

**STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION**

**IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
DIVISION FOR THE PURPOSE OF
CONSIDERING:**

**Case No. 11109
Order No. R-4549-I**

**APPLICATION OF ARCO PERMIAN, A UNIT
OF ATLANTIC RICHFIELD, FOR AMENDMENT
OF THE SPECIAL RULES AND REGULATIONS
FOR THE EMPIRE-ABO UNIT PRESSURE
MAINTENANCE PROJECT TO PERMIT PARTIAL
GAS SALES, EDDY COUNTY, NEW MEXICO.**

ORDER OF THE DIVISION

BY THE DIVISION:

This cause came on for hearing at 8:15 a.m. on September 29, 1994, at Santa Fe, New Mexico, before Examiner David R. Catanach.

NOW, on this 21st day of November, 1994, the Division Director, having considered the testimony, the record, and the recommendations of the Examiner, and being fully advised in the premises,

FINDS THAT:

(1) Due public notice having been given as required by law, the Division has jurisdiction of this cause and the subject matter thereof.

(2) By Order No. R-4549 issued in Case No. 4953 on June 15, 1973, the Division authorized Atlantic Richfield Company, predecessor to ARCO Permian, a Unit of Atlantic Richfield (ARCO Permian), to institute a pressure maintenance project in its Empire Abo Unit, located in portions of Townships 17 and 18 South, Ranges 27, 28 and 29 East, NMPM, Eddy County, New Mexico.

(3) The Empire-Abo Unit, currently operated by ARCO Permian, is governed by Special Rules and Regulations as promulgated by Division Order No. R-4549, as amended, whereby reservoir voidage is controlled and the unit operated in the following described manner:

Dry gas, which is produced and stripped of natural gas liquids, is reinjected in wells located high on the reef structure. The reinjected gas sweeps natural gas liquids from the reservoir and is produced in wells located down structure on the reef.

(4) The applicant, ARCO Permian, seeks amendment of the Special Rules and Regulations for the Empire-Abo Unit Pressure Maintenance Project to authorize partial sales of project gas and to revise the reporting requirements contained in these rules.

(5) Yates Petroleum Corporation appeared at the hearing through legal counsel but no offset operator and/or interest owner appeared at the hearing in opposition to the application.

(6) The evidence presented by ARCO Permian establishes that:

- (a) The Empire-Abo Unit Pressure Maintenance Project has reached the point in its producing life where blow down of the project is necessary, on a controlled basis, to maximize the total recovery of energy from this reservoir;
- (b) At this stage in the producing life of this pressure maintenance project, consumption and sales of at least thirty percent (30%) of the produced gas can be made without impairing the efficiency of project operations and after 1994 the gas sales may be increased, thereby reducing the available residue gas for reinjection into the reservoir;
- (c) The unit operator should be authorized to increase gas sales following notice of increased sales to the working interest owners and gasoline plant operator in accordance with the provisions of the Empire-Abo Unit Agreement;
- (d) During times of mechanical failure or operational difficulty at the unit owned and operated Empire-Abo Unit Gas Injection Plant, there should be additional flexibility to allow additional gas sales; and,
- (e) Commencement of partial gas sales from the project area at this time will result in the maximum recovery of energy from the project area.

(7) Approval of the proposed amendments to the Special Rules and Regulations for the Empire-Abo Unit Pressure Maintenance Project will provide ARCO Permian the flexibility needed to maximize the recovery of energy from the reservoir during the remaining life of this pressure maintenance project.

(8) ARCO Permian also requested the amendment of the Special Rules and Regulations for the Empire-Abo Unit Pressure Maintenance Project to eliminate the requirements for:

- (a) an "Empire-Abo Unit Pressure Maintenance Project Monthly Report", as required by Rule Nos. 4(E) and 6; and,
- (b) nominations for unit allowables as required by Rule No. 5.

(9) The testimony demonstrated that the Division has not required the operator to file these reports for several years and that these amendments would conform the rules to actual Division practice.

(10) The Application of ARCO Permian for amendment of the Special Rules and Regulations for the Empire-Abo Unit Pressure Maintenance Project to permit partial gas sales and eliminate certain reporting requirements will increase the recovery of energy from the project area thereby preventing waste, will otherwise be in the best interest of conservation and the protection of correlative rights and should be granted.

(11) For purpose of efficiency, the Special Rules and Regulations for the Empire-Abo Unit Pressure Maintenance Project, as promulgated and amended by Division Order Nos. R-4549 through R-4549-H, should be consolidated by this order.

IT IS THEREFORE ORDERED THAT:

(1) The application of ARCO Permian for amendment of the Special Rules and Regulations of the Empire-Abo Unit Pressure Maintenance Project to permit partial gas sales and to eliminate certain reporting requirements is hereby granted.

