any lease embracing lands of the State of New Mexico which is made subject to this Agreement shall continue in force beyond the term provided therein as to the lands committed hereto until the termination hereof.

(f) 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 improved 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.

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

SECTION 20. COVENANTS RUN WITH LAND. The covenants herein

shall be construed to be covenants running with the land with respect to the interest of the parties hereto and their successors in interest until this Agreement terminates, and any grant, transfer or conveyance 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 or 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 or transfer.

SECTION 21. 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 on the first day of the calendar month next following the approval of this Agreement by the Supervisor, the Land Commissioner and the Commission.

If this Agreement does not become effective on or before February 1, 1975, it shall ipso facto expire on said date (hereinafter called "expiration date") and thereafter be of no further force or effect, unless prior thereto this Agreement has been executed or ratified by Working Interest Owners owning a combined Participation of at least eighty per cent (80%), and at least seventy-five per cent (75%) of such Working Interest Owners committed to this Agreement have decided to extend said expiration date for a period not to exceed six months (hereinafter called "extended expiration date"). If said expiration date is so extended and this Agreement does not become effective on or before said extended expiration date, it shall ipso facto expire on said extended expiration date and thereafter be of no further force or effect.

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

The term of this Agreement shall be for and during the time that Unitized Substances are produced from the unitized land and so long thereafter as drilling, reworking or other operations (including improved recovery operations) are prosecuted thereon without cessation of more than ninety (90) consecutive days unless sooner terminated as herein provided.

This Agreement may be terminated with the approval of the Land Commissioner and the Supervisor by Working Interest Owners owning eighty per cent (80%) of the Unit Participation whenever such Working Interest Owners determine that Unit Operations are no longer profitable, or in the interest of

conservation. Upon approval, such termination shall be effective as of the first day of the month after said Working Interest Owners' determination. Notice of any such termination shall be filed by Unit Operator in the office of the County Clerk of Eddy County, New Mexico; within thirty (30) days of the effective date of termination.

Upon termination of this Agreement, the parties hereto shall be governed by the terms and provisions of the leases and contracts affecting the separate Tracts just as if this Agreement had never been entered into.

If not otherwise provided by the leases unitized under this Agreement, Royalty Owners hereby grant Working Interest Owners a period of six 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 22. RATE OF PROSPECTING, DEVELOPMENT AND PRODUCTION. All production and the disposal thereof shall be in conformity with allocations and quotas made or fixed by any duly authorized person or regulatory body under any Federal or State statute. The Director is hereby vested with authority to alter or modify from time to time, in his discretion, the rate of prospecting and development and within the limits made or fixed by the Commission to alter or modify the quantity and rate of production under this Agreement, such authority being hereby limited to alteration or modification in the public interest, the purpose thereof and the public interest to be served thereby to be stated in the order of alteration or modification; provided, further, that no such alteration or modification shall be effective as to any land of the State of New Mexico as to the rate of prospecting and development in the absence of the specific written approval thereof by the Land Commissioner and as to any lands of the State of New Mexico or privately owned lands subject to this Agreement or to the quantity and rate of production from such lands in the absence of specific written approval thereof by the Commission.

Powers in this Section vested in the Director shall only be exercised after notice to Unit Operator and opportunity for hearing to be held not less than fifteen (15) days from notice, and thereafter subject to administrative appeal before becoming final.

SECTION 23. NONDISCRIMINATION. Unit Operator in connection with the performance of work under this Agreement relating to leases of the United States agrees to comply with the clauses set forth in Exhibit "D" attached hereto and made a part hereof.

SECTION 24. APPEARANCES. Unit Operator shall have the right to appear for or on behalf of any interests affected hereby before the Land Commissioner, the Department, and the Commission, and to appeal from any order issued under the rules and regulations of the Land Commissioner, the

Department or the Commission, or to apply for relief from any of said rules and regulations or in any proceedings relative to operations before the Land Commissioner, the Department 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 proceeding.

SECTION 25. 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 or registered 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 26. 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 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, each party hereto covenants that it will not resort to any action to partition the unitized land or the Unit Equipment.

SECTION 27. EQUIPMENT AND FACILITIES NOT FIXTURES ATTACHED TO REALTY. Each Working Interest Owner has heretofore placed and used on its Tract or Tracts committed to this Agreement various well and lease equipment and other property, equipment and facilities. It is also recognized that additional equipment and facilities may hereafter be placed and used upon the Unitized Land as now or hereafter constituted. Therefore, for all purposes of this Agreement any such equipment shall be considered to be personal property and not fixtures attached to realty. Accordingly, said well and lease equipment and personal property is hereby severed from the mineral estates affected by this Agreement, and it is agreed that any such equipment and personal property shall be and remain personal property of the Working Interest Owners for all purposes.

SECTION 28. UNAVOIDABLE DELAY. All obligations under this Agreement requiring the Unit Operator to commence or continue improved 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 29. LOSS OF TITLE. In the event title to any Tract of unitized land shall fail so as to render the Tract inoperable under this Agreement and the true owner cannot be induced to join this Agreement, such Tract shall be automatically regarded as not committed hereto as of the first day of the calendar month in which the failure of title is determined and there shall be such readjustment of future costs and benefits as may be required on account of the loss of such title. In the event of a dispute as to title as to any Royalty, Working Interest or other interest subject thereto, payment or delivery on account thereof may be withheld without liability or interest until the dispute is finally settled; provide , that as to State or Federal land or leases, no payments of funds due the State of New Mexico or the United States of America shall be withheld, but such funds shall be deposited as directed by the Land Commissioner and/or the Supervisor (as the case may be), to be held as unearned money pending final settlement of the title dispute, and then applied as earned or returned in accordance with such final settlement.

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

SECTION 30. NONJOINDER AND SUBSEQUENT JOINDER. Joinder by any Royalty Owner, at any time, must be accompanied by appropriate joinder of the corresponding Working Interest Owner in order for the interest of such Royalty Owner to be regarded as effectively committed.

Any oil or gas interest in the Unitized Formations not committed hereto prior to submission of this Agreement to the Land Commissioner and the Supervisor for final approval may thereafter be committed hereto upon compliance with the applicable provisions of this Section and of Section 12 (Tracts Qualified for Participation) hereof, at any time up to the effective date hereof on the same basis of participation as provided in said Section 12, by the owner or owners thereof subscribing, ratifying, or consenting in writing to this Agreement.

