

BEFORE THE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO

APPLICATION OF HUMBLE OIL & )  
REFINING COMPANY FOR AN ORDER )  
AUTHORIZING THE INJECTION OF WATER )  
FOR PRESSURE MAINTENANCE AND SECONDARY )  
RECOVERY PURPOSES INTO THE GALLUP- )  
SANDSTONE FORMATION UNDERLYING APPLI- )  
CANT'S NAVAJO "L" LEASE, PAN AMERICAN )  
PETROLEUM CORPORATION'S NAVAJO "E", )  
"G" AND "H" LEASES AND EL PASO NATURAL )  
GAS PRODUCTS CORPORATION'S OJO AMARILLO )  
LEASE IN THE CHA CHA-GALLUP OIL POOL, )  
SAN JUAN COUNTY, NEW MEXICO PURSUANT TO )  
RULE 701 OF THE RULES AND REGULATIONS OF )  
THE NEW MEXICO OIL CONSERVATION COMMISSION )  
AND FOR THE PROMULGATION OF SPECIAL RULES )  
GOVERNING THE OPERATION OF SAID PROJECT )

CASE NUMBER

2447

TO THE HONORABLE OIL CONSERVATION COMMISSION  
OF THE STATE OF NEW MEXICO:

Now comes HUMBLE OIL & REFINING COMPANY, a Delaware Corporation authorized to do business in the State of New Mexico, as Unit Operator of the Northwest Cha Cha-Gallup Unit authorized and designated in that certain Unit Operating Agreement executed or to be executed by and between the operators of the Navajo leases identified herein, and hereby makes application to the New Mexico Oil Conservation Commission for an order authorizing the injection of water for pressure maintenance and secondary recovery purposes into the Gallup-Sandstone formation underlying the Navajo "L" lease of applicant, the Navajo "E", "G" and "H" leases of Pan American Petroleum Corporation and the Ojo Amarillo lease of El Paso Natural Gas Products Corporation which said leases embrace lands within the Cha Cha-Gallup Oil Pool, San Juan County, New Mexico, pursuant to Rule 701 of the Commission, and for the promulgation of special rules governing the operation of said project, and in support thereof respectfully shows:

1. That there is attached hereto, made a part hereof. and

for purposes of identification marked Exhibit "A", a plat showing the Navajo "L" lease of applicant, the Navajo "E", "G" and "H" leases of Pan American Petroleum Corporation and the Ojo Amarillo lease of El Paso Natural Gas Products Corporation embracing lands within the Cha Cha-Gallup Oil Pool, together with the location of all wells drilled thereon and all wells drilled within a radius of two miles from the proposed injection wells hereinafter referred to, all of which said wells located upon said leases are producing from the Gallup-Sandstone formation which is a member of the Mancos formation of Cretaceous age. Said Exhibit "A" also shows the location of the proposed injection wells and the ownership of the respective leasehold interests within a radius of two miles from the said injection wells identified herein.

2. That there is outlined in red on Exhibit "A" attached hereto, the proposed project area which is a part of the lands embraced in the Navajo leases identified above, and which include the following described lands, to-wit:

Township 29 North, Range 14 West, N.M.P.M.

Section 15: S $\frac{1}{2}$  lying south of the San Juan River  
 Section 16: All lying south of the San Juan River  
 Section 17: All lying south of the San Juan River  
 Section 18: All lying south of the San Juan River  
 Section 19: NE $\frac{1}{4}$   
 Section 20: All  
 Section 21: All  
 Section 22: All  
 Section 23: S $\frac{1}{2}$  and NW $\frac{1}{4}$   
 Section 24: SW $\frac{1}{4}$ SE $\frac{1}{4}$  and S $\frac{1}{2}$ SW $\frac{1}{4}$   
 Section 25: All  
 Section 26: All  
 Section 27: All  
 Section 28: E $\frac{1}{2}$  and NW $\frac{1}{4}$   
 Section 34: N $\frac{1}{2}$   
 Section 35: All  
 Section 36: All

3. That there is filed herewith and for purposes of identification marked Exhibit "B", electrical logs of the following producing wells which are proposed to be converted to water injection wells in the project area:

Pan American Petroleum Corporation, Navajo "G" Well No. 4, Section 17  
 Pan American Petroleum Corporation, Navajo "G" Well No. 1, Section 20  
 Pan American Petroleum Corporation, Navajo "E" Well No. 3, Section 21

Pan American Petroleum Corporation, Navajo "E" Well No. 2, Section 21  
El Paso Natural Gas Products Corporation, Ojo Amarillo Well No. 2, Section 27  
Humble Oil & Refining Company, Navajo "L" Well No. 1, Section 26  
Humble Oil & Refining Company, Navajo "L" Well No. 4, Section 26  
Humble Oil & Refining Company, Navajo "L" Well No. 5, Section 36  
Humble Oil & Refining Company, Navajo "L" Well No.15, Section 25.

4. That there is also attached hereto, made a part hereof, and for purposes of identification marked Exhibit "C", a schedule listing all proposed injection wells located upon the Navajo leases identified above within the proposed project area, and which shows the total depth of each well, the size of production casing in each well, the depth to which the casing in each well has been set, the estimated top of the cement used in setting the casing in each well, the perforated interval in each well and the completion date of each well.

