

CASE 5921: EASTLAND OIL COMPANY FOR
SALT WATER DISPOSAL, EDDY COUNTY,
NEW MEXICO

Case Number

5921

Application

Transcripts

Small Exhibits

ETC.



STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

BRUCE KING
GOVERNOR
LARRY KEHOE
SECRETARY

POST OFFICE BOX 2088
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO 87501
(505) 827-2434

July 17, 1980

Eastland Oil Company
P. O. Drawer 3488
560 One Marienfeld Place
Midland, Texas 79702

Attention: George D. Neal

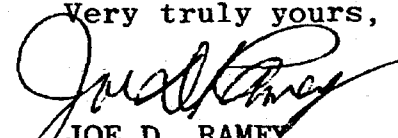
Re: Kenwood Federal (SWD) No. 4
SE/4 SW/4 Section 6,
Township 18 South, Range
31 East, Eddy County,
New Mexico

Gentlemen:

I have reviewed your request to increase injection pressure in your Kenwood Federal No. 4.

We do not allow operators to inject at fracture pressures. Therefore, based on your fracture pressure of 1100 psi, you are hereby authorized to inject at a pressure not to exceed 1000 psi surface pressure.

Very truly yours,


JOE D. RAMEY
Division Director

JDR/MH/og



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ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION DIVISION

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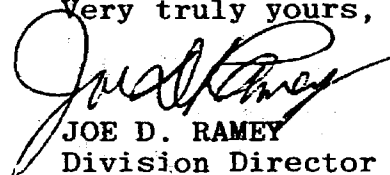
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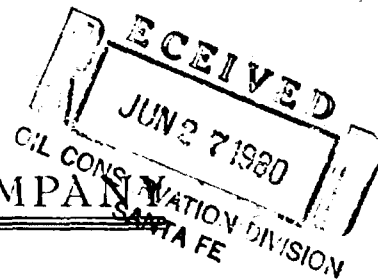

JOE D. RAMEY
Division Director

JDR/MH/og



THE EASTLAND OIL COMPANY

P.O. DRAWER 3488
560 ONE MARIENFELD PLACE
MIDLAND, TEXAS 79702
TELEPHONE: (915) 683-6293



June 25, 1980

#0001

State of New Mexico
Energy and Minerals Department
Oil Conservation Division
Post Office Box 2088
Santa Fe, New Mexico 87501

Case 5921

Attention: Mr. Joe D. Ramey

Re: Kenwood Federal (SWD) #4
SE/4 SW/4 Section 6
T-18-S, R-31-E,
Eddy County, New Mexico

Gentlemen:

Permission was granted by Order No. R-5455 dated June 8, 1977 to use the above designated well as a water disposal well in the Eastland's Power Grayburg - San Andres Pool. On an inspection June 17, 1980 by the Artesia District Office, we were notified that this well will have to be shut-in because the surface injection pressure exceeds 700 psi which was allowed by Order No. R-5455.

On our application, Form C-108, we requested an injection pressure of 875 psi at the surface. A copy of this application is enclosed. In an attempt to meet the lower pressure we have treated the perforated interval in the Grayburg sand with 5000 gallons of 15% HCL and ball sealers. When it was apparent that this treatment did not lower the surface pressure, we used a water-frac of 30,000 gallons and 33,000 pounds of sand.

The immediate shut-down pressure on the frac job was 1200 psi. Correcting this for the difference in hydrastatic pressure of the produced water and frac water would indicate a fracture pressure of 1100 psi. At a sustained injection rate, the surface pressure would be near this figure.

State of New Mexico
Kenwood Federal (SWD) #4

2.

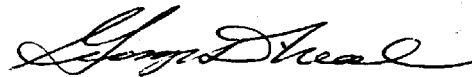
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SANTA FE
June 25, 1980

Currently, the leases produce only 35 barrels of water per day, but this will increase as water encroaches from offset waterfloods. Hauling water will result in premature abandonment because of the additional costs.

We respectfully request that the allowed surface injection pressure be raised to the fracture pressure of 1100 psi on our Kenwood Federal (SWD) Well #4.

Yours truly,

THE EASTLAND OIL COMPANY



George D. Neal
Superintendent

GDN/mb

Enclosure

1963

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

SUBMIT IN TRIPLICATE*
(Other instructions on reverse side)

Approved.
Budget Bureau No. 42-R1424.
6. LEASE DESIGNATION AND SERIAL NO.
1C 029389 (to) 30
7. INDUSTRY ALLOTTEE OR TRIBE NAME
DOW 71980
8. UNIT AGREEMENT NAME
SANTA FE DIVISION

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT" for such proposals.)

1. ☐ OIL WELL ☐ GAS WELL ☐ OTHER Salt water disposal well

2. NAME OF OPERATOR
The Eastland Oil Company

3. ADDRESS OF OPERATOR
704 Western United Life Bldg., Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.)
At surface
1980' FNL and 1980' FWL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, OR, etc.)
3604' GR, 3620' RT (ref.)

8. FARM OR LEASE NAME
Kenwood Fed (SWD)

9. WELL NO.
4

10. FIELD AND POOL, OR WILDCAT
Power Grayburg San Andres

11. SEC., T., R., M., OR B.E.K. AND SURVEY OR AREA
Sec. 6, T18S, R31E

12. COUNTY OR PARISH
Eddy

13. STATE
Texas

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF	<input type="checkbox"/>	WATER SHUT-OFF	<input type="checkbox"/>
FRACTURE TREAT	<input type="checkbox"/>	FRACTURE TREATMENT	<input checked="" type="checkbox"/>
SHOOT OR ACIDIZE	<input type="checkbox"/>	SHOOTING OR ACIDIZING	<input type="checkbox"/>
REPAIR WELL	<input type="checkbox"/>	(Other)	<input type="checkbox"/>
(Other)	<input type="checkbox"/>		
PULL OR ALTER CASING	<input type="checkbox"/>	REPAIRING WELL	<input type="checkbox"/>
MULTIPLE COMPLETS	<input type="checkbox"/>	ALTERING CASING	<input type="checkbox"/>
ABANDON*	<input type="checkbox"/>	ABANDONMENT*	<input type="checkbox"/>
CHANGE PLANS	<input type="checkbox"/>		

(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)*

On January 27, 1978, Dowell Division of Dow Chemical treated perforations from 3506' to 3517'; 3534' to 3541'; and 3581' to 3598' with 30,000 gallons of waterfrac. Treatment was down 2 1/2" tubing with packer set at 3443'. Propping agents were 9,000# of 100 mesh sand, 15,000# of 20/40 sand, and 9,000# of 10/20 sand. Average injection rate was 2400 psi at 16.7 BPM. Immediate shut-down pressure was 1200 psi and 10 minute shut down pressure was 1100 psi. The well was shut-in overnight and injection was resumed January 28, 1978 with 150 psi tubing pressure at a rate of 200 BPD.

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ARTESIA, NEW MEXICO

18. I hereby certify that the foregoing is true and correct

SIGNED [Signature] TITLE Superintendent DATE 2/14/78

(This space for Federal or State official use)

