

JASON W. KELLAHIN  
ROBERT E. FOX

KELLAHIN AND FOX  
ATTORNEYS AT LAW  
54½ EAST SAN FRANCISCO STREET  
POST OFFICE BOX 1713  
SANTA FE, NEW MEXICO

TELEPHONES  
3-9396  
2-2266

February 28, 1958

*Set for Apr 16<sup>th</sup>  
Reg. hearing*

New Mexico Oil Conservation Commission  
Post Office Box 871  
Santa Fe, New Mexico

Re: Application - Caulkins  
Oil Company.

Gentlemen:

I am enclosing a copy of the application  
for adoption of pool rules for the South Blanco  
Tocito Oil Pool in connection with the above  
company.

Very truly yours,

*Jason W. Kellahin*

Jason W. Kellahin

JWK:j  
enc

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION  
OF CAULKINS OIL COMPANY FOR AN  
AMENDMENT OF ORDER NO. R-326  
BEING THE POOL RULES FOR THE  
SOUTH BLANCO-TOCITO OIL POOL,  
RIO ARriba COUNTY, NEW MEXICO.

Case No. \_\_\_\_\_

APPLICATION

Comes now Caulkins Oil Company, an operator in the South Blanco-Tocito Oil Pool, Rio Arriba County, New Mexico, and applies to the Oil Conservation Commission of New Mexico, hereinafter referred to as "Commission", for an order amending the South Blanco-Tocito Pool Rules as set forth in Commission Order No. R-326, in accordance with the provisions of Orders Numbered R-349 and R-532, to provide for a system of transferring allowables within the water injection project maintained by operator, and to provide credit under gas-oil ratio limitations, for water injected under said program, all as set forth in proposed rules attached hereto, marked "Exhibit A", and made a part hereof, and in support thereof would show the Commission:

1. That this applicant is the operator of a water injection program approved by the Commission, which project is affected by present proration rules in effect in the South Blanco Tocito Oil Pool.

2. That the rules and regulations under which the Commission is presently prorationing the production of oil from the South Blanco-Tocito Oil Pool results in waste, and impairs correlative rights, and special rules should be instituted by the Commission for said pool.

3. That in order to prevent waste and protect correlative rights, provision should be made for the transfer of allowables from certain wells within the pool and for the adoption of a net gas-oil ratio rule with credit being given for net water injected into the reservoir.

4. That efficiency of water injection pressure maintenance program and the ultimate recovery of hydrocarbons from the South Blanco-Tocito Pool can be increased and the administrative burden of operating the pool can be substantially decreased by the adoption of a unit allowable and transfer of allowable provisions as set forth in Exhibit A, attached hereto; and that efficiency of the program and its benefit to the reservoir can be increased by permitting production of as much as 300 barrels of oil per day from some wells, resulting in the prevention of waste.

5. That adoption of the rules proposed in Exhibit A will not impair correlative rights, but will result in the prevention of waste and a greater ultimate recovery of oil and marketable gas from the pool.

WHEREFORE, applicant prays that this matter be set for hearing before the Commission's duly appointed examiner at as early a date as possible, and that after notice and hearing as provided by law, the Commission amend its Order No. R-326, being the South Blanco-Tocito Pool Rules, by adding thereto rules as proposed herein and set forth in Exhibit A.

Respectfully submitted,

KELLAHIN AND FOX

By: Jason W. Kellahin  
Attorneys for Applicant  
CAULKINS OIL COMPANY

P. O. Box 1713  
Santa Fe, New Mexico

"EXHIBIT A"

PROPOSED ADDITIONAL FIELD RULES - SOUTH BLANCO-TOCITO POOL

1. Wells associated with the water injection project are defined as follows:

Caulkins Oil Company

T-85	T-134
T-87	T-157
T-109	T-177
T-127	T-179
T-129	T-182
T-132	T-185
	T-207

2. Additional wells may be associated with the water injection project upon written approval by the Secretary of the Commission, provided that any such additional well is not a direct offset to or located nearer than one location from the lease boundary line of any offsetting operator.

3. The allowable for the water injection unit shall be the sum of the allowables of the several wells within the unit, which allowables may be produced from any well or wells in the unit in a manner consistent with efficient operation of the project. The operator may, as hereinafter provided, transfer to any well or wells, the individual allowable or any part thereof of any well approved and used for the purpose of injecting water for pressure maintenance or any well presently or hereafter shut-in or operated under restricted conditions for the benefit of efficient operation of the project.