It is understood and agreed, however, that from and after 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 owning not less than sixty-five per cent (65%) of the Unit Participation and approved by the Land Commissioner and Supervisor. Such subsequent joinder by a proposed Working Interest Owner must be evidenced by his execution or ratification of this Agreement and, where State or Federal land is involved, such Joinder must be approved by the Land Commissioner or Supervisor. Such Joinder by a proposed Royalty Owner must be evidenced by his execution, ratification or consent of this 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 proposed Royalty Owner. Except as may be otherwise herein provided, subsequent joinder to this Agreement shall be effective as of the first day of the month following the filing with the Land Commissioner and

the Supervisor of duly executed counterparts of any and all documents necessary to establish effective commitment of any Tract or interest to this Agreement, unless objection to such joinder by the Land Commissioner or the Supervisor is duly made sixty (60) days after such filing.

SECTION 31. 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 land within the above described Unit Area.

SECTION 32. JOINDER IN DUAL CAPACITY. Execution as herein provided by any party as either a Working Interest Owner or a Royalty Owner shall commit all interests owned or controlled by such party.

SECTION 33. 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 taxes shall be charged to the United States or to the State of New Mexico, nor to any lessor who has a contract with a lessee which requires his lessee to pay such taxes.

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. PRODUCTION AS OF THE EFFECTIVE DATE. Unit Operator shall make a proper and timely gauge of all leases and other tanks within the unitized land in order to ascertain the amount of merchantable oil above the pipe line connection in such tanks as of the effective date hereof. All such oil which has then been produced in accordance with established allowables shall be and remain the property of the Interest Owner entitled thereto, the same as if the unit had not been formed; and the responsible Working Interest Owner shall promptly remove said oil from the unitized land. Any such oil not so removed shall be sold by Unit Operator for the account of such Working Interest Owners, subject to the payment of all Royalty to Royalty Owners under the terms hereof. The oil that is in excess

EXHIBIT B
To Unit Agreement
CITGO EMPIRE ABO UNIT
Eddy County, New Mexico

Tract No.	Description of Land	No. of Acres	Serial No. & Expiration Date of Lease	Basic Royalty Ownership and Percentage	Lessee of Record	Overriding Royalty Owner and Percentage	Working Interest Owner & Percentage
1	T-17S, R-27E, Sec. 35: SW/4 SE/4, SE/4 SW/4	80.00	LC-028755-A HBP	U. S. A. -ALL	Cities Service Oil Company	*Robert E. Boling-0.18750 *George Etz, Jr. -1.87500 *David W. Jamison-1.87500 *A. J. Losee-0.33750 *James F. Roberts-0.93750 *Marshall Rowley-0.18750 *Henry Russell Farms-1.87500 *Edward B. Stewart-0.22500	Cities Service Oil Company 100.00000
2	T-17S, R-27E, Sec. 35: SW/4 SW/4; NE/4 SW/4; N/2 SE/4; SE/4 SE/4	200.00	LC-057798 HBP	U. S. A. -ALL	Cities Service Oil Company	Rubye B. Griggs-1.25000 Clayton R. Fitt-0.31250 Helen Magruder Kolliker-1.25000 R. S. Magruder, Trust-1.25000 Pamela June Krueger-0.15625 Wilma Elliott Donohue-0.62500 Charles W. Froehlich, Jr. -0.15625	Cities Service Oil Company 100.00000
2 Federal Tracts		280.00					
3	T-18S, R-27E, Sec. 2: Lot 3 (NE/4 NW/4)	40.60	2029-45 HBP	State of New Mexico-12.5%	Cities Service Oil Company	(NONE)	Cities Service Oil Company 100.00000
4	T-18S, R-27E, Sec. 2: Lot 2 (NW/4 NE/4)	40.46	B-1483-21HBP	State of New Mexico-12.5%	Cities Service Oil Company	Laura Stratton Kaempf -12.50000	Cities Service Oil Company 100.00000
2 State Tracts		81.06					

* Sliding scale overriding royalty shown on maximum rate

EXHIBIT C
To Unit Agreement
CITGO EMPIRE ABO UNIT
Eddy County, New Mexico

<u>Tract Number</u>	<u>Unit Participation Percent</u>
1	27.7188
2	27.3887
<u>2 Federal Tracts</u>	<u>55.1075</u>
3	20.6049
4	24.2876
<u>2 State Tracts</u>	<u>44.8925</u>
4	100.0000

EXHIBIT D
To Unit Agreement
CITGO EMPIRE ABO UNIT
Eddy County, New Mexico

EQUAL EMPLOYMENT OPPORTUNITY PROVISION

During the performance of this contract, the Operator (meaning and referring separately to each party hereto) agrees as follows:

- (1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Operator will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment notices to be provided setting forth the provisions of this non-discrimination clause.
- (2) The Operator will, in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- (3) The Operator will send to each labor union or representative of workers with which Operator has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to Operator's books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (6) In the event of the Operator's non-compliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States.



CITIES SERVICE OIL COMPANY

Engineering Study

**CITGO EMPIRE ABO UNIT
EMPIRE ABO POOL**

EDDY COUNTY, NEW MEXICO

BEFORE EXAMINER STAMETS	
OIL CONSERVATION COMMISSION	
<u>Cities</u>	EXHIBIT NO. <u>2</u>
CASE NO. <u>5212 + 5213</u>	
Submitted by _____	
Hearing Date <u>10 Apr 74</u>	

SOUTHWEST REGION

March, 1974

ENGINEERING STUDY

CITGO EMPIRE ABO UNIT

EMPIRE ABO POOL

EDDY COUNTY, NEW MEXICO

March, 1974

Cities Service Oil Company
Southwest Region

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Field History

The Empire Abo Pool is located approximately eight (8) miles southeast of Artesia, New Mexico. It was discovered in November, 1957 and has been developed on 40-acre spacing.

Production is from a dolomitized carbonate reef of Permian age and the structure trends northeast by southwest.

The producing method has been primarily fluid expansion with a small assist from water influx.

The field contains approximately 8,993 productive acres and the original oil in place has been estimated at 466.7 MMBO.

A major portion of the field was unitized in 1973. The Unit became effective October 1, 1973 under N.M.O.C.C. Order No. R-4549 and was designated the ARCO Empire-Abo Unit Pressure Maintenance Project. The objective of the Empire Abo Unit is to increase recovery by conserving reservoir energy and to maintain pressure by injecting residue gas.

