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AMERADA PETROLEUM CORPORATION
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May 27, 1954

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

Attention: Mr. W. B. Macey

Gentlemen:

Transmitted herewith are photostatic copies of Amerada Exhibits Nos. 7, 8 and 9, submitted in Case No. 673 held on May 10 and 11, 1954.

Permission was granted to furnish these in lieu of the originals.

Thank you for this courtesy.

Yours very truly,

R. S. Christie

R. S. Christie

RSC:mt
enclosures

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF THE OIL CONSERVATION COMMISSION UPON ITS OWN MOTION FOR AN ORDER AMENDING, REVISING, OR ABROGATING EXISTING RULES AND REGULATIONS OF THE OIL CONSERVATION COMMISSION AND/OR PROMULGATING ADDITIONAL RULES AND REGULATIONS, RELATING TO GAS POOL DELINEATION, GAS PRORATION, AND OTHER RELATED MATTERS, AFFECTING OR CONCERNING THE JALCO, LANGMAT, EUMONT AND ARROW GAS POOLS, LEA COUNTY, NEW MEXICO.	Case No. 673

BRIEF OF AMERADA PETROLEUM CORPORATION

Harry D. Page

John A. Woodward

Attorneys

PRELIMINARY STATEMENT

Amerada Petroleum Corporation is interested in Case 673 as a producer of gas and oil from the Eumont, Jalco and Langmat gas pools and from the Monument, Eunice, Falby-Yates, and Langlie-Mattix oil pools in Lea County, New Mexico, as presently delineated by the Commission.

It is Amerada's contention that the production of natural gas from the gas wells and from the gas pools included within the call of this hearing is in excess of the reasonable market demand for the types of gas produced from such wells and pools, that such production is defined as waste by Section 2(e), Chap. 168, Laws of New Mexico 1949, and that gas proration orders are necessary to prevent such waste. It is also contended that the unrestrained dissipation of reservoir gas energy from oil wells and oil pools constitutes waste as defined by Section 2(a) of said Chapter and that a limiting gas/oil ratio should be placed on production from oil wells and oil pools for the prevention of such waste. It is further contended that the flaring or blowing into the air of natural gas without beneficial use constitutes waste as defined by Sec. 2(b) of said Chapter and that a "no flare" order is necessary to prevent such waste.

At this time Amerada is offering testimony with respect to the delineation of separate common sources of supply of oil and gas within the area covered by the call of this hearing and some rules it deems necessary for prevention of waste in this area.

It should be understood that we are not undertaking a definitive listing of separate common sources. Our testimony should in no way negative

the existence of geologic separations in addition to those we will seek to establish. It should also be understood that some of our recommendations are designed to cover the various fact situations the Commission may find existing in this area and should not be construed as a contention that all such situations do, in fact, exist.

POOL DELINEATION

Amerada's first witness is Mr. John A. Veeder, a geologist who is qualified to testify as an expert witness in this matter. The substance of his testimony is:

1. The top of the Penrose Sand is a clearly identifiable geological marker, continuous throughout the area covered by the Eumont Gas Pool, which has been used in picking the tops of the Whitehorse formations and in correlating them from well to well as shown on Exhibits 2 through 5.

2. An impervious zone below the base of the Penrose separates the gas production in the Whitehorse Sands from the oil production in the Grayburg and San Andres formations.

3. These pools should be delineated vertically by reference to the impervious zone below the base of the Penrose and not by some arbitrary reference to sea level.

4. The lateral limits of production below the base of the Penrose to the south is the point at which the Grayburg dips below the water/oil contact.

5. Above the base of the Penrose, the Queens formation is the only Whitehorse sand having continuous porosity and permeability within the outlines of the Eumont Gas Pool.

6. Six dry holes drilled to the Queens in the saddle between the Eunice and South Eunice Fields indicate lateral separation in the Whitehorse formations north and south of the saddle.

7. There are indications of at least three separate common sources of supply in the area covered by Case 673: The Grayburg oil pool below the base of the Penrose and north of the water/oil contact; the gas pool above the base of the Penrose and north of the saddle; and the Whitehorse production south of the saddle.

The next witness for Amerada is Mr. R.S. Christie, who is a petroleum engineer and is qualified as an expert witness with respect to the subject matter of Case 673. The substance of his testimony is:

1. Bottom hole pressures above the base of the Penrose are uniform down to the saddle between the Eunice and South Eunice Fields and are generally higher than the pressures below the base of the Penrose which are erratic.

