

Case No.

1502

Application, Transcript,
Small Exhibits, Etc.

615

OIL CONSERVATION COMMISSION

P. O. BOX 871

SANTA FE, NEW MEXICO

September 29, 1958

**Mr. Harry C. Wells
The Pure Oil Company
P.O. Box 2107
Fort Worth 1, Texas**

Dear Mr. Wells:

We enclose two copies of Order R-1252 issued September 29, 1958, by the Oil Conservation Commission in Case 1502, which was heard on September 10th at Santa Fe before an examiner.

Very truly yours,

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

**bp
Encls.**

**C
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Y**

**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. 1502
Order No. R-1252**

**APPLICATION OF THE PURE OIL COMPANY
FOR AN ORDER AUTHORIZING THE DISPOSAL
OF SALT WATER THROUGH THE CASING-
TUBING ANNULUS OF A PRODUCING OIL WELL
IN THE KENNITZ-CISCO POOL, LEA COUNTY,
NEW MEXICO.**

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on September 19, 1958, at Santa Fe, New Mexico, before Daniel S. Nutter, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 29th day of September, 1958, the Commission, a quorum being present, having considered the application, the evidence adduced and the recommendations of the Examiner, Daniel S. Nutter, and being fully advised in the premises,

FINDS:

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

(2) That the applicant, The Pure Oil Company, is the owner and operator of the State-Lea "E" No. 1 Well, located 1880 feet from the North line and 1880 feet from the East line of Section 21, Township 16 South, Range 34 East, NEPM, Lea County, New Mexico. Said well is a producing oil well in the Kennitz-Cisco Pool.

(3) That the applicant proposes to inject salt water down the casing-tubing annulus of said State-Lea "E" No. 1 Well between the 8 5/8-inch and 5 1/2-inch casing strings with the proposed injection zone from 4,327 feet to 9,460 feet.

(4) That applicant's preliminary tests have shown that surface pressures of 2,000 psi will be necessary to inject salt water into the proposed injection zone.

-2-

Case No. 1507

Order No. E-1252

(5) That such pressures plus the hydrostatic head might result in flooding out the top allowable State Lea "E" No. 1 Well.

(6) That at the present time there is no serious problem of salt water disposal in the area where applicant's State Lea "E" No. 1 Well is located.

(7) That the subject application should be denied.

IT IS THEREFORE ORDERED:

That the application of The Pure Oil Company for permission to inject salt water down the casing-tubing annulus between the 8 5/8-inch and 8 1/2-inch casing strings of its State Lea "E" No. 1 Well, located 1980 feet from the North line and 1980 feet from the East line of Section 21, Township 16 South, Range 34 East, NEPM, Lea County, New Mexico, and producing from the Kennitz-Cisco Pool be and the same is hereby denied.

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

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

E. L. Nechem

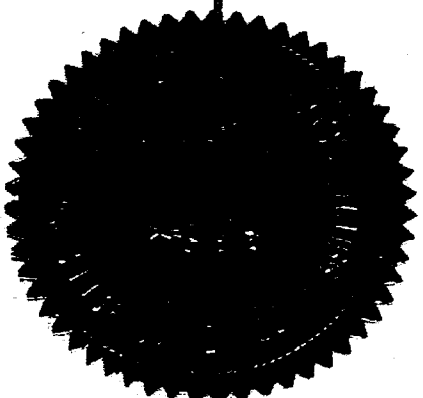
EDWIN L. NECHEM, Chairman

Murray E. Morgan

MURRAY E. MORGAN, Member

A. L. Porter, Jr.

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



file
Case
1502

September 12, 1958

New Mexico Oil Conservation Commission
Santa Fe, New Mexico

Attention: Mr. Daniel S. Nutter

Dear Mr. Nutter:

In reference to Cases #1502 and 1503 held September 10, 1958, you asked several questions which I was not able to answer at the time and requested additional information concerning these points.

In Case #1502, concerning The Pure Oil Company's application to dispose of produced salt water in our State Lea "F" No. 1, you asked if there were any dry holes in the area which could be utilized for disposal purposes. The nearest dry hole is a distance of 1.7 miles away. We do not own this well, and it is unknown whether or not this well would be available to us for disposal purposes. You also asked if we had investigated the possibility of drilling a salt water disposal well. I have checked with our Geological Department and they inform me that the information they have available at this time does not indicate that there is a porous salt water bearing zone above the San Andres formation of sufficient quality to warrant drilling a test well for disposal purposes. We do not feel justified in drilling a well to the San Andres formation at 4500' solely for the purpose of salt water disposal, because of the cost of drilling such a well and the uncertainty of the future life of Well No. 2 which produces the water.

In Case No. 1503 you requested a brochure containing information on "rotating disk" meters concerning counting on this lease. The attached literature published by Pittsburgh Equitable Meter Division of Rockwell Manufacturing Company explains the operation of this type meter. The latest gravity of the crude produced from Well No. 1 (Cisec) is 42.3° API at 60° F. The gravity on Well No. 2 (Wolfcamp) is 38.3° API at 60° F.

Please advise if we can furnish any additional information in regard to these two cases.

Very truly yours,

Harry S. Wells
Harry S. Wells
Ass't. Div. Prod. Engr.

HNW:es
att.

OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

Date September 11, 1958

CASE NO. 1502

HEARING DATE 9/10/58 9 a.m. DSN Santa Fe

My recommendations for an order in the above numbered case(s) are as follows:

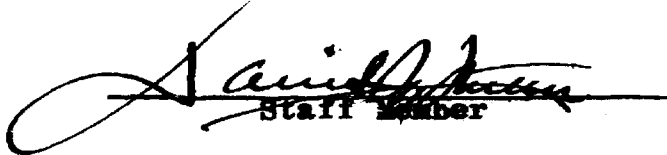
Enter an order denying the application of The Pure Oil Company for authority to dually complete its State Lea "E" Well No. 1, in the SW/4 NE/4 Section 21, Township 16 South, Range 34 East.