Discussion

Cities Service Oil Company is an unsigned participant in the Empire Abo Unit by virtue of either a Working Interest or an overriding royalty interest in the following:

<u>Lease</u>	<u>Unit Tract No.</u>	<u>Cities Interest %</u>
Hudson "A"	5	46.87500 WI
Hudson "B"	3	46.87500 WI
Ohio State "B"	30 & 39	25.00000 WI
State "BK"	35	47.39584 WI
Delhi Taylor State	73 C	1.17187 ORRI

Cities Service Oil Company operates four (4) 100% leases in the field which were not committed to the Unit. These leases were not committed because the reserve numbers assigned to the tracts in the Engineering Study were not correlative to producing history. The following Tabulation illustrates the problem. The October, 1970 Study showed a total primary reserves of 609,954 barrels as of January 1, 1971. During the following three (3) years, 716,079 barrels were produced. These four leases averaged a total of 508 BOPD during January, 1974.

<u>Lease</u>	<u>1-1-71 ARCO Res</u>	<u>1971 Prod.</u>	<u>1972 Prod.</u>	<u>1973 Prod.</u>	<u>Rem. Res. 1-1-74</u>
Magruder "A"	149,234	94,243	68,224	59,070	-72,303
Russell "C"	98,154	85,780	53,008	50,410	-91,044
State "CE"	216,338	50,208	53,076	52,889	60,165
Wright State "A"	<u>146,228</u>	<u>48,228</u>	<u>52,056</u>	<u>49,107</u>	<u>- 2,943</u>
	609,954	278,239	226,364	211,476	-106,125

Cities Service proposes the formation of a royalty unit composed of these four (4) leases in the Empire Abo Pool for the purpose of a supplemental recovery process by returning produced gas to the reservoir.

Studies indicate that oil recovery from these four (4) leases could be increased by 272,000 barrels by unitizing and injecting gas produced over the pool limit of 2,000 Cu.Ft/Bbl with credit for injected gas applied against the producing gas-oil ratio.

Gas injection will cease in the 16th year to coincide with operations in the Empire Abo Unit.

It is requested that oil and gas production be reported on a unit basis with full transfer privileges to permit the most efficient use of reservoir energy.

Approval is requested to drill a gas injection well to be located 990' FSL and 2640' FEL of Section 35, T17S, R27E, Eddy County, New Mexico. This location conforms to N.M.O.C.C. Order No. R-4549 applicable to the adjacent Empire Abo Unit.

The objective is to inject gas into the top of the Abo formation and produce the unit wells from deep in the oil column.

Tract Participation

The suggested Tract participation for the CITGO Empire Abo Unit is based on the following formula:

$$\text{Tract Participation} = .10 (A) + .225 (B + C + D + E)$$

Where A = The ratio of gas production from each tract to the total for all tracts during the period February 1, 1973 to July 31, 1973.

B = The ratio of gross acre feet underlying each tract to the total for all tracts as determined by the Empire Abo Field Engineering Subcommittee and shown in the report dated August, 1968.

C = The ratio of oil produced from each tract to the total from all tracts during the period February 1, 1973 to July 31, 1973.

D = The ratio of original oil in place under each tract to the total in all tracts as reported in the Field Management Study, Empire Abo Field, dated October 2, 1970.

E = The ratio of oil and gas revenue from each tract to the total from all tracts during the period February 1, 1973 to July 31, 1973.

There will be only one Phase of Unit participation. The Tract numbers, lease names and Tract participation are as follows. A detailed parameter Table is attached as Table No. 6.

<u>Tract Number</u>	<u>Lease Name</u>	<u>Tract Participation</u>
1	Russell "C"	27.3887%
2	Magruder	27.7188%
3	State "CE"	24.2876%
4	Wright State "A"	<u>20.6049%</u>
	TOTAL	100.0000%

Participation of Federal Tracts	55.1075%
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Participation of State Tracts	<u>44.8925%</u>
-------------------------------	-----------------

100.0000%

CITGO EMPIRE ABO UNIT

EMPIRE ABO FIELD

EDDY COUNTY, NEW MEXICO

Pertinent Data

Formation	Abo
Total Wells	6
Productive Acres*	208.56
Gross AF*	47,787
Net AF*	22,228
Average Depth Top Pay	-1855
Original Oil In Place*	4,449,530
Average Gross Thickness	209
Gas-Oil Contact (Original)	-1750
Original Reservoir Pressure	2,359
Bubble Point Pressure	2,231
Cumulative Oil 1-1-74	2,665,270
Remaining Reserves 1-1-74	1,184,447

3,849,717

*Field Management Study Abo Reservoir, Empire Abo Pool
Atlantic Richfield Company, Report Dated October 2, 1970

86.56 %
Recovery
a bon

Table 1

ECONOMIC PARAMETERS

Initial Oil Price	\$3.55/Bbl.
Initial Gas Price	\$.114/MCF
Oil Tax	\$.255/Bbl.
Gas Tax	\$.00576/MCF
Drill and Equip Injection Well	\$ 91,550
Compressors and Installation	\$198,390
Centralize Batteries	\$ 46,260
Install Artificial Lift	<u>\$132,000</u>
	\$468,200
Working Interest	1.000
Net Interest	.875

Table 2

CITGO EMPIRE ABO UNIT

EMPIRE ABO FIELD

EDDY COUNTY, NEW MEXICO

Summary of Economics

	<u>Primary</u>	<u>Gas Inj. Net GOR</u>	<u>Increase</u>
Gross Oil (MB)	912	1,184	272
Gross Gas (MMCF)	13,498	17,941	4,443
Gross Income (M\$)	14,603	19,876	5,273
Direct Taxes (M\$)	849	1,145	296
Operating Expense (M\$)	270	375	105
Net Lease Included (M\$)	13,484	18,356	4,872
Federal Taxes @ .48 (M\$)	4,759	6,276	1,517
Cash Production	8,726	12,080	3,354
Development Costs (M\$)	0	468	468
Net Cash Production (M\$)	8,726	11,612	2,886
Payout (BFIT), %		4,032	4,032
Payout (AFIT), %		3,921	3,921
Project Life (Yrs.)	25	25	0

