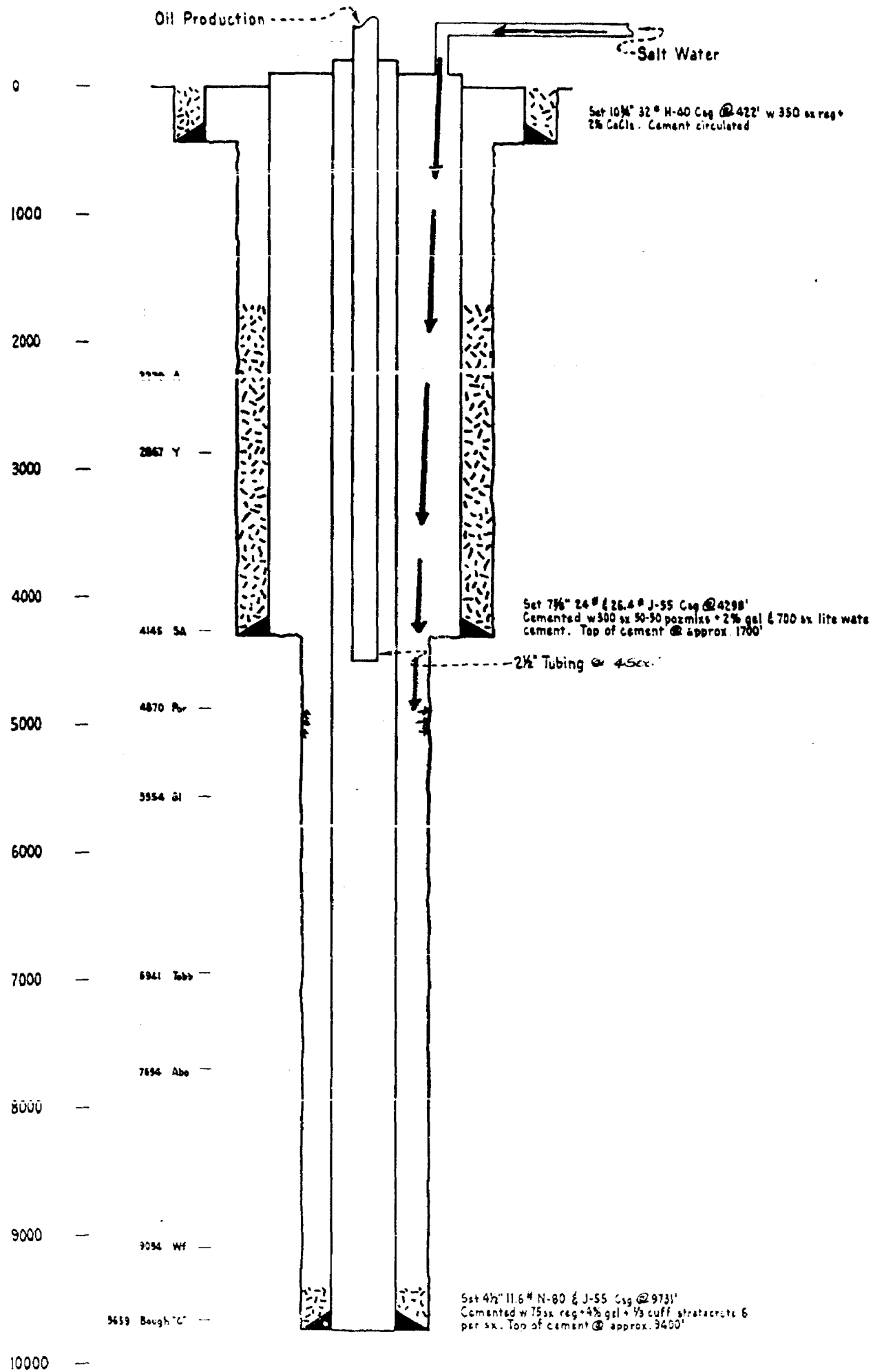


ALL INFORMATION CONTAINED
HEREIN IS UNCLASSIFIED
DATE 01-11-01 BY 1043

Case No.

2208

Application, Transcript,
Small Exhibits, Etc.



SCHEMATIC DIAGRAM
 GREAT WESTERN DRILLING CO.
 FEDERAL "MM" NO. 1
 SEC. 8 T. 9-S R. 37-E
 LEA COUNTY, NEW MEXICO

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSIONAPPLICATION
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 MM Well No. 1 County Lea
 Unit B Section 8 Township 9-S Range 37-E

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

Wildcat

Name of Injection Formation(s): San Andres, Glorieta

Top of injection zone: 4300' Bottom of injection zone: 9400'

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"	422'	350 sacks regular	Circulated
Intermediate	7-5/8"	4298'	300 sacks 50-50 pozzolan 700 sacks Lite Wate	1700'
Long String	4-1/2"	9731'	75 sks. reg. plus 1/3 cu. ft. per sk. Strata-Crete 7 plus 4% gel.	9400

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

Size tubing: 2-1/2" Setting depth: 4500' Packer set at: None

Name and Model No. of packer: Tubing Anchor (Baker Compensating)

Will injection be through perforations or open hole? Annulus

Proposed interval(s) of injection: 4300 - 9400'

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:

Pay Zone Perforated 9662-67) Squeezed w/ 150 sacks Diesel Oil Cement
 9673-77) 9671-73 Open

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

Give depth of top of next lower zone which produces oil or gas: N. A.

Give depth of bottom of deepest fresh water zone in area: Unknown

Expected volume of salt water to be injected daily (barrels): 350 bbls. per day

Will injection be by gravity or pump pressure? Pump Estimated pressure: 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. R. Hodges Box 671 - Roswell, New Mexico

Name and address of surface owner W. R. Wilbrey 310 South 1st St., Lovington, N. Mex.

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: GREAT WESTERN DRILLING COMPANY

By: John T. Hampton

Title: Chief Production Engineer

STATE OF _____)
County of _____) ss.

BEFORE ME, The undersigned authority, on this day personally appeared _____ 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 _____ day of _____, 19____.

Notary Public in and for the County of _____

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.

HALLIBURTON DIVISION LABORATORY

HALLIBURTON COMPANY

LOVINGTON, NEW MEXICO

LABORATORY REPORT

No. **WD-13**

Date **1/7/61**

This report is the property of Halliburton Company and neither it nor any part thereof nor a copy thereof is to be published or disclosed without first securing the express written approval of laboratory management. It may however, be used in the course of regular business operations by any person or concern and employees thereof receiving such report from Halliburton Company.