Applicant has proposed to inject salt water down the annulus between 8 5/8" and the 5 1/2" casing strings.

Applicant has made preliminary tests and found that surface pressures of 2,000 psi will be necessary to inject salt water into open hole intervals from 4,527 to 9,460. A quick calculation by the witness while on the stand indicated that this 2,000 pounds pressure plus the hydrostatic head will cause a pressure of some 670 pounds to be exerted on the top of the cement around the 5 1/2 inch pipe.

Applicant proposed using a well which is a top allowable well in the Kennitz-Cisco Pool.

It is my belief that there is no serious salt water disposal problem in this area at this time and that the risk of flooding out a top allowable well by this means of disposal is too great. ~~at this time.~~ Furthermore, applicant testified that he has made no study to determine whether any abandoned wells are within a reasonable distance of this lease, ^{which} would be available for salt water disposal.


Staff Member

DANIEL S. NUTTER

ir/

DOCKET: EXAMINER HEARING SEPTEMBER 10, 1958

Conservation Commission 9 a.m., Mabry Hall, State Capitol, Santa Fe, New Mexico

The following cases will be heard before Daniel S. Nutter, Examiner:

- CASE 1196: Application of The Ibex Company for permission to expand a pilot water flood project in the Artesia Pool, Eddy County, New Mexico, and for six unorthodox well locations. Applicant, in the above-styled cause, seeks an order permitting the expansion of its Artesia Pilot Water Flood project No. 2, authorized by Order No. R-966 in the Artesia Pool, Eddy County, New Mexico, to include eight additional water injection wells in Sections 21 and 28 of Township 18 South, Range 28 East, Eddy County, New Mexico. Applicant further seeks an order authorizing six unorthodox well locations in said Sections 21 and 28.
- CASE 1498: Application of El Paso Natural Gas Company for permission to conduct maximum pressure build-up tests and for the non-cancellation and/or transfer of allowables for test wells. Applicant, in the above-styled cause, seeks an order authorizing it to conduct maximum pressure build-up tests on seventeen gas wells in the Aztec-Pictured Cliffs, Ballard-Pictured Cliffs, Fulcher Kutz-Pictured Cliffs, South Blanco-Pictured Cliffs, and Blanco Mesaverde Gas Pools in San Juan and Rio Arriba Counties, New Mexico. Applicant further requests the non-cancellation of allowable accruing to test wells during the test period and for authority to transfer said allowables to other wells on the same basic lease, and for such other relief as is necessary to properly conduct said tests.
- CASE 1499: Application of Sinclair Oil and Gas Company for a non-standard gas proration unit. Applicant, in the above-styled cause, seeks an order authorizing a 240-acre non-standard gas proration unit in the Tubb Gas Pool consisting of the SW/4 and the S/2 SE/4 of Section 26, Township 21 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to applicant's J. R. Cone "A" Well No. 1, located 660 feet from the South and West lines of said Section 26.
- CASE 1500: Application of Sinclair Oil and Gas Company for a non-standard gas proration unit. Applicant, in the above-styled cause, seeks an order authorizing a 200-acre non-standard gas proration unit in the Blinebry Gas Pool consisting of the SW/4 and the SW/4 SE/4 of Section 26, Township 21 South, Range 37 East, Lea County, New Mexico, said unit to be dedicated to the applicant's J. R. Cone "A" Well No. 2, located 1980 feet from the South line and 660 feet from the West line of said Section 26.

CASE 1501:

Application of Continental Oil Company for a dual completion and for permission to commingle the liquids produced from two separate pools. Applicant, in the above-styled cause, seeks an order authorizing a gas-gas dual completion for its Britt B-15 Well No. 9, located 1980 feet from the South and East lines of Section 15, Township 20 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of gas from an undesignated Tubb Gas pool and the production of gas from an undesignated Blinbry gas pool. Applicant further seeks permission to commingle the liquids produced from said well from the two above-named pools.

CASE 1502:

Application of The Pure Oil Company for an order authorizing a salt water disposal well. Applicant, in the above-styled cause, seeks an order authorizing the disposal of salt water through its State Lea "E" No. 1 Well, located 1980 feet from the North and East lines of Section 21, Township 16 South, Range 34 East, Lea County, New Mexico. Said well is a producing oil well in the Kernitz-Cisco Pool and the applicant proposes to inject salt water through the annulus between the 8 5/8" and 5 1/2" casing. The proposed injection zone is from 4,527 feet to 9,450 feet. *admitted*

CASE 1503:

Application of The Pure Oil Company for permission to commingle the production from two separate oil pools. Applicant, in the above-styled cause, seeks an order authorizing the commingling of oil produced from the Kernitz-Cisco Pool and the Kernitz-Wolfcamp Pool on its State-Lea "E" Lease located in Section 21, Township 16 South, Range 34 East, Lea County, New Mexico. The applicant proposes to separately meter the production from each pool prior to commingling.

CASE 1504:

Application of Gulf Oil Corporation for a dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Learcy McBuffington Well No. 8, located 330 feet from the South line and 1980 feet from the West line of Section 13, Township 25 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Fusselman formation adjacent to the Justis-Fusselman Pool and oil from an undesignated Montoya pool through parallel strings of tubing.