Table 3

CITGO EMPIRE ABO UNIT

NET GAS-OIL RATIO

Year	Oil Production	Gas Production MM	Gas injection MM	Gas Sales MM	Net GOR
1974	127,130	621.96	-	621.96	
'75	218,715 579	1643.96	1022	621.96	2843
'76	138,564	1643.96	1022	621.96	
'77	101,912	1643.96	1022	621.96	
'78	80,758	1643.96	1022	621.96	
'79	66,938	1643.96	1022	621.96	
1980	57,186 156	1643.96	1022	621.96	10876
'81	49,929	1643.96	1022	621.96	
'82	44,315	1643.96	1022	621.96	
'83	39,841	1643.96	1022	621.96	
'84	36,191	1643.96	1022	621.96	
'85	33,156	1643.96	1022	621.96	
'86	30,596	1643.96	1022	621.96	
'87	28,398	1643.96	1022	621.96	
'88	26,498	1643.96	1022	621.96	23,472
'89	23,486	1573.56	-	1573.56	
1990	19,386	1415.18	-	1415.18	
'91	15,909	1256.81	-	1256.81	
'92	12,923	1098.46	-	1098.46	
'93	10,331	940.12	-	940.12	
'94	8,061	781.92	-	781.92	
'95	6,055	623.67	-	623.67	
'96	4,270	465.43	-	465.43	
'97	2,671	307.17	-	307.17	
'98	1,231	148.95	-	148.95	
25	1,184,447	37,837.47	14,308	17,940.67	

Table 4

CITGO EMPIRE ABO UNIT

WELL DATA

DEPTHS SUBSEA

		ELEV.	TD	PBTD	PERF.	TOP REEF	GROSS THICK.	TEST DATE	OIL	GOR	FTP
Magruder	13	3655	2185	2095	2095-2149	1924	233	2-3-74	154	3896	600
	14	3628	2074	2039	1929-1974	1767	201	2-8-74	116	4802	550
Russell	9	3623	2009	1979	1883-1929	1726	183	2-3-74	127	3748	300
	10	3614	2066	2052	1936-1986	1834	191	2-1-74	94	4936	275
State "CE"	5	3597	2167	2154	2030-2134	1882	286	Nov. '73	129	2457	300
Wright State	4	3604	2277	2139	2068-2138	1994	160	Nov. '73	124	3022	300

Table 5

PARAMETER TABLE

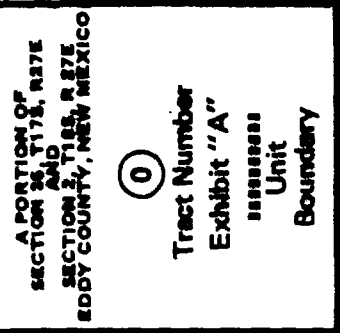
CITGO EMPIRE ABO UNIT

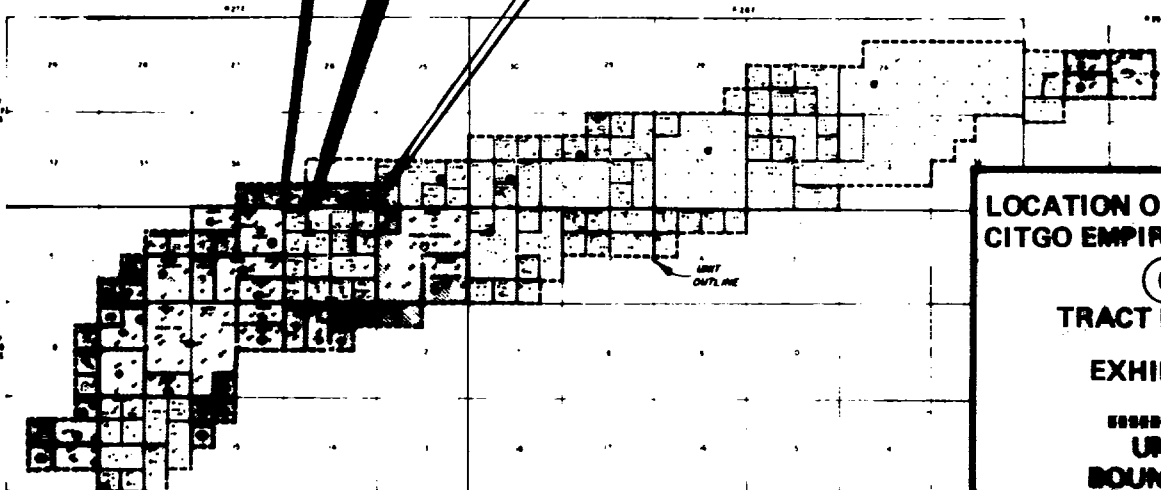
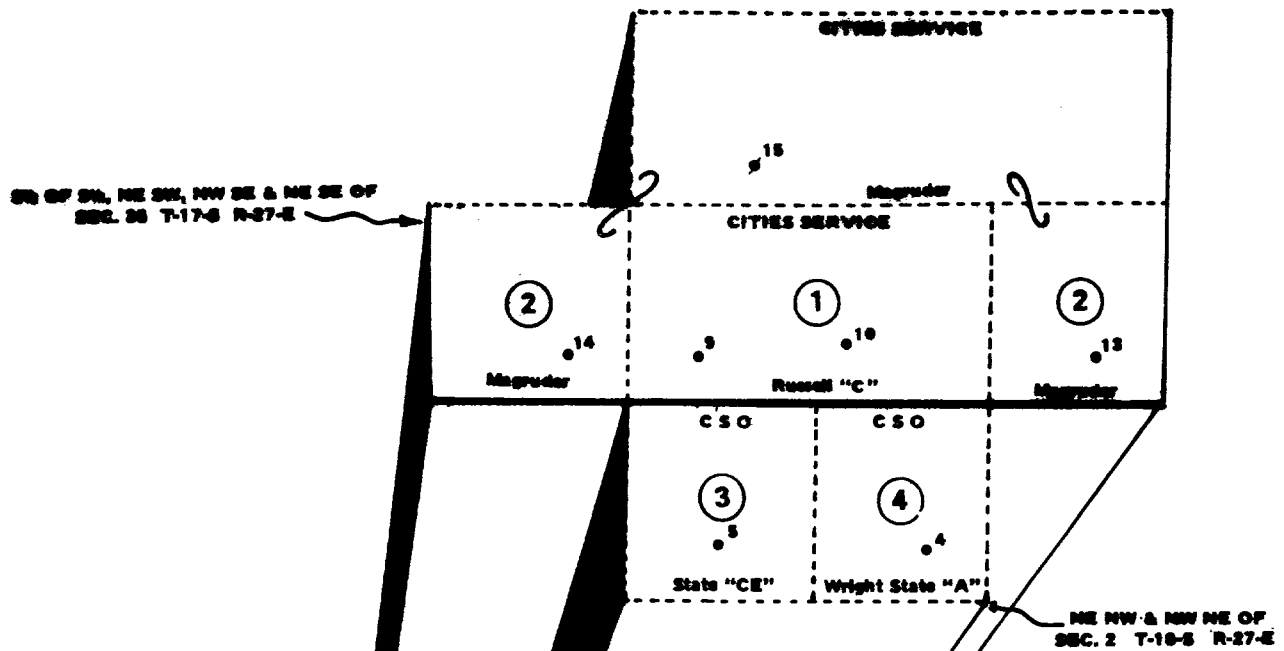
EMPIRE ABO FIELD

