FORM 470 2-57

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 480, Farmington, New Mexico

March 22, 1963

File: N-230-986.510.1

Subject: Application to Dispose of Salt Water in Pan American Petroleum Corporation's Navajo "C" No. 1 Undesignated Paradox Pool San Juan County, New Mexico

Mr. A. L. Porter, Jr.
Secretary-Director
New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Dear Sir:

Pan American Petroleum Corporation hereby makes Application under the Administrative Provisions of Rule 701 for permission to dispose of salt water produced from the Navajo "C" No. 1, Undesignated Paradox Pool, into the 7-5/8 - 10-3/4-inch casing annulus in the Navajo "C" No. 1, located in Unit "D", Section 1, T-29-N, R-17-W, San Juan County, New Mexico. In connection with this Application, attached are the following exhibits:

1. Three copies of New Mexico Oil Conservation Commission form entitled "Application to Dispose of Salt Water By Injection into a Porous Formation Not Productive of Oil or Gas."

2. A map of the area showing the location of Navajo "C" No. 1 in the NW/4 of Section 1, T-29-N, R-17-W, and the location of the two wells in the Hogback Pennsylvanian Pool in Section 19, T-29-N, R-16-W.

3. A copy of the electric log on Navajo "C" No. 1 showing the 10-3/4-inch casing set at 2300 feet, approximately 332 feet below the top of the Entrada formation, and the top of the cement behind the 7-5/8-inch casing at 5000 feet or approximately 276 feet above the top of the Pennsylvanian-Hermosa formation.

4. A schematic diagram showing the casing program which was employed on Navajo "C" No. 1 together with the approximate location of the various formation tops in this well. The diagram also shows the present completion zone in the Pennsylvanian-Paradox formation and the

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Date 4-11-63

amount of cement used in each casing string. It is the interval 2300 feet, the 10-3/4-inch casing seat, to 5000 feet, the top of the cement behind the 7-5/8-inch casing, that is proposed for use as a salt water disposal interval.

5. A copy of a water analysis obtained from the Pennsylvanian-Paradox formation on Navajo "C" No. 1 showing that the water produced from this well is unfit for domestic, stock, irrigation, and/or other general use.

With regard to the use of the Entrada-Chinle-Cutler interval in Navajo "C" No. 1 as a disposal interval, the following points are submitted:

1. By letter dated December 21, 1962, the United States Geological Survey stated that that agency had no objection to the use of this approximate interval as a disposal zone in the nearby Hogback Pennsylvanian Pool.

2. By letter dated January 28, 1963, the State Engineer's Office stated that that office had no objection to the use of the equivalent interval for salt water disposal in the Hogback Pennsylvanian Pool.

3. By Order R-2438, dated February 27, 1963, the NMOCC granted its approval for the use of the Entrada-Chinle interval in USG Section 19 Well No. 17 as a salt water disposal zone in the Hogback Pennsylvanian Pool.

4. In connection with the Application and at the hearing, after which Order R-2438 was issued, a water sample from the Entrada formation in the Pan American Navajo Tribal No. 1, located in the NW/4 NW/4 of Section 12, T-29-N, R-17-W, was submitted showing that the water contained in the Entrada formation is unfit for domestic, stock, irrigation, and/or other general use.

5. The proposed disposal interval in Navajo "C" No. 1 is not known to be productive of oil, gas or fresh water anywhere in the vicinity of this well.

6. The casing program used on this well adequately protects the known fresh or brackish water zones of the Dakota-Morrison formation from contamination by the injected water, and it also protects the Pennsylvanian producing interval in the well from the injected water.

Copies of this Application are being furnished to the U.S.G.S. and to the State Engineer's office.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION

T. M. Curtis
District Superintendent

GWE:en
Attachments

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

March 29, 1963

ADDRESS CORRESPONDENCE TO:
STATE CAPITOL
SANTA FE, N. M.