CASE 1505:

Application of Gulf Oil Corporation for a dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its Learcy McBuffington Well No. 9, located 1650 feet from the South line and 1980 feet from the West line of Section 13, Township 25 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Fusselman formation adjacent to the Justis-Fusselman Pool and oil from an undesignated Montoya pool through parallel strings of tubing.

cket No. 24-58

CASE 1506:

Application of Gulf Oil Corporation for the creation of two non-standard gas proration units in the Tubb Gas Pool and two non-standard gas proration units in the Blinebry Gas Pool. Applicant, in the above-styled cause, seeks an order authorizing the creation of a 160-acre non-standard gas proration unit in both the Blinebry Gas Pool and in the Tubb Gas Pool, each to comprise the NE/4 SW/4, and W/2 SE/4 of Section 28 and the NW/4 NE/4 of Section 33, and to be dedicated to applicant's J. N. Carson "A" Well No. 4, located 554 feet from the South line and 2086 feet from the East line of said Section 28 and J. N. Carson "A" Well No. 6, located 2086 feet from the South and East lines of said Section 28 respectively. Applicant further seeks an order authorizing the creation of a 120-acre non-standard gas proration unit in both the Blinebry Gas Pool and in the Tubb Gas Pool, each to comprise the E/2 SE/4 of Section 28 and the NE/4 NE/4 of Section 33, and to be dedicated to applicant's J. N. Carson "C" Well No. 6, located 330 feet from the South line and 965 feet from the East line of said Section 28 and J. N. Carson "C" Well No. 3, located 640 feet from the South line and 660 feet from the East line of said Section 28 respectively, all of the above being in Township 21 South, Range 37 East, Lea County, New Mexico.

CASE 1507:

Application of Lea County Drip Company, Inc., for authority to construct and operate two waste oil treating plants. Applicant, in the above-styled cause, seeks an order authorizing it to construct and operate two treating plants in Lea County, New Mexico, to treat waste oil and tank bottoms collected from leases in Lea, Eddy, Chaves and Roosevelt Counties, New Mexico, said plants to be located at the following points:

- (1) Adjacent to the Shell Pipeline Company's Pipeline approximately three miles South of Hobbs, New Mexico.
- (2) Adjacent to the Shell Pipeline Company's Eunice Station approximately five miles West of Eunice, New Mexico.

August 25, 1958
ga

Case 1502

THE PURE OIL COMPANY

MAIN OFFICE

GENERAL OFFICES, 35 EAST WACKER DRIVE, CHICAGO.

1958 AUG 14 AM 8:26 TEXAS PRODUCING DIVISION
P. O. BOX 2107
FORT WORTH 1, TEXAS

August 12, 1958

*Saltwater disposal
in annulus of producing
well*

New Mexico Oil Conservation Commission (3)
Santa Fe, New Mexico

Attention: Mr. A. L. Porter, Jr.

Dear Sir:

It is requested that a hearing be scheduled to consider the application of
The Pure Oil Company to dispose of produced salt water in the Kennitz Pool.

We propose to inject approximately 300 barrels of salt water per day into the
annulus between the 8-5/8" intermediate casing and the 5-1/2" long string in our
State-Lea "E" No. 1 located 1980' south of the north line and 1980' west of the
east line of Section 21, T-16-S, R-34-E, Lea County, New Mexico, in the Kennitz-
Cisco Pool. The proposed injection zone is from 4527', where the intermediate
casing is set, to 9150', which is the top of the cement outside the long string.
The attached, "Application to Dispose of Salt Water by Injection into a Porous
Formation not Productive of Oil or Gas," sets out the details of the proposed
disposal project. Also attached is an electrical log of this well.

It would be appreciated if this hearing could be scheduled at the same time
as our application to comingle the production from the Kennitz-Wolfcamp Pool and
the Kennitz-Cisco Pool on our State-Lea "E" Lease, which application is attached
herewith.

Yours very truly,

9460
Harry C Wells
Harry C. Wells
Ass't. Div. Prod. Engr.

HCW:c
att.

cc: All Offset Operators

Surface Rights Owner

New Mexico State Engineer
Santa Fe, New Mexico

*Docketed - Nailed
8-28-58
BP*

ALL QUOTATIONS SUBJECT TO CHANGE WITHOUT NOTICE.

ALL AGREEMENTS CONTINGENT UPON STRIKES, FIRES, ACTS OF THE GOVERNMENT AND CARRIERS, AND ALL OTHER CAUSES BEYOND OUR CONTROL