To **Greatwestern Drilling Co.**

Box 1659

Midland, Texas

Date Received **1/7/61**

9681 -

Well & Lease **Federal MM #1**

Depth **9690**

Formation **Bough C**

Location **East Allison Field**

Field **WQ**

Source **DBT #3**

Specific gravity	1.084
60/60 of	
Color, filtrate	colorless
pH	6.5
Resistivity	0.074
72 of	ppm (mpl)
Chlorides, Cl	69,000
Sulfates, SO ₄	500
Alkalinity, HCO ₃	310
Calcium, Ca	6200
Magnesium, Mg	910
Iron, Fe	light(20)
Sodium, Na	36,400
Sulfides, H ₂ S	negl.
Starch	light trace

Remarks:

This sample appears to be mostly formation water with a trace of mud filtrate.

ppm equals Parts per million uncorrected or milligrams per liter
* includes Potassium as Na

Laboratory Analyst
Sutton

Respectfully submitted
HALLIBURTON COMPANY

By **Dave Sutton**



BEFORE EXAMINER NUTTED
NEW MEXICO OIL CONSERVATION COMMISSION

OIL CONSERVATION COMMISSION SANTA FE, NEW MEXICO

7-3-58

EXHIBIT NO. 6

CASE NO. 2208

APPLICATION FOR DUAL COMPLETION

Field Name Undesignated		County Lea	Date March 3, 1961
Operator Great Western Drilling Company		Lease Federal NM	Well No. 1
Location of Well B	Unit 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 X
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 - Glorieta	Bough "C"
b. Top and Bottom of Pay Section (Perforations)	4300 - 9400'	Perforations 9662-67', 9673-77', 9671-73'
c. Type of production (Oil or Gas)	Salt Water Disposal	Oil
d. Method of Production (Flowing or Artificial Lift)	Injection Zone	Artificial Lift

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

- Yes 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.
- Yes 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.
- Yes 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.*
- Yes 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 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

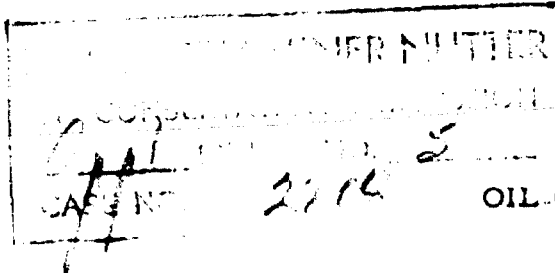
6. Were all operators listed in Item 5 above notified and furnished a copy of this application? YES _____ NO _____. If answer is yes, give date of such notification _____.

CERTIFICATE: I, the undersigned, state that I am the Chief Production Engineer of the Great Western Drilling Co. (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 proration unit in either or both of the producing zones, then separate application for approval of the same should be filed simultaneously with this application.



Revised 9 16 58

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSIONAPPLICATION
TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION
NOT PRODUCTIVE OF OIL OR GASOperator Great Western Drilling Company Address Box 1659, Midland, TexasLease Federal MM Well No. 1 County LeaUnit B Section 8 Township 9-S Range 37-E

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

Name of Injection Formation(s): San Andres, GlorietaTop of injection zone: 4300' Bottom of injection zone: 9400'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"	422'	350 sacks regular	Circulated
Intermediate	7-5/8"	4298'	300 sacks 50-50 Pozmix 700 sacks Lite-Wate	1700'
Long String	4-1/2"	9731'	75 sacks reg. plus 1/3 cu.ft.per sk. Strata- Crete 6 plus 4% gel.	9400'

Will injection be through tubing, casing, or annulus? AnnulusSize tubing: 2 1/2" Setting depth: 4500' Packer set at: NoneName and Model No. of packer: Tubing Anchor (Baker Compensating)Will injection be through perforations or open hole? AnnulusProposed interval(s) of injection: 4300 - 9400'Well was originally drilled for what purpose? Oil ProductionHas 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:

9662-67) squeezed w/ 150 sacks Diesel Oil Cement
Pay zone, Perforated 9673-77) 9671-73 Open

Give depth of bottom of next higher zone which produces oil or gas: None in AreaGive depth of top of next lower zone which produces oil or gas: N.A.Give depth of bottom of deepest fresh water zone in area: UnknownExpected volume of salt water to be injected daily (barrels): 350 bbls. per dayWill injection be by gravity or pump pressure? Pump Estimated pressure: 1000 psiIs 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 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

Name and address of surface owner W. R. Bilbrey 310 South 1st St., Lovington, New Mex.

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: GREAT WESTERN DRILLING COMPANY

By: 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 1st day of March, 19 61.

Sam H. Snoddy
Notary Public in and for the County of Midland, Texas.

Sam H. Snoddy
Notary Public, Midland County, Texas
My Commission Expires 6-1-61

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.

ir/

CLASS OF SERVICE

This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter

NL = Night Letter

LT = International Letter Telegram

1201

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

LA151 SSH158

1961 FEB 9 PM 2 16

L RWA062 DL PD=ROSWELL NMEX 9 141P MST=

THE NEW MEXICO OIL CONSERVATION COMMISSION=

STATE LAND OFFICE BLDG SANTA FE NMEX=

GREAT WESTERN DRILLING COMPANY HEREBY MAKES APPLICATION TO DUTY COMPLETE: ITS FEDERAL MM NO 1 WELL IN THE NW GQXR NE1/4 SECTION 8 TOWNSHIP 9 SOUTH RANGE 37 EAST 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 FORMATIONS BETWEEN 4300 FEET AND 9400 FEET AND

End 1

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Handwritten: 2208
Vertical: Robert M. Miller

OF SERVICE

a fast message or deferred character as indicated by the proper symbol.

WESTERN UNION

TELEGRAM

W. P. MARSHALL, PRESIDENT

SYMBOLS

DL = Day Letter

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LT = International Letter Telegram

1201

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

L RWA062

1961 FEB 9 PM 2 16

FOR AN EXCEPTION TO RULE 107 (D) TO PERMIT THE SETTING OF TUBING IN SAID WELL MORE THAN 250 FEET ABOVE THE TOP OF THE PAY. 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 MARCH 3 1961=

HERVEY DOW & HINKLE.

