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BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF
THE ATLANTIC REFINING COMPANY FOR
APPROVAL OF THE HORSESHOE-GALLUP
UNIT AGREEMENT FOR THE PURPOSE OF
SECONDARY RECOVERY OPERATIONS, FOR
AUTHORITY TO INSTITUTE A WATER INJEC-
TION PROJECT IN THE HORSESHOE-GALLUP AND
VERDE-GALLUP OIL POOLS AND FOR EXPANSION
THEREOF BY ADMINISTRATIVE PROCEDURE, AND
FOR THE RECLASSIFICATION OF CERTAIN WELLS
FROM THE VERDE-GALLUP TO THE HORSESHOE-
GALLUP OIL POOL, ALL IN SAN JUAN COUNTY,
NEW MEXICO.

CASE NO. 2379

TO: The Oil Conservation Commission
State of New Mexico
Santa Fe, New Mexico

Comes now the applicant, THE ATLANTIC REFINING COMPANY,
whose address is Suite 760, Petroleum Club Building, 110 16th
Street, Denver 2, Colorado, and files herewith a copy of the
proposed Horseshoe-Gallup Unit Agreement (identified as Exhibit
"1" to this Application) for the development and operation of
the Horseshoe-Gallup Unit Area in San Juan County, New Mexico,
and hereby makes application for (1) approval of the Unit Agree-
ment for development and operation of the Horseshoe-Gallup Unit
Area for the purpose of secondary recovery operation, (2) for
authority to institute a pressure maintenance project in the
Horseshoe-Gallup and Verde-Gallup Oil Pools and for expansion
thereof by administrative procedure, and (3) for the reclassi-
fication of four wells from the Verde-Gallup Oil Pool to the
Horseshoe-Gallup Oil Pool; and in support thereof states:

I.

UNIT AGREEMENT

1. That the proposed Unit Area covered by the Unit Agreement embraces 20,925.58 acres, more or less, more particularly described as follows:

Township 30 North, Range 16 West, N.M.P.M.

All of Sections 2, 3, 4, 5 and 6
Section 7: $NE\frac{1}{4}$
Section 8: All
Section 9: All
Section 10: $NW\frac{1}{4}$
Section 16: That portion of $N\frac{1}{2}NW\frac{1}{4}$ lying
East of the Navajo Indian
Reservation.

Township 31 North, Range 16 West, N.M.P.M.

Section 17: $SW\frac{1}{4}$
Section 18: $W\frac{1}{2}$, $SE\frac{1}{4}$
All of Sections 19, 20, 21 and 22
Section 25: $SW\frac{1}{4}$
All of Sections 26, 27, 28, 29, 30, 31,
32, 33, 34 and 35
Section 36: $W\frac{1}{2}$, $W\frac{1}{2}SE\frac{1}{4}$

Township 30 North, Range 17 West, N.M.P.M.

Section 1: $NE\frac{1}{4}$

Township 31 North, Range 17 West, N.M.P.M.

All of Sections 13, 14 and 15
Section 16: $E\frac{1}{2}$
Section 22: $NW\frac{1}{4}$, $E\frac{1}{2}$
All of Sections 23, 24 and 25
Section 26: $E\frac{1}{2}$, $NW\frac{1}{4}$
Section 35: $NE\frac{1}{4}$
Section 36: All

2. That the proposed Unit Area is comprised of 18,333.83 acres of Tribal Indian land, 475.29 acres of Allotted Indian land, 1,898.85 acres of Federal land, and 217.63 acres of lands of the State of New Mexico.

3. Applicant is informed and believes, and upon such information and belief states: that the lands to be embraced in the proposed Unit Area cover all or substantially all of the

available lands necessary for the effective and efficient institution of a secondary recovery operation by the institution of a pressure maintenance project, and that said Unit Agreement will permit the producing area to be developed and operated in the interest of conservation, the protection of correlative rights and the prevention of waste of Unitized Substances.