THE PURE OIL COMPANY — PROCESS CALCULATION SHEET

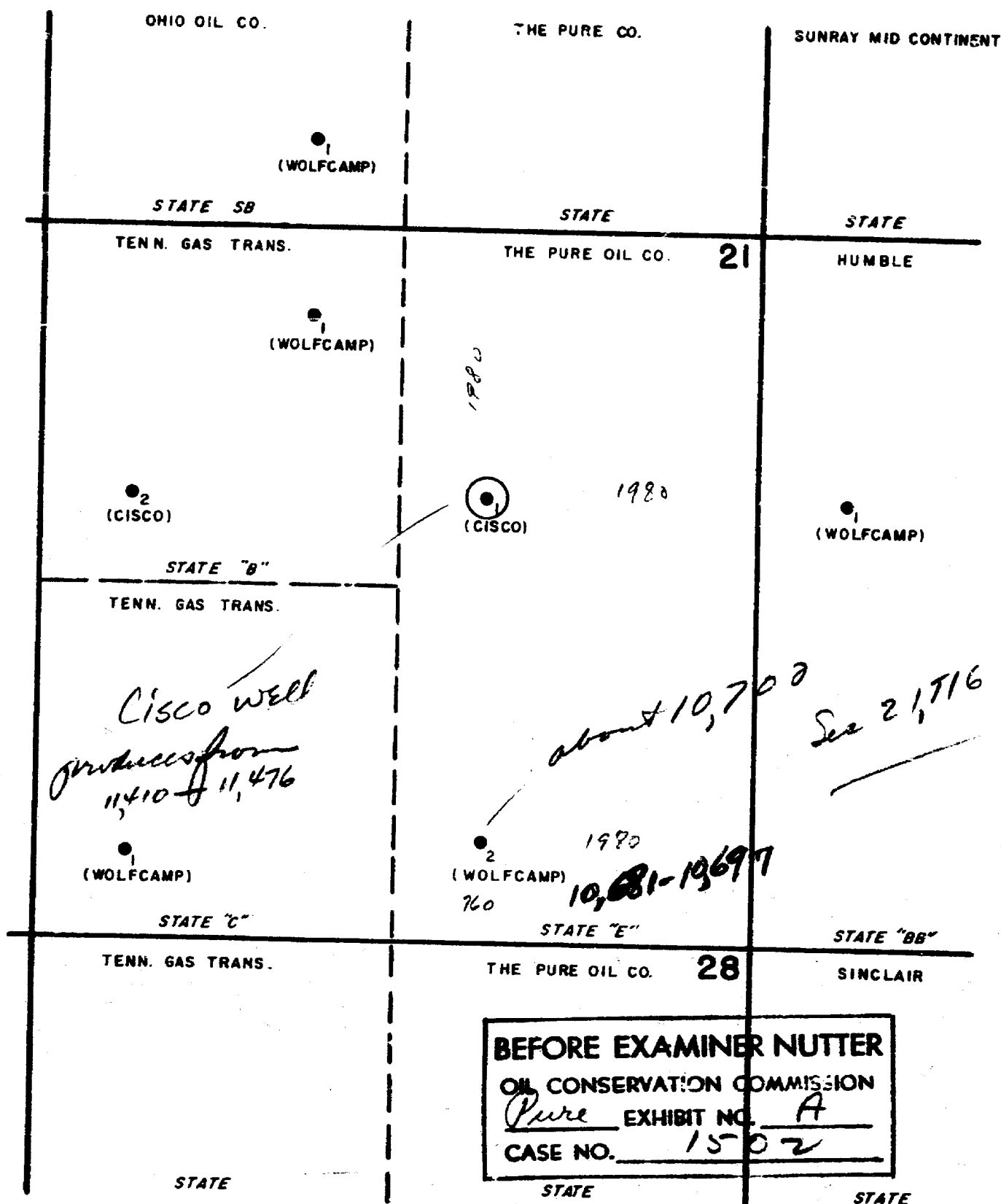


EXHIBIT "A"

Scale 1" = 1000'

Subject PURE STATE - LEA "E" *1
SALT WATER DISPOSAL HEARING

Date 9-10-58
Page

File No.
By

STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

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

POOL Name Kennits - Cisco County Lea
Operator The Pure Oil Company
Address P. O. Box 2107, Fort Worth 1, Texas
Lease Name State-Lea "G" Well No. 1
Depth to top of injection zone 4527'
Depth to base of injection zone 9460'
Size of surface casing 11-3/4" O.D. Length of surface casing 383'
Number of sacks of cement used on surface casing 650 sacks (Cemented to surface)
Size of intermediate casing 8-5/8" O.D. Length of intermediate casing 4527'
Number of sacks of cement used on intermediate casing 2000 sacks (Cemented to surface)
Size of long string 5-1/2" O.D. Length of long string 11,571'
Number of sacks of cement used on long string 400 sacks
Size of tubing 2-3/8" O.D. Length of tubing 11,322'
Depth of tubing packer setting 11,252'
Name and model of packer T.I.W.
Is injection through tubing or long string or annulus? 8-5/8" and 5-1/2" Annulus
Is injection through perforations or open hole? Open hole
Was the well drilled for salt water disposal purposes? No
List perforated intervals and number of sacks of cement used on any squeeze cementing operations 11,410'-11,430' and 11,446'-11,476' None squeezed
What is depth of the shallowest zone productive of oil or gas in this Pool 10,000'
What is depth of the deepest zone containing fresh water in this Pool? 370'
Are there any other salt water disposal wells in this Pool using this same zone for injection purposes? No If so, list operator, lease and well number

What is the approximate volume of salt water to be injected daily? 300 bbls.
Will system be open or closed type? Semi-closed
Will injection be by gravity or pump pressure? Pump pressure
If by pump pressure, give approximate number of pounds per square inch 2,000 psi
Will it be necessary for water to be filtered or chemically treated? No
Is this well so cased and completed that water can enter no other formation than the above setout injection zone? Yes

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. 6
CASE NO. 180V

EXHIBIT "B"

1. Attach a complete full-scale electrical log of this well (one Copy to OCC only.)
2. List names and addresses of all offset operators and surface owners.

Humble Oil & Refining Co., P. O. Box 1600, Midland, Texas; Tennessee Gas Transmission
Company, P. O. Box 1031, Midland, Texas; The Ohio Oil Company, P. O. Box 552, Midland,
Texas; Sunray Mid Continent Oil Co., Wilco Building, Midland, Texas; Sinclair Oil &
Gas Co., P. O. Box 1470, Midland, Texas; Mr. J. B. Clayton, P. O. Box 537, Lovington, NM

3. Have notices of this application been sent by registered mail or given to all offset operators, surface owners and to the N. M. State Engineer? Yes
4. Attach waivers from all offset operators.
5. Attach waivers from surface owners of land on which well is located or a letter from company making application to the surface owner explaining said application and requesting waiver.
6. No application will be processed until Item 1 has been attached to the application. Should all necessary waivers not accompany application, the Commission shall hold such application for a period of fifteen (15) days from date of receipt in the Santa Fe Office. If, after said fifteen (15) day period, no protest or request for hearing is received in the Santa Fe Office, the application will then be processed.

The Pure Oil Company
Operator

By Harry C. Wells
Harry C. Wells

THE STATE OF Texas

COUNTY OF Tarrant

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

SUBSCRIBED AND SWORN TO before me, this the
19 58.

John L. Suttle
Notary Public in and for Tarrant
County, Texas

EXHIBIT "B"

Pure State Lea "E" #2
Drill Stem Test 10,784' to 10,813'
Water Analysis

Chloride	51,800	parts	per	million
Sulfate	655	"	"	"
Bicarbonate	610	"	"	"
Calcium	3,160	"	"	"
Magnesium	510	"	"	"
Iron	<u>50</u>	"	"	"
Total Solids	56,795	"	"	"
Specific Gravity	1.0625			

EXHIBIT "C"

TO WHOM IT MAY CONCERN:

This is to certify that I, George E. Fish, a geologist of The Pure Oil Company, personally made a study of the area in the vicinity of The Pure Oil Company's State-Lea "E" well No. 1, located in Section 21, T-15-S, R-34-E, Lea County, New Mexico, and have determined that there is no production within a two mile radius occurring from formations included in the proposed interval (4527' to 9450') for disposing of salt water on the Pure State-Lea "E" Lease.

