

Case No.

2269

Application, Transcript,
and Exhibits, Etc.



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Brewer 1957
Roswell, New Mexico

RECEIVED
MAY 22 1961
D. C. C.
ARTESIA, OFFICE

May 18, 1961

Case "2269"

Great Western Drilling Company
P.O. Box 1659
Midland, Texas

Attention: Mr. John T. Hampton

Gentlemen:

Your letter of May 5 transmits additional information regarding the degree of corrosiveness of salt water produced from your Federal "NR" lease (lease New Mexico 01744), and asks that we reconsider your application to use the annular space between 7 5/8 inch and 4 1/2 inch casing in the Federal "NR" well No. 2, SW 1/4 sec. 8, T. 9 S., R. 37 E., N.M.P.M., to conduct said salt water into the San Andres formation for disposal.

The manner you have proposed for dually completing Federal "NR" well No. 2 to use the annular space between 7 5/8 inch and 4 1/2 inch casing for disposal of salt water is satisfactory to this office.

Very truly yours,

EDWIN M. THOMASON
Acting Regional Oil and Gas Supervisor

Copy to: Hobbs

RMOC, Santa Fe

**BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO**

**IN THE MATTER OF THE HEARING
CALLED BY THE OIL CONSERVATION
COMMISSION OF NEW MEXICO FOR
THE PURPOSE OF CONSIDERING:**

**CASE No. 2269
Order No. R-1975**

**APPLICATION OF GREAT WESTERN DRILLING
COMPANY FOR AN OIL-SALT WATER DUAL
COMPLETION, LEA COUNTY, NEW MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on May 4, 1961, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 25th day of May, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

(1) That due public notice having been given as required by law, the Commission has jurisdiction of this cause and the subject matter thereof.

(2) That the applicant, Great Western Drilling Company, is the owner and operator of its Federal NM Well No. 2, located in the SE/4 SW/4 of Section 8, Township 9 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks permission to dually complete said Federal NM Well No. 2 in such a manner as to permit the disposal of salt water into the San Andres formation in the interval from approximately 4290 feet to approximately 5100 feet, and the production of oil from the Rough C formation adjacent to the East Allison-Pennsylvanian Pool at a depth of approximately 9675 feet. Salt water will be injected through the annulus between strings of 4 1/2-inch and 7 5/8-inch casing to a depth of 4290 feet, thence through the annulus between the string of 4 1/2-inch casing and the open hole to approximately 5100 feet. The Pennsylvanian oil will be produced through 2-inch tubing set at 7000 feet installed within the string of 4 1/2-inch casing set at total depth.

(4) That cement on the string of 4 1/2-inch casing should extend from total depth to approximately 5100 feet.

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CASE No. 2269
Order No. R-1975

(5) That the annulus between the 2 3/8-inch tubing and the 4 1/2-inch casing strings should be filled with sweet oil, naphtha, or other non-corrosive fluid.

(6) That the mechanics of the proposed completion are feasible and approval of the subject application will neither cause waste nor impair correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Great Western Drilling Company, is hereby authorized to finally complete its Federal NM Well No. 2, located in the SE/4 NW/4 of Section 8, Township 9 South, Range 37 East, BLM, Lea County, New Mexico, in such a manner as to permit the disposal of salt water into the San Andres formation in an interval from approximately 4290 feet to approximately 5100 feet and the production of oil from the Dough C formation adjacent to the East Allison-Pennsylvanian Pool at a depth of approximately 9675 feet. Salt water shall be injected through the annulus between strings of 4 1/2-inch and 7 5/8-inch casing to a depth of 4290 feet, thence through the annulus between the string of 4 1/2-inch casing and the open hole to approximately 5100 feet. The Pennsylvanian oil shall be produced through 2-inch tubing set at 7000 feet installed within the string of 4 1/2-inch casing set at total depth.

(2) That cement on the string of 4 1/2-inch casing shall extend from total depth to approximately 5100 feet.

(3) That the annulus between the 2 3/8-inch tubing and the 4 1/2-inch casing strings shall be filled with sweet oil, naphtha, or other non-corrosive fluid.

(4) That jurisdiction of this cause is retained for the entry of such further orders as the Commission may deem necessary.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



[Signature]

EDWIN L. MECHAM, Chairman

[Signature]
E. S. WALKER, Member

[Signature]
A. L. PORTER, Jr., Member & Secretary



Case 2269

May 25, 1961

R. C. TUCKER, PRES.

PHONE MU 2-8241
ADDRESS REPLY TO
BOX 1859
MIDLAND, TEXAS

Re: Water Disposal
Federal "MM" No. 2 Well

New Mexico Oil Conservation Commission
Box 871
Santa Fe, New Mexico

Gentlemen:

In compliance with your request to Mr. John Hampton for information on the subject well, we enclose herewith a copy of the letter from the United States Department of the Interior, Geological Survey, Roswell, New Mexico, indicating the approval of that office of the manner of water injection proposed for the Federal "MM" No. 2 well.

Should you desire further information, please so advise.

Yours very truly,

GREAT WESTERN DRILLING COMPANY

M. B. Wilson

M. B. Wilson
Vice President, Production

MBW:fw
Encl.



DOCKET: EXAMINER HEARING - THURSDAY, MAY 4, 1961

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

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

CONTINUED CASE

CASE 2234: Application of Kay Kimbell for an order force-pooling a
320-acre gas proration unit in the Basin-Dakota Pool.
Applicant, in the above-styled cause, seeks an order force-
pooling all mineral interests in the Basin-Dakota Pool in
the E/2 of Section 22, Township 29 North, Range 11 West,
San Juan County, New Mexico, including those of Roy L. Cook
as lessee and various other parties as lessors in the E/2
NW/4 NE/4 of said Section 22.

NEW CASES

CASE 2261: Application of Continental Oil Company for two non-standard
gas proration units. Applicant, in the above-styled cause,
seeks the establishment of a 480-acre non-standard gas
proration unit in the Eumont Gas Pool consisting of the
S/2 and the NE/4 of Section 24, Township 20 South, Range
37 East, Lea County, New Mexico. Said unit is to be dedi-
cated to the SEMU Eumont Well No. 67, located 1980 feet
from the South and West lines of said Section 24.

Applicant further seeks the establishment of a 480-acre
non-standard gas proration unit in the Eumont Gas Pool
consisting of the NW/4 of Section 24, and the SE/4, the SW/4
NE/4, the S/2 SW/4 and the NW/4 SW/4 of Section 13, all in
Township 20 South, Range 37 East, Lea County, New Mexico.
Said unit is to be dedicated to the SEMU Eumont Well No. 69,
located 1980 feet from the North and West lines of said
Section 24.

CASE 2262: Application of V. S. Welch for an unorthodox oil well
location. Applicant, in the above-styled cause, seeks
approval of an unorthodox oil well location in the Culwin-
Yates Pool for a well to be drilled at a point 330 feet
from the South line and 2390 feet from the West line of
Section 29, Township 18 South, Range 31 East, Eddy County,
New Mexico.

CASE 2263: Application of Collier Drilling Company for an exception to Rule 309 (a). Applicant, in the above-styled cause, seeks an exception to Rule 309 (a) to permit the transportation of oil from the Western Yates Lease, comprising the SE/4 NW/4 of Section 20, Township 18 South, Range 28 East, Eddy County, New Mexico, to a separate tank battery located on its Amerada Lease, comprising the NE/4 NW/4 of said Section 20.

CASE 2264: Application of United States Smelting Refining and Mining Company for an oil-gas dual completion and for permission to commingle the production from two separate pools. Applicant, in the above-styled cause, seeks authorization to dually complete its Federal 11-20-34 Well No. 1, located 1980 feet from the North line and 2130 feet from the West line of Section 11, Township 20 South, Range 34 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Bone Springs formation adjacent to the Lea-Bone Springs Pool and the production of gas from an undesignated Pennsylvanian pool through parallel strings of 2-inch tubing.

Applicant further proposes to commingle the production from both of said pools in said well after metering only the Pennsylvanian pool production.

CASE 2265: Application of Nash, Windfohr and Brown for an unorthodox well location. Applicant, in the above-styled cause, seeks approval of an unorthodox location in an undesignated Abo pool for its Jackson Federal Well No. 23-B, located 1420 feet from the South line and 1980 feet from the East line of Section 24, Township 17 South, Range 30 East, Eddy County, New Mexico.

CASE 2266: Application of Nearburg & Ingram for permission to commingle the production from two separate leases, and from two separate pools. Applicant, in the above-styled cause, seeks permission to commingle, after separate measurement, the Southwest Gladiola-Pennsylvanian Pool production from all wells on its Keating lease, comprising the NE/4 of Section 34 with Southwest Gladiola-Pennsylvanian and Southwest Gladiola-Devonian production from all wells on its Midhurst Lease, comprising the NW/4 of Section 35, all in Township 12 South, Range 37 East, Lea County, New Mexico.