APPROVED BY [Signature] TITLE ACTING DISTRICT ENGINEER DATE FEB 22 1978

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

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

OPERATOR		ADDRESS					
THE EASTLAND OIL COMPANY		704 Western United Life Building Midland, Texas 79701					
LEASE NAME	WELL NO.	FIELD	SANITATE SIGN				
Power Deep Unit	1	Power (Grayburg San Andres)	Eddy				
LOCATION							
UNIT LETTER <u>F</u> I WELL IS LOCATED <u>1980</u> FEET FROM THE <u>West</u> LINE AND <u>1980</u> FEET FROM THE <u>North</u> LINE, SECTION <u>6</u> TOWNSHIP <u>18S</u> RANGE <u>31E</u> NMPM.							
CASING AND TUBING DATA							
NAME OF STRING	SIZE	SETTING DEPTH	BACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY		
SURFACE CASING	13-3/8"	720'	375 sx Howco Lite 300 sx Class C	Circulated	-		
INTERMEDIATE	8-5/8"	4200'	750 sx Howco Lite 300 sx Class C	1300'	Temperature Survey		
LONG STRING							
TUBING	2" EUE	3475'	NAME, MODEL AND DEPTH OF TUBING PACKER 8-5/8" x 2" Baker Lock-set @ 3475'				
NAME OF PROPOSED INJECTION FORMATION		TOP OF FORMATION		BOTTOM OF FORMATION			
Grayburg		3321'		3651'			
IS INJECTION THROUGH TUBING, CASING, OR ANNULUST		PERFORATIONS OR OPEN HOLES		PROPOSED INTERVAL(S) OF INJECTION			
Tubing (Plastic-coated)		Perforations		3506'-17'; 3534'-41'; 3581'-98'.			
IS THIS A NEW WELL DRILLED FOR DISPOSAL?		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED?		HAS WELL EVER BEEN PERFORATED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE?			
No		Morrow test to 11,810' (Dry Hole)		No			
LIST ALL SUCH PERFORATED INTERVALS AND BACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH							
Plugged back total depth is 4,110' with a 70 sack cement plug from 4110' to 4310'.							
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			
No known fresh water zone		Queen - 3011'		San Andres - 3651'			
ANTICIPATED DAILY INJECTION VOLUME (BBL/DAY)	MINIMUM	MAXIMUM	OPEN OR CLOSED TYPE SYSTEM	IS INJECTION TO BE BY GRAVITY OR PRESSURE?	APPROX. PRESSURE (PSI)		
	80	200	Open	Pressure	875		
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	ARE WATER ANALYSES ATTACHED?		
			Yes	Yes	Yes		
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND)							
Surface-Federal Lands. Lessee: John S. Williams, 803 Clayton, Artesia, N.M. 88201							
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL							
Allied-Chemical Corp. (Union Texas Petroleum)							
1300 Wilco Bldg., Midland, Texas 79701							
(Lease owner only - no production)							
The Eastland Oil Company (only producer within 1/2 mile)							
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		SURFACE OWNER		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL		THE NEW MEXICO STATE ENGINEER	
		No		No		Yes	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)?		PLAY OF AREA		ELECTRICAL LOG		DIAGRAMMATIC SKETCH OF WELL	
		Yes		Yes		Yes	

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

George D. Deal
(Signature)

Superintendent
(Title)

4/5/77
(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.

EXHIBIT "B"

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 11, 1977

EXAMINER HEARING

IN THE MATTER OF:

Application of Eastland Oil Company for) CASE
salt water disposal, Eddy County,) 5921
New Mexico.)

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil	Lynn Teschendorf, Esq.
Conservation Commission:	Legal Counsel for the Commission
	State Land Office Building
	Santa Fe, New Mexico

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General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212

I N D E X

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3	<u>GEORGE NEAL</u>	
4	Direct Examination by Mr. Kellahin	3
5	Cross Examination by Mr. Nutter	10
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EXHIBIT INDEX

	<u>Offered</u>	<u>Admitted</u>
11 Applicant's Exhibit One, Plat	4	10
12 Applicant's Exhibit Two, Form C-108	5	10
13 Applicant's Exhibit Three, Water Analysis	6	10
14 Applicant's Exhibit Four, Schematic Diagram	6	10
15 Applicant's Exhibit Five, Form 9331	7	10
16 Applicant's Exhibit Six, Plugging Report	8	10
17 Applicant's Exhibit Seven, Log	8	10
18 Applicant's Exhibit Eight, Cementing Record	9	10
19 Applicant's Exhibit Nine, Contour Map	9	10

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20
21
22
23
24
25

1 MR. NUTTER: We will call Case Number 5921.

2 MS. TESCHENDORF: Case 5921, application of Eastland
3 Oil Company for salt water disposal, Eddy County, New Mexico.

4 MR. KELLAHIN: Tom Kellahin of Kellahin and Fox,
5 Santa Fe, New Mexico, appearing on behalf of the applicant and
6 I have one witness to be sworn.

7 (THEREUPON, the witness was duly sworn.)
8

9 GEORGE NEAL

10 called as a witness, having been first duly sworn, was examined
11 and testified as follows:
12

13 DIRECT EXAMINATION

14 BY MR. KELLAHIN:

15 Q Would you please state your name, by whom you are
16 employed and in what capacity?

17 A My name is George Neal, I'm employed by the
18 Eastland Oil Company as Production Superintendent.

19 Q Mr. Neal, have you previously testified before the
20 Oil Conservation Commission and had your qualifications as an
21 expert accepted and made a matter of record?

22 A I have.

23 Q Have you made a study of and are you familiar with
24 the facts surrounding this particular application?

25 A I am, yes.

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1 MR. KELLAHIN: If the Examiner please, are the
2 witness' qualifications acceptable?

3 MR. NUTTER: Yes, they are.

4 Q (Mr. Kellahin continuing.) Mr. Neal, would you
5 please refer to what has been marked as Exhibit Number One,
6 identify it and tell us what you are seeking to accomplish?

7 A Exhibit Number One is a plat of Eastland's acreage
8 outlined in yellow, the Power Grayburg-San Andres pool in
9 Eddy County and we are asking permission to inject produced
10 water into the Kenwood Federal No. 1, located in Section 6.

11 Q Where in Section 6 is that proposed disposal well?

12 A The actual location is nineteen eighty from the west
13 and north lines of Section 6, Township 18 South, Range 31 East.

14 Q In Unit F of that section, I think.

15 MR. NUTTER: That is the well that is indicated by the
16 dry hole symbol on that map?

17 A That is correct, yes, sir.

18 Q (Mr. Kellahin continuing.) All right, sir, what do
19 you intend to use this well for?

20 A We intend to dispose of produced water from the
21 leases operated by the Eastland Oil Company in the Power
22 Grayburg-San Andres Pool.

23 Q How many wells will be producing water that will be
24 disposed of in the well?

25 A A total of eight producing wells on four leases.

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1 Q Do all of those wells produce from the Grayburg
2 formation?

3 A That is correct, they all produce from the Grayburg
4 and injection will be into the Grayburg formation.

5 MR. NUTTER: Before we go any further, this was
6 advertised for the Power Deep Unit Well No. 1 and we are
7 referring to it now as the Kenwood Federal Well No. 1, is
8 that the same well?

9 A The well is drilled by American Quasar as the Power
10 Deep Unit Well No. 1 and its name has not been changed but it
11 was drilled as a Morrow test.

12 MR. NUTTER: I see, it was originally a Deep test
13 then?

14 A Yes, sir, drilled in 1976.

15 MR. NUTTER: And it is on the Kenwood Federal lease?

16 A We have the shallow rights to four thousand feet.

17 MR. NUTTER: And what will you call the well?

18 A We would like to redesignate it as the Kenwood
19 Federal No. 4.

20 MR. NUTTER: I see.

21 Q (Mr. Kellahin continuing.) All right, sir, please
22 refer to Exhibit Number Two and identify it?

23 A Exhibit Number Two is Form C-108, which is Application
24 to Dispose of Salt Water by Injection into a Porous Formation,
25 which was submitted to the Commission prior to this hearing.

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1 Q What do you anticipate to be the minimum and maximum
2 daily disposal volumes for this well?

3 A We are currently producing eighty barrels a day
4 from the four leases and we anticipate a maximum production of
5 possibly two hundred barrels a day.

6 Q Will the injection into this disposal well be under
7 pressure or will it be by gravity?

8 A We anticipate that initially it will be under
9 gravity but it eventually will be under pressure.

10 Q What do you believe to be the maximum pressure that you
11 anticipate?

12 A Basing it on the maximum injection pressure in the
13 Grayburg to the immediate north in the Jackson Grayburg,
14 eight hundred and seventy-five pounds is their maximum injection
15 pressure.

16 Q All right, sir, would you refer to Exhibit Number
17 Three and identify it?

18 A Exhibit Number Three is a typical water analysis
19 taken from the Allied Federal No. 2 Well, showing the quality
20 of waters being produced and, of course, it will be the same
21 water that will be reinjected into the disposal well.

22 Q Please refer to Exhibit Number Four and identify it?

23 A Exhibit Number Four is a schematic diagram of the
24 well that was drilled by American Quasar to a depth of eleven
25 thousand eight hundred and ten feet and they set eight and five

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1 eighths casing at forty-two hundred feet, the top of the
2 cement at thirteen hundred feet behind the eight and five-eighths
3 casing and we own the rights to four thousand feet in this
4 lease.

5 Q Please refer to Exhibit Number Five and identify it?

6 A Exhibit Number Five is the plugging record of
7 American Quasar of New Mexico, also the casing settings that
8 they submitted to the USGS and Form 9331 was the final.

9 Q Excuse me, I think we've got those exhibits reversed.
10 Pull out the USGS approvals. Let's make that Exhibit Five.

11 A Okay. Exhibit Five is Form 9331 of the USGS asking
12 their permission as these are Federal leases, to use this as
13 a disposal well and we have their approval subject to the
14 approval of the Conservation Commission.

15 Q Would you refer to the attachments to the approval
16 and indicate to the Examiner the method of recompletion of this
17 well for disposal purposes?

