

CASE 4384: Application of SHELL
OIL COMPANY FOR SALT WATER
DISPOSAL, CHAVES COUNTY.

Case Number

4384

Application

Transcripts.

Small Exhibits

ETC.



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SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

209 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 15, 1970

EXAMINER HEARING

IN THE MATTER OF:)

Application of Shell Oil Company)
for salt water disposal, Chaves)
County, New Mexico.)

Case No. 4384

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. LOPEZ: I have one witness.

R. M. CARROLL, JR.,

being duly sworn according to law, upon his oath testified as follows:

DIRECT EXAMINATION

BY MR. LOPEZ:

Q Mr. Carroll, would you state, for the Commission, your occupation and location.

A I am a Petroleum Engineer with Shell Oil Company. I have a BS Degree in Petroleum Engineering from the University of Oklahoma. I am a Registered Professional Engineer in the State of Texas. I have had twenty-five years experience as a Petroleum Engineer with Shell Oil Company. Twenty-two years of those were spent in the Permian Basin of West Texas and roughly two years in Canada.

Q Mr. Carroll, does your area of supervision include the area which concerns the application of Shell Oil Company in this case?

A It does.

MR. LOPEZ: Mr. Examiner, are his qualifications acceptable?

MR. NUTTER: Yes. They are.

Q (By Mr. Lopez) Mr. Carroll, have you prepared some exhibits in connection with Shell Oil Company's application

today?

A I have. I have a plat which we'd call Exhibit 1 which shows the area, the southern portion of the Cato Field, showing the well that we want to dispose of water, which is in Section 35, Township 8 South, Range 30 East.

MR. LOPEZ: Could we have these exhibits marked for identification?

(Whereupon, Exhibits 1 through 3 were marked for identification.)

Q Is this plat that has been marked Exhibit No. 1, is it the same plat that was attached to the application originally filed in this case?

A Not exactly because for reproduction reasons we extended it on down to show another well that is being used for salt water disposal approximately five miles southwest. It doesn't quite include the same area that was presented with the application.

Q Would you describe the township and range and section which the proposed well is located in?

A Section 35, Township 8 South, Range 30 East.

Q And the section number is --

A 35.

Q All right, now. Referring to Exhibit No. 2, would you please briefly describe that?

A Exhibit 2 is a portion of a gamma ray neutron log on the well we propose for salt water disposal.

Q Referring to your Exhibit No. 3 --

A This is a diagrammatic sketch of our proposed completion, if this is approved, of the way we will complete the well, dispose of salt water.

Q Now, I would like you to fully discuss this Exhibit for the Commission, describing the tubing you plan to use --

A Well, we will use plastic-coated tubing set on a packer above the zone of disposal. The annulus space between the tubing and the casing will be filled with an inert fluid that is inhibited to protect both strings from corrosion. The casing on it through the zone will be cemented with sufficient volume of cement to confine the water to the zone where we are perforating the proposed injection.

Q Will you use pressure gauges at the top of the tubing?

A Yes, we will.

Q Now, will the injection of salt water be below the water-oil contact?

A Yes. It will. This well had a drillstem test of this interval and it recovered twenty-two hundred feet of salt water -- no oil or gas.

Q What type of reservoir is this?

A It is a partial water drive reservoir and this

proposed injector will be below the oil-water contact for the field as confirmed by the drillstem test that I referred to.

There are other wells currently injecting in this well -- a Shell well about five miles to the southwest, Section 17, Township 9 South, Range 30 East.

Q Is that well described on Exhibit No. 1?

A Yes. It has a circle and red arrows pointing to the center of it.

Q How much water are you making in this area at the present time?

A We are making in excess of 3,000 barrels per day, at present.

Q If your application is denied what effect will this have on your operation?

A Well, the current injector would be continued to operate at capacity which is a little over a thousand barrels a day and we would have to truck the water out which would result in increased expense and possibly premature abandonment of the producer because it would raise the cost of operation and would result in oil left in place.

Q If the application is granted, is it your opinion that the correlative rights of offset operators will be protected?

A Yes. It will. The proposed injector is in excess of a mile from the nearest producer and it is below the water

and it should be many years -- probably in excess of ten years before the effects of this would be shown on the surrounding wells.

Q Is there anything else you'd like to add at this time?

A No.

MR. LOPEZ: That is all I have, Mr. Examiner.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Carroll, you presently operate the one salt water disposal well down here in Section 17, is that correct?

A Yes.

Q And it has got a capacity of a thousand barrels per day?

A It is in excess of a thousand barrels a day -- roughly thirteen hundred barrels a day.

Q And how much water is presently being produced?

A Over three thousand barrels a day.

Q What is the present disposition of this excess water?

A We have had another well in Section 26, Township 8 South, Range 30 East that we have been disposing of in the Yates Formation.

Q This is one of these two wells shown on this Exhibit?

A Yes. It is. Well No. 2, if you are looking at the ones I have presented here. It is Well No. 2 that has a slash

through it. The slash means it is not producing in the San Andres. That is the disposal well in the Yates. It is not a satisfactory well. It has taken excessive pressure and we don't feel we can continue in that well.

Q Are you handling water for anyone other than Shell?

A No.

Q So this is all Shell water?

A Yes.

Q You are presently operating the well in Section 17 at capacity. You are having difficulties with the Yates disposal well in Section 26 so you are seeking a new San Andres Well in 35?

A Yes. We will abandon -- well, the Yates Well is abandoned right now. We are trucking water.

MR. NUTTER: Any further questions of Mr. Carroll?

You may be excused.

Do you have anything further, Mr. Lopez?

MR. LOPEZ: I don't, Mr. Examiner.

MR. NUTTER: Anyone have anything they'd wish to add in Case 4384?

(Whereupon, Exhibits 1, 2 and 3 were admitted into evidence.)

MR. NUTTER: We will take the case under advisement.