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

APPLICATION OF GREAT WESTERN
DRILLING COMPANY TO DULY COM-
PLETE ITS FEDERAL NM NO. 1 WELL
LOCATED 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 PRODUCED FROM SUCH
WELL INTO THE NON-PRODUCING FORMA-
TIONS OF SUCH WELL BETWEEN THE
DEPTHS OF 4300 FEET AND 9400 FEET;
AND, FOR AN EXCEPTION TO RULE 107(d)
TO PERMIT THE SETTING OF TUBING IN
SAID WELL MORE THAN 250 FEET ABOVE
THE TOP OF THE PAY.

Case No. _____

AFFIDAVIT

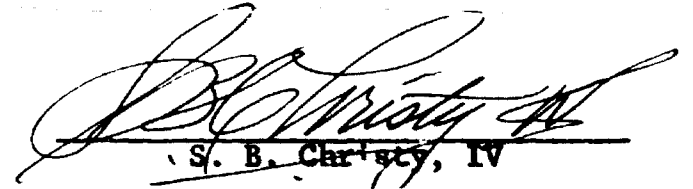
STATE OF NEW MEXICO)
County of Chaves) ss.

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. 2208 before the New Mexico Oil Conservation Com-
mission, does hereby swear that he did on the 15th day of
February, 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
W. R. Bilbrey	310 South First Street, Lovington, New Mexico
U. S. Geological Survey	Box 6721, Roswell, New Mexico
State Engineer	Capitol Building, Santa Fe, New Mexico

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 7
CASE NO. 2208

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


S. B. Christy, IV

Subscribed and sworn to before me this 11th day of
February, 1961.

My Commission Expires:

May 10-1962


Notary Public



File Case
2208

STATE OF NEW MEXICO

STATE ENGINEER OFFICE

SANTA FE

S. E. REYNOLDS
STATE ENGINEER

February 10, 1961

ADDRESS CORRESPONDENCE TO:
P. O. BOX 1079
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 submitted under date of February 3, 1961 to the New Mexico Oil Conservation Commission seeking permission to dispose of produced salt water from the Great Western Drilling Company Federal MM #1 well located in Section 8, Township 9 South, Range 37 East in Lea County, New Mexico.

At my request, Mr. Hampton has submitted a copy of the schematic diagram which accompanied his application to you. I have consulted, at some length, with our geologists and hydrologists with reference to the proposed method of disposing of this water and we have reached the conclusion that the single wall of the 7 5/8" casing which will be the only protection afforded the Santa Rosa formation is inadequate and recommend that the Commission deny this application, unless adequate protection is provided for the Santa Rosa formation.

I am sure you are aware that the Santa Rosa formation is a fresh water bearing formation in several different localities and that any brines which might escape into this formation, even though it be barren at that specific point, could migrate to the areas where the fresh water exists and thereby cause contamination. It is still our position, as it has been in the past, that disposal should be into a zone of permian age, or older, and that all zones above the permian should be adequately protected.

Very truly yours,

S. E. Reynolds
State Engineer

FEI/ma
cc-F. H. Hennighausen
Great Western Drilling Co.
Attn. John T. Hampton

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

BEFORE THE OIL CONSERVATION COMMISSION

OF THE STATE OF NEW MEXICO

APPLICATION OF GREAT WESTERN DRILLING)
COMPANY TO DULY COMPLETE ITS FEDERAL)
MM NO. 1 WELL LOCATED 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 PRODUCED FROM SUCH WELL INTO THE)
NON-PRODUCING FORMATIONS OF SUCH WELL)
BETWEEN THE DEPTHS OF 4300 FEET AND)
9400 FEET; AND, FOR AN EXCEPTION TO RULE)
107(d) TO PERMIT THE SETTING OF TUBING)
IN SAID WELL MORE THAN 250 FEET ABOVE THE)
TOP OF THE PAY.)

CASE NUMBER

2208

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. 1 well located 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 produced from such well into the non-producing formations of such well between the depths of 4300 feet and 9400 feet; and, for an exception to Rule 107(d) to permit the setting of tubing in said well more than 250 feet above the top of the pay; and in support thereof would respectively state:

1. That the above well is located 660 feet from the north line and 1980 feet from the east line of said Section 8. That said well was drilled in conformity with the Rules of this Commission and is presently being completed and tested in the Bough C Formation; the pay zone was perforated between the interval of 9662-67 feet and 9673-77 feet, and was squeezed with 150 sacks of diesel oil cement; the interval of 9671-73 feet was left open. That initial tests indicate that the well is capable of producing oil in paying quantities, but that as an incident to such production the well will additionally produce approximately 350 barrels of salt water

per day; such water is so mineralized to such a degree as to be unfit for domestic stock, irrigation, and/or other general use.

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

	<u>Diameter</u>	<u>Setting Depth</u>	<u>Sacks Cement</u>	<u>Top of Cement</u>
Surface	10-3/4"	422'	350 sacks regular	Circulated
Intermediate	7-5/8"	4298'	300 sacks 50-50 pozmix 700 sacks Lite Wate	1700'
Long String	4-1/2"	9731'	75 sks.reg.plus 1/3 cu.ft.per sk. Strata-Crete 6 plus 4% gel.	9400'

3. That in the drilling of said well Applicant adequately and properly tested all apparently productive zones between the depths of 4145 feet and 9400 feet, and in all such tests no oil or gas in paying quantities was encountered; upon information and belief, all of the formations underlying said well and the immediately surrounding area, between the depths of 4300 feet and 9400 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 encountered in Applicant's well from the depths of 4300 feet to 9400 feet.

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

<u>NAME</u>	<u>ADDRESS</u>
Santa Fe Pacific Rwy. Co.	900 Polk Street, Amarillo, Texas

Union Oil of California

John Kelly

Texaco Inc.

King, Warren & Dye

L. B. Hodges

Union Oil Building, Midland, Texas

Box 5671, Roswell, New Mexico

Box 3109, Midland, Texas

Box 1505, Midland, Texas

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:

NAME

W. R. Bilbrey

ADDRESS

310 South First Street, Lovington,
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 produced in Applicant's 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 the salt water produced from Applicant's well by the injection of such produced salt water 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 4300 feet and 9400 feet; Applicant believes that the injected water will actually enter the San Andres porosity, and in any event, such salt water will be confined to the aforesaid intervals between 4300-9400 feet. A schematic diagram of the casing and cementing program and the proposed method of disposing of the salt water, as aforesaid, is attached to this Application, and marked Exhibit "B". A log on Applicant's well with the formation tops, casing and perforations indicated thereon is attached to this Application, and marked Exhibit "C".