CASE 2267: Application of Byard Bennett for permission to institute a waterflood project in the Caprock-Queen Pool, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks permission to institute a waterflood project in the Caprock-Queen Pool in an area comprising the E/2 SE/4 of Section 20 and the SW/4 of Section 21, all in Township 14 South, Range 31 East, Chaves County, New Mexico, by the injection of water into the Stella Zimmerman Well No. 2, located in the SE/4 SE/4 of said Section 20.

CASE 2268: Application of Humble Oil & Refining Company for an exception to Rule 303 (a). Applicant, in the above-styled cause, seeks an exception to Rule 303 (a) to permit commingling, without separate measurement, of the production from the Paddock, Penrose-Skelly and Drinkard Pools on the J. L. Greenwood Lease, comprising the S/2 of Section 9, Township 22 South, Range 37 East, Lea County, New Mexico.

CASE 2269: Application of Great Western Drilling Company for an oil-salt water dual completion. Applicant, in the above-styled cause, seeks authorization to dually complete its Federal MM Well No. 2, located in the SE/4 NW/4 of Section 8, Township 9 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Bough C formation adjacent to the East Allison-Pennsylvanian Pool and the injection of salt water into the San Andres formation.

CASE 2270: Application of Pan American Petroleum Corporation for an oil-oil dual completion. Applicant, in the above-styled cause, seeks authorization to dually complete its Greenwood Unit Well No. 3, located in Unit H, Section 27, Township 18 South, Range 31 East, Eddy County, New Mexico, in such a manner as to permit the production of oil from an undesignated Bone Springs pool and the production of oil from an undesignated Wolfcamp pool through parallel strings of 2-inch tubing.

CASE 2271: Application of Pan American Petroleum Corporation for two non-standard oil proration units and for an unorthodox oil well location. Applicant, in the above-styled cause, seeks the establishment of a 70.58-acre non-standard oil proration unit in the Cha Cha-Gallup Oil Pool consisting of Lots 8 and 9 and the S/2 of that portion of the San Juan River channel lying in the S/2 NE/4, all in Section 18,

CASE 2271 (Cont.)

Township 29 North, Range 14 West, San Juan County, New Mexico, said unit to be dedicated to the Navajo Tribal "G" Well No. 7, at an unorthodox location 2545 feet from the North line and 1670 feet from the East line of said Section 18, and of a 46.75-acre non-standard oil proration unit in said pool consisting of Lot 6 and the S/2 of that portion of the San Juan River channel lying in the SE/4, all in Section 16, Township 29 North, Range 14 West, San Juan County, New Mexico, said unit to be dedicated to the Navajo Tribal "E" Well No. 10, located 660 feet from the South line and 1980 feet from the East line of said Section 16.

CASE 2272:

Application of Pan American Petroleum Corporation for two non-standard oil proration units and for two unorthodox oil well locations. Applicant, in the above-styled cause, seeks the establishment of an 89.62-acre non-standard oil proration unit in the Cha Cha-Gallup Oil Pool consisting of Lots 2, 3 and 4 of Section 8, Township 28 North, Range 13 West, San Juan County, New Mexico, said unit to be dedicated to the C. J. Holder Well No. 11, at an unorthodox location 493 feet from the North line and 660 feet from the West line of said Section 8, and of an 89.22-acre non-standard oil proration unit in said pool consisting of Lot 1 of Section 8 and Lots 3 and 4 of Section 9, all in Township 28 North, Range 13 West, San Juan County, New Mexico, said unit to be dedicated to the C. J. Holder Well No. 12, at an unorthodox location 493 feet from the North line and 660 feet from the West line of said Section 9.

CASE 2273:

Application of El Paso Natural Gas Company for an exception to Rule 309 (a). Applicant, in the above-styled cause, seeks an exception to Rule 309 (a) to permit the transportation of oil produced on Federal Lease LC-064198-A, comprising the SE/4 of Section 18, prior to measurement, to tank batteries located on Federal Lease No. 025566, comprising the E/2 of Section 19, all in Township 19 South, Range 32 East, Lea County, New Mexico.

Docket No. 13-61

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CASE 2274:

Application of El Paso Natural Gas Company for an oil-gas dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Lusk Deep Unit Well No. 2, located in Unit O, Section 18, Township 19 South, Range 32 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Strawn formation adjacent to the Lusk-Strawn Pool and the production of gas from the Morrow formation in an undesignated pool through parallel strings of 2 3/8-inch tubing.



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
Drawer 1857
Roswell, New Mexico

REPLY BY RETURN MAIL

RECEIVED APR 20 1961

April 28, 1961

Case 2269

Great Western Drilling Company
Box 1659
Midland, Texas

Attention: Mr. John L. Hampton

Gentlemen:

Your letter of April 16 transmits copies of two New Mexico Oil Conservation Commission forms, one entitled "Application for Dual Completion"; and the other "Application to Dispose of Salt Water by Injection into a Porous Formation Not Productive of Oil or Gas." Accompanying the two forms is a schematic diagram outlining your proposal to use the annular space between 7 5/8" and 4 1/2" casing in the yet undrilled Federal "W" well No. 2, Sec. 8, T. 9 S., R. 37 E., N.M.P.M., Lea County, New Mexico, lease New Mexico 01744, to conduct salt water produced on said lease into the San Andres formation for disposal. You request our approval of this proposal.

The manner you have proposed for dually completing well No. 2 Federal "W" is not satisfactory to this office. Accordingly, your request is denied.

Very truly yours,

EDWIN M. THOMPSON
Acting Regional Oil and Gas Supervisor

Copy to: RRDCC, Santa Fe

OIL CONSERVATION COMMISSION

P. O. BOX 871
SANTA FE, NEW MEXICO

May 23, 1961

Great Western Drilling Company
P. O. Box 1639
Midland, Texas

Attention: Mr. John Hampton

Re: Case 2269

Gentlemen:

At the hearing of Case 2269 on May 4, 1961, it was stated that the U.S.G.S. had approved the dual completion as proposed by Great Western. Since the only correspondence from the U.S.G.S. which the Commission had received at that time was unfavorable to Great Western's proposal, it was requested that Great Western, or its Attorney, have the U.S.G.S. furnish the Commission with a letter indicating its approval of the proposed installation.

As of this date we have received no correspondence from the U.S.G.S. indicating their approval of this installation, and until a letter is received to that effect, we can take no further action on this case. The Commission would appreciate the cooperation of all concerned in obtaining this letter in order that this case may be disposed of before June 1, 1961.

Very truly yours,

RICHARD S. MORRIS
Attorney

RSB/csr

cc: Mr. S. B. Christy IV
Harvey, Dow and Kinkie
P. O. Box 10
Roswell, New Mexico

State of New Mexico
Oil Conservation Commission



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

May 26, 1961

Mr. Sam Christy
Hervey, Dow & Hinkle
Box 10
Roswell, New Mexico

APPLICANT:
Great Western Drilling Company

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

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

Carbon copy of order also sent to:

Hobbs OCC X
Artesia OCC _____
Aztec OCC _____

OTHER _____

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date 5/11/61

CASE 2269

Hearing Date 9am 5/4/61

DSN @ SF

My recommendations for an order in the above numbered cases are as follows:

Enter an order approving Gt. Wet's request for dual completion of their Federal MM #2 to dispose of salt water ^{in the San Andres} through the annulus of the $4\frac{1}{2}$ " and $7\frac{5}{8}$ " csq strings to 4290 thence into open annulus of the $4\frac{1}{2}$ " pipe and the open hole down to approximately 5100; also to produce oil from the Banah C Sand of the Gemas/Varian from approximately 9675' through tubing set in the $4\frac{1}{2}$ " production casing string. Cut on said $4\frac{1}{2}$ " csq string shall be sufficient to come back to approximately 5100. Require the $2\frac{3}{8}$ " x $4\frac{1}{2}$ " annulus of the production string to be filled with sweet oil, kerosene, or other non corrosive fluid.

San Juan
Examiner

Hold order until letter from USGS comes in approving of work proposal. USGS has previously denied approval, but applicant testified USGS would now write letter of approval.



STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

April 19, 1961

ADDRESS CORRESPONDENCE TO:
P. O. BOX 1078
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 Great Western Drilling Company received in this office on April 19, 1961, which seeks to complete its Federal "MM" #2 well located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, Township 9 South, Range 37 East, for the production of oil and for the injection of salt water produced from such well into the non-producing formations of such well between the depths of 4860 feet and 5060 feet.

I have received assurance from Mr. John Hampton, Chief Production Engineer for the company that the surface casing which is anticipated to be 200 feet will be set into the red beds, at least one joint and the cement circulated thereon, even though the depth may require more than 200 feet. In view of this statement and the other construction specifications set forth in the application, I have concluded that the approval of this application would not constitute a threat of contamination to the fresh waters which may occur 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
Chief
Water Rights Division

FEI/ma
cc-F. H. Hennighausen
Great Western Drilling Co.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF GREAT WESTERN DRILLING)
COMPANY TO DULY COMPLETE ITS FEDERAL)
MM NO. 2 WELL LOCATED IN THE SE $\frac{1}{4}$ NW $\frac{1}{4}$)
SECTION 8, TOWNSHIP 9 SOUTH, RANGE)
37 EAST, N.M.P.M., LEA COUNTY, NEW)
MEXICO (undesignated field) FOR THE)
PRODUCTION OF OIL FROM THE BOUGH C)
FORMATION AND FOR THE INJECTION OF)
SALT WATER PRODUCED FROM SUCH WELL)
INTO THE NON-PRODUCING FORMATIONS OF)
SUCH WELL BETWEEN THE DEPTHS OF 4860)
FEET AND 5060 FEET.)

