

BEFORE THE  
OIL CONSERVATION DIVISION  
NEW MEXICO DEPARTMENT OF ENERGY, MINERALS AND NATURAL RESOURCES

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

CASE NO. 4953

**APPLICATION**

ARCO PERMIAN, A UNIT OF ATLANTIC RICHFIELD, ("ARCO"), hereby makes application for amendment of the Special Rules and Regulations for the Empire-Abo Pressure Maintenance Project promulgated by Order No. R-4549, as amended, to permit partial gas sales and in support thereof states:

1. ARCO is the operator of the Empire-Abo Pressure Maintenance Project in the Empire Abo Pool located in Eddy County, New Mexico which was approved by Division Order No. R-4549 in Case No. 4953 on June 15, 1973.

2. The Project Area has been expanded from time to time and now includes the following acreage in the Empire-Abo Pool:

**TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.**

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

**TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.**

|             |                          |
|-------------|--------------------------|
| 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, NE/4 NW/4            |

**TOWNSHIP 17 SOUTH, RANGE 29 EAST, N.M.P.M.**

|             |                         |
|-------------|-------------------------|
| 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, N.M.P.M.**

|             |   |
|-------------|---|
| 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 |

**TOWNSHIP 18 SOUTH, RANGE 28 EAST, N.M.P.M.**

|            |                                    |
|------------|------------------------------------|
| 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 |

3. In the Empire-Abo Pressure Maintenance Project, ARCO is authorized to inject gas into the Abo formation in specific wells under a plan where reservoir voidage is controlled, the gas and liquids are produced by production wells located down structure on the reef and the produced gas is then stripped of natural gas liquids and the "dry" gas reinjected into the Abo formation in gas injection wells located high on the reef structure to thereby sweep the natural gas liquids from the reservoir.

4. At this stage in the producing life of this pressure maintenance project, sales of natural gas equal to at least 30% of the produced gas can be made without impairing the efficiency of project operations.

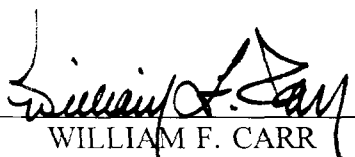
5. The Special Rules and Regulations for the Empire-Abo Pressure Maintenance Project should be amended, as set out on Exhibit "A" to this application, to authorize partial sales of project gas and to provide for revisions in reporting requirements for project production consistent with this new authorization for gas sales.

6. Approval of this application will not cause waste and is otherwise in the best interest of conservation and the protection of correlative rights.

WHEREFORE, ARCO requests that this application be set for hearing before a duly appointed Examiner of the Oil Conservation Division on September 29, 1994, and that, after notice and hearing as required by law and the rules of the Division, this application be granted.

Respectfully submitted,

CAMPBELL, CARR, BERGE  
& SHERIDAN, P.A.

By:   
WILLIAM F. CARR  
Post Office Box 2208  
Santa Fe, New Mexico 87504  
Telephone: (505) 988-4421

ATTORNEYS FOR ARCO PERMIAN  
A UNIT OF ATLANTIC RICHFIELD

## **Exhibit A**

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, N.M.P.M.**

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

### **TOWNSHIP 17 SOUTH, RANGE 27 EAST, N.M.P.M.**

|             |                                |
|-------------|--------------------------------|
| 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, NE/4 NW/4            |

### **TOWNSHIP 17 SOUTH, RANGE 29 EAST, N.M.P.M.**

|             |                         |
|-------------|-------------------------|
| 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, N.M.P.M.**

|             |   |
|-------------|---|
| 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 |

**TOWNSHIP 18 SOUTH, RANGE 28 EAST, N.M.P.M.**

|            |                                    |
|------------|------------------------------------|
| 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. That 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, and ~~lease fuel required for operation of the lease gas sales.~~

Rule 4. Gas injection will include all Available Residue Gas less lease fuel ~~shall be reinjected. No raw gas nor plant residue gas attributable to the project shall be sold or otherwise disposed of by any other means.~~

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 withdrawal 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 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 be filed with the Division each month concurrently with the project operators "Empire Abo Pressure Maintenance Project Monthly Report", and~~ 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. ~~Allowables shall be assigned to unit wells in accordance with nominations submitted by the unit operator during the months of March, July, and November of each year. That such nominations shall accompany the Pressure Maintenance Project Operator's Report filed for that month.~~

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.

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 plants expected run time of 95%. The allowable will consist of all gas sales associated with the produced gas rate of 65 MMCPFD for 5% of the year ( $365 \times 65 \times .05 = 1186$  MMCF). This allowable will only be used during times of mechanical failure or operational difficulty or scheduled maintenance.

That 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. ~~Each month the project operator shall submit to the Division a Pressure Maintenance Project Operator's Report on a form prescribed by the Division. The report shall show all project wells, production of oil, gas, and water, volumes of water residue gas, and extraneous gas injected; total production of oil, gas and water, and such other data as the Division may require.~~

~~Rule 7.~~ Rule 6. The Director of the Division is hereby authorized to approve such additional producing wells and gas 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 any outer boundary of said unit nor closer than 10 feet to any quarter-quarter section or 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 7. B.~~ 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 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 open-hole 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 7. C.~~ 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 7. D.~~ 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 well bore 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 8.~~ 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.