A Tubing Anchor (Baker Compensating) packer is proposed to be set in the well at 4500 feet; injection of the 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 the salt water.

6. With respect to Applicant's request for an exception to Rule 107(d) in this Application to permit the tubing to be set more than 250 feet above the top of the pay, Applicant would respectfully first call the Commission's attention to its memorandum No. 21-58, clarification order No. R-1173, dated August 8, 1958, in which it is stated that an interpretation of the Commission in connection with such rule is that the requirement as to tubing setting depth applies only to flowing wells, and that the well involved in this Application is a pumping well. Applicant would, therefore, suggest to the Commission that an exception to such rule may not be necessary in the present instance. However, in the event the Commission is of the opinion that an exception to such rule is necessary in the present instance, then Applicant further requests such exception, and in support thereof would show unto the Commission that the tubing has been set at a point which will recover, in the most efficient and effective method, the recoverable oil and associated liquid hydro-carbons from the Bough C formation underlying said well. The tubing was placed at a point to "skim", as nearly as practicable, the oil from the salt water in the hole. The location of such tubing is shown in Exhibit "B", attached hereto.

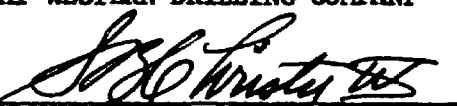
7. The above offset operators, surface owner, New Mexico State Engineer, and the U.S. Geological Survey of the Department of Interior, United States of America, have this date been furnished a copy of this Application by registered mail, due proof of which will be made at the hearing on this Application. The New Mexico State Engineer has further

been furnished a copy of the water analysis of the salt water produced from Applicant's well, and a copy of the water analysis report is attached as Exhibit "D" to this Application.

Wherefore, Applicant requests that this Application be set down 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 & Hinkle
P. O. Box 10
Roswell, New Mexico
Attorneys for Applicant

CASE 2208: Application of Great Western Drilling Company for a water injection-oil producing dual completion and for an exception to Rule 107 (d). Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Federal MM Well No. 1, located in the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the injection of water into an interval from 4300 feet to 9400 feet and the production of oil from an undesignated Pennsylvanian pool. Applicant further seeks an exception to Rule 107 (d) to permit the setting of tubing in said well more than 250 feet above the top of the pay section.

CASE 2209: Application of The Atlantic Refining Company for permission to commingle the production from two separate pools and for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to commingle the oil production from the Denton-Wolfcamp and Denton-Devonian Pools from all wells presently completed or hereafter drilled on the State "T" Lease, comprising the SE/4 NW/4, E/2 SW/4 and SW/4 SW/1 of Section 2, Township 15 South, Range 37 East, Lea County, New Mexico. Applicant further seeks permission to install an automatic custody transfer system to handle said commingled production.

The following cases will not be heard before 1:00 P.M.

CASE 2210: Application of Humble Oil & Refining Company for an automatic custody transfer system. Applicant, in the above-styled cause, seeks permission to install an automatic custody transfer system to handle the commingled production from the Eumont, Arrowhead and Langlie-Mattix Pools from all wells presently completed or hereafter drilled on the State "M" Lease, comprising portions of Sections 17, 18, 19, 20, 29 and 30, Township 22 South, Range 37 East, Lea County, New Mexico.

CASE 2211: Application of Union Oil Company of California for an unorthodox water injection well location. Applicant, in the above-styled cause, seeks permission to locate a water injection well in the South Caprock Queen Unit, Caprock-Queen Pool, at an unorthodox location 1325 feet from the North line and 330 feet from the East line of Section 18, Township 15 South, Range 31 East, Chaves County, New Mexico.