(2) The Special Rules and Regulations for the Empire-Abo Unit Pressure Maintenance Project, Eddy County, New Mexico, as promulgated by Division Order No. R-4549, as amended, are hereby amended and consolidated as follows:

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**SPECIAL RULES AND REGULATIONS
FOR THE
EMPIRE-ABO UNIT PRESSURE MAINTENANCE PROJECT**

RULE 1. The project area of the ARCO Empire-Abo Unit Pressure Maintenance Project, hereinafter referred to as the Project, shall comprise the area described as follows:

TOWNSHIP 17 SOUTH, RANGE 27 EAST, NMPM

Section 34: S/2 SE/4
Section 36: S/2

TOWNSHIP 17 SOUTH, RANGE 28 EAST, NMPM

Section 25: S/2, S/2 N/2
Section 26: S/2, S/2 NE/4, SE/4 NW/4
Section 27: S/2
Section 31: S/2, S/2 N/2
Section 32: S/2, NE/4, S/2 NW/4, NE/4 NW/4
Section 33: S/2, NE/4, S/2 NW/4, NE/4 NW/4
Section 34: All
Section 35: N/2, N/2 S/2
Section 36: N/2 NW/4, SW/4 NW/4

TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM

Section 29: S/2 NW/4, N/2 SW/4
Section 30: SW/4, S/2 N/2, N/2 SE/4

TOWNSHIP 18 SOUTH, RANGE 27 EAST, NMPM

Section 1: All
Section 2: S/2, NE/4 NE/4, SW/4 NE/4, S/2 NW/4, NW/4 NW/4
Section 3: All
Section 4: SE/4, S/2 NE/4, S/2 SW/4, NE/4 SW/4
Section 8: E/2 SE/4, SE/4 NE/4
Section 9: All
Section 10: W/2, NE/4
Section 11: NW/4, W/2 NE/4, NE/4 NE/4
Section 15: N/2 NW/4, SW/4 NW/4
Section 16: N/2, SW/4, N/2 SE/4, SW/4 SE/4
Section 17: S/2 NE/4, NE/4 NE/4, SE/4 NW/4, NE/4 SW/4, N/2 SE/4

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TOWNSHIP 18 SOUTH, RANGE 28 EAST, NMPM

Section 4: N/2 N/2, SW/4 NW/4
Section 5: NE/4, N/2 NW/4, SE/4 NW/4
Section 6: N/2, N/2 S/2, SW/4 SE/4, SE/4 SW/4

RULE 2. The allowable for the Project shall be the sum of the allowables of the several wells within the project area, including those wells which are shut in, curtailed, or used as injection wells. Allowables for all wells shall be determined in a manner hereinafter prescribed.

RULE 3. The maximum daily project allowable shall be an amount of oil which will result in monthly average associated gas production of no more than 65 MMCF per day.

For the purpose of these rules, "Available Residue Gas" shall be defined as being all gas produced from the unitized formation less plant shrinkage, plant fuel, lease fuel required for operation of the lease and gas sales.

RULE 4. Gas injection will include all Available Residue Gas.

In addition to the injection of Available Residue Gas, the project operator may inject up to and including 35 million cubic feet of extraneous gas per day into the Abo formation underlying the project area.

Withdrawals of said extraneous gas may be made, pending reservoir blow down, as follows:

- (a) During each of the winter seasons (November 1 through March 31) of 1990 through 1996, a volume of gas not to exceed 300,000 MCF may be withdrawn, provided that the volume of extraneous gas withdrawn shall be replaced during the next succeeding summer season (April 1 through October 31) at a rate not to exceed 2,300 MCFD.
- (b) During each of the winter seasons (November 1 through March 31) of 1996 through 1998, a volume of gas not to exceed 800,000 MCF may be withdrawn, provided that the volume of extraneous gas withdrawn shall be replaced during the next succeeding summer season (April 1 through October 31) at a rate not to exceed 5,500 MCFD.

- (c) In addition to complete replacement of the volumes of extraneous gas withdrawn during the immediately preceding winter season, an additional volume of gas shall be injected during each summer season equal to 12% of the volume withdrawn during the immediately preceding winter season to compensate the Empire Abo Unit for any fuel used, shrinkage or metering errors.
- (d) No extraneous gas may be withdrawn during a winter season until all gas withdrawn during preceding winter seasons is replaced plus the additional 12% volume required by Paragraph C of this rule.
- (e) The provisions of Paragraphs 4 (A) through 4 (D) shall be of no further effect on the date the Pressure Maintenance Project ceases or November 1, 1998, whichever occurs first.

The project operator shall establish and maintain an "Extraneous Gas Bank Statement" which shall show thereon each month the volume of extraneous gas injected, the cumulative volume of such gas injected, the volume of gas withdrawn and delivered back to the supplier of extraneous gas and the net cumulative extraneous gas bank.

RULE 5. The allowables assigned shall result in production of casinghead gas averaging not more than 65 MMCF per day for the month, provided however, that on a cumulative basis, the unit operator may carry gas overproduction of 325 MMCF. At least 70% of the produced gas will be "available residue gas" for the remainder of 1994. After 1994 the unit operator may elect to increase gas sales by decreasing the per cent (%) of produced gas required to be available residue gas. The unit operator will notify the working interest owners and gasoline plant operators at least 30 days in advance of such election.