CASE NO. 2269

APPLICATION

Comes now Great Western Drilling Company, whose address is Box 1659, Midland, Texas, and hereby makes Application to duly complete its Federal MM No. 2 Well proposed to be located in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, Township 9 South, Range 37 East, N.M.P.M., Lea County, New Mexico (undesignated field) for the production of oil from the Bough C Formation and for the injection of salt water produced from such well into the non-producing formations of such well between the depths of 4860 feet and 5060 feet.

1. That the above well will be located 1980 feet from the north line and 1980 feet from the west line of said Section 8. That said well will be drilled in conformity with the Rules of this Commission; the pay zone will be perforated between the interval of approximately 9670 feet and 9680 feet.

2. That in the drilling and completion of said well the following casing program will be followed:

	<u>Diameter</u>	<u>Setting Depth</u>	<u>Sacks Cement</u>	<u>Top of Cement</u>
Surface	10-3/4"	200'	225 sacks regular	To be circulated
Intermediate	7-5/8"	4300' \pm	1700 sacks	To be circulated
Long String	4-1/2"	9800' \pm	350 sacks	5100' \pm

3. Upon information and belief, all of the formations underlying said well and the immediately surrounding area, between the depths of 4860 feet and 5060 feet are non-oil or gas bearing.

4. That the only wells capable of producing oil or gas in paying quantities within the vicinity of two miles from the above described well, together with the name of the operator thereof, are set forth in the plat attached to this Application, and marked Exhibit "A". That there are no wells within such area or vicinity producing oil or gas in paying quantities from the formations expected to be encountered in Applicant's well from the depths of 4860 feet to 5060 feet.

That the name and address of all offset operators to the lease on which Applicant's well will be situated are as follows:

<u>NAME</u>	<u>ADDRESS</u>
Santa Fe Pacific Rwy. Co.	900 Polk Street, Amarillo, Texas
Union Oil of California	Union Oil Building, Midland, Texas
John Kelly	Box 5671, Roswell, New Mexico
Texaco Inc.	Box 3109, Midland, Texas
King, Warren & Dye	Box 1505, Midland, Texas
L. B. Hodges	Box 671, Roswell, New Mexico

That the name and address of the surface owner of the lands upon which Applicant's well is located is:

<u>NAME</u>	<u>ADDRESS</u>
Fred Baldridge	Portales, New Mexico

5. That there are no other wells in the vicinity of Applicant's well which have been drilled, completed or abandoned which are susceptible to being used as a disposal well for the salt water which will be produced in Applicant's proposed well, and that it is infeasible, impracticable, and uneconomic to drill an additional well for the disposal of such salt water, or to truck or otherwise remove the same from the premises. That in order to protect the correlative rights of the various mineral owners in the lands on which Applicant's well is located, and to avoid waste, that it is necessary and proper to dispose of such salt water by the injection of the same down the annulus between the 7-5/8"

intermediate casing and the 4-1/2" producing casing into the non-producing formations under said well between the depths of 4860 feet and 5060 feet; such salt water will be confined to the aforesaid intervals between 4860 feet and 5060 feet. A schematic diagram of the casing and cementing program and the proposed method of disposing of such salt water, as aforesaid, is attached to this Application, and marked Exhibit "B".

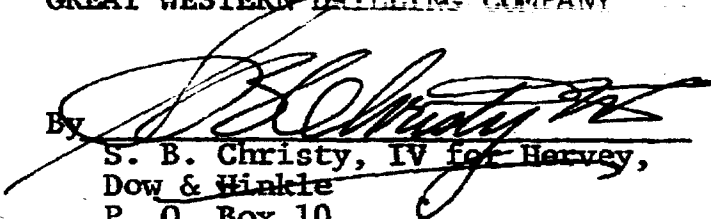
Injection of such salt water will be by pressure pump at an estimated pressure of 1000 psi. This is a closed type system, and no filtration or chemical treatment is necessary to such salt water.

6. The above offset operators, surface owner, New Mexico State Engineer, and the U. S. Geological Survey of the Department of Interior, United States of America, have this date been furnished a copy of this Application by registered mail, due proof of which will be made at the hearing on this Application. The New Mexico State Engineer has further been furnished a copy of the water analysis of the salt water which it is believed will be produced from Applicant's well.

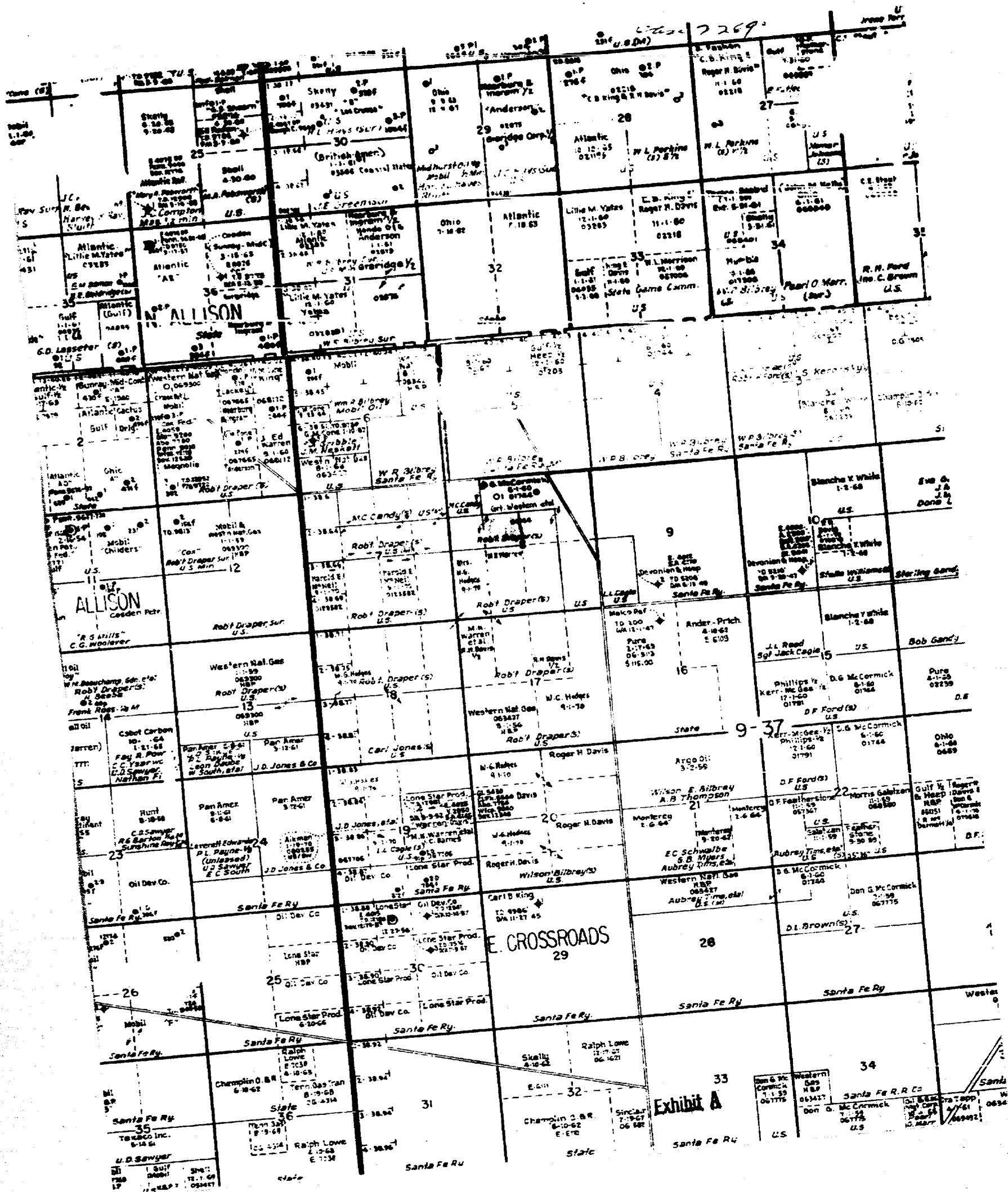
WHEREFORE, Applicant requests that this Application be set for an Examiner hearing after due notice, and for the granting of this Application after hearing.