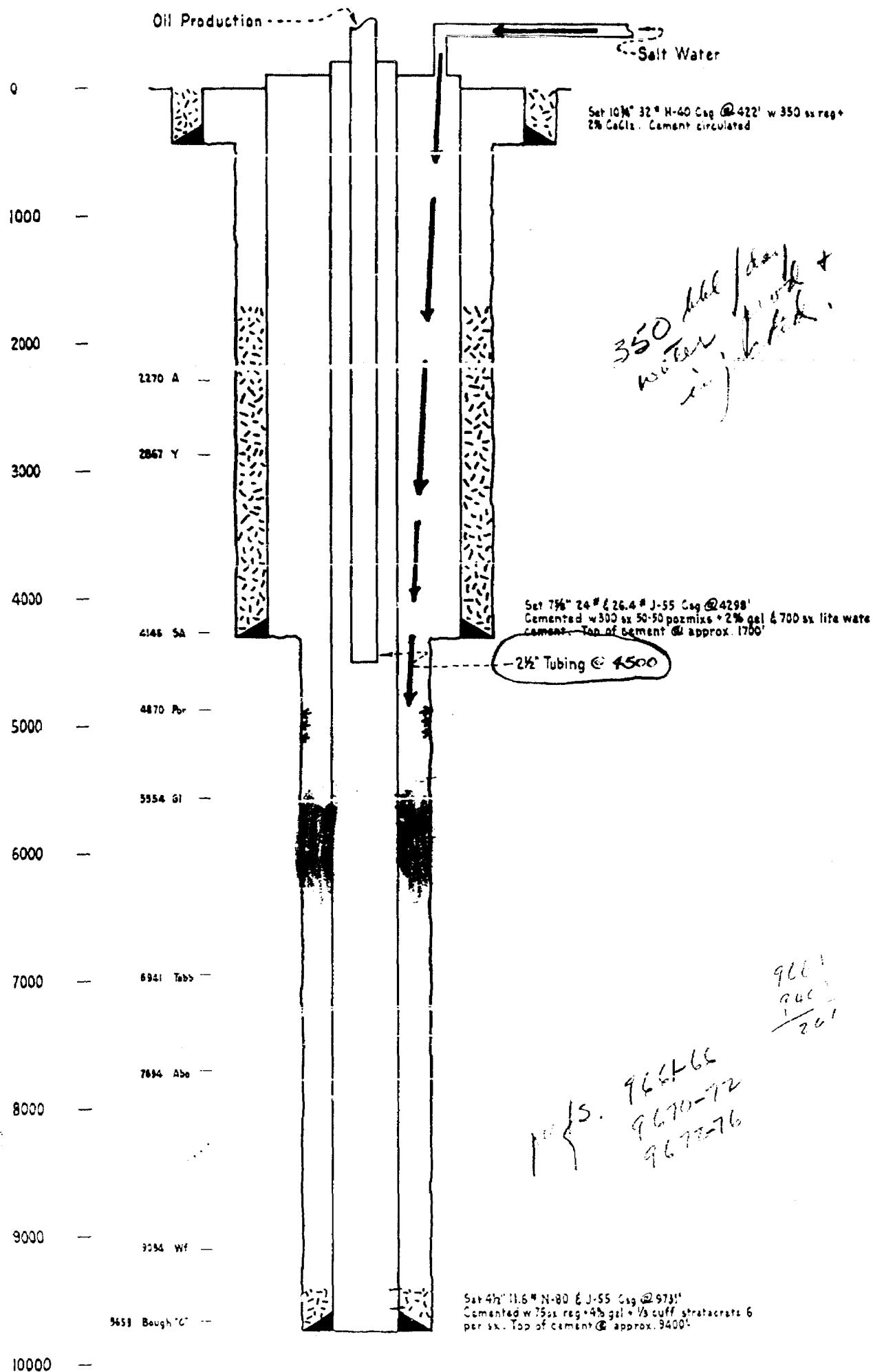
Memo

From

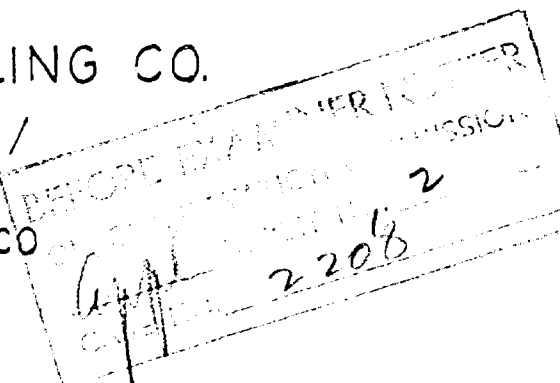
O. E. Payne
General Counsel

To Reasons for Denial

- (1) The applicant has made no effort to determine whether other wells in the area (dry holes) might be utilized for disposal of the produced salt water.
- (2) The column of water which would rest on the cement would constitute a hazard to the Borough "C" zone of the Pennsylvanian formation.
- (3) Injection thru casing rather than tubing would constitute a hazard to any fresh waters in the area.



SCHEMATIC DIAGRAM
 GREAT WESTERN DRILLING CO.
 FEDERAL "MM" NO. 1
 SEC. 8 T. 9-S R. 37-E
 LEA COUNTY, NEW MEXICO



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. 2208
Order No. R-1921

APPLICATION OF GREAT WESTERN DRILLING
COMPANY FOR A WATER INJECTION-OIL
PRODUCING 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 March 3, 1961, at Santa Fe, New Mexico, before Daniel S. Hutter, 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 22nd day of March, 1961, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Daniel S. Hutter, 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 the Federal MM Well No. 1, located in the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant seeks an order authorizing the dual completion of said Federal MM Well No. 1 in such a manner as to permit the injection of produced salt water into an interval from 4300 feet to 9400 feet and the production of oil from an undesignated Pennsylvanian pool.

(4) That the pressure of the column of water on the cement above the pay at the bottom of the hole would constitute an undue hazard to the Bough "C" zone of the Pennsylvanian formation.

(5) That injection of salt water through casing rather than tubing would constitute a hazard to any fresh waters in the area.

-2-

CASE No. 2208
Order No. R-1921

(6) That inasmuch as the applicant has failed to show that there are not any dry holes in the area which could be utilized for salt water disposal purposes, there appears to be no necessity that the subject application for a dual completion be granted.

(7) That the subject application for a dual completion should be denied.

IT IS THEREFORE ORDERED:


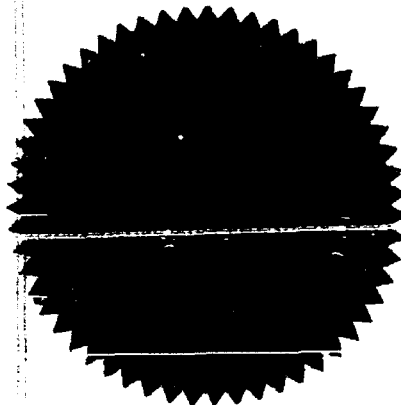
That the subject application for the dual completion of the Federal NM Well No. 1, located in the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, NMPN, Lea County, New Mexico, is hereby denied.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION



EDWIN L. MESCHEM, Chairman


E. S. WALKER, Member
A. L. PORTER, Jr., Member & Secretary

esr/

GOVERNOR
EDWIN L. MECHEM
CHAIRMAN

State of New Mexico
Oil Conservation Commission

LAND COMMISSIONER
E. S. JOHNNY WALKER
MEMBER



P. O. BOX 871
SANTA FE

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

March 23, 1961

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

Re: Case No. 2208
Order No. R-1921
Applicant:
Great Western Drilg. Co.

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

ir/

Carbon copy of order also sent to:

Hobbs OCC
Artesia OCC
Aztec OCC

OTHER

RSM
3/20
off
3/20
sup 3/21

DRAFT

RSM/esr
March 20, 1961

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. 2208

Order No. R- 1921

APPLICATION OF GREAT WESTERN DRILLING
COMPANY FOR A WATER INJECTION-OIL
PRODUCING DUAL COMPLETION, ~~AND FOR AN~~
~~EXCEPTION TO RULE 107 (2)~~, LEA COUNTY,
NEW MEXICO.

off
3/21

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on
March 3, 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 March day of March, 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 the Federal MM Well No. 1, located in
the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, NMPM,
Lea County, New Mexico.

(3) That the applicant seeks an order authorizing the dual
completion of said Federal MM Well No. 1 in such a manner as to
permit the injection of produced salt water into an interval from
4300 feet to 9400 feet and the production of oil from an undesig-
nated Pennsylvanian pool.

(4) That the applicant further seeks an exception to Rule
107(d) to permit the setting of tubing in said well more than
250 feet above the top of the pay section.

(4) That the ^{pressure} ~~same~~ of the column of water on the cement ^{above the pay} ~~plug~~ at the bottom of the hole would constitute an undue hazard to the Bough "C" zone of the Pennsylvanian formation.