I N D E X

WITNESS	PAGE
R. M. CARROLL, JR.	
Direct Examination by Mr. Lopez	2
Cross Examination by Mr. Nutter	6

E X H I B I T S

<u>Exhibits</u>	<u>Marked</u>	<u>Admitted Into Evidence</u>
Exhibits 1, 2, 3	3	7

I, Peter A. Lumia, Certified Shorthand 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.

Peter A. Luma
Certified Shorthand Reporter

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 4384,
heard by me on July 15, 1970.
[Signature], Examiner
New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87801

GOVERNOR
DAVID F. CARGO
CHAIRMAN

LAND COMMISSIONER
ALEX J. ARMijo
MEMBER

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

July 20, 1970

Mr. Owen Lopez
Montgomery, Federici, Andrews,
Hannahs & Morris
Attorneys at Law
Post Office Box 2307
Santa Fe, New Mexico

Re: Case No. 4384

Order No. R-3999

Applicant:

Shell Oil Company

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.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC x

Artesia OCC x

Aztec OCC

Other State Engineer Office

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. 4384
Order No. R-3999

APPLICATION OF SHELL OIL COMPANY
FOR SALT WATER DISPOSAL, CHAVES
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:30 a.m. on July 15, 1970, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 20th day of July, 1970, the Commission, a quorum being present, having considered the testimony, the record, and the recommendations of the Examiner, 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, Shell Oil Company, is the owner and operator of the Eastland Shell Federal Well No. 1, located in Unit A of Section 35, Township 8 South, Range 30 East, NMPM, Cato-San Andres Pool Area, Chaves County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the lower San Andres formation, with injection into the perforated interval from approximately 3606 feet to 3680 feet.

(4) That the injection should be accomplished through 2-inch plastic-lined tubing installed in a packer set at approximately 3590 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

-2-

CASE No. 4384

Order No. R-3999

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

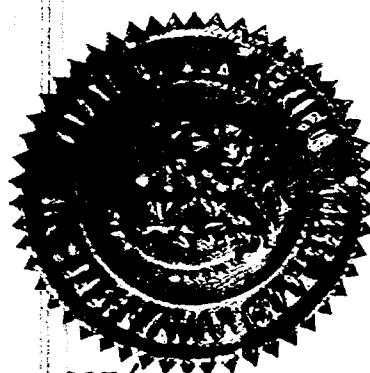
(1) That the applicant, Shell Oil Company, is hereby authorized to utilize its Eastland Shell Federal Well No. 1, located in Unit A of Section 35, Township 8 South, Range 30 East, NMPM, Cato-San Andres Pool Area, Chaves County, New Mexico, to dispose of produced salt water into the lower San Andres formation, injection to be accomplished through 2-inch tubing installed in a packer set at approximately 3590 feet, with injection into the perforated interval from approximately 3606 feet to 3680 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) 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.



esr/

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

David F. Cargo
DAVID F. CARGO, Chairman

Alex J. Armijo
ALEX J. ARMIJO, Member

A. L. Porter, Jr.
A. L. PORTER, Jr., Member & Secretary

Docket No. 17-70

DOCKET: REGULAR HEARING - WEDNESDAY - JULY 15, 1970

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

ALLOWABLE: Consideration of the allowable production of gas for August, 1970, from thirteen prorated pools in Lea, Eddy, and Roosevelt Counties, New Mexico. Consideration of the allowable production of gas from nine prorated pools in San Juan, Rio Arriba and Sandoval Counties, New Mexico for August, 1970.

THE FOLLOWING CASES WILL BE HEARD BEFORE DANIEL S. NUTTER,
EXAMINER, OR ELVIS A. UTZ, ALTERNATE EXAMINER, IN THE OIL
CONSERVATION COMMISSION CONFERENCE ROOM ON THE SECOND
FLOOR OF SAID BUILDING AT 9:30 A.M.

CASE 4381:

Southeastern New Mexico nomenclature case calling for an order for the creation, extension, and contraction of certain pools in Lea, Chaves, Eddy and Roosevelt Counties, New Mexico.

(a) Create a new pool in Lea County, New Mexico, classified as an oil pool for Atoka production and designated as the West Crossroads-Atoka Pool. The discovery well is the Union Oil Company of California Lea "M" State Well No. 1 located in Unit A of Section 6, Township 10 South, Range 36 East, NMPM. Said pool would comprise:

TOWNSHIP 10 SOUTH, RANGE 36 EAST, NMPM
SECTION 6: NE/4

(b) Create a new pool in Lea County, New Mexico, classified as an oil pool for Devonian production and designated as the West Garrett-Devonian Pool. The discovery well is the Freeport Oil Company Mattie Price Well No. 1 located in Unit A of Section 6, Township 17 South, Range 38 East, NMPM. Said pool would comprise:

TOWNSHIP 17 SOUTH, RANGE 38 EAST, NMPM
SECTION 6: NE/4

(c) Create a new pool in Chaves County, New Mexico, classified as an oil pool for Devonian production and designated as the Race Track-Devonian Pool. The discovery well is the Klabzuba, Munson, and Seamon White Well No. 1 located in Unit I of Section 13, Township 10 South, Range 27 East, NMPM. Said pool described as:

Wednesday - July 15, 1970
Regular Hearing

-2-

Docket No. 17-70

(Case No. 4381 continued)

TOWNSHIP 10 SOUTH, RANGE 27 EAST, NMPM
SECTION 13: NE/4 SE/4

(d) Contract the Bough Permo-Pennsylvanian Pool in Lea County, New Mexico, by the deletion of the following described area:

TOWNSHIP 9 SOUTH, RANGE 36 EAST, NMPM
SECTION 18: NE/4

(e) Extend the Vada-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 36 EAST, NMPM
SECTION 18: NE/4

(f) Extend the Blinebry Oil Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 21 SOUTH, RANGE 37 EAST, NMPM
SECTION 30: SW/4