2. The overall difference in pressure above and below the base of the Penrose and the different curve that is plotted for these pressures confirms the vertical separation by reason of an impervious zone below the base of the Penrose noted by Mr. Veeder in his testimony above.

3. The cumulative withdrawals of gas from the Whitehorse formations above the base of the Penrose from the area south of the saddle between the Eunice and South Eunice Fields is substantially greater than the production north of the saddle.

4. Yet pressure curves for these formations plotted across the saddle show an abrupt increase and an immediate leveling off upon entering the Eumont Pool.

5. The dry holes in the saddle were drilled to water or tested dry in the Queens, although they made some gas in the Yates and Seven Rivers.

6. Assuming geological evidence that the Queens is the only formation of continuous porosity and permeability underlying the Eumont Pool, that the Queens is not productive in the saddle, and that decided pressure differentials exist on either side of the saddle notwithstanding disproportionate withdrawals, it is unlikely that drainage or communication of gas across the saddle has occurred in substantial quantities, if at all, during the last 25 years.

WASTE AND CORRELATIVE RIGHTS

For substantial evidence of waste in the record of Case 673, and Case 582 as incorporated therein, reference is made to the testimony of:

1. Stanley J. Stanley, the January hearing in Case 582 at page 126 et seq., with respect to the relationship between the allowable for residue gas in Texas and the market for dry gas in the Jal area of New Mexico indicating, at least seasonally, the capacity of wells in the Jalco area to produce in excess of Market demand.

2. Stanley J. Stanley, the January hearing in Case 582 at page 136 et seq., with respect to the possibility of underground waste of oil in the Cooper-Jal area resulting from excessive production of gas cap gas.

3. R.D. Grimm, the February hearing in Case 582 at page 13 et seq., with respect to the underground waste of gas resulting from disproportionate withdrawals from different portions of the same gas reservoir.

4. R.D. Grimm, the February hearing in Case 582 at page 29 from Phillips' Exhibit 4 showing the volume of natural gas vented from New Mexico gasoline plants which process casinghead and gas well gas in 1953.

5. R.D. Grimm, the February hearing in Case 582 at page 29 to the effect that productive capacity in the area covered by Case 673 is 7-10 times greater than the capacity of present gas transportation facilities.

6. R.D. Grimm, the February hearing in Case 582 at page 38 in connection with the surface waste of gas by venting and flaring it in the field.

7. G.E. Trimble, the March hearing in Case 673 at page 57 in connection with the venting of gas from a gas trnasmission facility in the Langmat Pool.

For substantial evidence of prejudice to correlative rights in the record of Case 673, and Case 582 as incorporated therein, reference is made to the testimony of:

1. Stanley J. Stanley, the January hearing in Case 582 at page 138, et seq., with respect to disproportionate withdrawals of gas from adjacent leases in the Langmat Pool.

2. R.D. Grimm, the February hearing in Case 582 at page 16 et seq., with respect to the adjustment in disproportionate withdrawals in the Jalco, Arrow, Langmat, and Eumont Pools during 1953 that would result from gas prorationing.

3. R.D. Grimm, the February hearing in Case 582 at page 20 et seq., with respect to disproportionate withdrawals in the Jalco Pool.

4. R.D. Grimm, the February hearing in Case 582 at page 22 et seq., with respect to the number of wells that have secured pipe line connections as the result of gas prorationing.

5. G.E. Trimble, the March hearing in Case 673 at page 54 et seq., with respect to disproportionate withdrawals and drainage from and to adjacent leases in the Langmat Pool.

RECOMMENDATIONS

For the prevention of waste and protection of correlative rights in pools coming within the call of Case 673, it is recommended that:

1. Orders substantially in the form of R-368 to R-371 be adopted for the Eumont, Arrow, Langmat and Jalco Pools, but with some provision made for proration units up to 640 acres and for the establishment of unorthodox units upon waivers by offset operators.

2. A limiting GOR of approximately 6000 to 1 be placed on production of oil from all oil pools as designated by the Commission.

3. Production from oil wells located in a gas pool as designated by the Commission be covered by a State-wide rule providing that:

> "The unit allowable for gas shall be increased 2000 cu. ft. per barrel of oil produced from oil wells located on the unit and completed in the gas pool for which such unit is established, and such oil wells shall be permitted to produce the entire unit allowable for gas, provided their production of oil does not exceed the top unit oil allowable for such well as determined by Rule 505."

4. The Commission adopt a "no flare" order applicable to the production of dry gas, casinghead gas, and gas cap gas from the pools within the call of Case 673.

5. A gas well be defined in the State-wide rules as a well producing 100,000 cubic feet of gas or more to each barrel of oil produced.