

CHACO OIL COMPANY

P. O. Box 8294

Albuquerque, New Mexico

October, 1959

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

Gentlemen:

The Chaco Oil Company hereby requests an examiner hearing before the Oil Conservation Commission for authority to commence secondary recovery by water flooding in the Red Mountain Oil Field, Sections 20 and 29, Township 20 North, Range 9 West, McKinley County, New Mexico, as covered by O.C.C. Rule 701.

Chaco Oil Company requests permission to drill eleven water injection wells to the 450-foot Menefee oil pay in the Red Mountain Field. The injection wells will have to be drilled on unorthodox locations around the periphery of the field to permit efficient sweep of the reservoir. A high saturation of oil is known to exist in the pay sand, but reservoir pressures have decreased to the point that present production is sub-commercial.

An excellent water supply can be obtained from the Hospah and Gallup sandstones in the Chaco Oil Company #20-1 Santa Fe well in the southeast quarter of the southeast quarter of Section 20. Large flows of useable artesian water were recovered on two drill-stem tests of these formations during the drilling of the well.

Present production from the field is restricted to two 40-acre units, Unit O in Section 20 and Unit B in Section 29. If the water flood is approved as presented, substantial quantities of oil will be produced in addition from Unit P in Section 20 and Unit A in Section 29. Chaco Oil Company desires approval to produce oil under the secondary recovery program without proration, in order that the water-flood may operate at optimum engineering efficiency.

A thorough engineering study of the proposed water injection program has been completed, and will be presented at the hearing.

We should prefer to have this case heard at your earliest convenience, e.g. 12 November, 1959, and will appreciate hearing from you if this date will be convenient.

Cordially,  
CHACO OIL COMPANY

*Henry S. Birdseye*  
Henry S. Birdseye

HSB:lm

*Docket Mailed*  
*10-27-59*  
*[Signature]*

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P. O. Box 8294  
Albuquerque, New Mexico  
8 October, 1959

## DATA REGARDING CHACO OIL COMPANY'S REQUEST UNDER RUL E 701

1. Plat showing locations of injection wells and oil wells accompanies this letter, as does plat showing offset operators.
2. The wells are producing from a sandstone lentil in the Menefee formation of the Mesaverde Group.
3. Injection will be into the oil pay sand at an average depth of 450 feet. This Menefee sandstone averages  $10\frac{1}{2}$  feet thick, with average porosity of 25% and average permeability of 341 millidarcies. Cores from four wells show it to be relatively homogeneous.
4. No injection wells have yet been drilled. However, a radioactivity log of a typical shallow oil well in the field, the #20-9 Santa Fe, in Section 20, is enclosed.
5. A description of the proposed casing plan for the injection wells is enclosed herewith.
6. Slightly brackish water from the Hospah and Gallup sandstones in the #20-1 well will be used. Drill-stem tests of fifty feet of this sand section flowed 90 barrels per hour of artesian water. The Micro-log shows at least 200 feet of highly porous water sand to be present. It is expected that the initial injection rate will be 100 barrels per well per day, or 3,000 barrels per well per month. After suitable evaluation of the flood results at this rate, it is intended that the injection rate will be increased to an average of 230 barrels of water per well per day.
7. The secondary recovery program will be operated by Chaco Oil Company, under the supervision of Henry S. Birdseye.