4. That The Atlantic Refining Company is designated as Unit Operator in the Unit Agreement, and as such is given authority under the terms thereof to carry on operations necessary and proper for the development and operation of the Unit Area and the recovery of Unitized Substances, subject to all applicable laws and regulations. That said Unit Agreement provides for the institution of a secondary recovery operation by the institution of a pressure maintenance project in the Horse-shoe-Gallup and Verde-Gallup Oil Pools as more fully stated hereinbelow.

5. That said Unit Agreement is in substantially the same form as Unit Agreements heretofore approved by the Director of the United States Geological Survey, the Commissioner of Public Lands of the State of New Mexico, and the Oil Conservation Commission of the State of New Mexico; it is believed that the field or area involved can be developed more economically and efficiently under the terms of said Unit Agreement to the end that the maximum recovery of Unitized Substances can be obtained without the violation of correlative rights.

6. That application has been made for approval of said Unit Agreement to the Director of the United States Geological Survey, and he has tentatively approved the Agreement as to form and area. Informal application has been made for approval of

said Unit Agreement to the Commissioner of Public Lands of the State of New Mexico, and prior to the hearing on this Application informal approval of the form and content of said Unit Agreement will be obtained from the Commissioner. After formal approval thereof by the Commissioner and Director, a fully executed and approved copy of the Unit Agreement, and a copy of such approvals will be filed with this Commission.

II.

PRESSURE MAINTENANCE PROJECT

1. A plat showing the location of the proposed injection wells and the location of all other wells within a radius of two miles of said proposed injection wells, and the formation from which said wells are producing or have produced is attached hereto and marked Exhibit "2" to this Application. Said plat also indicates the lessees (or Unit Operators) within said two mile radius.

2. Sample logs of three typical proposed injection wells are filed herewith. Due to the number of proposed injection wells, it is not feasible to file copies of all available logs. The logs filed herewith are:

Mobil Oil Company, Navajo "A" No. 9 in Section 14,
Township 31 North, Range 17 West;

El Paso Natural Gas Products Company, Horseshoe Ute
No. 20 in Section 34, Township 31 North, Range 16 West;

The Atlantic Refining Company, Navajo No. 6 in Section
30, Township 31 North, Range 16 West.

3. It is proposed that there will be 112 injection wells in the Unit Area. It is not feasible to set forth the description of all of them hereinbelow, and they are shown on the plats attached hereto as Exhibit "2". Of these, 15 are already on injection, 94 present wells will be converted to injection, and 3 more wells will be drilled for water injection.

The casing program of three typical wells in the Unit is as follows:

<u>Lease and Well No.</u>	<u>Surface Casing</u>			<u>Production Casing</u>		
	<u>Size</u>	<u>Depth</u>	<u>Cement</u>	<u>Size</u>	<u>Depth</u>	<u>Cement</u>
Mobil Navajo "A" No. 9	8-5/8"	119'	80 sacks	5-1/2"	1101'	100 sacks
Atlantic Navajo #6	8-5/8"	103'	125 sacks	5-1/2"	1503'	135 sacks
El Paso Horse-shoe Ute #20	8-5/8"	122'	125 sacks	5-1/2"	1481'	100 sacks

The proposed method of testing casing before use of the injection wells will be in conformity with the established rules of the Commission, including Rules 107 and 702, and all other applicable laws and regulations.

4. (a) The name and depth of the zones or formations into which injection will be made is the Horseshoe-Gallup Sand, which is defined in paragraph 3 of the Unit Agreement attached hereto as Exhibit "1" as follows:

The Horseshoe-Gallup Sand shall mean the sand and reservoir, regardless of the depth and thickness thereof, occurring between the lower Gallup Correlation Point and the top of the Juana Lopez Formation and which were encountered at the following depths below the Kelly Bushing in the following wells in San Juan County, New Mexico, as shown by the Schlumberger Electric logs thereof:

<u>Well</u>	<u>Location</u>	<u>Lower Gallup Correlation Point</u>	<u>Top of Juana Lopez</u>
The Atlantic Refining Co. Navajo No. 17	NW/4 of NE/4 Section 31 T31N-R16W	1114'	1287'
El Paso Natural Gas Products Co. Chimney Rock "A" No. 10	NW/4 of SW/4 Section 24 T31N-R17W	1269'	1437'
El Paso Natural Gas Products Co. Horseshoe Canyon No. 5	SE/4 of SE/4 Section 4 T30N-R16W	1258'	1436'

(b) The kind of fluid to be injected is water.

