

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

APPLICATION
TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION
NOT PRODUCTIVE OF OIL OR GAS

File
2798

Operator Pan American Petroleum Corporation Address Box 480, Farmington, New Mexico

Lease Navajo "C" Well No. 1 County San Juan

Unit D Section 1 Township 29-N Range 17-W

This is an application to dispose of salt water produced from the following pool(s):

Undesignated Paradox

Name of Injection Formation(s): Entrada, Chinle, Cutler

Top of injection zone: 2300' Bottom of injection zone: 5000'

Give operator, lease, well no., and location of any other well in this area using this same

zone for disposal purposes: Pan American Petroleum Corporation, USG Section 19 Well No. 17,

790' FEL and 1850' FSL, Section 19, T-29-N, R-16-W

CASING PROGRAM

	Diameter	Setting Depth	Sacks Cement	Top of Cement
Surface	16"	361'	500	Circulated
Intermediate	10-3/4"	2300'	1300	Circulated
Long String	7-5/8"	5570'	150	5000'
Liner	5"	5377-7026'	260	5377'

Will injection be through tubing, casing, or annulus?

Size tubing 2-3/8" Setting depth: 6364' Packer set at. None

Name and Model No. of packer:

Will injection be through perforations or open hole? Open hole between 7-5/8" and 10-3/4" casing string.

Proposed interval(s) of injection: 2300-5000'

Well was originally drilled for what purpose? Gas well

Has well ever been perforated in any zone other than the proposed injection zone? Yes

List all such perforated intervals and sacks of cement used to seal off or squeeze each:

Mississippian 7008-7014' and 6981-95'. Bridge plug set at 6910' with one sack cement on top of bridge plug. Well now producing from Pennsylvanian through perforations 6366-90'.

Give depth of bottom of next higher zone which produces oil or gas: None

Give depth of top of next lower zone which produces oil or gas: 5947' (Pennsylvanian-Paradox)

Give depth of bottom of deepest fresh water zone in area: No fresh water in area. Brackish water in Morrison from 897' to 1950'.

Expected volume of salt water to be injected daily (barrels): 90

Will injection be by gravity or pump pressure? Pump Estimated pressure: 800

Is system open or close type? Close Is filtration or chemical treatment necessary? No

Is the water to be disposed of mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use? Yes

Is any water occurring naturally within the proposed disposal formation mineralized to such a degree as to be unfit for domestic, stock, irrigation, and/or other general use? Yes

List all offset operators to the lease on which this well is located and their mailing address
None

Name and address of surface owner Navajo Tribe of Indians, c/o United States Geological Survey, P. O. Box 959, Farmington, New Mexico.

Have copies of this application been sent by registered mail or given to all offset operators, surface owners, and to the New Mexico State Engineer? Yes

Is a complete electrical log of this well attached? Yes

Operator: Pan American Petroleum Corporation

By: T. M. Curtis

Title: District Superintendent

STATE OF New Mexico)
) ss.
County of San Juan)

BEFORE ME, The undersigned authority, on this day personally appeared T. M. Curtis known to me to be the person whose name is subscribed to the above instrument, who being by me duly sworn on oath states that he is duly authorized to make the above report and that he has knowledge of the facts stated therein and that said report is true and correct.

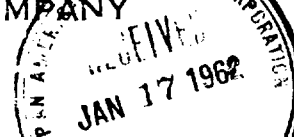
SUBSCRIBED AND SWORN TO before me this the 22nd day of March, 19 63

S. K. Lutz
Notary Public in and for the County of San Juan

February 27, 1965
My Commission Expires

NOTE: Should waivers from all offset operators, the surface owner, and the State Engineer not accompany an application, the New Mexico Oil Conservation Commission will hold the application for a period of fifteen (15) days from date of receipt by the Commission's Santa Fe office. If at the end of said fifteen-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

STANOLIND OIL AND GAS COMPANY

RESEARCH DEPARTMENT
WATER ANALYSIS

Lease: San Juan Well No. 1 Lab. No. T-14,00
 Field: San Juan County: San Juan State: New Mexico
 Quarter or Survey: 17/4 Section: 1 T. 20-N R. 17-W
 Exact Location: _____ Sample Series No. HQ-1
 Producing Stratum: Paradox P.B.T.D. _____ Total Depth: 6090-PEB
 Stratum Yielding Sample: Perforations From: 6366 To: 6390
 Condition of Well: _____
 Sample Collected From: Separator Method Used: Direct form Discharge
 Collected by: T. M. Whitmire Date Collected: 1-3-62 Date Received: 1-9-62
 Transmittal Letter by: L. C. Speer, Jr. Date: 1-4-62 File: N-1006-535.11

Radicle	Per Cent by Analysis	(a) P. P. M.	(b)	(a) X (b)	Per Cent Reacting Value	Calculated Compound	P. P. M.
Na	26.30	21,341	.0435	935.60	35.53	Na ₂ SO ₄	
Ca	7.80	5,000	.0499	293.11	11.14	NaCl	53,721
Mg	1.55	1,170	.0822	57.95	3.33	Na ₂ CO ₃	
Fe						NaHCO ₃	733
						CaSO ₄	560
						CaCl ₂	15,825
SO ₄	.52	395	.0208	8.22	.31	CaCO ₃	
Cl	61.12	46,100	.0282	1300.02	49.36	Ca(HCO ₃) ₂	
CO ₂		0	.0333			MgSO ₄	
HCO ₃	.71	532	.0164	6.72	.33	MgCl ₂	4,582 ✓
H ₂ S						MgCO ₃	
						Mg(HCO ₃) ₂	
Total solids as a summation of radicles							75,421 P.P.M.
Total solids by evaporation and ignition of residue at low red heat							79,040 P.P.M.
Sample as received: Resistivity: ohms/M.M. .0969 at 77°F. pH Value 6.2 Specific Gravity 60°/60°F. 1.057							