(5) That injection of salt water through casing rather than tubing would constitute a hazard to any fresh waters in the area.

(6) That inasmuch as the applicant has failed to show that there are ^{not} any dry holes in the area which could be utilized for salt water disposal purposes, there appears to be no necessity that the subject application for a dual completion be granted.

(7) That the subject application for a dual completion should be denied.

(9) That inasmuch as the subject well is a pumping rather than a flowing well, the applicant should be granted an exception to Rule 107(d) to permit tubing to be set at 4500 feet for the production of oil from the Bough "C" zone of the Pennsylvanian formation.

IT IS THEREFORE ORDERED:

(X) That the subject application ^{for} ~~insofar as it pertains~~ to the injection of salt water ~~into~~ the dual completion of the Federal NM Well No. 1, located in the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, NMPM, Lea County, New Mexico, is hereby denied.

(2) That the applicant is hereby granted an exception to Rule 107(d) to permit tubing to be set in the subject well at a depth of 4500 feet for the production of oil from the Bough "C" zone of the Pennsylvanian formation.

DONE at Santa Fe, New Mexico, on the day and year herein-
above designated.

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
March 3, 1961

IN THE MATTER OF:

Application of Great Western Drilling Company for a water injection-oil producing dual completion and for an exception to Rule 107 (d). Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Federal MM Well No. 1, located in the NW/4 NE/4 of Section 8, Township 9 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the injection of water into an interval from 4300 feet to 9400 feet and the production of oil from an undesignated Pennsylvanian pool. Applicant further seeks an exception to Rule 107 (d) to permit the setting of tubing in said well more than 250 feet above the top of the pay section.

Case
2208

BEFORE:

Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: Hearing will come to order, please. First case this afternoon, Case 2208.

MR. MORRIS: Application of Great Western Drilling Company for a water injection-oil producing dual completion and for an exception to Rule 107 (d).

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

(Witness sworn.)

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PHONE CM 3-6691

ALBUQUERQUE, NEW MEXICO



JOHN HAMPTON

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

DIRECT EXAMINATION

BY MR. CRISTY:

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

A John Hampton, Great Western Drilling Company, Chief Production Engineer, Midland, Texas.

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

A Yes, sir, I have.

Q Are you familiar with the matters contained in this application, Case 2208, before the New Mexico Oil Conservation Commission and what the application seeks?

A Yes, sir.

Q Are you familiar with the well in question in the application and its production history?

A Yes, I am.

Q And the area in question?

A Yes, sir.

Q Would you please briefly tell us what is sought by the application?

A The application seeks to obtain permission to dually complete the Great Western Drill Company Federal MM No. 1 Well, lo-

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PHONE CH 3-6691



cated in Section 8, Township 9 South, Range 37 East, Lea County, New Mexico, as an oil producer from the Bough "C" zone and as a water disposal well.

Q Is that salt water?

A Yes.

Q Now, sir, I will refer you to what has been marked Exhibit 1, which I believe is a plat map of the area, and ask if you will identify this instrument and give us any pertinent data from it, please?

A This is a plat of the area showing several miles around the lease. You will notice the well is located in the N/2 of Section 8. The lease is outlined in yellow. The well, I believe, is 660 from the North line and 1980 from the East line of Section 8.

Q This shows us the offset operators?

A It shows the offset operators and, I believe, all of the producing and dry holes in the area.

Q You said the well under question is producing from the Bough "C" formation. Is there any other well in the area producing from that formation?

A Not within about a two-mile radius. I believe the wells in the Allison and North Allison produce from the Bough "C".

Q With respect to this Bough "C" production, what depth is that, sir?

A The perforations in this well are just 9661 to 66, and 9670 to 76.

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MR. CRISTY: I might state to the Examiner, that is about a one foot difference than that shown in the application. I apparently misunderstood.

Q Do you have a schematic diagram as to the method you propose to dually complete this well as you have mentioned?

A Yes, sir.

Q That is Exhibit 2?

A Exhibit 2 is a schematic diagram of our proposed completion of this well. I might briefly explain what that diagram shows. It shows we set 10 3/4-inch casing at 422 feet and cemented it with 350 sacks of cement. The cement circulated to the surface. It also shows that we have set 7 5/8-inch casing at 4291, and cemented it with 1,000 sacks of cement. The top of the cement is at approximately 1700 feet. We set 4 1/2-inch casing at 9731 and cemented it with approximately 100 sacks of cement, and the top of the cement is at 9400 feet.

Q Would you mention the casing program on that well, sir, as depicted in Exhibit 2?

A Yes, sir.

Q You did? I beg your pardon. What does the red arrow depict on Exhibit 2?

A The red arrow depicts the way we propose to inject salt water into this well, and the arrow indicates the approximate flow of the water which, I believe, would enter the San Andres porosity, the top of it, at approximately 4870 feet.

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Q Through an open hole at that point?

A Yes, sir. It would be at that point.

Q As the salt water is returned to that San Andres formation do I understand it passes down through your intermediate string of casing?

A It passes through the annulus space between the intermediate casing and production string of casing.

Q I also notice the tubing is set approximately 4500 feet?

A That's correct.

Q Why is the tubing set there when production is at 9660?

A For efficient production operations. We cannot pump all of the fluid level below this depth of 4500 feet, so we can get all of the production we can pump out of this well with the tubing set in here.

Q In effect, you are probably somewhat skimming the oil from the top of the column?

A Yes.

Q This is not a flowing well, is it?

A No, sir, it is not.

Q Has it ever been?

A No, sir.

Q I gather the tubing, then, was set for the skimming purposes as a matter of economics?

A That's correct. It would be extremely difficult to pump the well from 9450 feet or so.



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Q In drilling the well, did you encounter any oil or gas shows that would appear to be in paying quantities in these other formations where you propose to inject the salt water, from the San Andres down through the Wolfcamp?

A No, sir. The only shows or indications of oil or gas production we saw in drilling this well was from the Bough "C" zone.

Q Do you have a log on this well?

A Yes, I do have.

Q That is marked as Exhibit 3, I believe?

A Yes, sir.

Q Now, sir, is the area in which this well is located, is that in any declared underground water basin?

A No, sir, it is not.

Q Is it in any of the critical area as declared by the Commission in respect to disposing of salt water?

A To the best of my knowledge the Commission has not called this a critical area.

Q Did you encounter any formations in drilling the well which were productive of fresh water?