18 A As stated, the eight and five-eighths casing is set
19 to forty-two hundred feet with the top of the cement at thirteen
20 hundred feet behind that casing and we propose to perforate the
21 Grayburg in the same sand intervals as are being produced in the
22 pool which are indicated as thirty-five oh six to seventeen,
23 thirty-five thirty-four to forty-one, and thirty-five eighty to
24 ninety-eight and set a packer capable of holding pressure in
25 either direction in the eight and five-eighths casing with two-

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1 inch plastic coated tubing to the surface.

2 Q What will you use to fill the annular space?

3 A We will use corrosive inhibited water circulated down
4 the two-inch tubing annular space, on the tubing in the eight
5 and five-eighths casing.

6 Q How will you monitor the pressure at the surface?

7 A We will maintain a pressure on the tubing casing
8 annulus, a pressure gauge which will be observed daily to be
9 sure there are no packer leaks or tubing leaks and we intend to
10 set a tank at the injection well which will have a high-low
11 pressure switch on it to regulate the injection into the
12 disposal well.

13 Q All right, sir, please refer to Exhibit Number Six.

14 A Six is the plugging report of American Quasar to
15 the USGS, Form 9331, in which they indicated at the bottom of
16 this form that they turned over this well to Eastland Oil
17 Company for completion as a water disposal well. We purchased
18 the recoverable casing in the well from American Quasar.

19 Q When was that done, Mr. Neal?

20 A That was done in March of 1976.

21 Q All right, sir, please identify Exhibit Number Seven?

22 A Exhibit Number Seven is a log that we ran on the
23 American Quasar well. We ran it to four thousand feet to
24 determine first if possibly it could be productive since
25 it was on our lease and since it was so low we saw it could not

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1 be productive as an oil well and we marked the zones that are
2 productive in the Power Grayburg-San Andres. That log may
3 not be marked.

4 (THEREUPON, a discussion was held off
5 the record.)

6 A This well is approximately a hundred and two feet
7 low to the closest producing well on the Kenwood Federal lease
8 and well below our oil-water contact in the pool.

9 Q (Mr. Kellahin continuing.) Refer to Exhibit Number
10 Eight and identify it?

11 A Exhibit Number Eight is a cementing record of all of
12 the wells within a half-mile radius of this Quasar Power Deep
13 Unit Well No. 1. They were all drilled by Eastland, all are
14 producing except Allied Federal "A" No. 1 which was a dry hole
15 when it was drilled and plugged and the plugging information is
16 indicated.

17 Q When were these wells completed?

18 A All in 1970 and '71.

19 Q All right, would you identify Exhibit Number Nine and
20 explain what information it contains?

21 A Exhibit Number Nine is a contour map of the Power
22 Grayburg pool which Eastland is the only operator and it
23 indicates the low position of the Power Deep Unit Well. We
24 drilled a well on the Arco Federal lease to the east which had
25 approximately the same position and was water productive only

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1 but the sands are continuous but they carry water at that low
2 structural position.

3 Q Mr. Neal, in your opinion will the approval of this
4 application be in the best interests of conservation,
5 prevention of waste and the protection of correlative rights?

6 A It will.

7 Q Were Exhibits One through Nine either prepared by you
8 directly or compiled under your direction and supervision?

9 A They were.

10 MR. KELLAHIN: If the Examiner please, we move the
11 introduction of Exhibits One through Nine.

12 MR. NUTTER: Applicant's Exhibits One through Nine
13 will be admitted into evidence.

14 (THEREUPON, Applicant's Exhibits One through
15 Nine were admitted into evidence.)

16 MR. KELLAHIN: That concludes our direct examination.

17
18 CROSS EXAMINATION

19 BY MR. NUTTER:

20 Q Mr. Neal, I note from Exhibit Number Eight that all
21 of the wells in this immediate vicinity appear to have from six
22 to seven hundred feet of surface pipe, is that correct?

23 A That is correct, yes, sir.

24 Q And is that well below any fresh waters in this area?

25 A Yes, in fact there are no fresh waters in the area.

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1 We have an exemption for disposal of water in surface pits from
2 the State on these leases, primarily because there is no surface
3 water.

4 Q When did you get that exception, do you recall?

5 A Immediately after drilling in '71, '70 and '71, I
6 think both years.

7 Q Did you have a hearing on that?

8 A Yes, sir.

9 Q You don't happen to remember the order number?

10 A I'm sorry, I don't have it.

11 Q Now, on your structure map here, on Exhibit Number
12 Nine, I see considerable dip to the south on the flank of this
13 little structure?

14 A Yes, sir.

15 Q Where approximately would be the oil-water contact
16 on this structure?

17 A On this interval that is -- this is a marker which is
18 approximately the top producing sand, it's a plus two twenty.

19 Q What's the interval on these lines?

20 A Ten feet.

21 Q And about two twenty is your water-oil contact on
22 the marker?

23 A Yes, sir. This Allied State Well produced only a
24 small amount of water and -- well, only a small amount of oil
25 and mostly water in Section 32 and it was finally plugged. It'

1 right on the oil-water contact.

2 Q So you will be disposing in the interval from thirty-
3 five oh six to thirty-five ninety-eight, is that correct?

4 A That is correct, yes, sir.

5 Q And the well immediately north of this disposal well
6 is producing, that's the Kenwood Federal No. 1 and it's
7 producing from thirty-three thirty-four to thirty-four sixty-
8 two, correct?

9 A Yes, sir.

10 Q And then the well to the west of that, what is the
11 producing interval on that one?

12 A That's Kenwood Federal No. 2, it's thirty-three
13 sixteen to thirty-four twenty-seven.

14 Q So again you will be from two to four hundred feet
15 deeper than the producing interval of that?

16 A Structurally, yes, sir.

17 Q Okay. Now, Mr. Neal, you mentioned that the pressure
18 you expected to have to acquire, I think, would be in the
19 neighborhood of eight hundred pounds?

20 A I said that was based on -- yes, sir, on the pressure
21 Atlantic Richfield was using in their waterflood in the Jackson
22 Grayburg. Of course, they are injecting considerably larger
23 quantities of water than we will be here and we may never
24 require that much pressure.

25 Q That waterflood was authorized sometime back wasn't

sid morrison reporting service

General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212

sid morrish reporting service
General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212

1 it?

2 A. Yes, sir, in approximately '70 or '71, yes, sir.

3 Q. You may not be aware, Mr. Neal, but the Commission
4 in the last number of months has been setting maximum pressure
5 for most injection projects and by the rule of thumb that we
6 would apply to your injection well here, approximately seven
7 hundred pounds would be the limit.

8 A. I think that would be well within --

9 Q. Now, on one of your exhibits I noticed that you added
10 up the -- well, it's on the attachment to Form 9331?

11 A. Yes, sir.

12 Q. You added up the water that is presently produced
13 and it comes out to about seventy-nine barrels a day, is that
14 right?

15 A. That is correct, yes, sir.

16 Q. Is that water going up in volume?

17 A. It is, very slowly.

18 Q. So you will be disposing of more than that in the
19 future then?

20 A. Yes, sir.

21 MR. NUTTER: Are there any further questions of
22 Mr. Neal?

23 MR. KELLAHIN: Mr. Nutter, for your information that
24 order number on the approval to utilize surface pits is R-4148.

25 MR. NUTTER: R --

1 MR. KELLAHIN: 4148. It was entered May 24th, 1971.

2 MR. NUTTER: Thank you. Do you have anything further,

3 Mr. Kellahin?

4 MR. KELLAHIN: No, sir.

5 MR. NUTTER: Does anyone have anything they wish

6 to offer in Case Number 5921? We will take the case under

7 advisement and a fifteen minute recess.

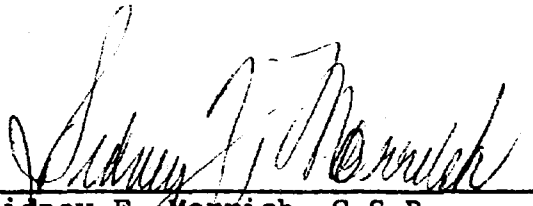
8 (THEREUPON, the hearing was in recess.)

sid morrish reporting service
General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212

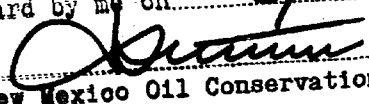
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REPORTER'S CERTIFICATE

I, SIDNEY F. MORRISH, a Certified Shorthand Reporter,
do hereby certify that the foregoing and attached Transcript
of Hearing before the New Mexico Oil Conservation Commission
was reported by me, and the same is a true and correct record
of the said proceedings to the best of my knowledge, skill and
ability.