<u>TRACT NO.</u>	<u>LEASE NAME</u>	<u>GROSS AF</u>	<u>%</u>	<u>CUMUL OIL</u>	<u>%</u>	<u>6 MTHS OIL PROD.</u>	<u>%</u>
1	Russell "C"	12,887	26.9676	810,575	31.3239	31,989	28.2409
2	Magruder	17,010	35.5955	839,865	32.4558	29,062	25.6568
3	State "CE"	10,238	21.4242	465,562	17.9912	26,556	23.4445
4	Wright State "A"	7,652	16.0127	471,717	18.2291	25,665	22.6578
	TOTAL	47,787	100.0000	2,587,719	100.0000	113,272	100.0000

<u>TRACT NO.</u>	<u>LEASE NAME</u>	<u>6 MTHS GAS PROD.</u>	<u>%</u>	<u>6 MTHS INCOME</u>	<u>%</u>	<u>OOIP</u>	<u>%</u>
1	Russell "C"	127,082	40.8234	133,936	29.2232	852,192	19.1524
2	Magruder	79,603	25.5714	117,133	25.5570	1,113,289	25.0204
3	State "CE"	50,266	16.1730	104,867	22.8807	1,468,671	33.0073
4	Wright State "A"	54,266	17.4322	102,385	22.3391	1,015,378	22.8199
	TOTAL	311,217	100.0000	458,321	100.0000	4,449,530	100.0000

Table 6





LOCATION OF PROPOSED
CITGO EMPIRE ABO UNIT

①

TRACT NUMBER

EXHIBIT "B"

UNIT
BOUNDARY

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Gross Reef Isopach
of Oil Column
C.I. = 50'
Portion of
Empire Abo Pool
Eddy Co., New Mexico
Exhibit No. C