(c) The anticipated amount to be injected is estimated at approximately 30,000 barrels of water per day.

(d) Injection water will come from the Morrison formation found at a depth of approximately 2750'. It is a brackish, non-potable water with a total solid content of about 7500 parts per million. This is the same water currently being used for injection by Atlantic and other operators in the Horse-shoe-Gallup Field.

There is already one water supply well in the participating area. This is Atlantic's Navajo "B" No. 1-W Well, located 1375' from the south line and 1815' from the east line of Section 19, T-31-N, R-16-W. Three additional water supply wells will be drilled at the following approximate locations:

2-W Well - NW/4, Section 32, T-31-N, R-16-W
3-W Well - SE/4, Section 4, T-30-N, R-16-W
4-W Well - NW/4, Section 34, T-31-N, R-16-W.

5. Applicant proposes rules and regulations for the project, a copy of which is attached hereto as Exhibit "3".

6. A copy of this Application is being mailed to the State Engineer and Applicant will comply with the rules and regulations as to information and material to be furnished to the State Engineer in connection herewith.

III. RECLASSIFICATION

1. Four of the wells in the Horseshoe-Gallup Unit Area are now classified in the Verde-Gallup Oil Pool. These wells are:

The Atlantic Refining Co., Ute Federal No. 1, ✓
SW/4 SW/4 Section 36, T-31-N, R-16-W

El Paso Natural Gas Products Co., Navajo Lowe
Federal No. 1, NE/4 NE/4 Section 2, T-30-N, R-16-W ✓

El Paso Natural Gas Products Co., Navajo Lowe
Federal No. 2, SW/4 NE/4 Section 2, T-30-N, R-16-W

El Paso Natural Gas Products Co., Navajo Lowe
Federal No. 3, NW/4 NE/4, Section 2, T-30-N, R-16-W

2. It is believed that the four above described wells should be properly classified in the Horseshoe-Gallup Oil Pool, rather than in the Verde-Gallup Oil Pool.

WHEREFORE, Applicant respectfully requests this Application be set for hearing before an Examiner, and that upon such hearing the Commission enter its Order as follows:

(a) Approve in principle as a proper conservation measure the Horseshoe-Gallup Unit Agreement; provided, however, that notwithstanding any of the provisions contained in said Unit Agreement such approval not be considered as waiving or relinquishing in any manner any right, duty or obligation which may now, or hereafter be, vested in the New Mexico Oil Conservation Commission by law relative to the supervision and control of operations for the exploration and development of any land committed to the Horseshoe-Gallup Unit Agreement, or relative to the production of oil or gas therefrom; and,

(b) Designate the Unit Area of the Horseshoe-Gallup Unit as the lands described in paragraph I, 1, hereinabove, and provide that the Unit Area may be expanded or contracted as provided in said Unit Agreement; and,

(c) Authorize Applicant as Operator of the Horseshoe-Gallup Unit to conduct a pressure maintenance project in the manner and mode set forth in paragraph II, hereinabove, including the authority to expand such pressure maintenance project, in the

event the Unit Area is expanded, by administrative procedure in accordance with applicable rule; and,

(d) Issue the rules and regulations for The Atlantic Refining Company Horseshoe-Gallup Unit Project in the form set forth as Exhibit "3" to this Application.

(e) Reclassification of the four above described wells as set out in paragraph III, 1, from the Verde-Gallup Oil Pool to the Horseshoe-Gallup Oil Pool.

DATED this 5th day of March, 1962.

THE ATLANTIC REFINING COMPANY

By 

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Roswell, New Mexico

Attorneys for Applicant.