Sidney F. Morrish, C.S.R.

sid morrish reporting service
General Court Reporting Service
825 Calle Mejia, No. 122, Santa Fe, New Mexico 87501
Phone (505) 982-9212

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 5921
heard by me on 5/11, 1977.
, Examiner
New Mexico Oil Conservation Commission



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

P. O. BOX 2088 - SANTA FE

87501

DIRECTOR
JOE D. RAMEY

LAND COMMISSIONER

PHIL R. LUCERO

June 9, 1977



STATE GEOLOGIST
EMERY C. ARNOLD

Mr. Tom Kellahin
Kellahin & Fox
Attorneys at Law
Post Office Box 1769
Santa Fe, New Mexico

Re: CASE NO. 5921
ORDER NO. R-5455

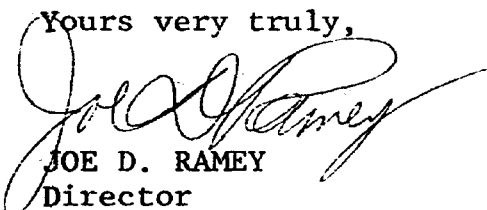
Applicant:

Eastland Oil Company

Dear Sir:

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

Yours very truly,


JOE D. RAMEY
Director

JDR/fd

Copy of order also sent to:

Hobbs OCC X
Artesia OCC X
Aztec OCC _____

Other _____

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. 5921
Order No. R-5455

APPLICATION OF EASTLAND OIL
COMPANY FOR SALT WATER DISPOSAL,
EDDY COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 11, 1977,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 8th day of June, 1977, 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, Eastland Oil Company, is the owner
and operator of the Power Deep Unit Well No. 1, located in Unit
F of Section 6, Township 18 South, Range 31 East, NMPM, Power
Grayburg-San Andres Pool, Eddy County, New Mexico.

(3) That the applicant proposes to redesignate said well
as the Kenwood Federal (SWD) Well No. 4 and to utilize said
well to dispose of produced salt water into the Grayburg forma-
tion, with injection into the perforated interval from approximate-
ly 3,506 feet to 3,598 feet.

(4) That the injection should be accomplished through
2 3/8-inch plastic lined tubing installed in a packer set at
approximately 3475 feet; that the casing-tubing annulus should
be filled with an inert fluid; and that a pressure gauge or
approved leak detection device should be attached to the annulus
in order to determine leakage in the casing, tubing, or packer.

(5) That the injection well or system should be equipped
with a pop-off valve or acceptable substitute which will limit
the wellhead pressure on the injection well to no more than
700 psi.

-2-

Case No. 5921
Order No. R-5455

(6) That the operator should notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(7) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(8) 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, Eastland Oil Company, is hereby authorized to utilize its Power Deep Unit Well No. 1, redesignated as the Kenwood Federal (SWD) Well No. 4, and located in Unit F of Section 6, Township 18 South, Range 31 East, NMPM, Power Grayburg-San Andres Pool, Eddy County, New Mexico, to dispose of produced salt water into the Grayburg formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 3475 feet, with injection into the perforated interval from approximately 3,506 feet to 3,598 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 shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 700 psi.

(3) That the operator shall notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(4) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

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

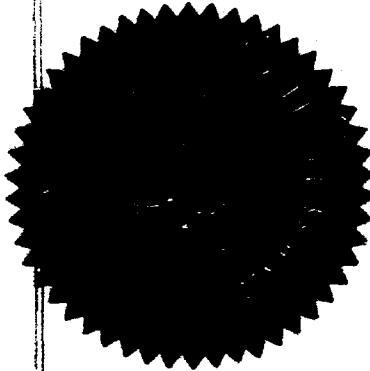
-3-

Case No. 5921

Order No. R-5455

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

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



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

Phil R. Lucero

PHIL R. LUCERO, Chairman

Emery C. Arnold

EMERY C. ARNOLD, Member

Joe D. Ramey

JOE D. RAMEY, Member & Secretary

S E A L

jr/

- CASE 5919: Application of Tenneco Oil Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Strawn formation through the perforated interval from 11,174 feet to 11,236 feet in its Jones Federal Well No. 1, located in Unit K of Section 23, Township 19 South, Range 31 East, Lusk-Strawn Pool, Eddy County, New Mexico.
- CASE 5920: Application of New Mexico Salt Water Disposal Co., Inc. for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Devonian formation through the perforated interval from approximately 13,000 feet to 13,500 feet in its Sinclair State Lea Well No. 1, located in Unit M of Section 1, Township 11 South, Range 34 East, Sand Springs-Devonian Pool, Lea County, New Mexico.
- CASE 5921: Application of Eastland Oil Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Grayburg formation through perforated intervals from 3506 feet to 3598 feet in its Power Deep Unit Well No. 1, located in Unit F of Section 6, Township 18 South, Range 31 East, Power Grayburg-San Andres Pool, Eddy County, New Mexico.
- CASE 5922: Application of A. L. Daugherty for an exception to Order No. R-3221, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks, as an exception to the provisions of Commission Order No. R-3221, permission to dispose of produced salt water into an intermittent saline lake located in Section 24, Township 8 South, Range 29 East, and Section 19, Township 8 South, Range 30 East, both in Chaves County, New Mexico.
- CASE 5653: (Reopened) (Continued from April 6, 1977, Examiner Hearing)
- In the matter of Case 5653 being reopened pursuant to the provisions of Order No. R-5191 which order established temporary special pool rules for the Daisy-Wolfcamp Pool, Lea County, New Mexico. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.
- CASE 5923: Application of El Paso Natural Gas Company for underground gas storage, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute its Barker Dome Gas Storage Project by utilizing certain wells for the injection into and withdrawal of gas from the Upper Dakota formation underlying all of Sections 8, 9, 10, 11, 14, 15, 16, 17, 20, 21, 22, 23, 28, and 29, and portions of Sections 7, 18, 19, 27, 30, and 32, all in Township 32 North, Range 14 West, Barker Creek-Dakota Pool, San Juan County, New Mexico.
- CASE 5904: (Continued from April 20, 1977, Examiner Hearing)
- Application of Palmer Oil & Gas Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Fruitland and Pictured Cliffs formations underlying the NE/4 and/or SE/4 of Section 20, Township 32 North, Range 6 West, San Juan County, New Mexico, and in the Mesaverde and Dakota formations underlying the E/2 of said Section 20, the above-described lands to be dedicated to a well to be drilled at a standard location thereon. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 5905: (Continued from April 20, 1977, Examiner Hearing)
- Application of Palmer Oil & Gas Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde and Dakota formations underlying the W/2 SE/4 and the E/2 SW/4 of Section 3, and the NW/4 of Section 10, and all mineral interests in the Pictured Cliffs and Fruitland formations underlying the NW/4 of Section 10, all in Township 31 North, Range 7 West, San Juan County, New Mexico, to be dedicated to a well to be drilled 1800 feet from the North line and 350 feet from the West line of said Section 10. Also to be considered will be the cost of drilling and completing said well and the allocation of the cost thereof, as well as actual operating costs and charges for supervision. Also to be considered will be the designation of applicant as operator of the well and a charge for risk involved in drilling said well.
- CASE 5906: (Continued from April 20, 1977, Examiner Hearing)
- Application of Palmer Oil & Gas Company for compulsory pooling, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Mesaverde and Dakota formations underlying the W/2 SW/4 of Section 2, the E/2 SE/4 of Section
- (Case 5906 continued on Page 3)

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

OPERATOR THE EASTLAND OIL COMPANY		ADDRESS 704 Western United Life Building Midland, Texas 79701	
LEASE NAME Power Deep Unit	WELL NO. 1	FIELD Power (Grayburg San Andres)	COUNTY Eddy
LOCATION UNIT LETTER F WELL IS LOCATED 100 1980 FEET FROM THE West LINE AND 1980 FEET FROM THE North LINE, SECTION 6 TOWNSHIP 18S RANGE 31E NMPM.			
CASING AND TUBING DATA			
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT
SURFACE CASING	13-3/8"	720'	375 sx Howco Lite 300 sx Class C
INTERMEDIATE	8-5/8"	4200'	750 sx Howco Lite 300 sx Class C
LONG STRING			
TUBING	2" EUE	3475'	NAME, MODEL AND DEPTH OF TUBING PACKER 8-5/8" x 2" Baker Lock-set @ 3475'
NAME OF PROPOSED INJECTION FORMATION Grayburg		TOP OF FORMATION 3321'	BOTTOM OF FORMATION 3651'
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing (Plastic-coated)		PERFORATIONS OR OPEN HOLES Perforations	PROPOSED INTERVAL(S) OF INJECTION 3506'-17'; 3534'-41'; 3581'-98'.
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No	IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Morrow test to 11,810' (Dry Hole)		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 Plugged back total depth-is 4,110' with a 70 sack cement plug from 4110' to 4310'.			
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA No known fresh water zone		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA Queen - 3011' San Andres - 3651'	
ANTICIPATED DAILY INJECTION VOLUME (BBLs.)	MINIMUM 80	MAXIMUM 200	APPROX. PRESSURE (PSI) 875
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 -		OPEN OR CLOSED TYPE SYSTEM Open	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure
		WATER TO BE DISPOSED OF Yes	NATURAL WATER IN DISPOSAL ZONE Yes
		ARE WATER ANALYSES ATTACHED? Yes	
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Surface-Federal Lands. Lessee: John S. Williams, 803 Clayton, Artesia, N.M. 88201			
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Allied-Chemical Corp. (Union Texas Petroleum) 1300 Wilco Bldg., Midland, Texas 79701			
(Lease owner only - no production)			
The Eastland Oil Company (only producer within 1/2 mile)			
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?	SURFACE OWNER No	EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL No	THE NEW MEXICO STATE ENGINEER Yes
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)	PLAT OF AREA 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.