4. The operator shall submit to the Commission on or before the fifteenth day of each calendar month a statement listing each well used as an injection well for injecting water into the Tocito formation, and each well which is to be shut-in during the month or have its production restricted for the benefit of efficient operation of the project, showing the amount of production

expected to be produced from such restricted well or wells, together with a list of the well or wells to which the allowable of each of such wells is to be transferred; a tabulation of all of the wells in the project with their adjusted allowables for the calendar month, the well allowable for the preceding month, the increase or decrease in allowable from the preceding month and the allowable transferred to or from each well listed.

5. Each well that is subject to this order which is shut-in or used as an injection well, with its allowable transferred, as provided above, shall be exempt from any order of the Commission providing for gas-oil ratio surveys or production tests.

6. The allowable to be transferred from any well shall in no event exceed the ability of the well to produce oil as determined by a twenty-four hour test at a stabilized rate of production, which shall be the final twenty-four hour period of a seventy-two hour test during which the well under test is to be produced in the same manner during each twenty-four hour period. At least six days prior to the transfer of allowable from any such well, the operator shall notify the Commission's District Engineer of the intention to make the test herein provided and the dates of such test. All tests may be witnessed by a representative of the Commission and any interested operator, and the results of all tests shall be reported to the Commission.

7. Where water is injected into the Tocito producing formation through one or more injection wells associated with the water injection project, the daily average net volume of injected water (water injected less water produced) shall be credited to wells producing with a gas-oil ratio in excess of two thousand (2,000) cubic feet of gas per barrel of oil, increasing the daily gas limit as defined in Rule 506 (b) (1) of the Rules and Regulations of the New Mexico Oil Conservation Commission by a volume

equal to the gas equivalent of injected water so credited, such gas equivalent to be computed as follows:

The daily adjusted oil allowable of such well to which credit for injected water is assigned shall be determined and assigned by dividing its daily gas limit, after adjustment for injection credit, by its producing gas-oil ratio in cubic feet per barrel of oil produced in accordance with the formula:

$$\text{Adjusted - Allowable} = \frac{(\text{Unpenalized Allowable} \times 2000) \div \text{Gas Equivalent of Injected Water}}{\text{Gas-Oil Ratio}}$$

The gas equivalent of injected water shall be determined by converting the daily average net volume of water injected during any one month (water injected less water produced) to an equivalent volume of standard cubic feet of gas in the following manner:

$$\text{Gas Equivalent of Injected Water} = V_w \times 5.61 \times \frac{P_a}{15.025} \times \frac{520}{635} \times \frac{1}{Z}$$

Where:

- VW = Net barrels of injected water.
- 5.61 = Cubic feet per barrel.
- PA = Volumetrically weighted average reservoir pressure as determined by most recent semi-annual survey, psig  $\neq$  11.5.
- 15.025 = Pressure base.
- 520 = Temperature base of 60° F expressed by absolute temperature.
- 635 = Reservoir temperature of 175° F expressed as absolute temperature.
- Z = Super-compressibility factor of 0.7 gravity gas interpolated from the tabulation below.

Gas Equivalent One Barrel of Water Expressed as Standard Cubic Feet	Pressure	Super-Compressibility Factor, "Z"
728	2000	0.845
688	1900	0.849
649	1800	0.853
611	1700	0.857
572	1600	0.861
534	1500	0.865
494	1400	0.873
455	1300	0.881
417	1200	0.889
380	1100	0.897

342	1000	0.905
304	900	0.914
269	800	0.923
233	700	0.932
199	600	0.941
165	500	0.950

Provided that in no event shall the daily adjusted oil allowable for any well be permitted to exceed the unpenalized allowable limit assigned and/or transferred to said well. It is expressly understood the terms "Adjusted Allowable", Unpenalized Allowable", and "Daily Adjusted Oil Allowable", as used herein, include all allowables transferred to a well in addition to its own allowable.

8. Wells not associated with the water injection pressure maintenance project shall have their oil and gas prorated in accordance with the New Mexico Conservation Commission's General Rules and Regulations and Order No. R-326 dated May 26, 1953.