The above proposed interval for disposing of salt water is below the base of the Triassic formation which occurs at a depth of 1573 feet in the Pure #1 State-Lea "E".

SIGNED George E. Fish
DATED September 8, 1958

THE STATE OF TEXAS
COUNTY OF TARRANT

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

George E. Fish
SUBSCRIBED AND SWORN TO before me, this the 8th day of September,
1958.

Rufus M. Perdue RUFUS M. PERDUE
Notary Public in and for Tarrant
County, Texas

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pure EXHIBIT NO. D
CASE NO. 1587

EXHIBIT "D"

Shell Williams Unit #1
Drill Stem Test 5786' to 5878'
Water Analysis

San Pedro

Calcium	1,710 parts per million
Magnesium	382 parts per million
Bicarbonate	793 parts per million
Sodium	34,800 parts per million
Sulfate	3,367 parts per million
Chloride	<u>54,849</u> parts per million
Total Solids	95,901 parts per million
Specific Gravity	1.065 @ 20° Centigrade

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<i>June</i>	EXHIBIT NO. <u>E</u>
CASE NO.	<u>1507</u>

EXHIBIT "E"

August 12, 1958

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Gentlemen:

As lessees of adjoining acreage to The Pure Oil Company's State-Lea "E" Lease located in Section 21, T-16-S, R-34-E, Lea County, New Mexico, we have no objection to your proposal to dispose of salt water into Pure's State-Lea "E" No. 1 over the interval from 4527' to 9450'.

Tennessee Gas Transmission Co.

By: *J. J. Jones*

Date: Aug. 13, 1958

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pure EXHIBIT NO. 7
CASE NO. 150-1

EXHIBIT "F"

August 12, 1958

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Gentlemen:

As lessees of adjoining acreage to The Pure Oil Company's State-Lea "E" Lease located in Section 21, T-16-S, R-34-E, Lea County, New Mexico, we have no objection to your proposal to dispose of salt water into Pure's State-Lea "E" No. 1 over the interval from 4527' to 9450'.

The Ohio Oil Company

By: Carl Mills

Date: 8-14-58

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<u>Carl</u>	EXHIBIT NO. <u>g</u>
CASE NO.	<u>1502</u>

EXHIBIT "G"

August 12, 1958

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Gentlemen:

As lessees of adjoining acreage to The Pure Oil Company's State-Lea "E" Lease located in Section 21, T-16-S, R-34-E, Lea County, New Mexico, we have no objection to your proposal to dispose of salt water into Pure's State-Lea "E" No. 1 over the interval from 4527' to 9450'.

Sunray Mid-Continent Oil Co.

By: E. J. Rine

Date: 8-18-58

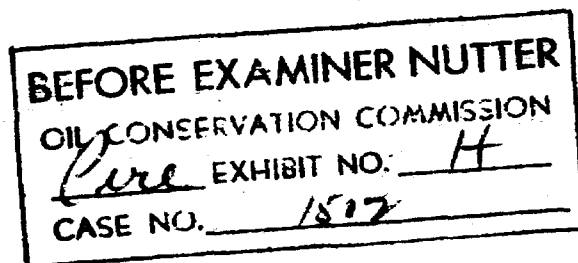


EXHIBIT "H"

August 12, 1958

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Gentlemen:

As lessees of adjoining acreage to The Pure Oil Company's State-Lea "E" Lease located in Section 21, T-16-S, R-34-E, Lea County, New Mexico, we have no objection to your proposal to dispose of salt water into Pure's State-Lea "E" No. 1 over the interval from 4527' to 9450'.

Humble Oil & Refining Co.

By *[Signature]*

Date: 9-8-58

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
Pure EXHIBIT NO. 4
CASE NO. 1502

EXHIBIT "I"

August 12, 1958

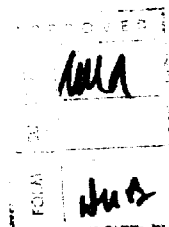
The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Gentlemen:

As lessees of adjoining acreage to The Pure Oil Company's State-Lea "E" Lease located in Section 21, T-16-S, R-34-E, Lea County, New Mexico, we have no objection to your proposal to dispose of salt water into Pure's State-Lea "E" No. 1 over the interval from 4527' to 9450'.

Sinclair Oil & Gas Company

By: 



Date: August 22, 1958

BEFORE EXAMINER NUTTER	
OIL CONSERVATION COMMISSION	
<i>Pure</i>	EXHIBIT NO. <u>J</u>
CASE NO.	<u>1502</u>

EXHIBIT "J"

August 12, 1958

The Pure Oil Company
P. O. Box 2107
Fort Worth 1, Texas

Gentlemen:

As surface owner on The Pure Oil Company's
State-Lea "E" Lease located in Section 21, T-16-S,
R-34-E, Lea County, New Mexico, I have no objec-
tion to your proposal to dispose of salt water
into Pure's State-Lea "E" No. 1 over the interval
from 4527' to 9450'.