(g) Extend the Bluitt-San Andres Associated Pool in Roosevelt County, New Mexico, to include therein:

TOWNSHIP 8 SOUTH, RANGE 38 EAST, NMPM
SECTION 20: NW/4

(h) Extend the South Carlsbad-Morrow Gas Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 23 SOUTH, RANGE 27 EAST, NMPM
SECTION 6: E/2
SECTION 7: N/2

(i) Extend the High Plains-Pennsylvanian Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 14 SOUTH, RANGE 34 EAST, NMPM
SECTION 14: SW/4

Wednesday - July 15, 1970

Regular Hearing

-3-

Docket No. 17-70

(j) Extend the Loco Hills-Queen Pool in Eddy County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 30 EAST, NMPM
SECTION 31: SE/4 NE/4 and NE/4 SE/4

(k) Extend the Midway-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 17 SOUTH, RANGE 37 EAST, NMPM
SECTION 17: S/2

(l) Extend the Quail-Queen Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 19 SOUTH, RANGE 34 EAST, NMPM
SECTION 12: S/2

TOWNSHIP 19 SOUTH, RANGE 35 EAST, NMPM
SECTION 7: SW/4

(m) Extend the West Sawyer-San Andres Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 9 SOUTH, RANGE 37 EAST, NMPM
SECTION 34: NW/4

(n) Extend the East Weir-Tubb Pool in Lea County, New Mexico, to include therein:

TOWNSHIP 20 SOUTH, RANGE 37 EAST, NMPM
SECTION 12: NE/4 and N/2 SE/4

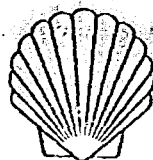
CASE 4382: In the matter of the application of the Oil Conservation Commission upon its own motion for an order for the contraction of the Aztec-Pictured Cliffs Pool in San Juan County, New Mexico, by the deletion of certain lands in Township 28 North, Ranges 8 and 9 West; Township 29 North, Ranges 8, 9, and 10 West; and Township 30 North, Range 10 West; further, for the extension of the Blanco-Pictured Cliffs Pool and the South Blanco-Pictured Cliffs Pool in San Juan County, New Mexico, to include, among other lands, the lands being deleted from the aforesaid Aztec-Pictured Cliffs Pool; and for the further extension of the Aztec-Pictured Cliffs Pool in San Juan County, New Mexico.

Wednesday - July 15, 1970
Regular Hearing

-4-

Docket No. 17-70

- CASE 4383: Application of MWJ Producing Company for an unorthodox oil well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the rules governing the Baum-Upper Pennsylvanian Pool to permit the drilling of an oil well at an unorthodox location 330 feet from the North line and 2310 feet from the West line of Section 9, Township 14 South, Range 33 East, Lea County, New Mexico.
- CASE 4384: Application of Shell Oil Company for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from 3606 feet to 3680 feet in its Eastland Shell Federal Well No. 1 located in Unit A, Section 35, Township 8 South, Range 30 East, Cato-San Andres Pool Area, Chaves County, New Mexico.
- CASE 4385: Application of King Resources Company for a unit agreement, Otero County, New Mexico. Applicant, in the above-styled cause, seeks approval of the Brokeoff Mountain Unit Area comprising 37,747 acres, more or less, of Federal, State and Fee lands in Townships 24, 25, and 26 South, Ranges 19 and 20 East, Otero County, New Mexico.
- CASE 4386: Application of Texaco Inc. for an exception to Order No. R-3221, as amended, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's wells located on its V. G. Kinahan Federal and Peery Federal leases comprising respectively, Sections 20 and 29 of Township 15 South, Range 30 East, Little Lucky Lake-Devonian Pool, Chaves County, New Mexico. Applicant seeks authority to dispose of produced salt water in an unlined surface pit located in Unit K of said Section 29.
- CASE 4387: Application of Benson-Montin-Greer Drilling Corporation for surface commingling of oil, Rio Arriba County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle the production from its Cañada Ojitos Unit Well No. 13, a non-participating well located in Unit L of Section 27, Township 26 North, Range 1 West, Rio Arriba County, New Mexico, with oil production from the participating area of said unit.



SHELL OIL COMPANY

PETROLEUM BUILDING

P.O. BOX 1509

MIDLAND, TEXAS 79701

June 18, 1970

Re: Salt Water Disposal
Cato Field
Chaves County, New Mexico

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

Gentlemen:

Attached is an Application to Dispose of Salt Water by Injection Into a Porous Formation submitted by Shell Oil Company to test the injectivity and if satisfactory, to begin salt water disposal into the Eastland Shell Federal No. 1 located in Section 35, T-8-S, R-30-E in Chaves County, New Mexico. Also attached are a log of the proposed injection well, a diagrammatic sketch of the proposed injection well, and a plat of offset wells producing in the same proposed injection zone.

Shell Oil Company respectfully requests permission for injection of 2000 BPD of brine water produced in conjunction with oil and gas operations in the Cato Field. It is anticipated the maximum pressure required for both the test and injection will not exceed 1800 psi.

Although wells in the area are producing from the proposed injection formation, drill stem tests indicate that the well is located below the oil-water contact.

Should further information be required, please advise.