George D. Neal
(Signature)

Superintendent
(Title)

4/5/77
(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.

WATER ANALYSIS REPORT

COMPANY The Eastland Oil Co. ADDRESS Loco Hills, NM DATE: 6-5-75
SOURCE Allied Federal #2 DATE SAMPLED 5-20-75 ANALYSIS NO. 9641
Analysis Mg/L *Meq/L

1. PH 7.0
 2. H₂S (Qualitative) Pos.
 3. Specific Gravity 1.070
 4. Dissolved Solids 99,445
 5. Suspended Solids
 6. Phenolphthalein Alkalinity (CaCO₃)
 7. Methyl Orange Alkalinity (CaCO₃) 880
 8. Bicarbonate (HCO₃) HCO₃ 1,074 ÷ 61 17.6 HCO₃
 9. Chlorides (Cl) Cl 57,882 ÷ 35.5 1,631 Cl
 10. Sulfates (SO₄) SO₄ 3,300 ÷ 48 69 SO₄
 11. Calcium (Ca) Ca 3,280 ÷ 20 164 Ca
 12. Magnesium (Mg) Mg 2,090 ÷ 12.2 171 Mg
 13. Total Hardness (CaCO₃) 16,800
 14. Total Iron (Fe) 4.0 ppm
 15. Barium (Qualitative)
 16.
- *Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

Compound	Equiv. Wt.	X	Meq/L	=	Mg/L
Ca					
Mg					
Na					
HCO ₃					
SO ₄					
Cl					
Ca (HCO ₃) ₂	81.04		<u>17.6</u>		<u>1,426</u>
Ca SO ₄	68.07		<u>69</u>		<u>4,699</u>
Ca Cl ₂	55.50		<u>77</u>		<u>4,270</u>
Mg (HCO ₃) ₂	73.17				
Mg SO ₄	60.19				
Mg Cl ₂	47.62		<u>171</u>		<u>8,140</u>
Na HCO ₃	84.00				
Na ₂ SO ₄	71.03				
Na Cl	58.46		<u>1,383</u>		<u>80,910</u>

Saturation Values Distilled Water 20°C
Ca CO₃ 13 Mg/L
Ca SO₄ • 2H₂O 2,090 Mg/L
Mg CO₃ 103 Mg/L

REMARKS (2) Eng. Dept.

CC: Saltman - Wersham - Nix - Fie

Respectfully submitted
TRETOUTE COMPANY

Ray Shaffner

THE EASTLAND OIL COMPANY
POWER DEEP UNIT #1

Well sketch

Cement circulated
375 ex Howco Lite
300 ex Class C

17 1/2"
hole

Top of cement - 1300'
750 ex Howco Lite
300 ex Class C

12 1/4"
hole

Injection zone: 3506'-
3598'

Cement plug from
4110' to 4310' w/
70 ex

7 7/8"
hole

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EASTLAND EXHIBIT NO. 4
CASE NO. 5921

T.D. 11,810'

13 3/8" csg. set @ 720'

2" EUE tubing @ 3475'
(internally plastic-coated)

Baker 3 5/8" x 2" Lock-set
packer @ 3475' (plastic-
coated)

8 5/8" csg. set @ 4200'

Corrosion
inhibited
wtr
in annulus

gauge

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEYSUBMIT IN TRIPLICATE*
(Other instructions on re-
verse side)Form approved.
Budget Bureau No. 42-R1424.

6. LEASE DESIGNATION AND SERIAL NO.

LC 022389(e)

8. IF INDIAN, ALLOTTEE OR TRIBE NAME

7. UNIT AGREEMENT NAME

8. FARM OR LEASE NAME

Power Deep Unit

9. WELL NO.

1

10. FIELD AND POOL, OR WILDCAT

Power (Grayburg San Andres)

11. SEC., T., R., M., OR BLK. AND
SURVEY OR AREA

Sec. 6, T18S, R31E

12. COUNTY OR PARISH

Fddy

13. STATE

New Mexico

1. OIL ☐ WELL GAS ☐ WELL OTHER ☒ Abandoned Morrow gas Test

2. NAME OF OPERATOR

The Eastland Oil Company

3. ADDRESS OF OPERATOR

704 Western United Life Building, Midland, Texas 79701

4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements.*
See also space 17 below.)
At surface

1980 feet FNL and FNL

14. PERMIT NO.

15. ELEVATIONS (Show whether DF, RT, GR, etc.)

3604' GR, 3620' RT (Ref.)

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:

TEST WATER SHUT-OFF

FRACTURE TREAT

SHOOT OR ACIDIZE

REPAIR WELL

(Other)

PULL OR ALTER CASING

MULTIPLE COMPLETE

ABANDON*

CHANGE PLANS

Convert to Salt Water Disposal X

SUBSEQUENT REPORT OF:

WATER SHUT-OFF

FRACTURE TREATMENT

SHOOTING OR ACIDIZING

(Other)

REPAIRING WELL

ALTERING CASING

ABANDONMENT*

(NOTE: Report results of multiple completion on Well
Completion or Recompletion Report and Log form.)17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any
proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones perti-
nent to this work.)*Attached are requirements for application for subsurface salt water disposal
as per NTL-2B.This disposal will be into the Power Grayburg-San Andres Pool which is productive
of oil and gas and will be a limited pressure maintenance project. All produced water
will be returned to the reservoir from which it was produced.BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EASTLAND EXHIBIT NO. 5
CASE NO. 5921

RECEIVED

NOV 05 1976

U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

18. I hereby certify that the foregoing is true and correct

SIGNED

TITLE

Superintendent

DATE

November 4, 1976

(This space for Federal or State office use)

APPROVED BY
CONTINUATION OF APPROVAL, IF ANY:

TITLE

DATE

MAR 25 1977

R. L. DECKMANN
ACTING DISTRICT ENGINEER

*See Instructions on Reverse Side

DISPOSAL OF PRODUCED WATER
Power Grayburg San Andres Pool
Eddy County, New Mexico

RECEIVED
NOV 05 1976
U. S. GEOLOGICAL SURVEY
ARTESIA, NEW MEXICO

Disposal in the Subsurface - NTL-2B

1. Authorization for disposal of produced water into the producing formation of the Power Grayburg San Andres Pool is requested using Power Deep Unit Well #1 located 1980 feet from the West and North lines of Section 6, T18S, R31E, Federal Lease Number LC 029389(e). Surface ownership is also Federal.

2. Water to be disposed of is produced from Federal Leases in the Pool operated by The Eastland Oil Company as follows:

Kenwood Federal Lease	-	40 B/D
Allied Federal Lease	-	7 B/D
Sibyl Federal Lease	-	12 B/D
Arco Federal Lease	-	20 B/D
TOTAL		79 B/D

A representative analysis of this formation water shows total dissolved solids of 99,445 Mg/L, Chlorides - 57,882 Mg/L, sulfates - 3,300 Mg/L, and pH of 7.0.

3. It is proposed to inject water into the Grayburg sands that are productive up structure in the Pool. These intervals are 3,506'-17', 3,534'-41', 3,580'-98', and ~~3,670'-82'~~.

4. The injection well is approximately 150 feet down structure to the oil-water contact in the Power Grayburg San Andres Pool and the sands are water productive with the same quality water that is to be returned through the disposal well.

5. There is no usable water within a 2-1/2 mile radius of the lease.

6. The Power Deep Unit #1 was drilled by American Quasar Petroleum Company of New Mexico. In a 17-1/2" hole, 720 feet of 48#, 13-3/8" casing was set and cement circulated using 375 sacks of Howco Lite and 300 sacks Class C 2% CaCl₂. A 12-1/4" hole was drilled to 4,200 feet and 32#, K-55, 8-5/8" casing set from 4,200 feet to 1,822 feet followed by 24#, K-55, 8-5/8" casing to surface. Cement consisted of 750 sacks Howco Lite and 300 sacks Class C with 2% CaCl₂. Top of cement by temperature survey was 1,300 feet from surface outside the 8-5/8" casing.