5. Applicant proposes to inject water through the proposed injection wells above set forth into the Gallup-Sandstone producing formation which is encountered beneath the project area at depths from 4,600 feet to 5,600 feet beneath the surface, such water to be injected at rates ranging between 500 barrels and 1,300 barrels per day per well.

6. Applicant proposes to obtain the water for injection purposes from either the San Juan River alluvium sand by means of wells drilled and to be drilled adjacent to the bed of said river in Sections 15 and 16, Township 29 North, Range 14 West, N.M.P.M. or the Morrison formation beneath the project area, or from both sources. One water source well has heretofore been drilled to the San Juan River alluvium sand in the Southwest Quarter of the Southwest Quarter ( $SW\frac{1}{4}SW\frac{1}{4}$ ) of said Section 16. The producing capacity of that well will be tested and based upon such capacity such further wells will be drilled as are necessary to produce water in quantities sufficient for the proposed pressure maintenance and secondary recovery project. The State Engineer has issued a permit authorizing applicant to obtain water for injection from such source. In the event water from the Morrison formation is also needed, applicant will drill a well to that formation at a location in the project area now undetermined. Applicant has submitted to the Office of the State Engineer a copy of this application and will submit

at its earliest opportunity an analysis of water from each source utilized.

7. Applicant is Unit Operator of the Northwest Cha Cha-Gallup Unit under and pursuant to the terms of that certain operating agreement for said Unit executed or to be executed by all working interest owners in the Navajo leases identified above, and applicant submits this application as such Unit Operator. All premises included in the proposed project area are owned by the Navajo Tribal Council of Navajo Indians and are subject to leases providing royalty payments of one-eighth (1/8) of oil and gas produced. Since all such premises are owned in common by said Council and subject to leases providing identical royalty, the working interest owners in said leases do not plan to unitize said leases prior to commencement of the proposed project and no unit agreement of any kind has been prepared or submitted to said Council or the Department of the Interior. Soon after commencement of pressure maintenance operations as described herein, Unit Operator plans to prepare and submit for execution and approval a simple Unit Agreement which will permit Unit Operator to operate the various leases described herein as a single unit for the recovery of oil and gas.

8. Applicant believes and asserts that it will be in the interest of conservation and the prevention of waste to inaugurate a water injection program for pressure maintenance and secondary recovery purposes as soon as possible by the injection of water into the injection wells above referred to, and that said project is in the interest of obtaining the greatest ultimate recovery of oil and gas from said formation. Applicant therefore respectfully requests the proposed pressure maintenance program be approved, that the area hereinabove described be designated as the project area, and that an allowable formula be fixed therefor; and in connection therewith, applicant recommends the adoption of special field rules governing said project as follows:

(a) The conversion of the producing wells listed in Paragraph 3 hereof to water injection wells be approved and applicant be authorized to institute the pressure maintenance project proposed herein.

(b) That the allowable for the project area be the sum of the allowables of the several wells within the project area including those wells which may be shut in, curtailed, or used as injection wells.

(c) That allowables for injection wells be transferred to producing wells within the project area as well as allowables for producing wells which, in the interest of more efficient operation of the project, are shut in or curtailed because of high gas-oil ratio or are shut in for any of the following reasons: pressure regulation, control of pattern or sweep efficiencies, or to observe changes in pressures or changes in characteristics of reservoir liquids or progress of sweep.

(d) That the allowable assigned to any well which is shut in or which may be curtailed in accordance with the applicable special rules, and which allowable is to be transferred to any well or wells in the project area for production, shall in no event be greater than its ability to produce during the test period prescribed by the special rules, or greater than the top unit allowable for the pool during the month of transfer, whichever is less.

(e) That the allowable assigned to any injection well on an 80-acre proration unit shall be the top unit allowable for the Cha Cha-Gallup Oil Pool.

(f) That the ability to produce of any well which is shut in or curtailed in accordance with the special rules shall be determined by a 24-hour test at a stabilized rate of production, which shall be the final 24-hour period of a 72-hour test throughout which the well should be produced in the same manner and at the constant rate. The daily tolerance limitation set forth in Commission Rule 502 I (a) and the limiting gas-oil ratio (2,000 to 1) for the Cha Cha-Gallup Oil Pool shall be waived during such tests. The project operator shall notify all operators offsetting the well, as well as the Commission, of the exact time such tests are to be conducted. Tests may be witnessed by representatives of the offsetting operators and the Commission if so desired.

(g) That the top allowable assigned to each producing well in the project shall be equal to the well's ability to produce or to the top unit allowable of the Cha Cha-Gallup Oil Pool, whichever is less, provided that any producing well in the project area which directly or diagonally offsets a well outside the project area producing from the same common source of supply shall not produce in excess of two times top unit allowable for the pool. Each producing well shall be subject to the limiting gas-oil ratio (2,000 to 1) for the Cha Cha-Gallup Oil Pool, except that any well or wells within the project area producing with a gas-oil ratio in excess of 2,000 cubic feet of gas per barrel of oil may be produced on a "net gas-oil ratio basis", which net gas-oil ratio shall be determined in accordance with such equitable formula as may be determined by the Commission including credit for daily average net water injected through any injection well located within the project area.

(h) That the project operator submit each month, within a reasonable time after the normal unit allowable for Northwest New Mexico has been established, to the Commission, a pressure maintenance project operator's report on a form prescribed by the Commission, requesting allowables for each of the several wells in the project area as well as the total project allowable.