ENGINEERING SUBCOMMITTEE STUDY
AUGUST 1968

T
18
S

R-27-E

CITGO EMPIRE ABO UNIT
PERFORMANCE HISTORY

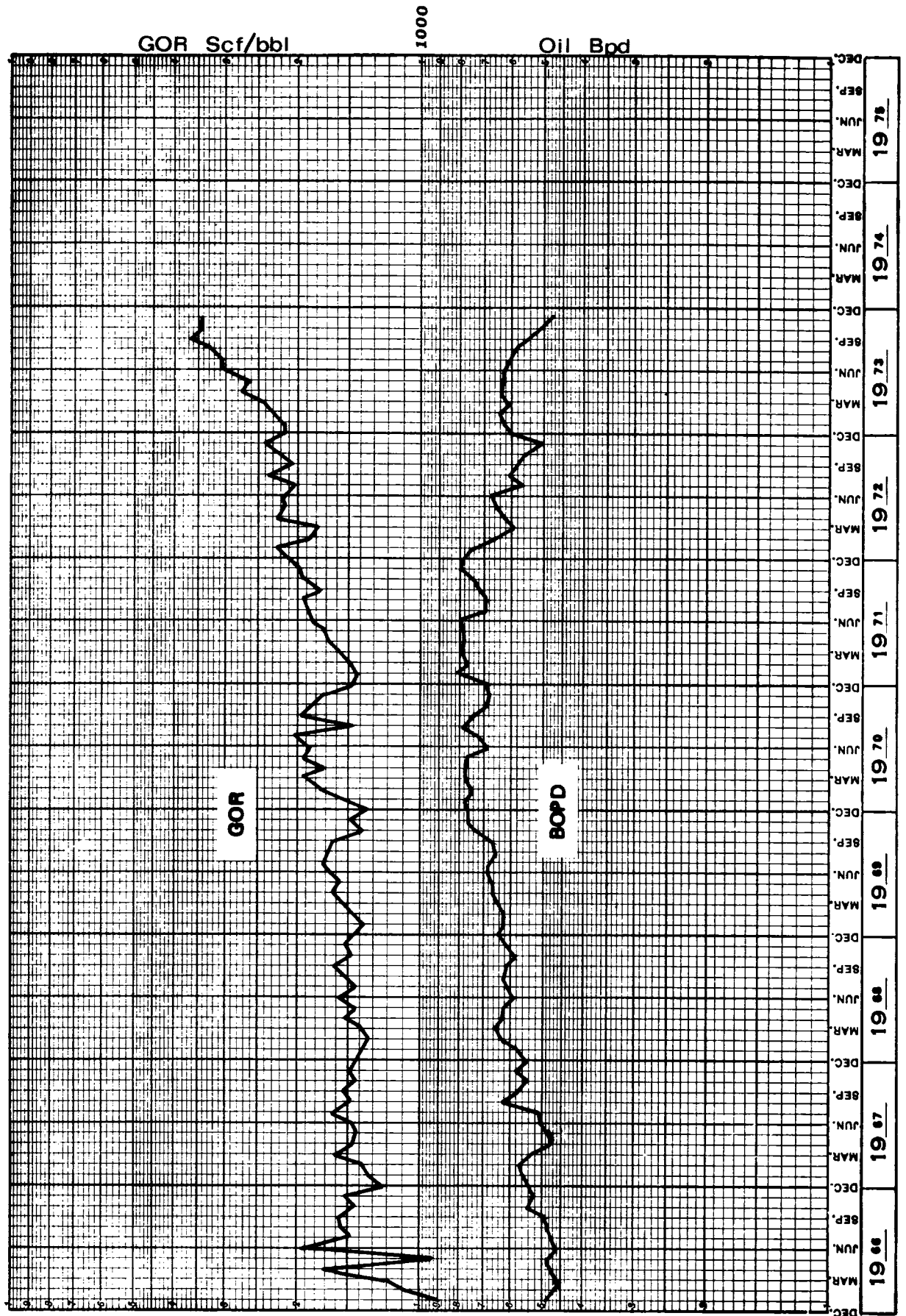
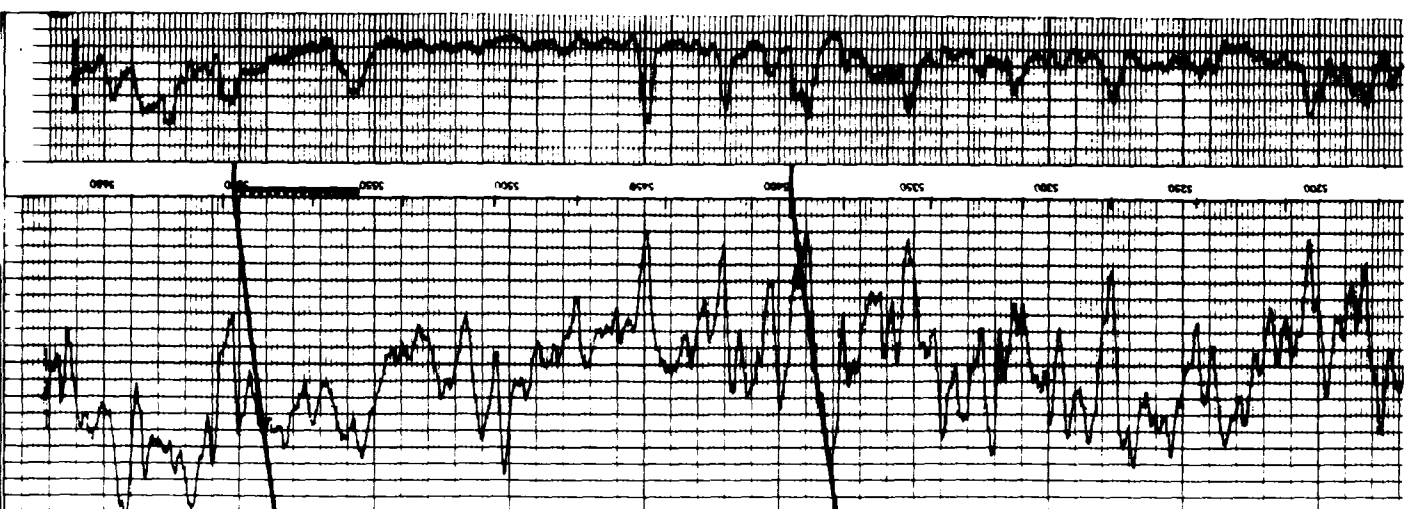
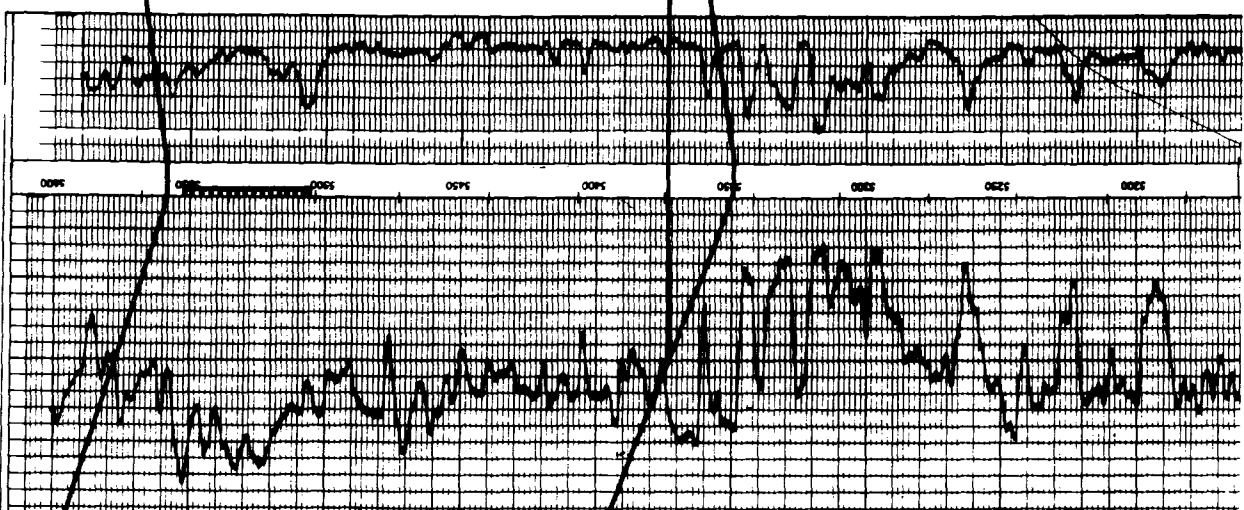