Yours very truly,

Original Signed By
J. F. TRECKMAN

For: J. L. Mahaffey, Manager
Production Department - West
Midland Division

JRF:VJ

Attachments

Case 4374 CF
7947

NEW MEXICO OIL CONSERVATION COMMISSION

APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Shell Oil Company		ADDRESS P. O. Box 1507 Midland, Texas 79701	
LEASE NAME Shell Federal	WELL NO. 1	FIELD Cato Field	COUNTY Chaves
LOCATION UNIT LETTER A WELL IS LOCATED 310 FEET FROM THE North LINE AND 900 FEET FROM THE East LINE, SECTION 15 TOWNSHIP 2-S RANGE 2-E NMPM. Chaves County			
CASING AND TUBING DATA			
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT
SURFACE CASING 240, J-35	8 5/8"	317'	250 lbs 2 1/2 Cask, Fire Cement
INTERMEDIATE 240, J-35 (proposed)	4 1/2"	3730'	400 lbs
LONG STRING			
TUBING 400 (proposed)	2"	3590'	NAME, MODEL AND DEPTH OF TUBING PACKER Valley Model "A" at 3590'
NAME OF PROPOSED INJECTION FORMATION San Andres		TOP OF FORMATION 2850'	BOTTOM OF FORMATION 3765'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLE? Perforations	PROPOSED INTERVAL(S) OF INJECTION 3590' - 3590'
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Oil in San Andres		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH			
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA	
None		None	
ANTICIPATED DAILY INJECTION VOLUME (BBLs.) 2000	MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM Closed
			IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -		APPROX. PRESSURE (PSI) 1800	
Yes		Yes	
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Federal land, surface leasee unknown		ARE WATER ANALYSES ATTACHED? No	
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Shell Oil Company has all such offset leases			
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	
SURFACE OWNER Yes		Yes	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)		THE NEW MEXICO STATE ENGINEER	
PLAT OF AREA Yes		Yes	
ELECTRICAL LOG Yes		DIAGRAMMATIC SKETCH OF WELL Yes	

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

Manager, Production Department Date **June 15, 1970**

(Signature)

(Title)

(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

25	D.C. Chamberlain, et al J.G. & W.B. O'Brien, et al	30	Sinclair 1-1-71 0154434	29	U.S. Bell Tel. 1-1-75 K-4449 State U.S.	20	Sinclair 1-1-71 0154404	27	Hodges Fed. 3-1-71 0154404	26	Superior 8-1-73 0154428
36	Dell Tele. 7-1-70 K-4449 821	31	Sinclair 4-30-70 0154404	32	Beard Oil 8-1-72 0285577	33	AMCO 3-1-71 0155254	34	Shell 1-23-73 0225436	35	Shell 10-1-73 0244428
12	Sinclair 4-30-72	11	Shell 10-24-68 1-31-69	10	Shell 10-24-68 1-31-69	9	Shell 10-24-68 1-31-69	8	Shell 10-24-68 1-31-69	7	Shell 10-24-68 1-31-69
13	Sinclair 4-30-74	18	Shell 3-1-73 0354478	17	Shell 10-24-68 1-31-69	16	Shell 10-24-68 1-31-69	15	Shell 10-24-68 1-31-69	14	Shell 10-24-68 1-31-69
24	International 4-1-72 0354478	19	Amco 1-1-71 0155254	20	Shell 10-24-68 1-31-69	21	Shell 10-24-68 1-31-69	22	Shell 10-24-68 1-31-69	23	Shell 10-24-68 1-31-69
25	Pan Amer. 2-1-72 0224579	30	Getty E. Mission 11-1-69(2) 055554	29	Getty E. Mission 11-1-69(2) 055554	28	Getty E. Mission 11-1-69(2) 055554	27	Getty E. Mission 11-1-69(2) 055554	26	Getty E. Mission 11-1-69(2) 055554
36	Skelly 3-1-71 K-1421 51(1)	31	Getty E. Mission 11-1-69(2) 055554	32	Getty E. Mission 11-1-69(2) 055554	33	Getty E. Mission 11-1-69(2) 055554	34	Getty E. Mission 11-1-69(2) 055554	35	Getty E. Mission 11-1-69(2) 055554

250 sx Class "C"
w/ 2% CaCl₂

3,000 BW D
produced in
area

PERFORATIONS IN SAN ANDRES
3606' - 3680'