During times of mechanical failure or operational difficulty at the unit owned and operated Empire Abo Unit Gas Injection Plant an additional allowable will exist for gas sales, based on the plant's expected run time of 95%. The allowable will consist of all gas sales associated with the produced gas rate of 65 MMCFD for 5% of the year ($365 \times 65 \times 0.05 = 1186$ MMCF). This allowable will only be used during times of mechanical failure or operational difficulty or scheduled maintenance.

No producing well in the project area which directly or diagonally offsets a well not committed to the unit, and producing from the same common source of supply, shall receive an allowable or produce in excess of two times the top unit allowable for the pool.

RULE 6 (a). The Director of the Division is hereby authorized to approve such additional producing wells and gas injection and water injection wells at orthodox and unorthodox locations within the boundaries of the ARCO Empire Abo Unit Area as may be necessary to complete an efficient production and injection pattern, provided said wells are drilled no closer than 660 feet to the outer boundary of said unit nor closer than 10 feet to any quarter-quarter section or subdivision inner boundary and provided that no well shall be approved for gas or water injection when such well is located closer than 1650 feet to a tract which is not committed to the unit and on which is located a well producing from the same common source of supply. To obtain such approval, the project operator shall file proper application with the Division Director, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

- (1) A plat identifying the lands committed to the unit agreement and those lands not committed to said agreement, and showing the location of the proposed well, all wells within the unit area, and offset operators.
- (2) A schematic drawing of the proposed well which fully describes the casing, tubing, perforated interval, and depth.
- (3) A letter stating that all offset operators to the proposed well have been furnished a complete copy of the application and the date of notification.

RULE 6 (b). The Director of the Division is hereby authorized to approve the drilling of "horizontal drainholes" for the purposes of production or injection within the boundaries of the ARCO Empire Abo Unit Area as may be necessary to complete an efficient production and injection pattern, provided no perforated or openhole portion of said wells shall be closer than 330 feet to the outer boundary of said unit or to any tract not committed to such unit nor, in the case of a well to be used for injection closer than 1650 feet to such boundary or tract. To obtain such approval, the project operator shall file proper application with the Division Director, which application, if it seeks authorization to convert additional wells to injection or to drill additional production or injection wells shall include the following:

- (1) A plat identifying the lands committed to the unit agreement and those lands not committed to said agreement, and showing the location of the proposed well, all wells within the unit area, and offset operators.
- (2) Schematic drawings of the proposed well which fully describes the casing, tubing, perforated or openhole interval, kick-off point, and proposed trajectory of the drainhole section.
- (3) A letter stating that all offset operators to the proposed well have been

furnished a complete copy of the application and the date of notification.

RULE 6 (c). The Director may approve the proposed well if, within 20 days after receiving the application, no objection to the proposal is received. The Director may grant immediate approval, provided waivers of objection are received from all offset operators.

RULE 6 (d). Within 20 days following completion of any horizontal drainhole the operator shall submit a report to the Division Director with sufficient detail to locate the kick-off point and the trajectory of the deviated portion of the wellbore with respect to any quarter-quarter section(s) penetrated by such well and any 40-acre tract directly or diagonally offsetting such quarter-quarter section (s).

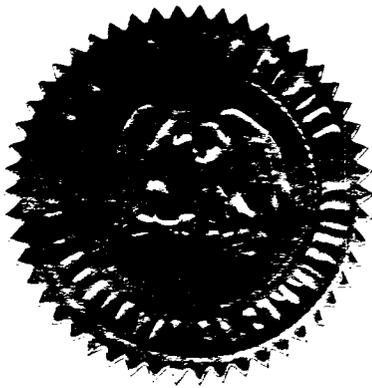
The Director may approve the final location of the horizontal drainhole by acceptance of such report.

The Director may rescind the authority for any horizontal drainhole if the perforated or openhole portion of such hole is located closer to the unit boundary or any uncommitted tract than permitted by these rules or if it should appear that such rescission is necessary to prevent waste or protect correlative rights.

RULE 7. Expansion or contraction of the project area may be approved by the Director of the Division administratively when good cause is shown therefor.

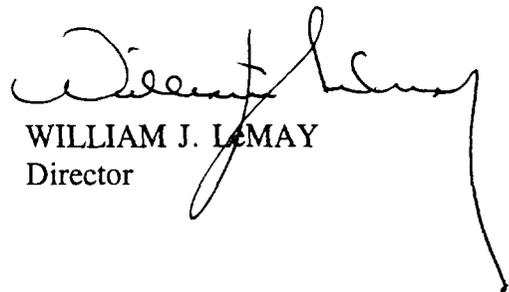
(3) Jurisdiction of this cause is retained for the entry of such further orders as the Division may deem necessary.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.



S E A L

STATE OF NEW MEXICO
OIL CONSERVATION DIVISION


WILLIAM J. LEMAY
Director