Exhibit E

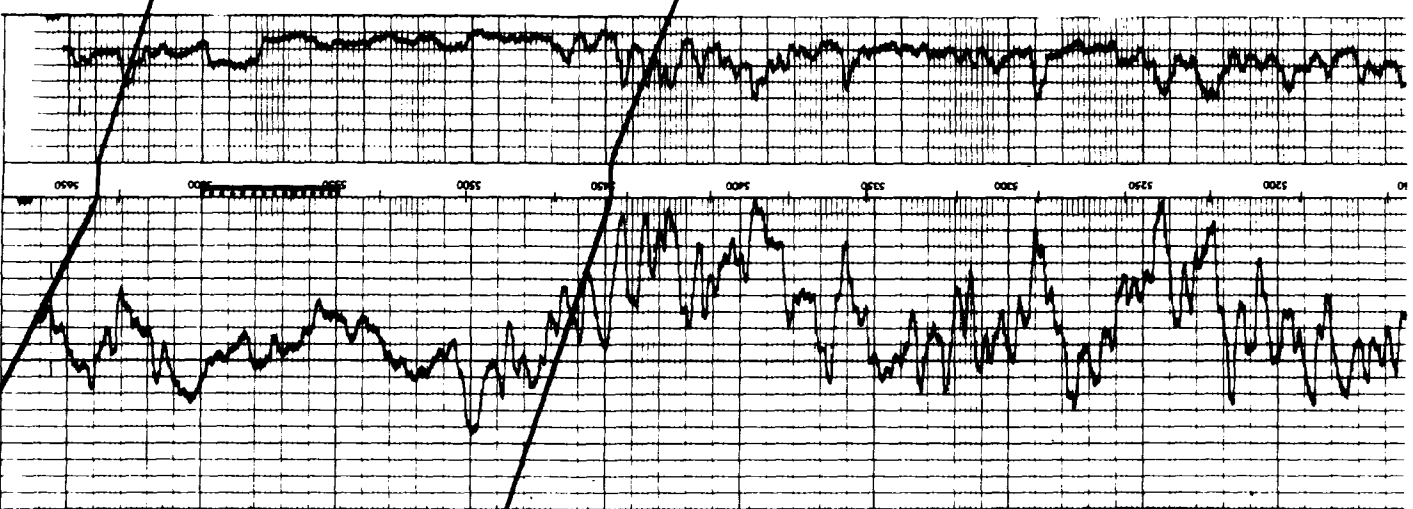
Cities Service
Magruder 14



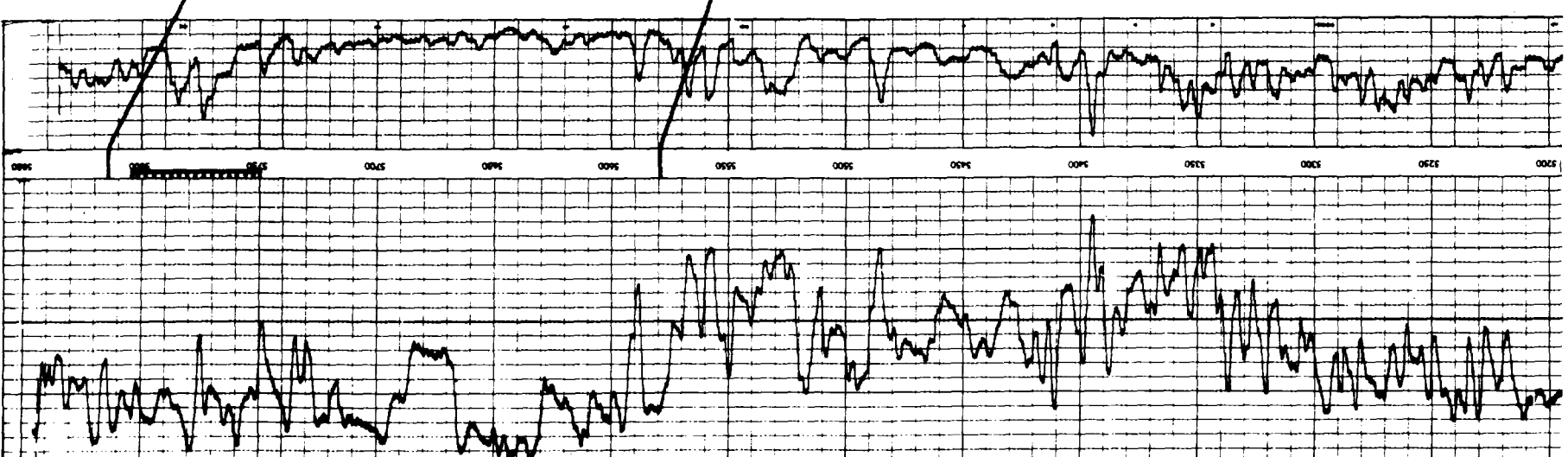
Cities Service
Russell 9



Cities Service
Russell 10



Cities Service
Magruder 13



Section A-A'
Section 35-T17S-R27E
Empire Abo Field
Eddy Co., New Mexico

Unit Name CITGO EMPIRE ABO UNIT (WATERFLOOD)
Operator Cities Service Oil Company
County Eddy

DATE	OCC CASE NO.	5212	EFFECTIVE	TOTAL	ACREAGE	STATE	FEDERAL	INDIAN-FEE	SEGREGATION	TERM
APPROVED	OCC ORDER NO.	R-4791	DATE						CLAUSE	
Commissioner: 4-11-74	May 28, 1974		8-1-74	361.06	81.06	280.00	none	Yes	5 Yrs.	

UNIT AREA

TOWNSHIP 17 SOUTH, RANGE 27 EAST NMPM
Section 35: SE/4, E/2SW/4, SW/4SW/4
TOWNSHIP 18 SOUTH, RANGE 27 EAST NMPM
Section 2: Lot 3(NW/4NW/4) Lot 2(NW/4NE/4)

Unit Name CITGO EMPIRE ABO UNIT (WATERFLOOD)
Operator Cities Service Oil Company
County Eddy

STATE TRACT NO.	LEASE NO.	INSTI-TUTION	SEC.	TWP.	RGE.	SUBSECTION	RATIFIED		ACREAGE NOT RATIFIED	LESSEE
							DATE	ACRES		
3	2029-45	C.S.	2	18S	27E	Lot 3 (NE/4NW/4)	4-3-74	40.60		Cities Service Oil Co.
4	B-1483-21	C.S.	2	18S	27E	Lot 2 (NW/4NE/4)	4-3-74	40.46		Cities Service Oil Co.

CITGO EMPIRE ABO UNIT

Eddy County, New Mexico

Gas Bank Account

"That volume of injected gas over and above 90% of the available gas shall be credited to the gas bank account each month and carried cumulatively forward. The accumulated gas bank may be applied to the injection volume during any future month in which less than 90% of the available gas is injected. The gas bank balance shall not exceed a maximum of the average monthly total injection volumes for the previous three (3) months, not including the month being reported. Available gas shall be defined as total produced gas less fuel requirements less the casinghead gas allowable authorized by the Pool Rules."