PROPERTIES OF REACTION IN PER CENT

PRIMARY SALINITY: SO₄ + Cl = with equal value Na (K) = 71.06 %
 SECONDARY SALINITY: If SO₄ + Cl is greater than Na (K) = %
 Then SO₄ + Cl = with equal value of Ca + Mg = 26.18 %
 PRIMARY ALKALINITY: Excess Na (K) over SO₄ + Cl = with equal value of CO₂ + S = %
 SECONDARY ALKALINITY: Excess Ca + Mg over SO₄ + Cl = with equal value of CO₂ + = .66 %
 CHLORIDE SALINITY: Cl ÷ (SO₄ + Cl) = X 100% = 99.38
 SULPHATE SALINITY: SO₄ ÷ (SO₄ + Cl) = X 100% = .62

NOTE: Multiply Parts per Million by .0583 to obtain Grains per Gallon.

REMARKS: Resistivity: ohms/M.M. .0459 at 172°F

J. L. Hoyt, Jr.
 W. T. Smith -
 T. M. Curtis
 L. C. Speer, Jr.
 T. T. Martin (2)

FARMINGTON DISTRICT	
DS	
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DSS	
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FIVE-104	

ILLEGIBLE

Analyst: James E. Smith Date: 1-9-62

DOCKET: EXAMINER HEARING - WEDNESDAY - APRIL 24, 1963

9 A.M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING, SANTA FE, NEW MEXICO

The following cases will be heard before Elvis A. Utz, Examiner, or Daniel S. Nutter, as alternate examiner:

- CASE 2792: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Everett D. Burgett and all other interested parties to appear and show cause why the Meyers Union Well No. 1, located in Unit I of Section 11, Township 23 South, Range 27 East, and the Richardson-Bass State Well No. 1, located in Unit H of Section 5, Township 25 South, Range 28 East, both in Eddy County, New Mexico, should not be plugged in accordance with a Commission-approved plugging program.
- CASE 2793: In the matter of the hearing called by the Oil Conservation Commission on its own motion to permit Everett D. Burgett and all other interested parties to appear and show cause why the Pure State Wells Nos. 1, 2, 3, and 7, located in Units J and O of Section 15, and the Magnolia State Well No. 1, located in Unit E of Section 14, all in Township 21 South, Range 27 East, Eddy County, New Mexico, should not be plugged in accordance with a Commission-approved plugging program.
- CASE 2794: Application of Ambassador Oil Corporation for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Grayburg-Jackson Unit Area comprising 1600 acres of Federal and State lands in Township 17 South, Range 30 East, Eddy County, New Mexico.
- CASE 2795: Application of Marathon Oil Company for a multiple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the triple completion (conventional) of its State McCallister Well No. 5, located in Unit M of Section 25, Township 17 South, Range 34 East, Lea County, New Mexico, to produce oil from the North Vacuum Abo, the Vacuum-Wolfcamp, and the Vacuum-Devonian Pools through parallel strings of tubing.
- CASE 2796: Application of Texaco Inc. for an unorthodox well location, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to drill its L. R. Manning Federal "B" Well No. 4 at an unorthodox location 330 feet from the South line and 1491 feet from the East line of Section 28, Township 18 South, Range 30 East, North Benson Queen-Grayburg Pool, Eddy County, New Mexico.

ILLEGIBLE

CASE 2797: Application of Texaco Inc. for a non-standard gas proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a 360-acre non-standard gas proration unit comprising the SW/4, N/2 SE/4, and SE/4 SE/4 of Section 31, and the S/2 SW/4 of Section 32, Township 23 South, Range 37 East, Jalmat Gas Pool, Lea County, New Mexico, to be dedicated to its E. E. Blinebry "A" Well No. 2, located in Unit I of said Section 31.

CASE 2798: Application of Pan American Petroleum Corporation for a salt water disposal dual completion, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to dually complete its Navajo "C" Well No. 1, located in Unit D of Section 1, Township 29 North, Range 17 West, San Juan County, New Mexico, to produce hydrocarbons from the Pennsylvanian-Paradox formation and to dispose of produced salt water through the intermediate casing annulus into the open hole interval from 2300 feet to approximately 5000 feet.

CASE 2784: (Continued from April 10, 1963 Examiner Hearing)
Application of Continental Oil Company for authority to conduct interference tests, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to shut-in all wells in the Oil Center-Blinebry Pool, Lea County, New Mexico, for approximately 7 days to achieve stabilization, to leave one well shut-in for a period not to exceed 90 days to observe pressure behavior, and to transfer the allowables and make-up underproduction from the shut-in wells.

CASE 2799: Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formations, Maljamar Pool, Lea County, New Mexico, through one well in Unit J, Section 2, Township 17 South, Range 32 East.

CASE 2800: Application of Olen F. Featherstone for a special allowable, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an order authorizing the assignment of a special allowable to his Valentine Well No. 1, located in Unit M of Section 27, Township 16 South, Range 31 East, Eddy County, New Mexico. Said well offsets and has received a response from Newmont's East Square Lake Waterflood Project.