

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

February 21, 1967

**Atlantic Richfield Company
P. O. Box 1978
Roswell, New Mexico**

Gentlemen:

Enclosed herewith please find Administrative Order
PMX for Unit Well No. 20 located in the SE/4 NE/4 of Section
32 and Unit Well No. 211 located in the SE/4 SE/4 of Section
33, both in Township 31 North, Range 16 West, NMPL, and Unit
Well No. 236 located in the SE/4 NW/4 of Section 3, Township
30 North, Range 16 West.

Very truly yours,

**A. L. PORTER, Jr.,
Secretary-Director**

ALP/JEK/og

**cc: Commissioner of Public Lands
Santa Fe, New Mexico**

**United States Geological Survey
Drawer 1857
Roswell, New Mexico 88201**

C O P Y

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO

February 21, 1937

Atlantic Richfield Company
P. O. Box 1878
Houston, New Mexico

Dear Sirs:

Enclosed herewith please find Administrative Order
No. 10 for Unit Well No. 20 located in the SE/4 NE/4 of Section
38 and Unit Well No. 211 located in the SE/4 SE/4 of Section
38, both in Township 31 North, Range 16 West, NMPM, and Unit
Well No. 222 located in the SE/4 NW/4 of Section 3, Township
31 North, Range 16 West.

Very truly yours,

A. L. MORRIS, Jr.,
Secretary-Director

Enclosed
for: Commissioner of Public Lands
Santa Fe, New Mexico
United States Geological Survey
Denver, Colo.
Rue 212, New Mexico 86201

APPLICATION OF ATLANTIC-RICHFIELD
COMPANY TO EXPAND ITS HORSESHOE-
GALLUP UNIT PRESSURE MAINTENANCE
PROJECT IN THE HORSESHOE-GALLUP OIL
POOL IN SAN JUAN COUNTY, NEW MEXICO.

Administrative Order
PMX-24

ADMINISTRATIVE ORDER
OF THE OIL CONSERVATION COMMISSION

Under the provisions of Order No. R-2210, Atlantic-Richfield Company has made application to the Commission on February 6, 1967, for permission to expand its Horseshoe-Gallup Unit Pressure Maintenance Project in the Horseshoe-Gallup Oil Pool, San Juan County, New Mexico.

NOW, on this 26th day of February, 1967, the Secretary-Director finds:

1. That application has been filed in due form.
2. That satisfactory information has been provided that all offset operators have been duly notified of the application.
3. That no objection has been received within the waiting period as prescribed by Order No. R-2210.
4. That the proposed injection wells are eligible for conversion to water injection under the terms of Order No. R-2210.
5. That the proposed expansion of the above-referenced pressure maintenance project will not cause waste nor impair correlative rights.
6. That the application should be approved.

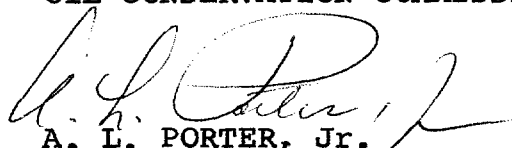
IT IS THEREFORE ORDERED:

That the applicant, Atlantic-Richfield Company, be and the same is hereby authorized to inject water into the Gallup formation through the following-described wells for purposes of pressure maintenance, to wit:

Unit Well No. 20 located in the SE/4 NE/4 of Section 32 and Unit Well No. 211 located in the SE/4 SE/4 of Section 33, both in Township 31 North, Range 16 West, NMPM, and Unit Well No. 236 located in the SE/4 NW/4 of Section 3, Township 30 North, Range 16 West.

DONE at Santa Fe, New Mexico, on the day and year hereinabove designated.

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION


A. L. PORTER, Jr.
Secretary-Director

1. The first part of the paper is devoted to the study of the properties of the function $f(x)$ defined by the equation

$$f(x) = \int_0^x \frac{1}{1+t^2} dt$$

It is shown that the function $f(x)$ is increasing and concave down on the interval $(-\infty, \infty)$. Moreover, the function $f(x)$ is bounded on the interval $(-\infty, \infty)$ and its range is the interval $(0, \pi/2)$.

2. In the second part of the paper, we study the properties of the function $g(x)$ defined by the equation

$$g(x) = \int_0^x \frac{1}{1+t^4} dt$$

It is shown that the function $g(x)$ is increasing and concave down on the interval $(-\infty, \infty)$. Moreover, the function $g(x)$ is bounded on the interval $(-\infty, \infty)$ and its range is the interval $(0, \pi/4)$.

3. In the third part of the paper, we study the properties of the function $h(x)$ defined by the equation

$$h(x) = \int_0^x \frac{1}{1+t^6} dt$$

It is shown that the function $h(x)$ is increasing and concave down on the interval $(-\infty, \infty)$. Moreover, the function $h(x)$ is bounded on the interval $(-\infty, \infty)$ and its range is the interval $(0, \pi/6)$.

4. In the fourth part of the paper, we study the properties of the function $k(x)$ defined by the equation

$$k(x) = \int_0^x \frac{1}{1+t^8} dt$$

It is shown that the function $k(x)$ is increasing and concave down on the interval $(-\infty, \infty)$. Moreover, the function $k(x)$ is bounded on the interval $(-\infty, \infty)$ and its range is the interval $(0, \pi/8)$.

5. In the fifth part of the paper, we study the properties of the function $l(x)$ defined by the equation

$$l(x) = \int_0^x \frac{1}{1+t^{10}} dt$$

It is shown that the function $l(x)$ is increasing and concave down on the interval $(-\infty, \infty)$. Moreover, the function $l(x)$ is bounded on the interval $(-\infty, \infty)$ and its range is the interval $(0, \pi/10)$.

$$m(x) = \int_0^x \frac{1}{1+t^{12}} dt$$

$$n(x) = \int_0^x \frac{1}{1+t^{14}} dt$$