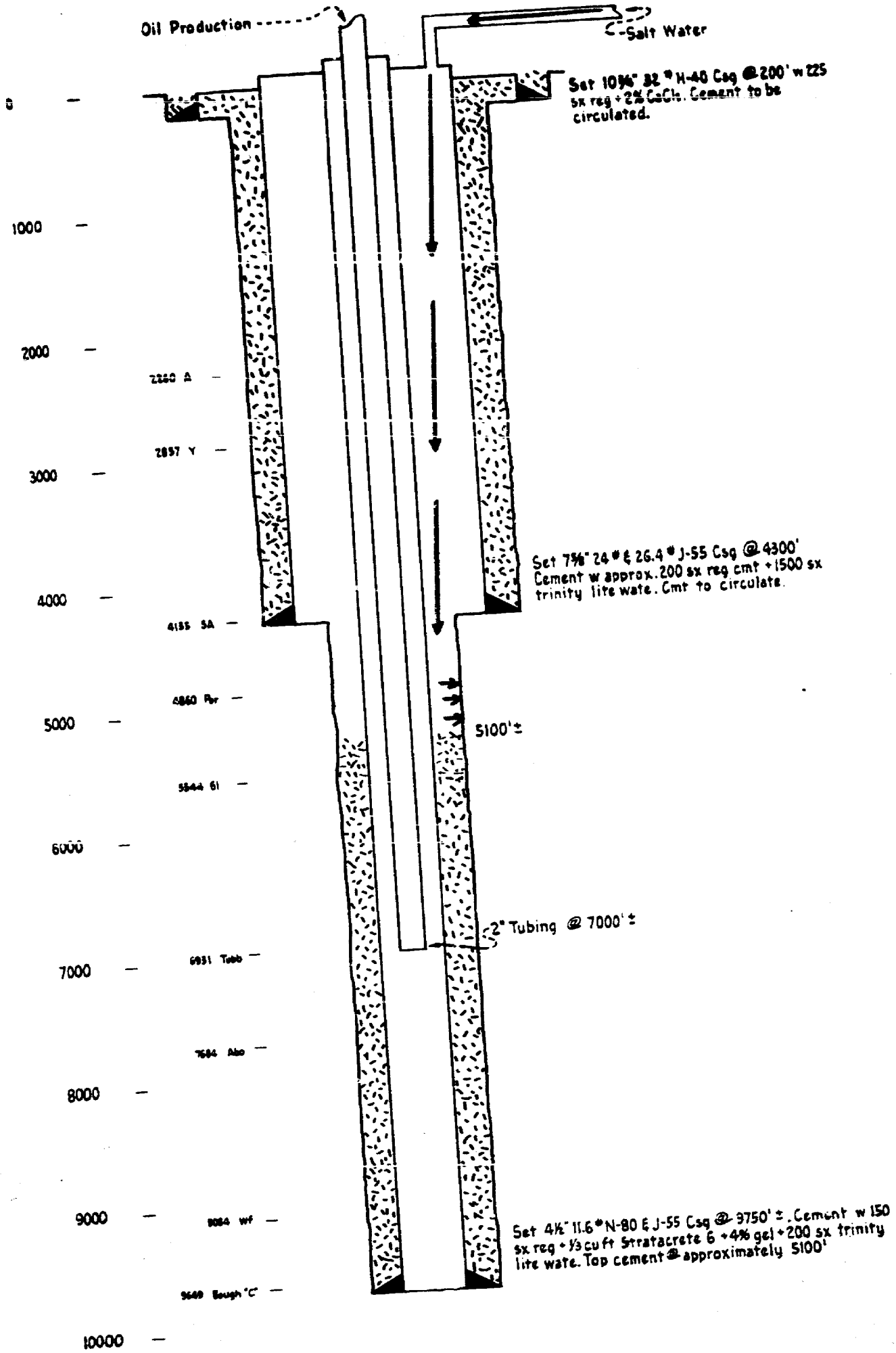
GREAT WESTERN DRILLING COMPANY

By


S. B. Christy, IV for Hervey,
Dow & Winkle
P. O. Box 10
Roswell, New Mexico

Attorneys for Applicant





SCHEMATIC DIAGRAM
PROPOSED CASING & CEMENTING PROGRAM
GREAT WESTERN DRILLING CO.
FEDERAL "MM" NO. 2
SEC. 8 T-9-S R-37-E
LEA COUNTY, NEW MEXICO

File 2269

Revised 9 16 58

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

Operator Great Western Drilling Company Address Box 1439, Midland, Texas
Lease Federal "A" Well No. 2 County Lee
Unit 1 Section 8 Township 9-S Range 37-E

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

unassigned

Name of Injection Formation(s): San Andres

Top of injection zone: 4000 Bottom of injection zone: 3000

Give operator, lease, well no., and location of any other well in this area using this same zone for disposal purposes: Unknown

CASING PROGRAM

	Diameter	Setting Depth	Sacks Cement	Top of Cement
Surface	10-3/4"	200' - plus or minus	225	Circulate
Intermediate	7-3/8"	4300 - "	1700	Circulate
Long String	4-1/2"	9000 - "	330	5100

Will injection be through tubing, casing, or annulus? Annulus

Size tubing: 2-3/8" Setting depth: 7000' - plus or minus Packer set at: 7000', plus or minus

Name and Model No. of packer: H. A.

Will injection be through perforations or open hole? Open Hole

Proposed interval(s) of injection: 4000 - 3000

Well was originally drilled for what purpose? Oil Production

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:

The producing zone will be perforated from approximately 9670' - 9600'.

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: 9670'

Give depth of bottom of deepest fresh water zone in area: Approximately 200'

Expected volume of salt water to be injected daily (barrels): 400 - 300 MGD

Will injection be by gravity or pump pressure? Unknown Estimated pressure: Maximum 1200 psi

Is system open or close type? Closed 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

<u>Santa Fe Pacific Ry. Co.</u>	<u>900 Polk Street</u>	<u>Amarillo, Texas</u>
<u>Union Oil of California</u>	<u>Union Oil Bldg.,</u>	<u>Midland, Texas</u>
<u>John Kelly</u>	<u>Box 5671</u>	<u>Roswell, New Mexico</u>
<u>Tamco, Inc.</u>	<u>Box 3188</u>	<u>Midland, Texas</u>
<u>King, Warren & Dye</u>	<u>Box 1385</u>	<u>Midland, Texas</u>
<u>E. S. Bridges</u>	<u>Box 872</u>	<u>Roswell, New Mexico</u>

Name and address of surface owner Fred Baldrige - Fortales, 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? No

Operator: Great Western Drilling Company

By: John T. Hampton
John T. Hampton

Title: Chief Production Engineer

STATE OF Texas)
County of Midland) ss.

BEFORE ME, The undersigned authority, on this day personally appeared John T. Hampton 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 14th day of April, 19 61.

Thalia Roby THALIA ROBY
Notary Public in and for the County of Midland

June 1, 1961
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.

NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Case 2269
7-3-58

APPLICATION FOR DUAL COMPLETION

Field Name Undesignated		County Lee	Date April 13, 1961
Operator Great Western Drilling Company		Lease Federal "M"	Well No. 2
Location of Well 7	Unit 8	Township 9-8	Range 37-E

1. Has the New Mexico Oil Conservation Commission heretofore authorized the dual completion of a well in these same pools or in the same zones within one mile of the subject well? YES ☐ NO ☒
2. If answer is yes, identify one such instance: Order No. _____; Operator, Lease, and Well No.:

3. The following facts are submitted:	Upper Zone	Lower Zone
a. Name of reservoir	San Andres	Laugh "C"
b. Top and Bottom of Pay Section (Perforations)	4000 - 3000	9670 - 9680
c. Type of production (Oil or Gas)	Salt Water Disposal	Oil
d. Method of Production (Flowing or Artificial Lift)	Injection	Artificial Lift

4. The following are attached. (Please mark YES or NO)

- ☒ a. Diagrammatic Sketch of the Dual Completion, showing all casing strings, including size and setting, top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.
- ☒ b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.
- ☒ c. Waivers consenting to such dual completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.*
- ☐ d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed, it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

Santa Fe Pacific Ry. Co.	900 Fifth Street	Albuquerque, New Mexico
Union Oil of California	Union Oil Bldg.,	Midland, Texas
John Kelly	Box 2671	Midland, New Mexico
Turner, Inc.	Box 2609	Midland, Texas
King, Warren & Dye	Box 1905	Midland, Texas
L. B. Hedger	Box 671	Midland, New Mexico

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES ☒ NO ☐. If answer is yes, give date of such notification **April 14, 1961**.

CERTIFICATE: I, the undersigned, state that I am the **Chief Production Engineer** of the **Great Western Drilling Company** (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

John J. Hampton
Signature

- * Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.
- NOTE: If the proposed dual completion will result in an unorthodox well location and/or a non-standard perforation unit in either or both of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

J. M. HERVEY 1922-1955
HIRAN M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.
HOWARD C. BRATTON
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD

LAW OFFICES
HERVEY, DOW & HINKLE

HINKLE BUILDING
ROSWELL, NEW MEXICO
April 17, 1961

2269
TELEPHONE MAIN 2-6510
POST OFFICE BOX 10

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Great Western Drilling Company
Federal MM No. 2 Well

Gentlemen:

Supplementing Great Western's application to duly complete its Federal MM No. 2 Well in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, Township 9 South, Range 37 East, N.M.P.M., Lea County, New Mexico, which application was made by a letter to you of April 13, 1961, we hand you herewith three counterparts of the formal application with attached exhibits.