A I cannot really state definitely whether there is any water production in this area or not. However, I believe if there were any the bottom would be at about 220 feet, and I might point out here, again, we did set 422 feet of surface casing, and cemented circulated to the surface, so I believe any fresh water zones would be adequately protected.



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Q How about the Santa Rosa formation; did you encounter that?

A Yes, I believe the top of it is approximately 580 feet.

Q That is depicted on the log, Exhibit 3?

A Yes. We marked the top of the Santa Rosa at 580 feet on this log. The Santa Rosa here on this log looks shaly and tight to me, impermeable, and I doubt if it would produce any water.

Q There were no indications of water that should be protected from that formation?

A No, sir. This log has the tops of the various formations marked on it. It has the casing marked on it, and also at the bottom it has the perforations marked on it.

Q This water you are producing out of the Bough "C" that you propose to re-inject, is that salt or fresh water, sir?

A It is salt water.

Q Have you had a water analysis run on that?

A Yes, sir, we did have.

Q I believe that is marked as applicant's Exhibit 4?

A Yes, sir. Halliburton ran an analysis of this water from the water we recovered on a drill stem test, and this is indicated in our Exhibit No. 4, their analysis of this water.

Q Does that analysis reflect to your mind that it is water suitable for domestic, stock, irrigation, and or general use?

A No, sir, it would not be.

Q Why?

A I believe the salt content would be too high for domestic



or any other type use.

Q Does the exhibit reflect any corrosive qualities of the water?

A Well, we would have to admit that any salt water is corrosive to a certain degree. I believe, though, that this salt water would be considered only mildly corrosive.

Q What would be your main solid constituents, sodium and chlorides?

A That's correct, and you would expect them to be in the form of sodium chloride or salt in the water. We might point out here, sulfides are negligible, and we do plan, if granted this permission, we will have a closed system here which would prevent oxygen from entering the system and, consequently, would cut down on any corrosive tendencies these waters might have.

Q For the interval in the Santa Rosa formation you would have the casing also to protect it?

A That's correct.

Q Is there much chance of that salt water eating through the casing, Mr. Hampton?

A In my opinion there is not much chance of it. However, we would take one precaution here, by installing a flow line or a valve on our surface casing. You can see there if the casing which is not protected by cement here were to corrode, we would get an immediate indication on the surface, if we had some device such as a flow line or a valve on our surface casing.

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Q You do propose to use such a safety precaution?

A Yes, sir, we do.

Q About how much salt water do you propose to inject?

A It is extremely difficult to put an exact figure on it. This is a new well. In fact, we don't even know if it is a commercial well. We have been pumping this well for some few days now, and I believe that the maximum we would anticipate would be about 350 barrels a day. The water content of the production is quite high. The oil content is low, and like I say, we actually do not know if this is a commercial well. A period of testing this well should indicate to us whether it is a commercial well or not, and, of course, we do have more acreage in this area, and if the well turns out to be commercial we would, of course, drill additional wells in this area. If we do drill an additional well here we would recirculate the cement behind the intermediate casing and more suitably equip that well for injection purposes than this one is now.

Q Would you dispose of the salt water from this well into such other well or wells?

A Yes. In fact, we envision, if we do develop this area, that the most proper thing to do would be to return the produced water to the producing formation, which we would probably consider doing if we do drill additional wells.

Q So the situation here presented today is a one well situation?



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A That's correct. That is the one well we have in that area.

Q Mr. Hampton, do you have the Commission's form to dispose of salt water?

A Yes, sir.

Q Do you have that filled out?

A Yes, sir.

Q Has that been marked as Exhibit 5?

A Yes, sir.

Q Is there anything pertinent on that exhibit which has not been covered?

A Not really, except I might point out here that in answer to one of the questions on this form we say we estimate the pressure will be at a thousand pounds. That is what we would estimate the maximum that we would ever inject water into this formation under. I believe initially it will probably go at little or no pressure into the disposal system. Other than that, I believe that is about all pertinent about this.

Q It does reflect the offset operators and surface operators?

A Yes, sir.

Q What kind of a lease is that, fee, State, or Federal?

A Federal.

Q Have you prepared the Commission's application form for dual completion, also?

A Yes, sir, I have.



Marked as Commission's Exhibit 6?

A Right.

Q Is there anything particularly on this form we have not covered?

A I believe we have covered this form.

MR. CRISTY: Mr. Examiner, in connection with the offset operators, as Exhibit 7 we have an affidavit of mailing to all those offset operators and the surface owners, State Engineer and U.S.G.S. I have the registered return receipts if you would prefer them.

MR. NUTTER: This is suitable.

Q Mr. Hampton, do you feel the granting of this application would be in the interests of conservation?

A Yes, sir, I do.

Q Would it tend to prevent waste?

A Yes, sir, it would.

Q Could the correlative rights of interested parties be violated by the granting of the application?

A No, sir.

Q Is there anything I have failed to ask you that you feel might be of interest to the Examiner?

A Not that I can think of.

Q In connection with the consideration of the application, we might just point out here we would prefer to dispose of this water into the San Andres, or to this open hole interval, in order to make a permanent type disposal of the water instead of putting in surface

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pits or trying to haul it or something else where you still have the problem of the salt water not being disposed of.

What else could you do with the salt water; could you truck it out as a matter of economics?

A It could be trucked, but not economically. I don't even know where you would put it if you trucked it.

Q Is there anything else?

A I believe that is all.

MR. CRISTY: Mr. Examiner, our application includes the exception to Rule 107 (d). I would call the Commission's attention to memorandum 21-58, classification Order R-1173, dated August 8, 1958, which seems to indicate to me that Rule 107 (d) applies only to flowing wells, and I believe the witness has testified this is, in fact, a pumping well, but we put it in the application to be certain.

MR. PAYNE: That is correct, Mr. Cristy.

MR. NUTTER: Any questions of Mr. Hampton?

BY MR. PAYNE:

Q You said this is a new well. Did you use new casing?

A Yes, sir.

Q And you feel that at first, at least, you won't have to inject under pressure; it will be gravity flow?

A I don't believe we will.

Q If you do drill additional wells, then you propose to abandon this disposal well?

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A The disposal part of it, yes, sir.

Q Did Great Western consider the feasibility of installing tubing to inject through rather than injecting through the annulus?

A We considered it, but it didn't seem feasible.

Q If you got a casing leak, as I understand it the water you are disposing of is produced from the same well?