7. This well was drilled to total depth of 11,810 feet and plugged back total depth is 4,110 feet (70 sack cement plug from 4,310 feet to 4,110 feet).

8. The well will be prepared for injection by perforating the intervals indicated and treating each zone with acid. An 8-5/8" x 2" Baker Lock-set packer will be set at 3,475 feet capable of holding pressure in either direction. The 2" EUE, J-55, tubing and packer will be internally plastic-coated and fresh water with corrosion inhibitor will be circulated to fill the annulus. A maximum surface injection pressure of 875 psi is anticipated.
9. A pressure gauge on the tubing-casing annulus will be observed daily to confirm that the packer is holding and no tubing leaks exist. Injection volumes and pressure will be recorded daily. Surface storage capacity at the injection well will protect against short term shut-down of the system. In the event of longer shut-in time, the produced water will be trucked to another facility or the producing wells will be shut-down. The injection pump will be controlled from the storage tank by automatic high-low fluid level switches.

SUNDRY NOTICES AND REPORTS ON WELLS

(Do not use this form for proposals to drill or to deepen or plug back to a different reservoir. Use "APPLICATION FOR PERMIT—" for such proposals.)

1. OIL WELL <input type="checkbox"/> GAS WELL <input checked="" type="checkbox"/> OTHER Dry		7. UNIT AGREEMENT NAME Power Deep Unit	
2. NAME OF OPERATOR American Quasar Petroleum Co. of New Mexico		8. FARM OR LEASE NAME Power Deep Unit	
3. ADDRESS OF OPERATOR 1000 Midland National Bank Tower, Midland, Tx 79701		9. WELL NO. 1	
4. LOCATION OF WELL (Report location clearly and in accordance with any State requirements. See also space 17 below.) At surface 1980' FN&WL, Sec. 6, T18-S, R31-E		10. FIELD AND POOL, OR WILDCAT Wildcat	
14. PERMIT NO.		11. SEC. T. R. S. M. OR BLK. AND SURVEY OR AREA Sec. 6, T18S, R31E	
15. ELEVATIONS (Show whether DF, RT, GR, etc.) 3604' GR		12. COUNTY OR PARISH Eddy	
		13. STATE NM	

16. Check Appropriate Box To Indicate Nature of Notice, Report, or Other Data

NOTICE OF INTENTION TO:		SUBSEQUENT REPORT OF:	
TEST WATER SHUT-OFF <input type="checkbox"/>	PULL OR ALTER CASING <input type="checkbox"/>	WATER SHUT-OFF <input type="checkbox"/>	REPAIRING WELL <input type="checkbox"/>
FRACTURE TREAT <input type="checkbox"/>	MULTIPLE COMPLETS <input type="checkbox"/>	FRACTURE TREATMENT <input type="checkbox"/>	ALTERING CASING <input type="checkbox"/>
SHOOT OR ACIDIZE <input type="checkbox"/>	ABANDON* <input type="checkbox"/>	SHOOTING OR ACIDIZING <input type="checkbox"/>	ABANDONMENT* <input type="checkbox"/>
REPAIR WELL <input type="checkbox"/>	CHANGE PLANS <input type="checkbox"/>	(Other) <u>Rng Casing & Plug Back</u> <input checked="" type="checkbox"/>	
(Other)		(Note: Report results of multiple completion on Well Completion or Recompletion Report and Log form.)	

17. DESCRIBE PROPOSED OR COMPLETED OPERATIONS (Clearly state all pertinent details, and give pertinent dates, including estimated date of starting any proposed work. If well is directionally drilled, give subsurface locations and measured and true vertical depths for all markers and zones pertinent to this work.)

Spudded 2:30 AM 12-19-75
13 3/8" casing

Cemented 48# H-40 13 3/8" casing at 720' with 375 sx HOWCO Lt. wt & 300 sx Class C 2% CaCl - cement circulated. WOC 24 hours pressure tested to 1000 # - held OK. PD 9PM 12-20-75.

8 5/8" casing

Cemented 24# & 32# K-55 8 5/8" casing at 4210' with 750 sx HOWCO Lt. wt & 300 sx Class C - TOC @ 1300' by temperature survey. WOC 24 hours. PD 12:15 AM 12-30-75.

Plugged the lower portion of the hole with cement plugs as follows:

70 SX	11,400-11,600'
50 SX	9,500-9,700'
50 SX	7,950-8,100'
50 SX	5,850-6,000'
70 SX	4,110-4,310'

Job complete @ 4:45 PM 2-19-76. Removed WH, cleaned pits, released rig @ 12 noon 2-20-76. Well turned over to Eastland Oil Co. for completion as WDW.

18. I hereby certify that the foregoing is true and correct

SIGNED Lynn D. Jones TITLE Div. Operations Mgr DATE 3-8-76

(This space for Federal or State office use)

APPROVED BY _____ TITLE _____ DATE _____

CONDITIONS OF APPROVAL, IF ANY:

*See Instructions on Reverse Side

CASING AND CEMENT RECORD
OF WELLS DRILLED WITHIN
1/2 MILE RADIUS OF POWER DEEP UNIT #1

OPERATOR LEASE and WELL	EASTLAND Kenwood Federal #1	EASTLAND Kenwood Federal #2	EASTLAND Kenwood Federal #3	EASTLAND Allied Fed "A" #1	EASTLAND Sibyl Federal #1	EASTLAND Sibyl Federal #2	EASTLAND Allied Federal #1	EASTLAND Allied Federal #2
LOCATION	C-6-18-31	E-6-18-31	D-6-18-31	M-31-17-31	A-1-18-30	H-1-18-30	A-6-18-31	B-6-18-31

<u>SURFACE CASING</u>								
Size	8-5/8	8-5/8	8-5/8	8-5/8	8-5/8	8-5/8	8-5/8	8-5/8
Setting Depth	687'	657'	696'	659'	682'	671'	698'	679'
Sacks Cement	350	350	350	350	350	350	350	350
Top of Cement	Surface	Surface	Surface	Surface	Surface	Surface	Surface	Surface
Determined By	Circulated	Circulated	Circulated	Circulated	Circulated	Circulated	Circulated	Circulated

<u>LONG STRING</u>								
Size	4-1/2	4-1/2	4-1/2	NONE	4-1/2	4-1/2	4-1/2	4-1/2
Setting Depth	3845'	3520'	3478'	P&A 7/11/71	3512'	3472'	3870'	3550'
Sacks Cement	450	250	250		250	250	450	450
Top of Cement	1420'	2173'	2128'		2162'	2122'	1440'	1120'
Determined By	Temp. Survey	Calculated	Calculated		Calculated	Calculated	Calculated	Calculated

<u>PRODUCING INTERVAL</u>	3334-3462	3316-3427	3315-3441					
---------------------------	-----------	-----------	-----------	--	--	--	--	--

PLUGS	
35 sx @ 3564'	
35 sx @ 3240'	
35 sx @ 1543'	
35 sx @ 708'	
10 sx @ 30'	

	3194-3229	3302-3428	3392-3486	3333-3444
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BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Eastland EXHIBIT NO. 8
CASE NO. 5921

County

R-37-2

Cit. Serv.

English & Harmon
Stagner
TD 4252

Hanson
Gulf-St.
TD 4059

Eastland
(Allied Chem)

Pennzoil

Eastland
"A"

"State"

"Fed"

"State"

Eastland

5
7
8

"Kenwood-Fed"

"Allied-Fed"

"Arco-Fed"

American Quosot
"Power Deep Unit"

CROSS

Atlas

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Eastland EXHIBIT NO. 9
CASE NO. 5721

"Sybl"

Franklin, Aston & Fair

POWER GRAYBURG-SAN ANDRES POOL EDDY COUNTY, NEW MEXICO

DATUM: POWER MARKER
CONTOUR INTERVAL: 10'

1-21-76

B.E. Stagner

Allied

9

Care 5921

KELLAHIN AND FOX
ATTORNEYS AT LAW
500 DON GASPAR AVENUE
POST OFFICE BOX 1769
SANTA FE, NEW MEXICO 87501

JASON W. KELLAHIN
ROBERT E. FOX
W. THOMAS KELLAHIN

TELEPHONE 982-4315
AREA CODE 505

April 18, 1977

Mr. Dan Nutter
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

Re: Eastland Oil Company
Saltwater Disposal Case
May 11, 1977

Dear Dan:

I would appreciate having the enclosed application
set for hearing on May 11, 1977 on behalf of Eastland
Oil Company.