We understand that the above case has been set for an Examiner hearing at Santa Fe, New Mexico, on May 4, 1961; if we are incorrect in this please advise.

Respectfully,

HERVEY, DOW & HINKLE

By *S. B. Christy IV*

SBC:mke
Encls.

cc: Great Western Drilling Company

*Rocked
Mailed
4-21-61*

J. M. HERVEY 1874-1953

HIRAM M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.
HOWARD C. BRATTON
S. B. CHRISTY, JR.
LEWIS C. COX, JR.
PAUL W. EATON, JR.

CONRAD E. COFFIELD

LAW OFFICES
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO

April 13, 1961

TELEPHONE MAIN 2-6510
POST OFFICE BOX 10

Case 2269

AIR MAIL - SPECIAL DELIVERY

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Great Western Drilling Company
Federal MM No. 2 Well

Gentlemen:

Great Western Drilling Company hereby makes application to duly complete its Federal MM #2 Well in the SE $\frac{1}{4}$ NW $\frac{1}{4}$ Section 8, Township 9 South, Range 37 East, N.M.P.M., Lea County, New Mexico (undesignated field), for the production of oil from the Bough C Formation and for the injection of salt water from such well into the non-producing San Andres Formation of such well.

A supplement to this application will be filed within the next two or three days, but we request that the above be advertised for the examiner hearing on May 4, 1961.

Respectfully,

HERVEY, DOW & HINKLE

By 

SBC:mke

cc: Great Western Drilling Co.

Memo

From

I. R. TRUJILLO, SUPERVISOR
ADMINISTRATIVE DIVISION

To Ida —

Jim Christie called
and said he submitted
an incorrect application
for Great Western for
the May 4 hearing.

He is sending a
correct application showing
the well to be the #2
in S & N W —

J. M. HERVEY 1874-1963
HIRAM M. DOW
CLARENCE E. HINKLE
W. E. BONDURANT, JR.
GEORGE H. HUNKER, JR.
HOWARD C. BRATTON
S. B. CHRISTY IV
LEWIS C. COX, JR.
PAUL W. EATON, JR.
CONRAD E. COFFIELD

LAW OFFICES
HERVEY, DOW & HINKLE
HINKLE BUILDING
ROSWELL, NEW MEXICO
April 13, 1961

Case 2269
TELEPHONE MAIN 2-6510
POST OFFICE BOX 10

AIR MAIL - SPECIAL DELIVERY

New Mexico Oil Conservation Commission
P. O. Box 871
Santa Fe, New Mexico

Re: Great Western Drilling Company
Federal MM #1 Well

Gentlemen:

Great Western Drilling Company hereby requests dismissal of its application to duly complete its Federal MM #1 Well in the NW $\frac{1}{4}$ NE $\frac{1}{4}$ Section 8, Township 9 South, Range 37 East, N.M.P.M., Lea County, New Mexico (undesignated field), for the production of oil from the Bough C Formation and for the injection of salt water from such well into the non-producing San Andres Formation of such well, which application was made pursuant to a letter from this office to you of April 7, 1961.

Respectfully,

HERVEY, DOW & HINKLE

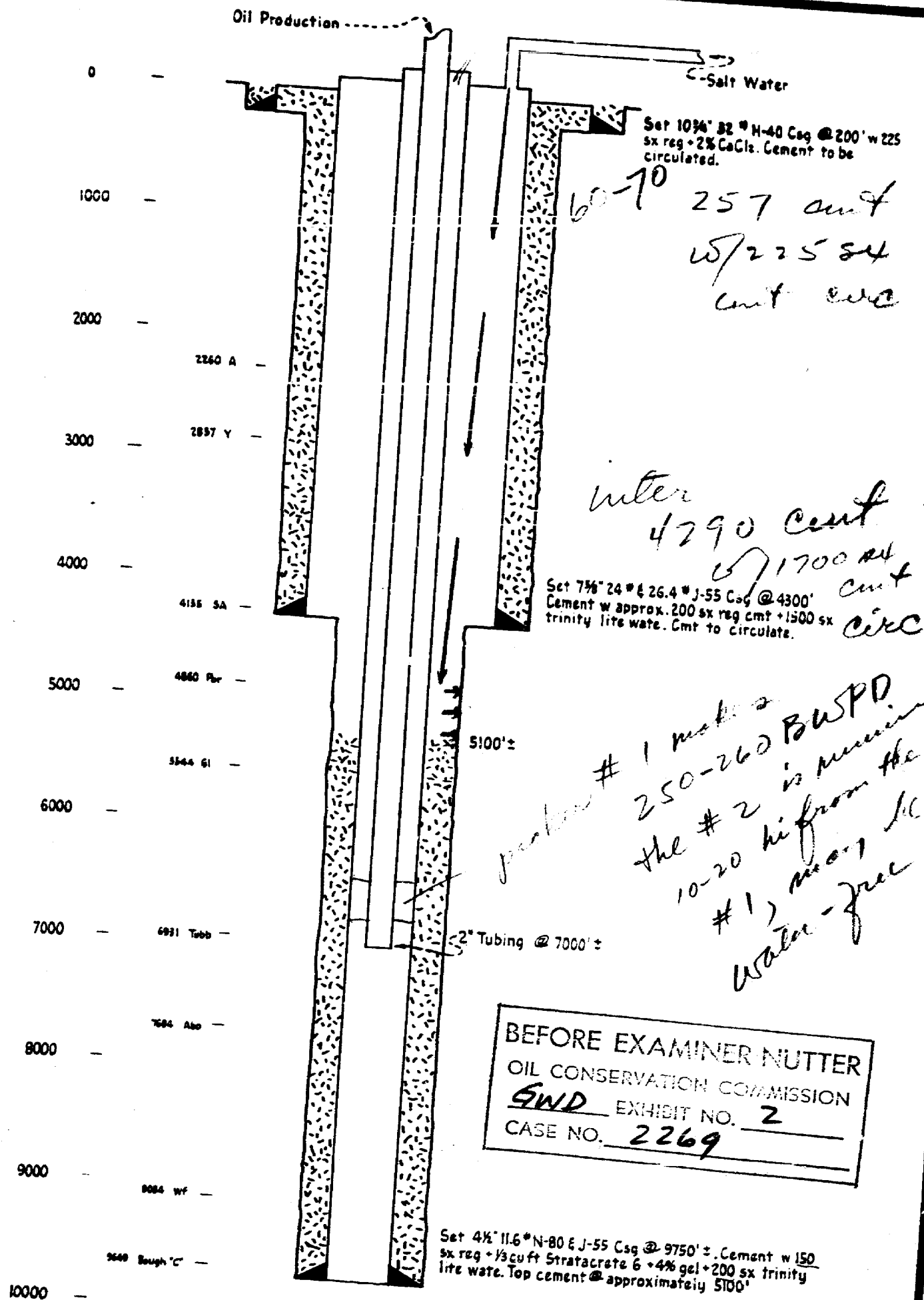
By *S. B. Christy*

SBC:mke

cc: Great Western Drilling Company

*never
advised.
psm*

[illegible]



SCHEMATIC DIAGRAM
PROPOSED CASING & CEMENTING PROGRAM
GREAT WESTERN DRILLING CO.
FEDERAL "MM" NO. 2
SEC. 8 T-9-S R-37-E
LEA COUNTY, NEW MEXICO

MONAHANS, TEXAS

TO: Mr. John Hampton LABORATORY NO. M46127
P. O. Box 1659, Midland, Texas SAMPLE RECEIVED 4-14-61
RESULTS REPORTED 4-21-61

COMPANY Great Western Drilling Co. LEASE Federal NM
FIELD OR POOL Wildcat

SECTION _____ BLOCK _____ SURVEY _____ COUNTY Lea STATE NM

SOURCE OF SAMPLE AND DATE TAKEN:
NO. 1 Produced water - taken from Federal NM #1 heater-treater. 4-14-61
NO. 2 _____
NO. 3 _____
NO. 4 _____

REMARKS:

CHEMICAL AND PHYSICAL PROPERTIES				
	NO. 1	NO. 2	NO. 3	NO. 4
Specific Gravity at 60 degs. F	1.0792			
pH When Sampled				
pH When Received	7.3			
Total Alkalinity as CaCO ₃	252			
Supercarbonate as CaCO ₃	36			
Undercarbonate as CaCO ₃	—			
Total Hardness as CaCO ₃	19.274			
Calcium as CaCO ₃	14.046			
Magnesium as CaCO ₃	4.208			
Sodium and/or Potassium				
Sulfate as SO ₄	477			
Chloride as HCl	113.834			
Silica as SiO ₂	12.8			
Iron as Fe	64.7			
Zinc as Zn				
Copper as Cu	none			
Turbidity Nephelometric	21.1			
Color as Pt	2.3			
Dissolved Solids at 180 deg. C				
Total Solids at 180 deg. C				
Total Solids, Calculated				
Temperature Degs. F.				
Carbon Dioxide, Calculated	25.2			
Dissolved Oxygen, Winkler				
Nitrogen Solids	none			
Residual Chlorine				
Acidity OIL/CC at 60 Degs. F.	12.4			
Total Suspended Solids	173			
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>BEFORE TREATMENT</p> <p>OIL CONCENTRATION</p> <p>5 ml/D</p> <p>CASE NO. 2269</p> </div>				
<div style="border: 1px solid black; padding: 5px; display: inline-block;"> <p>NEUTRALIZATION</p> <p>CONSUMPTION</p> <p>3</p> </div>				
All Results Reported As Parts Per Million				
Additional Determinations And Remarks				
Letter of recommendation attached.				