BEFORE EXAMINER NOTER

OIL COMPANY

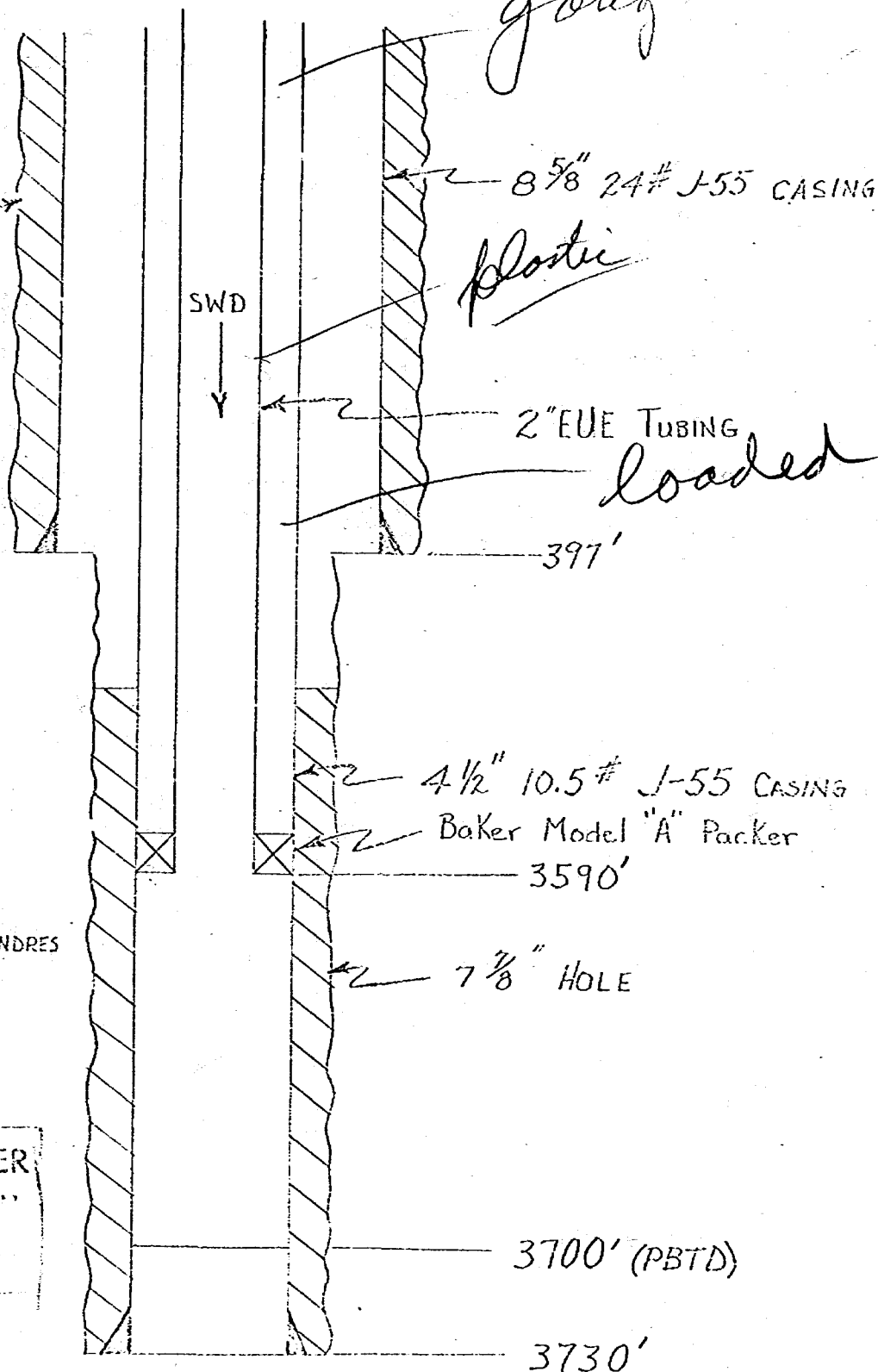
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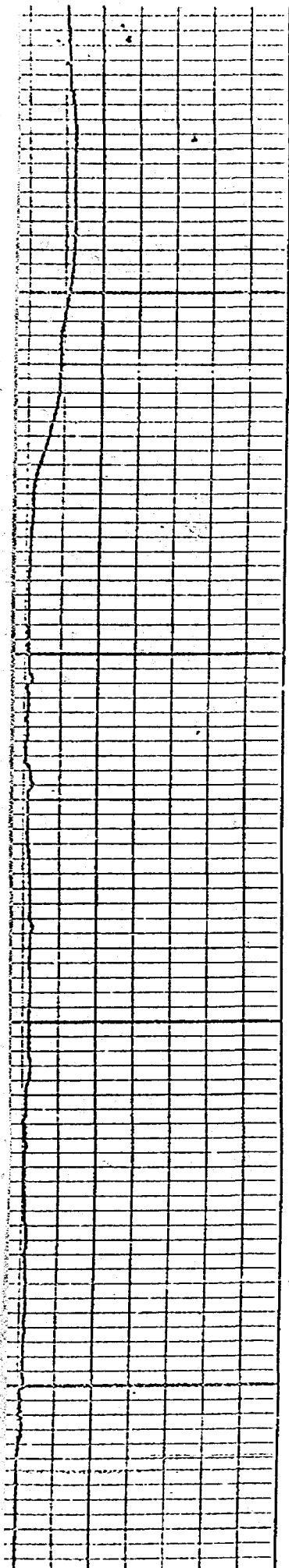
3
4384

SHELL FEDERAL NO. 1

SHELL OIL COMPANY

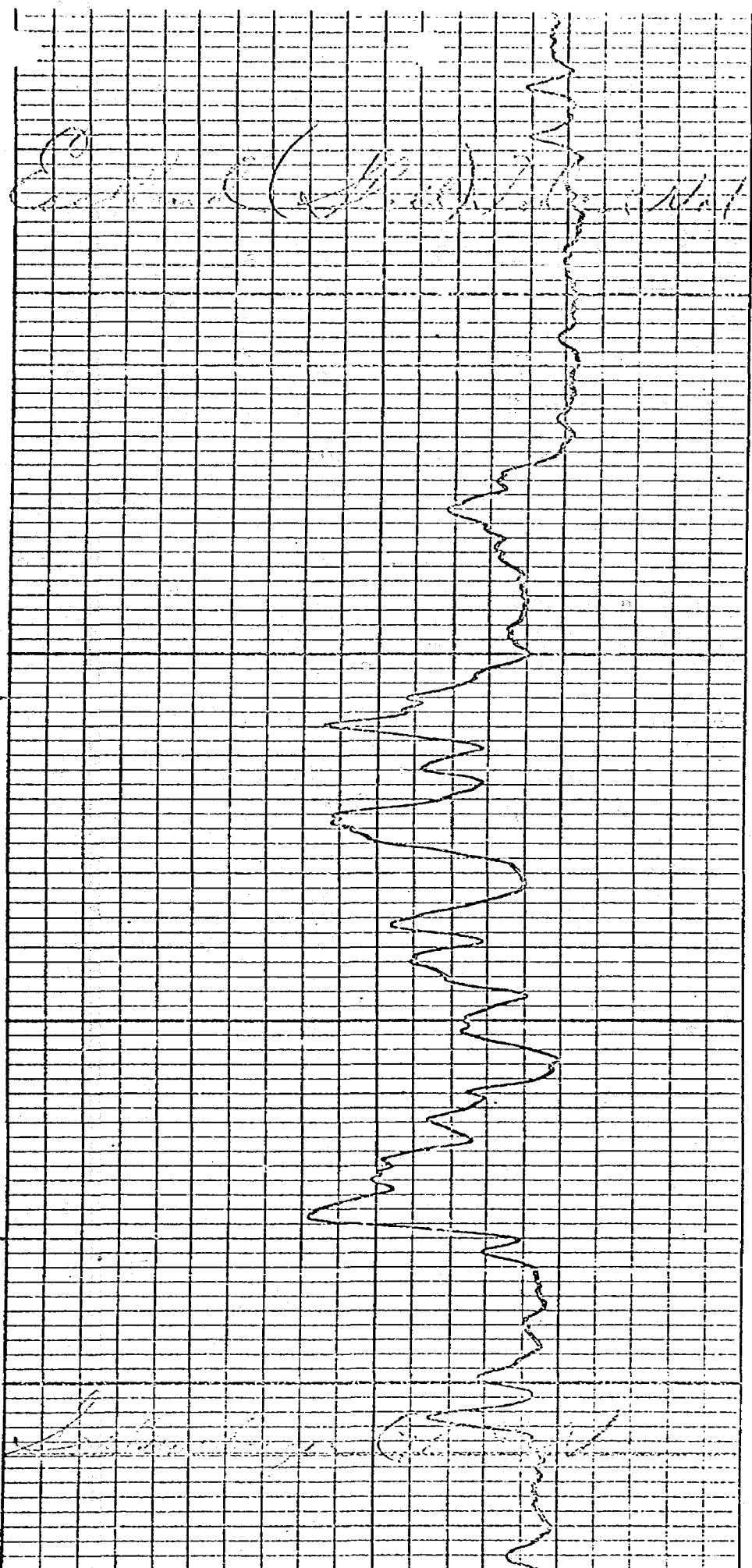
*This is the proposed injection system. The surface string is in place
and the well is presently TA'd.