Very truly yours,

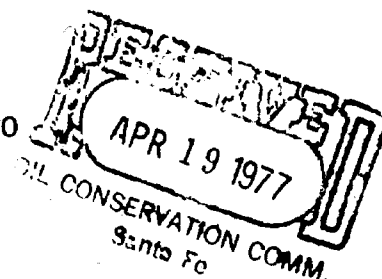

W. Thomas Kellahin

CC: Mr. George D. Neal

WTK:kfm

Enclosure

BEFORE THE
OIL CONSERVATION COMMISSION OF NEW MEXICO



IN THE MATTER OF THE APPLICATION OF
THE EASTLAND OIL COMPANY FOR
APPROVAL OF A SALTWATER DISPOSAL
WELL, EDDY COUNTY, NEW MEXICO

A P P L I C A T I O N

COMES NOW, THE EASTLAND OIL COMPANY, and applies to the Oil Conservation Commission of New Mexico for approval to inject produced saltwater into its Power Deep Unit Well No. 1, located in Unit F, Section 6, T18S, R31E, NMPM, Eddy County, New Mexico and in support thereof would show the Commission:

1. That the applicant is the operator of the above described well, as for specifically shown in the enclosed location plat marked Exhibit "A" and incorporated by reference.

2. That applicant proposes to dispose of produced saltwater in the manner set forth on Exhibits "B", "C" and "D" attached hereto and incorporated by reference.

3. Granting of this application will enable applicant to conform to the provisions of Order No. R-3221, will protect the environment and will not impair correlative rights.

WHEREFORE, Applicant respectfully requests that this matter be set for hearing before the Commission's duly appointed examiner and upon hearing an order be entered authorizing the disposal of water as described above.

THE EASTLAND OIL COMPANY

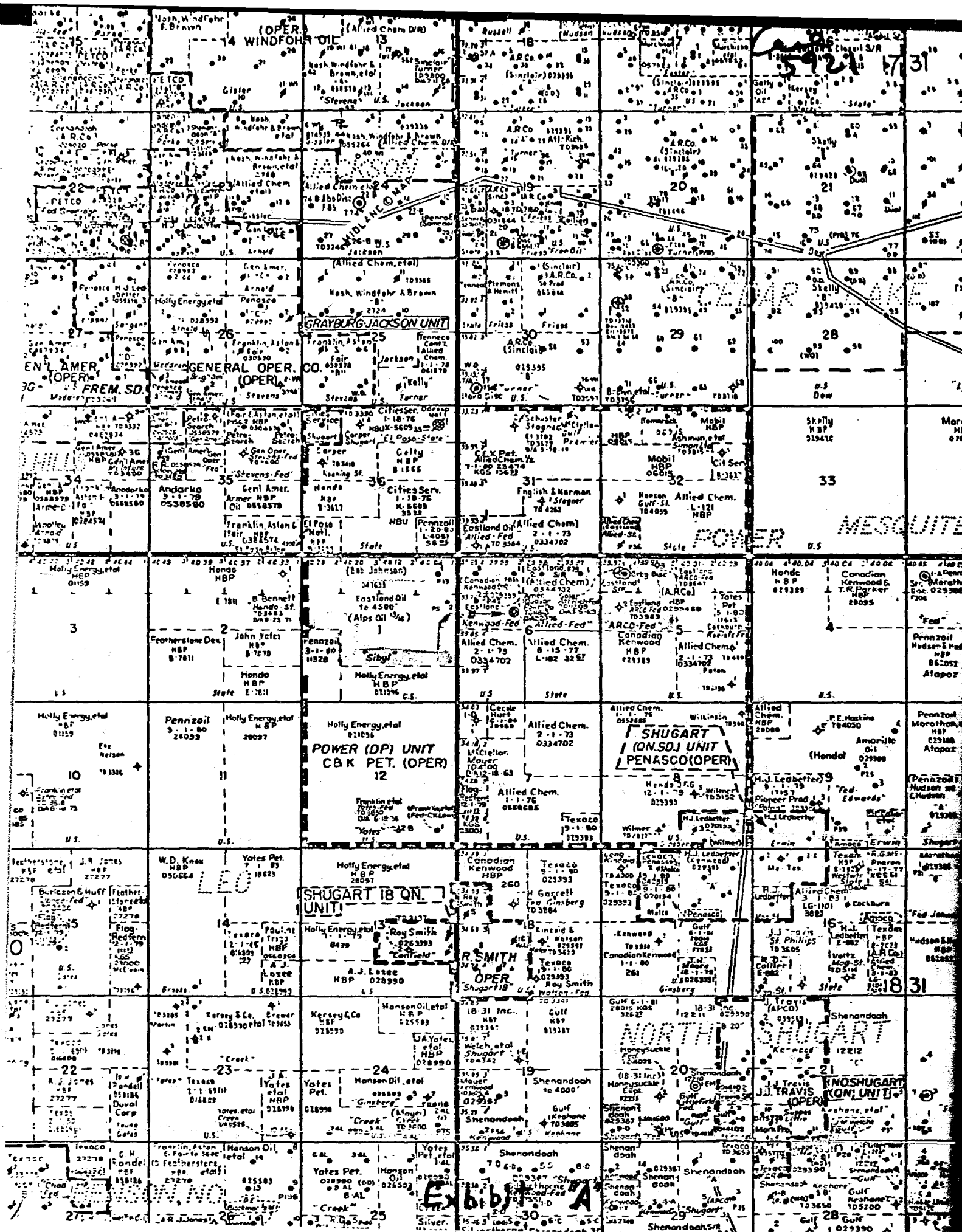
By

W. I. Kellahin
KELLAHIN & FOX

P.O. Box 1769

Santa Fe, New Mexico

Attorneys for Applicant



Case
5941

NEW MEXICO OIL CONSERVATION COMMISSION

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

OPERATOR THE EASTLAND OIL COMPANY		ADDRESS 704 Western United Life Building Midland, Texas 79701			
LEASE NAME Power Deep Unit	WELL NO. 1	FIELD Power (Grayburg San Andres)	COUNTY Eddy		
LOCATION UNIT LETTER F ; WELL IS LOCATED 1980 FEET FROM THE West LINE AND 1980 FEET FROM THE North LINE, SECTION 6 TOWNSHIP 18S RANGE 31E NMPM.					
CASING AND TUBING DATA					
NAME OF STRING	SIZE	SETTING DEPTH	SACKS CEMENT	TOP OF CEMENT	TOP DETERMINED BY
SURFACE CASING	13-3/8"	720'	375 sx Howco Lite 300 sx Class C	Circulated	-
INTERMEDIATE	8-5/8"	4200'	750 sx Howco Lite 300 sx Class C	1300'	Temperature Survey
LONG STRING					
TUBING	2" EUE	3475'	NAME, MODEL AND DEPTH OF TUBING PACKER 8-5/8" x 2" Baker Lock-set @ 3475'		
NAME OF PROPOSED INJECTION FORMATION Grayburg		TOP OF FORMATION 3321'		BOTTOM OF FORMATION 3651'	
IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing (Plastic-coated)		PERFORATIONS OR OPEN HOLE? Perforations		PROPOSED INTERVAL(S) OF INJECTION 3506'-17'; 3534'-41'; 3581'-98'.	
IS THIS A NEW WELL DRILLED FOR DISPOSAL? No		IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Morrow test to 11,810' (Dry Hole)		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 Plugged back total depth is 4,110' with a 70 sack cement plug from 4110' to 4310'.					
DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA No known fresh water zone		DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA Queen - 3011'		DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA San Andres - 3651'	
ANTICIPATED DAILY INJECTION VOLUME (BBLS.)	MINIMUM 80	MAXIMUM 200	OPEN OR CLOSED TYPE SYSTEM Open	IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure	APPROX. PRESSURE (PSI) 875
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		
NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Surface-Federal Lands. Lessee: John S. Williams, 803 Clayton, Artesia, N.M. 88201			NATURAL WATER IN DISPOSAL ZONE Yes		
LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL Allied-Chemical Corp. (Union Texas Petroleum) 1300 Wilco Bldg., Midland, Texas 79701 (Lease owner only - no production) The Eastland Oil Company (only producer within 1/2 mile)			ARE WATER ANALYSES ATTACHED? Yes		
HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING?		SURFACE OWNER No		EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL No	
ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)		PLAT OF AREA 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.

George D. Neal
(Signature)

Superintendent
(Title)

4/5/77
(Date)

NOTE: Should answers 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.