A Yes, sir.

Q If you got a casing leak, how would you know? Wouldn't the water just come right back up like it does now?

A If you had a casing leak into the production string of casing, yes, sir, it would.

Q There is no possibility of drowning out any other zones?

A I don't believe that any of the zones in this open hole interval are productive in this area of oil, gas or fresh water.

Q What is the maximum pressure you ever anticipate having to inject?

A A thousand pounds. I doubt very seriously if we would reach that pressure, but there is a possibility we would.

Q Is 60,000 parts per million chloride considered rather high?

A No, sir, I wouldn't say high. It is considered salty water, but I don't believe it is a high concentration of salt.

BY MR. NUTTER:

Q Mr. Hampton, it is your opinion that the water is going to go into this porosity in the San Andres, is that right?



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A Yes, sir.

And the top of the cement on the Bough "C" is at 9400?

A Yes, sir.

Q If you got a column of water standing on the top of that cement, in order to have any water available to the porosity in the San Andres, what would the hydrostatic head be on the top of the cement there? You would have a column of water about --

A 9400 feet.

Q It would be considerable pressure on it?

A Yes, sir.

Q On the top of the cement?

A Yes, sir, there would be considerable pressure.

Q How much cement do you have from the uppermost perforation in the Bough "C", approximately 200 feet?

A I believe that's right, yes, sir.

Q Were centralizers used on that 4 1/2-inch pipe when it was set?

A Yes, sir, they were.

Q Are you familiar with any application of this type which has been approved by the Oil Conservation Commission?

A Not of this type, no, sir, I am not.

Q Are you familiar with any instances where, in other states, this type of installation has been approved and it resulted in the watering out some producing formations?

A No, sir.



Has Great Western made any effort to dispose of this produced salt water in the well which was drilled and abandoned in the SW/4 of Section 9?

Aq We have not made an effort, no, sir. It think it would be economically unfeasible to try it.

Q That well was T.D.'d at approximately 2508; would that have penetrated the San Andres porosity?

A Yes, sir, it would have.

Q Have you observed the log on that well by any chance?

A No, sir, I have not.

Q How much oil is that well producing?

A When we can pump it 24-hours a day and keep pumping it all the time it makes between 60 and a hundred barrels of oil a day.

Q How much water does it produce at this present time?

A I can tell you how much water it has produced on different occasions. We have produced a hundred barrels -- at one time we produced a hundred barrels of oil and a hundred barrels of water. We have produced as little as 50 barrels of oil and 300 barrels of water.

Q It has gone to a ratio of 6 to one on water on occasion?

A On occasion we have pumped 98% water out of it. That is the reason I say we do not know if it is a commercial well.

Q What is the thickness of the Bough "C" in this area?

A Not very thick.

Q You have a total of 15 feet of gross perforated interval,

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is that correct?

A That's correct. It looks to me like the Bough "C" is approximately 30 feet thick. It is my understanding that is the production history of Bough "C", that it is quite often, when you initially complete a well there is quite a bit of associated water production with it, and that after some of the water is pumped off you do improve in oil production, but that is something only time will tell us.

Q Is there any possibility of running a 1-inch pipe or small diameter pipe down the annulus of the 4 1/2 and with the 7 5/8 and cementing the well below the porosity in the San Andres?

A Below the porosity in the San Andres?

Q Approximately at the interval I have marked with red pencil on this exhibit?

A That would be a possibility, I believe, Mr. Nutter. I couldn't answer for sure.

Q There would also be the possibility of perforating the 4 1/2 and squeezing that interval in there, wouldn't there?

A There is that possibility, yes, sir.

Q Do you agree some sort of cement job, regardless of how it was performed, that would give a layer of cement in this area, would afford additional protection to the Bough "C" from being watered out?

A If you could get an effective cement job.

Q It would afford additional protection if it were needed?



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A It is my opinion it is not needed.

Q If that work was performed you wouldn't have 9400 feet of water standing on top of the Pough "C"?

A Not if you could get an effective cement job.

BY MR. PAYNE:

Q Is there any water flood project in this area?

A Not to my knowledge.

Q Is the Allison-Pennsylvanian Pool approaching the time when it will probably be water flooded?

A I don't know, sir.

Q In any event, there is no water flood project at present where you could use this water?

A Not to my knowledge there is not.

BY MR. NUTTER:

Q What are you doing with the water at the present time?

A Surface pits.

BY MR. PAYNE:

Q Unlined?

A Unlined.

MR. NUTTER: Any further questions of Mr. Hampton? He may be excused.

MR. CRISTY: For the record, Mr. Examiner, at the time this application was originally made it was made in the form of an application for administrative approval, at which time, I believe the State Engineer wrote the Commission a letter expressing some



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concern in connection with the application. I believe Mr. Troy has been here today, and perhaps a conversation with him yesterday may have been of some benefit to any problems the State Engineer might have.

MR. PAYNE: Mr. Irby, did you want us to read your report into the record?

MR. IRBY: I think it is a matter of record.

MR. PAYNE: We can read it into the record, or just put it in the case file. Is this still the State Engineer's position?

MR. IRBY: Yes, sir.

MR. NUTTER: Anything further, Mr. Cristy?

MR. CRISTY: May I offer in evidence applicant's Exhibits 1 through 7 inclusive?

MR. NUTTER: Great Western's 1 through 7 will be admitted. Anyone have anything further? Take the case under advisement.



STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JUNE PALGE, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill and ability.

IN WITNESS WHEREOF I have affixed my hand and notarial seal this 10th day of March, 1961.

June Paige
Notary Public - Court Reporter

My Commission expires:
May 11, 1964.

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EXHIBITS

<u>NUMBER</u>	<u>EXHIBIT</u>	<u>IDENTIFIED</u>	<u>OFFERED</u>	<u>ADMITTED</u>
Ex.#1	Plat Map	3	18	18
Ex.#2	Schematic Diagram	4	18	18
Ex.#3	Log	7	18	18
Ex.#4	Water analysis	8	18	18
Ex.#5	Salt Water disp. form	10	18	18
Ex.#6	Dual Completion form	11	18	18
Ex.#7	Affidavits of mailing	11	18	18

I do hereby certify that the foregoing is
a complete record of the proceedings in
the hearing of Case No. 2208,
heard by me on 9/3, 1961.

John Hamilton, Examiner
New Mexico Oil Conservation Commission