SIGNED

J. B. Clayton

DATE 8-18-58

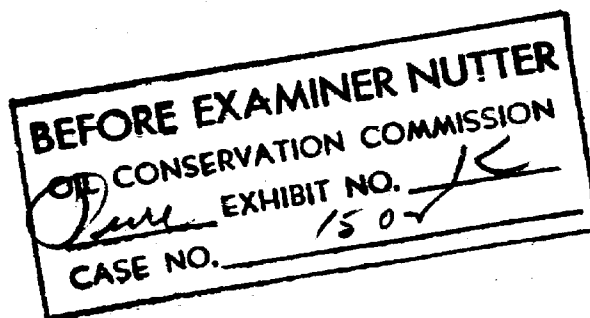


EXHIBIT "K"

State Lea E #1

Casing Cement Affidavit

To whom it may concern: This is to certify that I, M. J. Littlejohn, employee of the Pure Oil Co., personally supervised the setting of Casing and Cementing of said in the Pure Oil Co. State Lea E #1 located in the Kennitz Cisco Field, Lea County, New Mexico.

Surface casing in this well consists of 11 3/4 casing set @ 383' and cemented with 650 sacks cement. This cement circulated to surface.

Intermediate casing in this well consists of 8 5/8 casing set @ 4527 and cemented with 2000 sacks cement. This cement circulated to surface.

Oil string in this well consists of 5 1/2" casing set @ 11571 cemented with 400 sacks cement. Top of cement outside of 5 1/2" casing @ 9460 as determined by temperature survey.

Signed *M. J. Littlejohn*

Date Sept. 7, 1958

This is to certify that I, Pauline Garza, have this day, Sept. 7, 1958, set my hand and seal to the above.

Notary Public in and for Lea County, N. M.

Pauline Garza
My commission expires Feb. , 1960

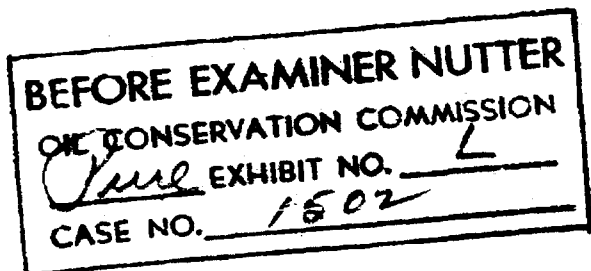


EXHIBIT "L"

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 1502

TRANSCRIPT OF HEARING

SEPTEMBER 10, 1958

DEARNLEY - MEIER & ASSOCIATES
GENERAL LAW REPORTERS
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BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
SEPTEMBER 10, 1958

IN THE MATTER OF:

CASE 1502 Application of The Pure Oil Company for
an order authorizing a salt water dis-
posal well. Applicant, in the above-
styled cause, seeks an order authorizing
the disposal of salt water through its
State Lea "E" No. 1 Well, located 1980
feet from the North and East lines of
Section 21, Township 16 South, Range 34
East, Lea County, New Mexico. Said well
is a producing oil well in the Kemnitz-
Cisco Pool and the applicant proposes to
inject salt water through the annulus be-
tween the 8 5/8" and 5 1/2" casing. The
proposed injection zone is from 4,527
feet to 9,450 feet.

BEFORE:

Mr. Daniel S. Nutter, Examiner.

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

MR. NUTTER: The next case on the docket will be 1502.

MR. PAYNE: Application of The Pure Oil Company for an
order authorizing a salt water disposal well.

MR. WELLS: I am H. C. Wells, here to represent the
applicant. I will testify.

(Witness sworn)

HARRY C. WELLS,

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

DIRECT EXAMINATION

BY MR. PAYNE:

Q Will you please state your name and position?

A My name is Harry C. Wells. I am employed by The Pure Oil Company. My position is assistant chief division production engineer of the Texas producing division. I have not testified before the Commission before.

Q Would you give us a brief resume of your background experience, Mr. Wells?

A I attended Los Angeles State University, and graduated in 1950 with a Bachelor of Science degree in petroleum engineering. Upon graduation, I was employed by The Pure Oil Company, and have been with them ever since. I was located in Midland, Texas for a little over a year, supervising field operations in the Permian Basin and Southeastern New Mexico area, and I am now in the division office, assistant division engineer of the division which handles Southeast New Mexico.

MR. PAYNE: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, sir, they are.

Q Mr. Wells, are you familiar with the general matter contained in your application?

A Yes, sir, I am.

Q Proceed, please.

A The Pure Oil Company is owner and operator of the State Lea "E" lease which covers the E/2 of Section 21, Township 16 South,

Range 34 East, Lea County, New Mexico. Exhibit A shows the area of this lease and all wells within one half mile of the proposed disposal well. Pure State Lea "E" lease has two producing wells, the State "E" Lea No. 1, located 1980 feet south of the north line, and 1980 feet west of the east line of Section 21, is completed in the Kemnitz-Cisco Pool, and Well No. 2, located 1980 feet west of the east line, and 760 feet north of the south line of Section 21, is completed in the Kemnitz-Wolfcamp Pool. All other wells shown on Exhibit A are completed in the Kemnitz-Wolfcamp Pool with the exception of Tennessee Gas Transmission Company's State "B" No. 2, which is completed in the Kemnitz-Cisco Pool. Exhibit B is an application to dispose of salt water by injection into a porous formation not productive of oil or gas. I will review that application. The proposed injection well is the State Lea "E" No. 1 operated by The Pure Oil Company. The depth to the top of the injection zone is 4,527 feet. The depth to the base of the injection zone is 9,460 feet. I would like to point out that this differs from the application as submitted, asking for this hearing by ten feet on the base, it said 9,450 on the previous application and 9,450 is correct and is based on the temperature survey run on this log rather than the drilling report which was received. Surface casing in this well consists of 11 3/4 inch OD set at 383 feet, and cemented with 650 sacks of cement. This cement was circulated to the surface. Intermediate casing consists of 8 5/8 inch OD casing set at 4,527 feet, and cemented with 2,000 sacks of cement. This cement

was circulated to the surface. The long string consists of 5 1/2 inch OD casing, set at 11,575, and cemented with 400 sacks of cement. This cement extended to the outside of the 5 1/2 inch casing to a depth of 9,460 feet as determined by temperature survey run on the well. The tubing string consists of 2 3/8 inch tubing; 11,322 feet with a packer, TIW packer set at 11,252 feet. Injection of salt water will be through the annulus, between the 8 5/8 inch and 5 1/2 inch casing. Injection will be through open hole. This well was not drilled for salt water disposal purposes. The perforated intervals are from 11,410 to 11,430, and 11,446 to 11,475. None of these perforations were squeezed off. The depth of the shallowest zone productive of oil or gas in this pool is approximately 10,000 feet. The deepest zone containing fresh water in this pool is approximately 370 feet. There are no other salt water disposal wells in this pool using this same zone for injection purposes. The approximate volume of salt water to be injected daily will be about 300 barrels per day. The system will be of a semi-close type. Injection will be by pump pressure of approximately 2,000 pounds per square inch. We do not think it will be necessary for the water to be filtered or chemically treated. And this well is so cased and completed that water can enter no other formation than the injection zone set out.