Mr. A. L. Porter, Jr.
Secretary-Director
Oil Conservation Commission
Santa Fe, New Mexico

Dear Mr. Porter:

Reference is made to the application of Pan American Petroleum Corporation dated March 22, 1963 which seeks to dispose of salt water in the Pan American Petroleum Corporation Navajo "C" No. 1 undesignated Paradox Pool, San Juan County, New Mexico.

After reviewing the application and the exhibits submitted therewith, I have concluded that the injection of this water into the Entrada-Chinle formations will not constitute a threat of contamination to the fresh waters existing in the area. Therefore, this office offers no objection to the granting of this application.

Yours truly,

S. E. Reynolds
State Engineer

By: Frank E. Irby
Frank E. Irby
Chief
Water Rights Division

FEI/ma
cc-Mr. T. M. Curtis

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER

STATE GEOLOGIST
A. L. PORTER, JR.
SECRETARY - DIRECTOR

P. O. BOX 871
SANTA FE

May 3, 1963

Mr. Charles Malone
Atwood & Malone
Attorneys at Law
Box 700
Roswell, New Mexico

Re: Case No. 2798
Order No. R-2775
Applicant:

Pan American Petroleum Corporation

Dear Sir:

Enclosed herewith are two copies of the above-referenced Commission order recently entered in the subject case.

Very truly yours,

A. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

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Carbon copy of order also sent to:

Hobbs OCC x
Artesia OCC
Aztec OCC x
OTHER Mr. Guy Buell

FORM 470 2-57

OKa?

PAN AMERICAN PETROLEUM CORPORATION

P. O. Box 480, Farmington, New Mexico
July 17, 1963

File: H-1099-400.1

Subject: USG Section 19 Well No. 17
Communication Test

Mr. E. C. Arnold
New Mexico Oil Conservation Commission
1000 Rio Brazos Road
Aztec, New Mexico

Dear Sir:

We are submitting data for your information on the communication test for our USG Section 19 Well No. 17.

On July 12, 1963, a sonolog test was run, witnessed by your representative, Mr. Kendrick. The enclosed attachment shows the results and are submitted for your approval, according to Examples 6 and 7 of the NMOCC Manual for Back Pressure Tests.

Yours very truly,

PAN AMERICAN PETROLEUM CORPORATION

L. O. Speer, Jr.
Area Superintendent

DSB:ep

Attachments

USG 19 WELL NO. 17
COMMUNICATION TEST

INJECTION INTERVAL:

Top: 2157' - 9-5/8" casing seat
Base: 3100' - Top of cement behind 7" casing

OBSERVED DATA:

Specific gravity of gas = .700 (est.)
Measured wellhead pressure = 1104 psia
Wellhead temperature = 60° (520° Rankine)
Reservoir temperature = 150° (610° Rankine)
Gravity of Crude = 48°

SONOLOG RESULTS:

Joints to fluid: 17½
Depth of fluid: 537.43'
Average joint: 30.71'

SUMMATION OF CALCULATIONS:

Pcr	= 668	Tcr	= 392
Pn	= 1104	Pr	= 1.653
T	= 520° R	Z	= .662
Fpv	= 1.073	$\frac{TZ}{Pn}$	= .31181
TZ	= 344.24		
$\frac{GH}{Tf}$	= $\frac{376}{1.33}$	Lbs./psi Gas Column = 22.647	

Total psi/ft. of Gas Column = 1104 + 23 = 1127.6

OBSERVED DATA LIQUID COLUMN:

H = 2157' Injection Depth
G_1 = .700
G_2 = .7883
h = 1620
BHP @ 2157' = 533 + 1128 = 1661 psia in 7" casing

H = 3100' Top of Cement
G_1 = .700
G_2 = .7883
h = 2563
BHP @ 3100' = 875 + 1128 = 2003 psia in 7" casing

INJECTION INTERVAL:

Specific Gravity = (Salt Water) = 1.0635

2157' X .4333 X 1.0635 = 993.9770
Injection Pressure = 994 psia into formation
3100' X .4333 X 1.0635 = 1428.5251
Pressure @ 3100' Top of Cement = 1429 @ formation

USG 19 Well # 17

SKETCH OF "CASING" & Producing Intervals