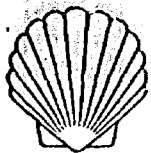




3600

3700





SHELL OIL COMPANY

P. O. BOX 1810
MIDLAND, TEXAS 79701

July 6, 1970

Subject: Disposal of Salt Water into
Shell Federal No. 1, Cato Field
Section 35, Township 8 South,
Range 30 East, Chaves County,
New Mexico

Mr. J. M. Fields
Route 2
Denver City, Texas 79323

Gentlemen:

Shell Oil Company is presently considering the Shell Federal No. 1 for subsurface disposal of produced water. Shell would like to test the San Andres formation, in the interval between 3606 and 3680 feet, for possible disposal zones. If injectivity tests prove successful, Shell would convert the well to facilitate disposal of 2000 BOPD.

For your information, you will find attached a copy of the NMOC Form C-108, a plat of the area and a schematic drawing of the subject well.

If the proposed test and installation meet your approval, please sign and return two copies of this waiver to this office. The waiver will accompany the NMOC Form C-108 at the time formal application is made.

Yours very truly,

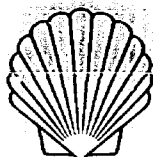
J. J. Pickell, Manager
Production Department - South
Mid-Continent Division

JRF:RH
Enclosures

APPROVED _____

J. M. Fields

DATE _____



SHELL OIL COMPANY

PETROLEUM BUILDING
P.O. BOX 1509
MIDLAND, TEXAS 79701

June 18, 1970

Subject: Salt Water Disposal
Cato Field
Chaves County, New Mexico

Case 4384

MAIN OFFICE 670

New Mexico Oil Conservation Commission
State Land Office Building
Santa Fe, New Mexico 87501

'70 JUN 22 AM 9 42

Gentlemen:

Attached is an Application to Dispose of Salt Water by Injection Into a Porous Formation submitted by Shell Oil Company to test the injectivity and if satisfactory, to begin salt water disposal into the Eastland Shell Federal No. 1 located in Section 35, T-8-S, R-30-E in Chaves County, New Mexico. Also attached are a log of the proposed injection well, a diagrammatic sketch of the proposed injection well, and a plat of offset wells producing in the same proposed injection zone.

Shell Oil Company respectfully requests permission for injection of 2000 BPD of brine water produced in conjunction with oil and gas operations in the Cato Field. It is anticipated the maximum pressure required for both the test and injection will not exceed 1800 psi.

Although wells in the area are producing from the proposed injection formation, drill stem tests indicate that the well is located below the oil-water contact.

Should further information be required, please advise.