The water to be disposed of is produced from The Pure Oil Company's State Lea "E" Well No. 2, from the Wolfcamp formation.

Exhibit C shows the analysis of this water which was taken

on water recovered from a drill stem test in this well over the interval between 10,784 to 10,813 feet. It will be noted that the water contains 56,795 parts per million total developed solid. Therefore, this water is unfit for stock or irrigation uses. The proposed injection zone will include the San Andres, Glorieta, Clearfork, Tubb and Abo formations. To the best of our knowledge, none of these formations are productive of oil or gas.

Exhibit D is a statement by Mr. George E. Fisher, a geologist of The Pure Oil Company stating that there is no production from formations included in the proposed injection interval within a distance of two miles of the proposed disposal well. He further states that the injection interval below the base of the Triassic formation which occurs at a depth of 1,573 feet in Pure's State Lea "E" No. 1. None of the formations in the proposed injection interval contain fresh water. The San Andres formation, which is the uppermost of these exposed formations, was tested in Shell's Williams Unit No. 1 located 660 feet from the south line, and 1980 feet from the east line of Section 8, Township 16 South, Range 34 East. This well is approximately 9,400 feet northwest of Pure State Lea "E" Well No. 1. The interval tested was from 5,786 feet to 5,878 feet. Recovery on this drill stem test was 4,700 feet of water.

Exhibit E shows the analysis of this San Andres water. This analysis shows a total solid content of 95,901 parts per million.

Exhibits F, G, H, I and J are waivers from all offsetting operators, stating that they have no objection to our proposal to

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dispose of salt water into the State Lea "E" No. 1 over the proposed injection interval.

Exhibit K is a similar waiver from the owner of the surface rights on our State Lea "E" lease.

Exhibit L is a casing cementing affidavit setting out the casing program on Pure State Lea "E" No. 1, which was executed by Mr. N. J. Littlejohn who personally supervised the setting of this casing. The Kennitz Pool is not included in the latest list of the area subject to compulsory water disposal since water production is very limited in this pool. We do not feel that the water production on our State Lea "E" lease is a serious problem at this time. However, if salt water increases in Well No. 2, the problem may become more severe. Well No. 1, which is now flowing, will be placed on artificial list in the near future, and this well may also begin to produce salt water. For these reasons, we would like to have the disposal program set up and approved at such time that water production becomes excessive. It is our belief that the approval of this application will not cause waste or impair correlative rights. I would like to offer Exhibits A through L.

MR. NUTTER: Without objection Pure Oil Company's Exhibits A through L will be admitted in evidence.

A That's all I have.

MR. NUTTER: Does anyone have any questions of Mr. Wells?

MR. IRBY: May I see that Exhibit of the casing cementing program?

MR. PAYNE: This is a producing well, is it, Mr. Wells?

A Yes.

Q And you intend to dispose of the water above the producing horizon?

A Yes. The top of the injection zone is 2,000 feet or so above the producing zone. The bottom -- I am sorry -- bottom of the injection zone.

MR. NUTTER: Any questions of Mr. Wells?

QUESTIONS BY MR. NUTTER:

Q Mr. Wells, what is the nearest dry hole that has been drilled in the area of this proposed water injection well which would be adopted to a salt water disposal well?

A I do not know, Mr. Nutter. It's over a mile, I am sure. I don't recall the exact location of it, but I think it is too far to warrant laying lines to the well.

Q Do you think that any distance is too far to warrant laying a line when there is a possibility that if the water could somehow find its way from the annular spacing between the 8 5/8 and 5 1/2 in the producing zone and down out the producing zone in this well, do you think that any reasonable distance is too far to avoid that?

A I think we will know immediately if that happens since this well is not producing any water of its own, and I feel that we could repair the damage to the casing or do a squeeze cementing operation, which would exclude the water without too much trouble.

Q What is the means of producing this well at the present time?

A This well is flowing at the present time.

Q You expect that it will be put on the pump in the near future?

A Yes, sir. The next hearing involves that.

Q What do you anticipate that you will use, a hydraulic type pump?

A Yes, Kobe.

Q Have any tests been made on the zone from 4,527 to 9,460 which will indicate that that zone will take water?

A Yes, sir. We pumped into the annulus-- that is what that pressure shown on the application reflects, to determine whether we could inject into the annulus. It is very tight, but it will take water.

Q Does this application indicating 2,000 PSI mean that you are going to have 2,000 PSI at the surface in order to put this water in?

A Yes, sir.

Q Have you made any calculations as to what the pressure might be at the top of the cement, which comes around the 5 1/2 inch pipe with a 2,000 pound pressure at the surface and head of salt water of 9,460 feet?

A It would be very high pressure. I didn't calculate.

Q There would be considerable pressure in that cement, how-

ever?

A Yes, indeed.

Q Do you know, Mr. Wells, whether this is in an area where there is fresh water in the Ogallala or one of the upper formations that are usually water -- fresh water bearing in Lea County?

A I do not know personally. I've shown a depth of fresh water down to 370 feet on the application, which reflects what was given to us by our district geologist out here, and I don't know whether he actually went into it or whether he looked at the casing programs on the surrounding wells.