EXHIBIT "B"

THE EASTLAND OIL COMPANY
POWER DEEP UNIT #1
Well sketch

Case
5921

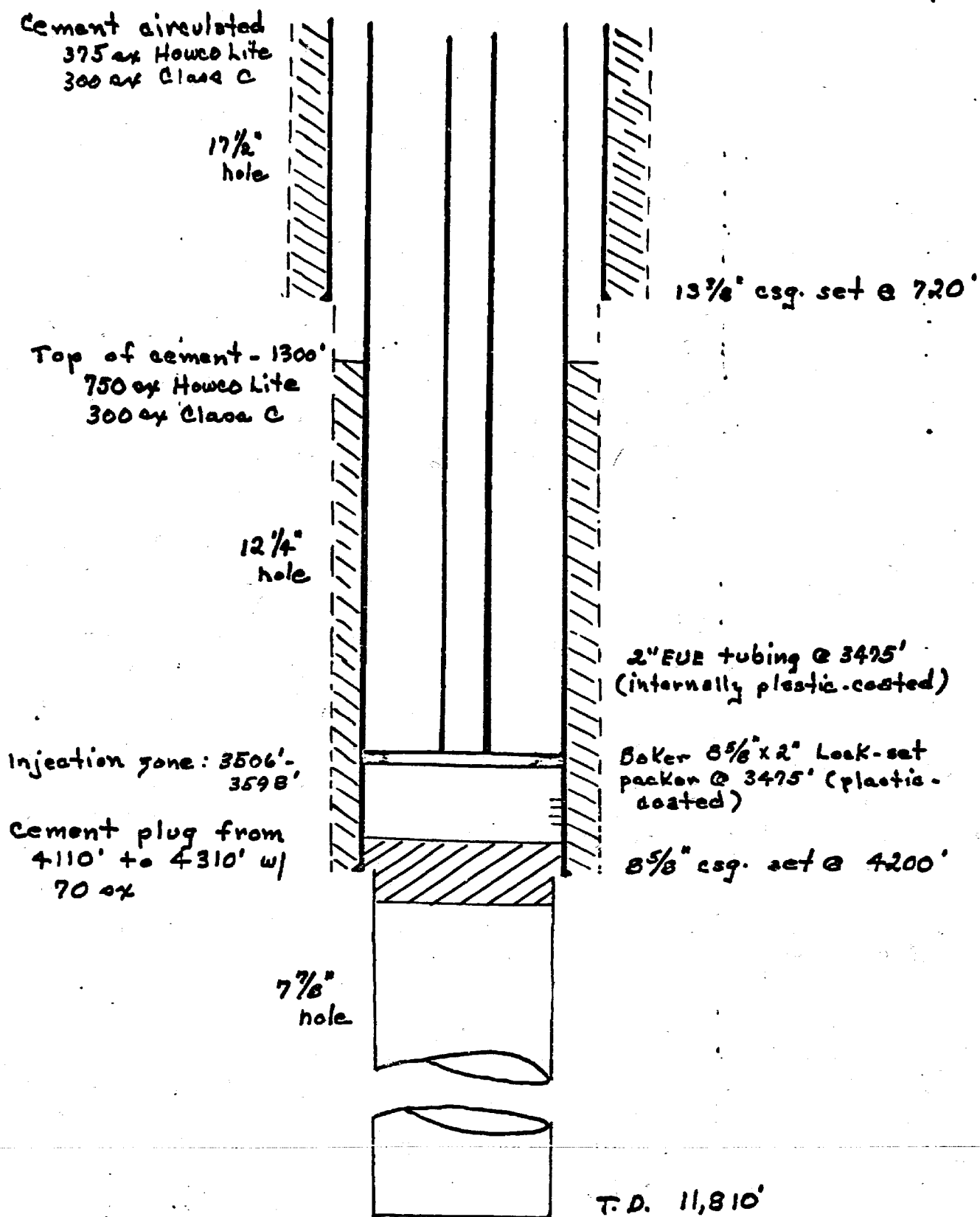


EXHIBIT "C"

Case
5921

WATER ANALYSIS REPORT

COMPANY The Eastland Oil Co. ADDRESS Loco Hills, OH DATE 6-5-75
SOURCE Allied Federal #2 DATE SAMPLED 5-20-75 ANALYSIS NO. 9641
Analysis Mg/L *Meq/L

1. PH 7.0
 2. H₂S (Qualitative) Pos.
 3. Specific Gravity 1.070
 4. Dissolved Solids 99,445
 5. Suspended Solids
 6. Phenolphthalein Alkalinity (CaCO₃)
 7. Methyl Orange Alkalinity (CaCO₃) 860
 8. Bicarbonate (HCO₃) HCO₃ 1,074 ÷ 61 17.6 HCO₃
 9. Chlorides (Cl) Cl 57,882 ÷ 35.5 1,631 Cl
 10. Sulfates (SO₄) SO₄ 3,300 ÷ 48 69 SO₄
 11. Calcium (Ca) Ca 3,280 ÷ 20 164 Ca
 12. Magnesium (Mg) Mg 2,090 ÷ 12.2 171 Mg
 13. Total Hardness (CaCO₃) 16,800
 14. Total Iron (Fe) 4.0 ppm
 15. Barium (Qualitative)
 16.
- *Milli equivalents per liter

PROBABLE MINERAL COMPOSITION

	Compound	Equiv. Wt.	X	Meq/L	=	Mg/L
Ca ← 164	Ca (HCO ₃) ₂	81.04		17.6		1,426
Mg ← 171	Ca SO ₄	68.07		69		4,697
Na ← 1,383	Ca Cl ₂	55.50		77		4,270
	Mg (HCO ₃) ₂	73.17				
	Mg SO ₄	60.19				
	Mg Cl ₂	47.62		171		8,140
	Na HCO ₃	84.00				
	Na ₂ SO ₄	71.03				
	Na Cl	58.46		1,383		80,910

Saturation Values Distilled Water 20°C
Ca CO₃ 13 Mg/L
Ca SO₄ • 2H₂O 2,090 Mg/L
Mg CO₃ 103 Mg/L

REMARKS (2) Eng. Dept.

CC: Saltzman - Worsnam - Nix - File

Respectfully submitted
TRETOUTE COMPANY

Ray Shaffner

EXHIBIT "D"

KELLAHIN AND FOX
ATTORNEYS AT LAW
500 DON GASPAR AVENUE
POST OFFICE BOX 1789
SANTA FE, NEW MEXICO 87501

Mr. Dan Nutter
Oil Conservation Commission
P. O. Box 2088
Santa Fe, New Mexico 87501

DRAFT

dr/

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. 5921

Order No. R- 5455

APPLICATION OF EASTLAND OIL COMPANY
FOR SALT WATER DISPOSAL, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on May 11, 1977,
at Santa Fe, New Mexico, before Examiner, Daniel S. Nutter.

NOW, on this day of May, 1977, 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, Eastland Oil Company,
is the owner and operator of the Power Deep Unit Well No. 1,
located in Unit F of Section 6, Township 18 South,
Range 31 East, NMPM, Power Grayburg-San Andres Pool,
Eddy County, New Mexico.

to redesignate said well as the Kenniswood Federal (SWD) well
(3) That the applicant proposes to utilize said well to
dispose of produced salt water into the Grayburg
formation, with injection into the perforated interval
from approximately 3,506 feet to 3,598 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic lined tubing installed in a packer
set at approximately 3475 feet; that the casing-tubing annulus
should be filled with an inert fluid; and that a pressure gauge
or approved leak detection device should be attached to the

3506
.2
701.2

CASE NO. _____

annulus in order to determine leakage in the casing, tubing, or packer.

(4) That the injection well or system should be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 700 psi.

OK
(5) That the operator should notify the supervisor of Artesia the ~~xHobbs~~ district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(6) That the operator should take all steps necessary to ensure that the injected water enters only the proposed injection interval and is not permitted to escape to other formations or onto the surface.

(7) 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, Eastland Oil Company, is hereby authorized to utilize its Power Deep Unit Well No. 1, ~~the~~ *redesignated as the Kenwood Federal (SWP) Well No. 4, and* located in Unit F of Section 6, Township 18 South, Range 31 East, NMPM, Power Grayburg-San Andres Pool, Eddy County, New Mexico, to dispose of produced salt water into the Grayburg formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 3475 feet, with injection into the perforated interval from approximately 3,506 feet to 3,598 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 shall be equipped with an approved leak detection device in order to determine leakage in the casing, tubing, or packer.

(2) That the injection well or system shall be equipped with a pop-off valve or acceptable substitute which will limit the wellhead pressure on the injection well to no more than 700 psi.

(3) That the operator shall notify the supervisor of the Artesia district office of the Commission of the date and time of the installation of disposal equipment so that the same may be inspected.

(4) That the operator shall immediately notify the supervisor of the Commission's Artesia district office of the failure of the tubing, casing, or packer, in said well or the leakage of water from or around said well and shall take such steps as may be timely and necessary to correct such failure or leakage.

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

(6) 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.