BY

Waylan C. Martin, M. A.

Treat-Rite Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1938
BACTERIAL AND CHEMICAL ANALYSES
P. O. BOX 1468 PHONE W13-4781
MONAHANS, TEXAS

April 21, 1961

Mr. John Hampton
Great Western Drilling Co.
P. O. Box 1699
Midland, Texas

Subject: Recommendations relative to analysis #W36127 (4-14-61), Federal
MW #1.

Dear Mr. Hampton:

The attached analysis represents the water proposed for disposal through the casing annulus of the planned disposal well. This analysis is considered adequate evidence to use as a basis to establish the feasibility of an annular disposal well.

Of course, in any disposal through the annulus the primary concern is that of the corrosiveness of the water. It is the opinion of this laboratory that this water would be moderate in its corrosiveness. The type of corrosion is that of solvent action due to carbon dioxide with mild aggravation from electrolysis. The nature of this corrosiveness would be that of a comparatively even solvent action on the metal surface with minor or no localized deterioration.

It should be understood that the above designation of "moderate" corrosion is based on the chemical characteristics of the water itself and excludes the fact that there is suspended oil present. The presence of some suspended oil will be of significant benefit in that it will give substantial assistance in protecting the annular space in the disposal well by virtue of its tendency to film on and in initial corrosion products. The presence of suspended oil is anticipated to reduce the actual corrosion to a category of "moderate to mild". The further addition of a corrosion inhibitor designed to protect against mild carbonic acidity would be recommended to reduce the corrosiveness to the category of mild.

In summary, it is the conclusion of this laboratory that the comparatively moderate corrosiveness of this water, plus the presence of suspended oil and the artificial inclusion of a corrosion inhibitor, should render this water safe for disposal through the casing annulus.

Treat-Rite Water Laboratories, Inc.
WATER CONSULTANTS SINCE 1938
BACTERIAL AND CHEMICAL ANALYSES
P. O. BOX 1488 PHONE WI 3-4781
MONAHANS, TEXAS

Great Western Drilling Co. - Federal #1 (A-21-61) - Page 2

Please feel free to contact us for any supplementary reports,
further details, or discussions concerning this situation.

Yours very truly,

Wylan C. Martin
Texas-New Mexico Div. Mgr.

WCM/stb

BEFORE THE NEW MEXICO OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

7-3-58

GND EXHIBIT NO. 2269 APPLICATION FOR DUAL COMPLETION

CASE NO. 2269

Field Name Undesignated County Lea Date April 13, 1961

Operator Great Western Drilling Company Lease Federal "M" Well No. 2

Location Unit E Section 8 Township 9-S Range 37-E

1. Has the New Mexico Oil Conservation Commission heretofore authorized the dual completion of a well in these same pools or in the same zones within one mile of the subject well? YES NO

2. If answer is yes, identify one such instance: Order No. _____; Operator, Lease, and Well No.: _____

3. The following facts are submitted:		Upper Zone	Lower Zone
a. Name of reservoir		<u>San Andres</u>	<u>Bough "C"</u>
b. Top and Bottom of Pay Section (Perforations)		<u>4860 - 5060</u>	<u>9670 - 9680</u>
c. Type of production (Oil or Gas)		<u>Salt Water Disposal</u>	<u>Oil</u>
d. Method of Production (Flowing or Artificial Lift)		<u>Injection</u>	<u>Artificial Life</u>

4. The following are attached. (Please mark YES or NO)

☒ a. Diagrammatic Sketch of the Dual Completion, showing all casing strings, including size and setting, top of cement, perforated intervals, tubing strings, including diameters and setting depth, location and type of packers and side door chokes, and such other information as may be pertinent.

☒ b. Plat showing the location of all wells on applicant's lease, all offset wells on offset leases, and the names and addresses of operators of all leases offsetting applicant's lease.

☒ c. Waivers consenting to such dual completion from each offset operator, or in lieu thereof, evidence that said offset operators have been furnished copies of the application.*

☐ d. Electrical log of the well or other acceptable log with tops and bottoms of producing zones and intervals of perforation indicated thereon. (If such log is not available at the time application is filed, it shall be submitted as provided by Rule 112-A.)

5. List all offset operators to the lease on which this well is located together with their correct mailing address.

<u>Santa Fe Pacific Rwy. Co.</u>	<u>900 Polk Street</u>	<u>Amarillo, Texas</u>
<u>Union Oil of California</u>	<u>Union Oil Bldg.,</u>	<u>Midland, Texas</u>
<u>John Kelly</u>	<u>Box 5671</u>	<u>Roswell, New Mexico</u>
<u>Texaco, Inc.</u>	<u>Box 3109</u>	<u>Midland, Texas</u>
<u>King, Warren & Dye</u>	<u>Box 1505</u>	<u>Midland, Texas</u>
<u>L. B. Hodges</u>	<u>Box 671</u>	<u>Roswell, New Mexico</u>

6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES ☒ NO ☐. If answer is yes, give date of such notification April 14, 1961

CERTIFICATE: I, the undersigned, state that I am the Chief Production Engineer of the Great Western Drilling Company (company), and that I am authorized by said company to make this report; and that this report was prepared under my supervision and direction and that the facts stated therein are true, correct and complete to the best of my knowledge.

John J. Shuptrug
Signature

* Should waivers from all offset operators not accompany an application for administrative approval, the New Mexico Oil Conservation Commission will hold the application for a period of twenty (20) days from date of receipt by the Commission's Santa Fe office. If, after said twenty-day period, no protest nor request for hearing is received by the Santa Fe office, the application will then be processed.

NOTE: If the proposed dual completion will result in an unorthodox well location and/or a non-standard perforation unit in either or both of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.

DEFC
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 2269 OIL

Revised 9 16 58

STATE OF NEW MEXICO
CONSERVATION COMMISSION

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

Operator Great Western Drilling Company Address Box 1659, Midland, Texas
Lease Federal Well No. 2 County Lea
Unit E Section 8 Township 9-S Range 37-E

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

Undesignated

Name of Injection Formation(s): San Andres

Top of injection zone: 4860 Bottom of injection zone: 5060
Give operator, lease, well no., and location of any other well in this area using this same
zone for disposal purposes: Unknown

CASING PROGRAM

	Diameter	Setting Depth	Sacks Cement	Top of Cement
Surface	10-3/4"	200'- plus or minus	225	Circulate
Intermediate	7-5/8"	4300'- "	1700	Circulate
Long String	4-1/2"	9800'- "	350	5100

Will injection be through tubing, casing, or annulus? Annulus
Size tubing: 2-3/8" Setting depth: 7000'-plus or minus Packer set at: 7000'- plus or minus

Name and Model No. of packer: N.A.

Will injection be through perforations or open hole? Open Hole

Proposed interval(s) of injection: 4860 - 5060

Well was originally drilled for what purpose? Oil Production

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:

The producing zone will be perforated from approximately 9670 - 9680'.

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: 9670'

Give depth of bottom of deepest fresh water zone in area: Approximately 200'

Expected volume of salt water to be injected daily (barrels): 400 - 500 BWPD

Will injection be by gravity or pump pressure? Unknown Estimated pressure: Maximum 1000 psi

Is system open or close type? Closed 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

Santa Fe Pacific Rwy. Co.	900 Polk Street	Amarillo, Texas
Union Oil of California	Union Oil Bldg.,	Midland, Texas
John Kelly	Box 5671	Roswell, New Mexico
Texaco, Inc.	Box 3109	Midland, Texas
King, Warren & Dye	Box 1505	Midland, Texas
L. B. Hodges	Box 671	Roswell, New Mexico

Name and address of surface owner Fred Baldrige - Portales, 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? No

Operator: Great Western Drilling Company

By: John T. Hampton

John T. Hampton

Title: Chief Production Engineer

STATE OF Texas

County of Midland

BEFORE ME, The undersigned authority, on this day personally appeared John T. Hampton 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 14th day of April, 19 61.

Thalia Roby THALIA ROBY
Notary Public in and for the County of Midland

June 1, 1961

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.

