

CASE 4257: Application of SOHIO
PETROLEUM COMPANY FOR SALT WATER
DISPOSAL, LEA COUNTY, NEW MEXICO.

TO THE DECEMBER 17, 1969 EXAMINER HEARING

Case Number.

4257

Application

Transcripts.

Small Exhibits

ETC.

dearnley-meier
SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS
1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
December 17, 1969

EXAMINER HEARING

IN THE MATTER OF:)

Application of Sohio Petroleum)
Company for salt water disposal,)
Lea County, New Mexico.)

) Case No. 4257

BEFORE: Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: Case 4257.

MR. HATCH: Case 4257. Application of Sohio Petroleum Company, for salt water disposal, Lea County, New Mexico.

MR. BRIGGS: My Name is William C. Briggs. I am with the firm of Rodey, Dickason, Sloan, Akin & Robb, in Albuquerque, representing the Applicant.

I will have one witness, Mr. Rice.

(Witness sworn).

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

DOUGLAS RICE

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

DIRECT EXAMINATION

BY MR. BRIGGS:

Q State your name and your place of residence.

A Douglas Rice: I am employed as a senior engineer with Sohio Petroleum Company in their Midland District Office.

Q You are a petroleum engineer?

A Yes, sir. I am a graduate of Texas Tech, 1952.

Q Summarize your experience since you graduated from Texas Tech in 1952, please, Mr. Rice.

A I worked twelve years for Tidewater Oil Company, which is now Getty Oil Company in the Permian Basin and I worked the last three, plus years, for Sohio Petroleum Company.

Q What is your capacity with Sohio at the present time?

A I am senior engineer.

Q You are familiar with this portion of the Permian Basin, which we are discussing in the application of Sohio here?

A Yes.

Q Are you familiar with the application that has been made here, Mr. Rice?

A Yes, sir.

Q Basically, what is Sohio attempting to accomplish by this application?

A Sohio proposes to deepen the Phillips Lea Well No. 4, which was completed in 1951 by Penrose Production Company.

It has since been obtained by Sohio, this lease, and we propose to inject produced water from the Phillips

Lea Lease from a depth of 4920 to 4995, which is a sub-sea depth of minus 813 to minus 888.

Q Let me interrupt you just a moment. Now, attached to your application, did you attach a plat showing the exact location of this proposed injection well?

A Yes.

Q I am not sure whether it was marked as Exhibit 1 to the application.

A I don't think we marked those.

MR. NUTTER: It is not, but do you want to call that Exhibit 1?

MR. BRIGGS: If I may, I would like to make that as Exhibit 1, and as I understand it the well you are discussing here, Mr. Rice, is marked on that as subject well?

THE WITNESS: Yes.

Q (Mr. Briggs) Now, does this Exhibit 1 show the location of the other wells within the area of the subject well?

A Yes. This particular well is just drilled to the Queen Formation at 4122 and was a dry hole in the Queen Formation and the nearest San Andres producing well

is on our own No. 5 Well, which we completed July 28, 1969, and this well is completed from a depth of minus 522 to a minus 654 in the San Andres pay section.

Q So, the nearest well producing from the formation into which you propose to inject the salt water is the Sohio No. 5 there?

A That's correct. But, the zone of proposed injection is below the oil producing zone.

Q You propose to inject into what formation?

A Into the Aquifer of the San Andres Formation which is -- the oil water contact is considered to be at approximately a minus 700 feet in this area and we would be injecting at a .113 feet below this oil water contact to a minus --- it will be 75 feet below that, the TD.

Q Now, have you sent notice of this application to those owners or lessees within a half mile of the proposed well?

A Yes.

Q Those are listed --

A And also to the land owner, surface owner.

Q Now, you did not attach, I believe, with the application a log of the particular well here into which you propose to make the salt water injection?

A That's true. We have a log on that particular well, but it wouldn't be pertinent to this injection interval since it was drilled only to the Queen Formation.

Q Which would be above where you are planning to reopen?

A That's right.

Q Do you have a log from a well which would show the San Andres Formation?

A I have here a log of the offset well to the west, which was drilled to a total depth of 9250 and completely penetrated the San Andres Formation.