CITGO EMPIRE ABO UNIT

Example Gas Bank

Accumulation

<u>Mth</u>	<u>1</u> Gas Produced	<u>2</u> Fuel Gas	<u>3</u> Gas Limit	<u>4</u> Gas Avail.	<u>5</u> 90% of Avail.	<u>6</u> Gas Injected	<u>7</u> Bank Change	<u>8</u> Bank Acct.	<u>9</u> Bank Limit
1	139624	4898	52824	81902	73712	86800	-0-	-0-	-0-
2	126112	4424	47712	73976	66578	78400	11822	11822	28933
3	139624	4898	52824	81902	73712	86800	13088	24910	55066
4	135120	4740	51120	79280	71352	84000	12648	37558	84000
5	139624	4898	52824	81902	73712	86800	13088	50646	83067
6	135120	4740	51120	79280	71352	84000	12648	63294	85867
7	139624	4898	52824	81902	73712	86800	13088	76382	84933
8	139624	4898	52824	81902	73712	86800	13088	85866	85866
9	135120	2370	51120	81630	73467	42000	-31467	54399	85866
10	139624	2370	52824	84430	75987	42000	-33987	20412	71866
11	135120	3160	51120	80840	72756	56000	-16756	3656	56933
12	139624	4898	52824	81902	73712	86800	13088	16744	46666
1	139624	3318	52824	83482	75134	58800	-16334	410	61600
2	126112	4424	47712	73976	66578	78400	11822	12232	67200
3	139624	4898	52824	81902	73712	86800	13088	25320	74667

EXHIBIT D
To Unit Agreement
CITGO EMPIRE ABO UNIT
Eddy County, New Mexico

EQUAL EMPLOYMENT OPPORTUNITY PROVISION

During the performance of this contract, the Operator (meaning and referring separately to each party hereto) agrees as follows:

- (1) The Operator will not discriminate against any employee or applicant for employment because of race, color, religion, sex or national origin. The Operator will take affirmative action to ensure that applicants are employed, and that employees are treated during employment without regard to their race, color, religion, sex or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training including apprenticeship. The Operator agrees to post in conspicuous places, available to employees and applicants for employment notices to be provided setting forth the provisions of this non-discrimination clause.
- (2) The Operator will, in all solicitations or advertisements for employees placed by or on behalf of the Operator, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex or national origin.
- (3) The Operator will send to each labor union or representative of workers with which Operator has a collective bargaining agreement or other contract or understanding, a notice to be provided, advising the said labor union or workers' representatives of the Operator's commitments under Section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.
- (4) The Operator will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.
- (5) The Operator will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to Operator's books, records, and accounts by the administering agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.
- (6) In the event of the Operator's non-compliance with the non-discrimination clauses of this contract or with any of the said rules, regulations, or orders, this contract may be cancelled, terminated or suspended in whole or in part and the Operator may be declared ineligible for further Government contracts or federally assisted construction contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.
- (7) The Operator will include the provisions of paragraphs (1) through (7) in every subcontract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to Section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subcontractor or vendor. The Operator will take such action with respect to any subcontract or purchase order as the administering agency may direct as a means of enforcing such provisions including sanctions for non-compliance: Provided, however, that in the event the Operator becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of such direction by the administering agency, the Operator may request the United States to enter into such litigation to protect the interests of the United States.

CITGO-EMPIRE ABO UNIT**Proposed Rules Governing Operation.**

(Rules proposed by Atlantic Richfield to conform to rules in effect for the ARCO-Empire Abo Pressure Maintenance Project Area.)

1. Reservoir Voidage to be determined from a formula such as Attachment "A" to Order No. R-4549, with Table of fluid properties such as Attachment "B" to Order No. R-4549.
2. Reservoir voidage calculated by use of the formula mentioned above to be limited to no more than 1559 reservoir barrels per day, or the average 1972 reservoir voidage for the combined ARCO-Citgo Unit, apportioned to the Citgo Unit on the basis of well count.
3. The Citgo Unit be required to inject all available plant residue gas. N
4. Allowables and voidages to be nominated and transferred on an individual well basis.
5. Injected residue gas above 90% of "all available residue gas," to be used as a "gas bank" for oil allowable credit during times when mechanical problems diminish or prevent gas injection. Balancing and "zeroing" of the gas bank balance to be on an annual basis.
6. ARCO respectfully requests the Commission to investigate the possible requirement that some portion of any additional allowable be justified on the basis of percent of available residue gas actually injected, as in Rule R-4549, Finding (8) and Rule 4.
7. No well in the Citgo Project Area which directly or diagonally offsets a well not committed to the Citgo Unit producing from the same common source of supply should be allowed to produce more than two top unit allowables for the Empire Abo Pool.
8. New injection and producing wells to be located no closer than 660 feet to the outer boundary of said unit, or 10 feet to any quarter-quarter section or inner boundary, with no gas or water injection well to be located closer than 1650 feet to a tract not committed to the unit and on which is located a well producing from the same common source of supply.
9. Submittal of an annual Plan of Operation, with emphasis on corrosion control, as the injection of sour gas at high pressures can cause severe corrosion problems.

BEFORE EXAMINER STAMETS	
OIL CONSERVATION COMMISSION	
EXHIBIT NO. <u>5</u>	
CASE NO. <u>5212 & 5213</u>	
Submitted by <u>[Signature]</u>	
Hearing Date <u>4/10/74</u>	

CITGO EMPIRE ABO UNIT

Eddy County, New Mexico

Gas Bank Account

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CITGO EMPIRE ABO UNIT

Example Gas Bank

<u>Mch</u>	<u>Accumulation</u>								
	<u>1</u> Gas Produced	<u>2</u> Fuel Gas	<u>3</u> Gas Limit	<u>4</u> Gas Avail.	<u>5</u> 90% of Avail.	<u>6</u> Gas Injected	<u>7</u> Bank Change	<u>8</u> Bank Acct.	<u>9</u> Bank Limit
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2	126112	4424	47712	73976	66578	78400	11822	11822	28933
3	139624	4898	52824	81902	73712	86800	13088	24910	55066
4	135120	4740	51120	79280	71352	84000	12648	37558	84000
5	139624	4898	52824	81902	73712	86800	13088	50646	83067
6	135120	4740	51120	79280	71352	84000	12648	63294	85867
7	139624	4898	52824	81902	73712	86800	13088	76382	84933
8	139624	4898	52824	81902	73712	86800	13088	85866	85866
9	135120	2370	51120	81630	73467	42000	-31467	54399	85866
10	139624	2370	52824	84430	75987	42000	-33987	20412	71866
11	135120	3160	51120	80840	72756	56000	-16756	3656	56933
12	139624	4898	52824	81902	73712	86800	13088	16744	46666
1	139624	3318	52824	83482	75134	58800	-16334	410	61600
2	126112	4424	47712	73976	66578	78400	11822	12232	67200
3	139624	4898	52824	81902	73712	86800	13088	25320	74667