Yours very truly,

J. L. Mahaffey
FOR J. L. Mahaffey, Manager
Production Department - West
Midland Division

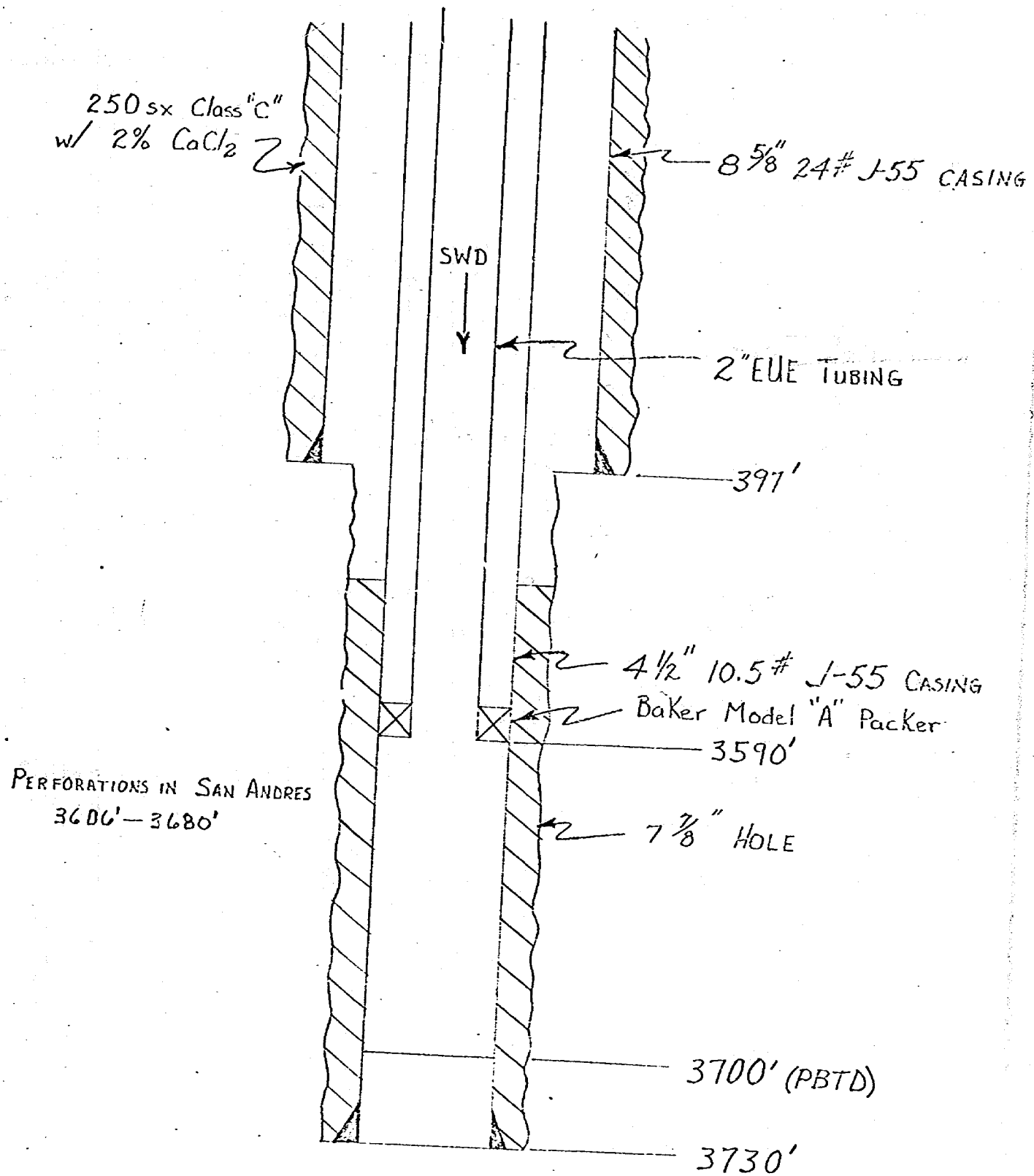
JRF:VJ

Attachments

DOCKET MAILED

Date 7-2-70

Case 4384



SHELL FEDERAL NO. 1

SHELL OIL COMPANY

*This is the proposed injection system. The surface string is in place and the well is presently TA'd.

Case 4384

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

OPERATOR Shell Oil Company		ADDRESS P. O. Box 1509 Midland, Texas 79701	
LEASE NAME Shell Federal	WELL NO. 1	FIELD Cato Field	COUNTY Chaves
LOCATION UNIT LETTER A ; WELL IS LOCATED 330 FEET FROM THE North LINE AND 990 FEET FROM THE		RANGE 30-E NMPM. Chaves County	
LINE, SECTION 35 TOWNSHIP 8-S		CASING AND TUBING DATA	
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT
SURFACE CASING			
24" J-55	8 5/8"	397'	250 sbs 2% CaCl₂
INTERMEDIATE			
18.5" J-55 (proposed)	4 1/2"	3730'	400 sbs
LONG STRING			
TUBING			
2" (proposed)	2"	3590'	Baker Model "A" at 3590'
NAME OF PROPOSED INJECTION FORMATION		TOP OF FORMATION	BOTTOM OF FORMATION
San Andres		2860'	3765'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS?		PERFORATIONS OR OPEN HOLES?	PROPOSED INTERVAL(S) OF INJECTION
Tubing		Perforations	3606' - 3680'
IS THIS A NEW WELL DRILLED FOR DISPOSAL?		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?	
No		No	
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH			
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA	DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA
		None	None
ANTICIPATED DAILY INJECTION VOLUME (BBLs.)	MINIMUM	MAXIMUM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?
2000			Pressure
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -		WATER TO BE DISPOSED OF	NATURAL WATER IN DISPOSAL ZONE
		Yes	Yes
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)		ARE WATER ANALYSES ATTACHED?	
Federal land, surface lessee unknown		No	
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL			
Shell Oil Company has all such offset leases			
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	THE NEW MEXICO STATE ENGINEER
		Yes	Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)		PLAT OF AREA	DIAGRAMMATIC SKETCH OF WELL
		Yes	Yes

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

J. F. Friedman
(Signature)

FOR:

Manager, Production Department-West
(Title)

June 18, 1970
(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

Case 4384

OPERATOR Shell Oil Company		ADDRESS P. O. Box 1509 Midland, Texas 79701			
LEASE NAME Shell Federal	WELL NO. 1	FIELD Cato Field	COUNTY Chaves		
LOCATION UNIT LETTER A ; WELL IS LOCATED 330 FEET FROM THE North LINE AND 990 FEET FROM THE East LINE, SECTION 35 TOWNSHIP 8-S RANGE 30-E NMPM. Chaves County					
CASING AND TUBING DATA					
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
24 1/2" J-55	8 5/8"	397'	250 sbs 2% CaCl₂	Circ Cement	
INTER 15.39" J-55 (proposed)	4 1/2"	3730'	400 sbs	2600	
LONG STRING					
TUBING RUE (proposed)	2"	3590'	NAME, MODEL AND DEPTH OF TUBING SACKS Baker Model "A" at 3590'		
NAME OF PROPOSED INJECTION FORMATION San Andres		TOP OF FORMATION 2860'		BOTTOM OF FORMATION 3765'	
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLE? Perforations		PROPOSED INTERVAL(S) OF INJECTION 3506' - 3680'	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Oil in San Andres		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No	
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA None		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA None	
ANTICIPATED DAILY INJECTION VOLUME (BBL'S.) 2000	MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM Closed	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure	APPROX. PRESSURE (PSI) 1800
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE -			WATER TO BE DISPOSED OF Yes	NATURAL WATER IN DISPOSAL ZONE Yes	ARE WATER ANALYSES ATTACHED? No
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Federal land, surface leases unknown					
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Shell Oil Company has all such offset leases					
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		SURFACE OWNER		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)		PLAT OF AREA		ELECTRICAL LOG	
		Yes		Yes	
				DIAGRAMMATIC SKETCH OF WELL	
				Yes	