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF GREAT WESTERN DRILLING
COMPANY TO DULY COMPLETE ITS FEDERAL
MM NO. 2 WELL LOCATED IN THE SE $\frac{1}{4}$ NW $\frac{1}{4}$
SECTION 8, TOWNSHIP 9 SOUTH, RANGE
37 EAST, N.M.P.M., LEA COUNTY, NEW
MEXICO (undesignated field) FOR THE
PRODUCTION OF OIL FROM THE BOUGH C
FORMATION AND FOR THE INJECTION OF
SALT WATER PRODUCED FROM SUCH WELL
INTO THE NON-PRODUCING FORMATIONS OF
SUCH WELL BETWEEN THE DEPTHS OF 4860
FEET AND 5060 FEET.

CASE NO. 2269

AFFIDAVIT

STATE OF NEW MEXICO }
County of Chaves } ss.

S. B. Christy, IV, a member of the law firm of Hervey, Dow
& Hinkle, Box 10, Roswell, New Mexico, which firm is the attorney
of record for Great Western Drilling Company in Case No. 2269
before the New Mexico Oil Conservation Commission, does hereby
swear that he did on the 18th day of April, 1961, mail a true
and correct copy of the Application in the above and foregoing
case, postage prepaid, to each of the following addressees at
the address stated, to-wit:

<u>NAME</u>	<u>ADDRESS</u>
Santa Fe Pacific Rwy. Co.	900 Polk Street, Amarillo, Texas
Union Oil of California	Union Oil Building, Midland, Texas
John Kelly	Box 5671, Roswell, New Mexico
Texaco Inc.	Box 3109, Midland, Texas
King, Warren & Dye	Box 1505, Midland, Texas
L. B. Hodges	Box 671, Roswell, New Mexico
Irvin Baldridge	Portales, New Mexico
U. S. Geological Survey	Box 1857, Roswell, New Mexico
State Engineer	Capitol Building, Santa Fe, New Mexico

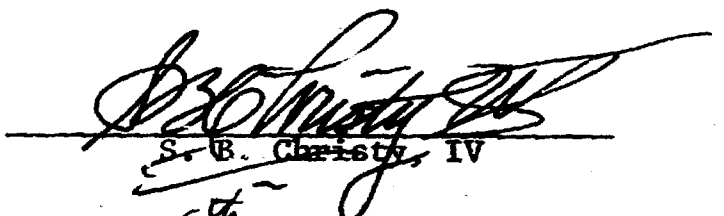
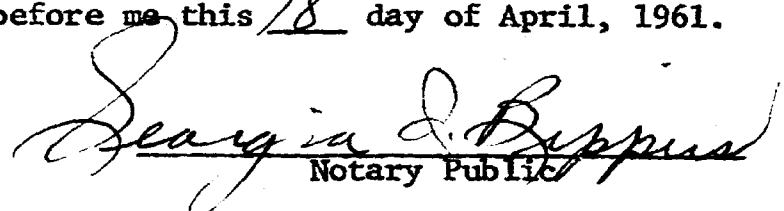
and that he did take such action for and in behalf of Great Western
Drilling Company.

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
GWD EXHIBIT NO. 6
CASE NO. 2269

Subscribed and sworn to before me this 18th day of April, 1961.

My Commission Expires:

May 10 1962


S. B. Christy, IV

Notary Public

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
MAY 4, 1961

EXAMINER HEARING

IN THE MATTER OF:

CASE 2269

TRANSCRIPT OF HEARING

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
MAY 4, 1961

EXAMINER HEARING

DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CH 3-6691

ALBUQUERQUE, NEW MEXICO

IN THE MATTER OF:

CASE 2269 Application of Great Western Drilling Company:
for an oil-salt water dual completion. Ap-
plicant, in the above-styled cause, seeks
authorization to dually complete its Federal
NM Well No. 2, located in the SE/4 NW/4 of
Section 8, Township 9 South, Range 37 East,
Lea County, New Mexico, in such a manner as
to permit the production of oil from the
Bough C formation adjacent to the East Alli-
son-Pennsylvanian Pool and the injection of
salt water into the San Andres formation.

BEFORE:

Daniel S. Mutter, Examiner.

T R A N S C R I P T O F P R O C E E D I N G S

MR. NUTTER: We will take next Case 2269.

MR. MORRIS: Case 2269. Application of Great Western
Drilling Company for an oil-salt water dual completion.

MR. CHRISTY: Sim Christy, Hervey, Dow & Hinkle for the
applicant, Great Western Drilling Company. We have one witness,
Mr. Examiner.

(Witness sworn)

MR. CHRISTY: I might state to the Examiner initially,



that portions of this case will be similar to the Commission's Case 2200, and I brought the file in, Mr. Examiner; it's right there, turned the other way.

JOHN HAMPTON,

called as a witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. CHRISTY:

Q Would you please state your name, address and occupation?

A John Hampton. Chief production engineer, Great Western Drilling Company, Midland, Texas.

Q Mr. Hampton, have you previously testified before this Commission as a geologist and engineer and had your qualifications accepted?

A Yes, sir, I have.

Q Are you familiar with what is sought in Case No. 2269 before this Commission?

A Yes, sir.

Q Are you familiar with the area and the wells within the area?

A Yes, sir.

MR. CHRISTY: Does the Commission have any questions concerning the qualifications of the witness?

MR. NUTTER: No, sir. Proceed.

Q (By Mr. Christy) Will you briefly tell us what you seek



DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE CN 1-6491

ALBUQUERQUE, NEW MEXICO

in the application in this case?

A The applicant seeks to dually complete our Federal MM No. 2 Well located in the southeast quarter of the northwest quarter of Section 8, 9, 37, Lea County, New Mexico.

(Whereupon, Applicant's Exhibit No. 1 was marked for identification)

Q I'll refer you to what has been marked as Exhibit 1, and ask you to please identify that Exhibit for us?

A Exhibit 1 is a plat of the area showing the sublease outlined in yellow. It also shows the No. 1 Federal MM Well, and the No. 2 Federal MM Well, which is now drilling.

Q The No. 1 Well you just spoke of was the subject of a prior hearing before this Commission in Case No. 2208, was it not?

A Yes, sir.

Q You say the No. 2 Well is drilling. Could you tell us a little about the drilling of it, where it is now, and what your casing program, if any, is so far?

A Yes, sir.

Q Would you like to refer to Exhibit 2?

A Yes, let's refer to Exhibit 2.

Q Would you please identify the Exhibit for us initially?

(Whereupon, Applicant's Exhibit No. 2 was marked for identification)

A Exhibit 2 is a schematic diagram of the proposed casing and cementing program for the Federal MM No. 2. The surface pipe



DEARNLEY-MEIER REPORTING SERVICE, Inc.

PHONE C-1 3-6691

ALBUQUERQUE, NEW MEXICO

has been set in this well. It was set at 257 feet, and cemented with 225 sacks of cement. The cement circulated. Yesterday the intermediate string of casing was set at 4290 feet, and cemented with 1700 sacks of cement, and approximately 175 sacks circulated to the surface. Then we propose to set the production string of casing through the pay zone at approximately 9750 feet, and cement with approximately 350 sacks of cement in order to bring the top of the cement back up to 5100 feet.

Q And you will bring the cement back up to that?

A Yes, we will. We will run a temperature survey to see that the cement is back up there, and if it is not, we will put some more cement in.

Q So, in your final installation, you will have about 4,000 feet of cement?

A I believe it's about 4,000.

Q From the bottom to the 5100 feet?

A About 4600 feet, something on that order.

Q I assume you don't yet have a log on this No. 2 Well. You do have a log on the No. 1 Well, do you not?

A Yes. It was submitted in the previous case.

Q In the Case 2208?

A Yes.

Q The drilling characteristics on the present well have been substantially the same as the No. 1 Well?

A Yes. It's running, as I understand, about 10 to 20 feet



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high to the No. 1 Well.

Q Of course, you haven't had a chance yet to test the San Andres and other formations at higher elevation from your proposed Bough C zone. Will you make those tests?

A The formation will be evaluated when drilled and be tested, if necessary.

Q Do you expect to encounter anything in the sand?

A No, sir, we do not.

Q Proceeding, again with Exhibit 2, will you tell us a little bit more how you propose to dually complete this No. 2 Well in order to permit the injection of salt water, as indicated on Exhibit 2?

A Yes, sir. The production will be from the Bough C zone at approximately 9650 feet or so. Then the second part of the dual completion we propose to dispose of salt water down the annular space between the intermediate string of casing and the production string of casing, as depicted by red arrows on Exhibit No. 2.

Q Let me stop you right there, Mr. Hampton. You say salt water. Do you expect to encounter salt water in the Bough C in this well?

A If we continue running the 10 to 20 feet high that we are running now. We have a possibility of making a water from the completion on this well, but we would anticipate water production from it sooner or later.

Q Your proposed installation would not only be for that



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water, but water in the No. 1 Well?

A That is correct.

Q How much water are you producing out of the No. 1 Well at the present time?

A I would say that well is averaging about 250, 60 barrels of water a day.

Q Now, if you would go on a little bit more about how the salt water is going to be injected; for example, is this a closed or open system?