Q Will you tell me where that well was drilled? You say it was an offset to the west?

A Three hundred thirty feet from a -- that's Section 36, 17 South, 33 East.

Q That would be from the southeast quarter of the southeast quarter?

A Three hundred thirty from the south line and 330 from the east line.

MR. NUTTER: That's the well that is identified as a Queen Well on your plat: is that correct?

THE WITNESS: Yes, sir. It was completed in the Queen.

MR. NUTTER: But, it did penetrate the San Andres?

THE WITNESS: Yes. It was drilled to 9250. We have this log, if you would like to present it in evidence.

MR. BRIGGS: We would like to mark this as our Exhibit 2, if we might.

THE WITNESS: I think I have that marked wrong, the wrong exhibit.

Q (By Mr. Briggs) Mr. Rice, you have examined this log, have you?

A Yes.

Q What does it show so far as any production or the presence of any oil or gas below the Queen Formation?

A It has porosity development at a depth below where the current oil producing zone is present in that area.

The San Andres Formation dips fairly steeply to the south and a minus 700 point is just below our leases on the top of San Andres.

Q Now, in the event the Commission approves the application here, would you describe the proposed packing and cementing and casing of this salt water injection well?

A This well currently has eight and five-eighths twenty-four pound casing set at 319 feet and purported to have cement circulated with 132 sacks.

Q Excuse me just a minute. You have a diagrammatic sketch of the proposed completion here?

A Yes.

Q I believe that was attached.

MR. BRIGGS: We would like that marked, if the Examiner would, please, as our Exhibit 3.

MR. NUTTER: That has been identified as Exhibit 3.

Q (By Mr. Briggs) Now, Mr. Rice, looking at our Exhibit 3, is that the diagrammatic sketch of the proposed completion which you are about to outline?

A That is correct.

Q Just briefly tell the Examiner what the proposed completion will be.

A We plan to drill -- to deepen the well to a TD of 4995 with a seven and seven-eighths bit and set four and one half inch, 15.1 pound used pipe at 4920 with 150 sacks of encore cement and 150 sacks of four percent jell encore cement.

We had planned to cement this by means of a full bore packer so that we wouldn't have to drill out cement and complete in the open hole interval from 4920 to 4995.

Q Now, would this be a pressure injection?

A We expect to have no more than treater pressure at the current time and we think we can dispose of the -- approximately 105 barrels of water per day at this time by means of closed system with the treater pressure.

Q You say 105 barrels of salt water per day?

A Per day. Now, that's our current water production rate from the lease and we expect to -- we are drilling the No. 6 Well on this lease at the current time.

Q Where is that?

A It's a direct east offset to Well No. 5.

Q You anticipate disposing of salt water from that also in the injection well?

A That is correct. We plan to test our casing after we set the two and three-eighths tubing in the packer by pressuring up on our annulus to approximately 1500 pounds to test the casing.

Q Mr. Rice, in your opinion, based upon your

education and experience, would the granting of this application have any adverse effect on the production of oil or gas from the San Andres Formation or any other formation encountered to the total depth of the proposed injection well?

A We can see no reason why it should adversely affect any oil production and possibly, if anything, it could tend to pressure up the Aquifer to some extent and would benefit, if anything.

Q Based upon again your education and experience, would you say that the utilization of this well as a salt water injection well would be consistent with good conservation practices?

A That's true.

Q Why is that?

A In addition to disposing of the produced water in the interval, where it would be non harmful to fresh water zones, we expect to increase the producing life considerably by extending the economic limit of the wells on this lease because we are hauling the water at the current time and disposing in the well and it's costing us considerably more than this installation would.

We are looking at a long-life lease here of

probably in the range of twenty years.

MR. BRIGGS: Mr. Examiner, I would move the introduction in evidence of Applicant's Exhibits 1, 2 and 3.

MR. NUTTER: Applicant's Exhibits 1 through 3 will be admitted in evidence.

MR. BRIGGS: I have no further questions.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Rice, referring to your plat, Exhibit No. 1, you mentioned that the Well No. 5, which is immediately north, is the nearest San Andres producer to the proposed disposal well; correct?