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

J. F. Treckman
(Signature)

FOR

Manager, Production Department-West

(Title)

June 18, 1970

(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

NEW MEXICO OIL CONSERVATION COMMISSION
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

Case 4384

OPERATOR Shell Oil Company		ADDRESS P. O. Box 1509 Midland, Texas 79701	
LEASE NAME Shall Federal	WELL NO. 1	FIELD Cato Field	COUNTY Chaves
LOCATION UNIT LETTER A ; WELL IS LOCATED 330 FEET FROM THE North LINE AND 990 FEET FROM THE East LINE. SECTION 35 TOWNSHIP 8-S RANGE 30-E NMPM. Chaves County			
CASING AND TUBING DATA			
NAME OF STRING 24", J-55	SIZE 8 5/8"	SETTING DEPTH 397'	SACKS CEMENT 250 sks 2% CaCl₂
INTERMEDIATE 10.5", J-55 (proposed)	4 1/2"	3730'	400 sks
LONG STRING			
TUBING 2" (proposed)	2"	3590'	NAME, MODEL AND DEPTH OF TUBING PACKER Baker Model "A" at 3590'
NAME OF PROPOSED INJECTION FORMATION San Andres		TOP OF FORMATION 2860'	BOTTOM OF FORMATION 3765'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing		PERFORATIONS OR OPEN HOLE? Perforations	PROPOSED INTERVAL(S) OF INJECTION 3606' - 3680'
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Oil in San Andres		HAS WELL EVER BEEN PERFORMED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No
LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH			
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA None		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA None	
ANTICIPATED DAILY INJECTION VOLUME (BBL/S.) 2000	MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM Closed
ANSWER YES OR NO WHETHER THE FOLLOWING WATERS ARE MINERALIZED TO SUCH A DEGREE AS TO BE UNFIT FOR DOMESTIC, STOCK, IRRIGATION, OR OTHER GENERAL USE - Yes		WATER TO BE DISPOSED OF Yes	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure
APPROX. PRESSURE (PSI) 1800		NATURAL WATER IN DISPOSAL ZONE Yes	ARE WATER ANALYSES ATTACHED? No
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Federal land, surface lessee unknown			
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Shell Oil Company has all such offset leases			
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? Yes		SURFACE OWNER Yes	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B) Yes		ELECTRICAL LOG Yes	
		THE NEW MEXICO STATE ENGINEER Yes	

I hereby certify that the information above is true and complete to the best of my knowledge and belief.

J. F. Freeman
(Signature)

FOR: **Manager, Production Department-West**
(Title)

June 18, 1970
(Date)

NOTE: Should waivers from the State Engineer, the surface owner, and all operators within one-half mile of the proposed injection well, not accompany this application, the New Mexico Oil Conservation Commission will hold the application for a period of 15 days from the date of receipt by the Commission's Santa Fe office. If at the end of the 15-day waiting period no protest has been received by the Santa Fe office, the application will be processed. If a protest is received, the application will be set for hearing, if the applicant so requests. SEE RULE 701.

CAIU
SA 6/66

Case 4384

BRB 13104
Y 12750
SA 11800
YS 1330
AB 11602
WC 2572
Pn 2552
M 3532
SB 13072
Mobil
Lightcap Ld Co
8-78
TO 2796

Neuberg
(Gulf)
Jennings
1 Y+2194
TO 832C

Mobil
Burl Fed
EI 4540
TO 8515

BRB 13030
Y 12147
SA 11640
YS 1330
AB 11620
WC 2520
Pn 2550
M 3530
SB 13070
SW 13270

LIGHTCAP
SD 5/50

CROSLEY

PG 27 C2

T 8 S

R 30 E

Brown Fed "A"

Peterson Fed "B"

BACH

SCALE:
1"=4000 ft.

DRAFT

GMH/esr

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. 4384

Order No. R- 3999

APPLICATION OF SHELL OIL COMPANY
FOR SALT WATER DISPOSAL, CHAVES
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

9:30

This cause came on for hearing at 9 a.m. on July 15, 1970,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this day of July, 1970, the Commission, a
quorum being present, having considered the testimony, the record,
and the recommendations of the Examiner, 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, Shell Oil Company,
is the owner and operator of the Eastland Shell Federal Well No. 1,
located in Unit A of Section 35, Township 8 South, Range
30 East, NMPM, Cato-San Andres Pool Area, Chaves,
County, New Mexico.

(3) That the applicant proposes to utilize said well to
dispose of produced salt water into the lower San Andres
formation, with injection into the perforated interval
from approximately 3606 feet to 3680 feet.

(4) That the injection should be accomplished through
2-inch plastic-lined tubing installed in a packer set at

approximately 3590 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus ~~or the annulus left open~~ at the surface in order to determine leakage in the casing, tubing, or packer.

(5) That approval of the subject application will prevent the drilling of unnecessary wells and otherwise prevent waste and protect correlative rights.

IT IS THEREFORE ORDERED:

(1) That the applicant, Shell Oil Company, is hereby authorized to utilize its Eastland Shell Federal Well No. 1, located in Unit A of Section 35, Township 8 South, Range 30 East, NMPM, Cato-San Andres Pool Area, Chaves County, New Mexico, to dispose of produced salt water into the lower San Andres formation, injection to be accomplished through 2-inch tubing installed in a packer set at approximately 3590 feet, with injection into the perforated interval from approximately 3606 feet to 3680 feet;

PROVIDED HOWEVER, that the tubing shall be plastic-lined; that the casing-tubing annulus shall be filled with an inert fluid; and that a pressure gauge shall be attached to the annulus ~~or the annulus left open~~ at the surface in order to determine leakage in the casing, tubing, or packer.

(2) That the applicant shall submit monthly reports of its disposal operations in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(3) 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.