A It will be a closed system, and the salt water will be injected down the annular space. Initially, I believe the water will not require pressure to be disposed of. Eventually, we might have to put some pressure on it to dispose of it. It's something we don't know.

Q Now, what kind of water is this with respect to its corrosive qualities? Do you have an analysis of that water?

A Yes, sir. I would refer to Exhibit No. 3 now.

(Whereupon, Applicant's Exhibit No. 3 was marked for identification)

Q Would you please identify that Exhibit for us?

A Exhibit No. 3 is an analysis of the produced water from the Federal MM No. 1, which I had made by Treatright Laboratories in Monahans. I think they are well recognized as experts in their field of water conditioning of various sorts. The analysis of this water does show it to be quite salty, although it's not a



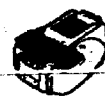
saturated water, but close to being saturated. The letter of recommendation, as attached by the water laboratory, in summary, it is the conclusion of this laboratory that the comparatively moderate corrosiveness of this water, plus the presence of suspended oil and the artificial inclusion of a corrosion inhibitor should render the water safe for disposal through the casing annulus. I think that is, in effect, what the letter said. They do consider it a mildly corrosive water, and do not think that it would be extremely difficult on our casing.

(Whereupon, Applicant's Exhibits 4 and 5 were marked for identification)

Q Mr. Hampton, would you identify for us Exhibits 4 and 5, which, I believe, are the Commission forms for dual completion and salt water disposal?

A Exhibit No. 4 is the Commission's form for application for dual completion. We have shown all of the proper information, I believe. The disposal zone is the San Andres, and the producing zone is the Bough C. The Exhibit No. 5 is the Commission's form for application to dispose of salt water by injection into a porous formation not productive of oil or gas, and we have answered those questions. This casing program is the proposed casing program as, obviously, we have not set the production string yet.

Q On Exhibit 5, I believe, it also shows the names of the offset operator and the surface owner, is that correct?



A Yes, it does.

Q Was the State Engineer given notice of this application, and furnished copies of these Exhibits?

A Yes, he was. He has approved this disposal.

Q This is Federal land, is it not?

A Yes, it is.

Q Have you proposed this installation to the United States Geological Survey, and, if so, have you received any indication from them as to whether or not they might approve it?

A Yes, we have proposed the disposal to the United States Geological Survey, and they have indicated they will approve the matter.

MR. CHRISTY: I might state to the Commissioner at this time, we talked to the U.S.G.S. yesterday, and they said that they would look with great favor upon it, and if you would like to call them, they will be glad to tell what they would like to do.

MR. NUTTER: Will they withdraw this letter?

MR. CHRISTY: Yes, sir. We talked to them. That's the reason we went to see them, because of the letter.

MR. NUTTER: I thought you might go see them.

Q (By Mr. Christy) What are the economics of drilling a disposal well or otherwise disposing of the salt water from the No. 1 and possibly the No. 2 Well?

A Well, at this time we still do not know exactly what we



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have in the way of an oil field operation out here. The No. 1 Well, it looks like now, will make 60 to 70 barrels of oil a day. The No. 2 Well is still a question mark. We cannot at this time justify the economics of drilling a new disposal well. We would anticipate that if the area does develop as we think possibly it might, that at a future date we would either want to drill a disposal well or return this produced water to the producing formation.

Q Or pressure up the Bough C?

A Yes, sir.

Q I notice a well noted in Exhibit 1, down in the southeast, southwest quarter, Section 9. Could you utilize that as a disposal well?

A I don't think it could be done practically, and I do not believe we have the lease on that Section either.

Q Are there any other wells around that you might use for a disposal well?

A Not to my knowledge.

Q What's been done with the salt water at the present time for the No. 1 Well?

A It's been disposed of in a surface pit.

Q Were Exhibits 1 through 5 prepared by you or under your direct supervision?

A Yes, sir, except for the water analysis, which was prepared by the laboratory, using their own methods.



MR. CHRISTY: Here is Exhibit C, which is my affidavit. I did mail to the operators and surface owner a copy of the application. I believe that's all the direct questions we have from this witness.

MR. WUTTER: Does anyone have any questions from Mr. Hampton?

MR. MORRIS: Yes.

MR. WUTTER: Mr. Morris.

CROSS-EXAMINATION

BY MR. MORRIS:

Q Inasmuch as the only communication that we have received thus far from U.S.G.S was a copy of the letter that I believe you received indicating that they would not go along with your application in this case, could you explain briefly, for the record, your understanding of the U.S.G.S.'s position on this at this time?

A The U.S.G.S, the supervisor told us yesterday that the reason he wrote the letter was that he did not quite understand what the application was all about, and he had not received a copy of the log on the No. 1 Well. After seeing the log on the No. 1 Well and answering a few more of his questions, and assuring him that we could bring the cement around the production casing back up to 5100 feet, he said he would approve this installation.

Q And you say he is furnishing us with a letter to that effect?

MR. CHRISTY: He said he would, and he said, in the mean-



while, if you had any questions, please feel free to call him.
That was Mr. Tomlinson.

Q Inasmuch as we have a copy of the letter in our file,
I think it would be well if we had a copy superseding it.

MR. CHRISTY: We'll be sure that you get one, Mr. Morris.

MR. MORRIS: That's all I have.

BY MR. NUTTER:

Q Mr. Hampton, Treatright Water Laboratories feel that the
disposal of this water in the casing annulus won't present any
particular corrosive problem, provided the water is treated. Do
you plan to treat the water prior to disposal?

A Yes, sir. We will follow their recommendation on treat-
ing the water.

Q Will you have any way of determining whether corrosion
is occurring or not? Will you run coupons in the annulus?

A Yes, we could run coupons. It would be certainly indirect.
It would have to be right at the surface. It would give us some
indication, I believe.

Q Do you intend to install a packer in the well?

A Yes, sir. This well will be produced under a packer,
probably a Giberson hook-wall packer set at the bottom of the
tubing, wherever the tubing is set. We anticipate right now at
7000 feet with a Kobe type installation, which does require a packer.

Q You will be lifting this well with a Kobe pump, then?

A That's what we are contemplating right now.



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Q Where will your four-hole go? Will it go down the four and a half inch pipe?

A No, sir. It will go down the tubing.

Q You will have another string of tubing for the pure oil?

A Yes, sir.

Q So you will have two strings of tubing in this four and a half inch pipe?

A No, sir, that's not exactly right. Yes, sir, it is right.

Q Will there be any way in which you can fill the annulus outside the two strings of pipe and the four and a half inch pipe with any kind of a sweet oil or naptha or any kind of medium?

A Inside the production string?

Q Yes. In other words, in the annulus outside the producing tubing, but within the production pipe?

A Yes, sir, it could be done.

Q And pressure that up so that you'd be able to determine if any leak should result in the four and a half inch pipe as a result of the interval of salt water on the outside of the four and a half inch pipe?

A That could be done.

Q You say that the No. 1 Well is now making from 60 to 70 barrels per day?

A Of oil.

Q And from 250 to 260 barrels of water per day?



A Yes, sir.

MR. NUTTER: Are there any further questions of Mr. Hampton?

MR. CHRISTY: I would like to ask one more question. I might state we would be perfectly happy to comply with that suggestion, if you would like to put it in the order, of putting the oil in the annulus and pressuring it up. We will be glad to do that.

REDIRECT EXAMINATION

BY MR. CHRISTY:

Q Mr. Hampton, I didn't ask you, I don't believe, perhaps I missed your testimony on it. In connection with the surface casing, have you got a joint of pipe in the red beds up there?

A Yes. The 220 feet, like I said, we set 257 feet of pipe, so one joint and a few feet into the red beds.

MR. CHRISTY: No further questions.

MR. NUTTER: Does anyone have anything further they wish to offer in this case?

MR. MORRIS: Mr. Examiner, we have communications previously referred to by Mr. Hampton, one from the State Engineer's office, signed by Mr. Frank Irby, approving the application; the other letter being from the U.S.G.S., signed by Mr. Edwin M. Tomison denying the request. And these letters should be in the case file and be in the record of this case.

MR. CHRISTY: We will obtain the other letter for you

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from U.S.G.S.

MR. NUTTER: You wish to offer these Exhibits?

MR. CHRISTY: Yes, sir, we would like to offer Exhibits 1 to 5, inclusive. We would like to also offer in evidence the log on MM No. 1 Well in Case 2208, referred to in this hearing.

MR. NUTTER: That log will be incorporated in this case. The Exhibits, without objection, will be admitted.

(Whereupon, Applicant's Exhibits 1 through 5 and the log were received in evidence)

MR. NUTTER: Does anyone have anything further to offer?
We will take the case under advisement.

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STATE OF NEW MEXICO)
) ss
 COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in machine shorthand and reduced to typewritten transcript under my personal supervision, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this, the 6th day of May, 1961, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley
 NOTARY PUBLIC

My Commission expires:

June 19, 1963

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2269, heard by me on 5-4, 1961.

[Signature], Examiner
 New Mexico Oil Conservation Commission

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