Q How much water is presently being produced in this --

A The latest test is 270 barrels per day.

Q Is that rate of water production increasing?

A Yes, slightly. It's not going up rapidly.

Q Which well is the water being produced from?

A "E" 2.

Q The No. 2 Well in the Wolfcamp?

A Yes, sir.

Q How about other Wolfcamp wells in the area? Are they producing water?

A I think there are seven total wells in the Kemnitz-Wolfcamp which produce water, and this is by far the largest water producer. Most of them are something under ten barrels a day, and I think there is one that produces about thirty barrels a day.

Q Then, your well is producing approximately 270?

A Yes, sir.

Q What are the other operators doing with the produced water?

A I don't know. I am sure they are putting it in pits.

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

A It is going into a pit.

Q Is it evaporating?

A Some of it.

Q The pit is not running over, is it?

A No.

MR. NUTTER: Anyone have any further questions of Mr.

Wells?

REDIRECT EXAMINATION

BY MR. PAYNE:

Q Do you feel that you could determine immediately whether there was a leak?

A To the 5 1/2 inch casing?

Q Yes, sir.

A Yes, sir. We would know instantly because the well would start producing water, and it doesn't now.

Q It doesn't produce any water now at all?

A No.

MR. NUTTER: Is the No. 2 on a pump at the present time?

A Yes, it is on Kobe pump.

Q What could you attribute the need for having to put the No. 1 Well on the pump in the near future?

A The tubing pressure has been declining pretty rapidly, and it's down to 300 pounds now whereas it started at 1500 pounds or so over a year ago.

Q How many wells are completed in the Cisco formation in this area?

A I think there is just two or three. I don't know.

Q Are any of them producing any water, to your knowledge?

A No.

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

MR. IRBY: I have a few questions.

MR. NUTTER: Go ahead.

QUESTIONS BY MR. IRBY:

Q What is the Section, Township and Range of this well?

A Section 21, Township 16 South, Range 34 East.

Q How long would it take you to compute the pressure requested in Mr. Nutter's question?

A Very short time. It would be about 6700 pounds per square inch. On the casing, on the cement outside of the 5 1/2 inch casing.

QUESTIONS BY MR. NUTTER:

Q What is the interval of production in this No. 1 Well, Mr. Wells?

A The perforations are from 10,410 to 10,430, and -- I am sorry -- 11,410 to 11,430, and 11,446 to 11,476.

Q What is the interval of production from the Wolfcamp for-

mation in this neighborhood?

A I believe it's 10,700, approximately.

Q Is that an average for all of the Wolfcamp Wells in the neighborhood?

A I was taking the depth on our No. 2 Well.

Q Do you have the perforated interval in that well?

A 10,681 to 10,697.

Q And you have made no determination as to where any possible dry hole in the area might be located?

A No, I have not.

Q Has your Company given any authority to drilling a well for the purpose of disposing the salt water?

A Yes. In fact, we are still investigating that line because of the high pressure here, which we don't like particularly. I don't know the status of those investigations. The geologists are working on it at the present time.

MR. NUTTER: Any further questions of Mr. Wells? Mr. Fischer.

MR. FISCHER: I have some questions.

MR. NUTTER: You may proceed.

QUESTIONS BY MR. FISCHER:

Q I don't know if you said this. How many wells are in the Kemnitz-Cisco Pool?

A I think two or three. There is a very limited number.

Q Is one of them a Forest well? Does Forest have a well

in there?

A I don't know.

Q Do you know what type of drive this Cisco Pool is, drive mechanism?

A We have experienced a fairly rapid decline in pressure in our Well No. 1, and I feel that it will be solution gas drive.

Q Is there any water drive?

A No. At least, there is no water production.

Q Your Lea "E" 1 is flowing at the present time?

A Yes.

Q Is there a packer on it?

A Yes.

Q And if you pumped it, which I believe you said you anticipate having to pump it pretty soon, --

A Yes.

Q -- would you leave the packer on there?

A No, we would remove the packer.

Q And your estimated pump pressure to dispose of the water would be roughly 2,000 pounds?

A Yes.

Q Did you figure out the hypothetical pressure at that point?

A Yes. On the basis of the injection zone at a half a pound per foot, it would be roughly 4,700 pounds plus the 2,000.

Q Would you load the -- if it so happened that before

you put this well on the pump you left the packer on the tubing, would you load the hole above that packer if you thought that there might be a chance of pressure rupture in that casing above the cement?

A We would load the hole as always, behind packers, with oil probably or treated water.

Q What's the composition of that cement there behind the 5 1/2 casing at the top, in other words, the first cement that went down when you landed that 5 1/2 inch casing?

A The composition?

Q I mean does it have a lot of filler in it?

A It is four percent jell cement probably.

MR. FISCHER: I think that's all.

REDIRECT EXAMINATION

BY MR. PAYNE:

Q Could you estimate the reserves in this pool, Mr. Wells?

A No, sir, I couldn't.

Q Are either one of the two wells in the pool non-marginal, is your well non-marginal, your State "E" No. 1?

A Yes, it is non-marginal.

Q It is?

A Yes.

MR. PAYNE: That's all.

MR. NUTTER: Any further questions of Mr. Wells? If not, he may be excused.

(Witness excused)

MR. NUTTER: Does anyone have anything further they wish to offer in Case 1502? Let's take the case under advisement and take next Case 1503.

C E R T I F I C A T E

STATE OF NEW MEXICO)

: ss

COUNTY OF BERNALILLO)

I, J. A. TRUJILLO, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in stentype and reduced to typewritten transcript by me and/or under my personal supervision, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal, this, the 24th day of Sept., 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

J. A. Trujillo
Notary Public

My Commission Expires:

October 5, 1960.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1502 heard by me on 9-10, 1958.
[Signature]
New Mexico Oil Conservation Commission