A Yes, sir.

Q What are the other two wells on your lease producing from, the No. 1 and 2?

A They are also producing from the San Andres.

Q Do they produce from the same interval in the San Andres that the No. 5 produces from, that is approximately minus 522 to minus 654?

A No. 5 is completed lower in the structure than the other two wells.

Q So, they are higher yet?

A Yes, sir.

Q And you are proposing to dispose in the interval from a subsea 813 to a subsea 888?

A Yes, sir.

Q And you estimate that the oil-water contact in the San Andres Formation is at a minus 700 in the area?

A Yes, sir.

Q Okay. Now, referring to your Exhibit No. 3, you show that you would install plastic lined tubing in the well. Can the casing tubing annulus be loaded with sweet oil or some other corrosion inhibited fluid?

A We thought the thing to do would be to inhibit our -- pump down our flood with inhibited water to protect the annulus from corrosion.

Q Can that annulus be equipped with a gauge at the surface in order to detect any leak in the tubing or the packer?

A Yes, sir.

Q Any order of the Commission will require that, Mr. Rice.

A All right. We prefer to have a gauge on it and leave it open.

Q Okay. You are currently producing about 500 barrels a day?

A No, sir, about 105 barrels per day.

Q Oh, 105?

A We could expect another additional 100 barrels of water per day from this other well and we are evaluating the lower part of the lease at the current time.

MR. NUTTER: Are there any other questions of Mr. Rice? He may be excused.

(Witness excused).

MR. NUTTER: Do you have anything further, Mr. Briggs?

MR. BRIGGS: I have nothing further.

MR. NUTTER: Does anyone have anything they wish to offer in Case 4257?

We will take the case under advisement and the hearing is recessed until one-thirty.

(Whereupon, the hearing was adjourned until one-thirty P.M. the same day).

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I N D E X

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E X H I B I T S

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| 1 through 3 | 2 |

Glenda Burks
Notary Public

March 12, 1973

I do hereby certify that the foregoing is a complete record of the proceedings in the Examinar hearing of Case No. 4257, heard by me on 12/17, 1969.

[Signature] Examiner
New Mexico Oil Conservation Commission

dearnley-meier

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

1120 SIMMS BLDG. • P. O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO



BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Roswell, New Mexico
November 19, 1969

REGULAR HEARING

IN THE MATTER OF:)

Application of Sohio Petroleum) Case No. 4257
Company for salt water disposal, Lea)
County, New Mexico.)

BEFORE: A. L. Porter, Examiner.

TRANSCRIPT OF HEARING

MR. HATCH: Case 4257. Application of Sohio Petroleum Company for salt water disposal, Lea County, New Mexico.

MR. PORTER: Is there anyone here in connection with Case 4257? If not, if they don't show by the time we have concluded Case 4258, we will continue the case until the next examiner hearing.

MR. HATCH: Would be December 17.

MR. PORTER: On December 17. I am reluctant to dismiss the case because there is a remote possibility that they have not had notice.

MR. HATCH: November 25 is the next examiner hearing, but we couldn't get it on the docket; so, December 17th would be the best one to continue it to.

MR. PORTER: Case 4257 will be continued to December 17, unless they make an appearance by the time we have finished with Case 4258.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, GLENDA BURKS, Court Reporter in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me; and that the same is a true and correct record of the said proceedings to the best of my knowledge, skill and ability.

Glenda Burks
Notary Public

My Commission Expires:

March 12, 1973



OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO
P. O. BOX 2088 - SANTA FE
87501

**GOVERNOR
DAVID F. CARGO
CHAIRMAN**

**LAND COMMISSIONER
ALEX J. ARMIJO
MEMBER**

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

December 24, 1969

Mr. William C. Briggs
Rodey, Dickason, Sloan, Akin & Robb
Attorneys at Law
1st National Bank Building - West
Albuquerque, New Mexico 87106

Re: Case No. 4257
Order No. R-3898
Applicant:
Sohio Petroleum Company

Dear Sir:

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

Very truly yours,

G. L. Porter, Jr.

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Copy of order also sent to:

Hobbs OCC X

Artesia OCC_____

Aztec OCC

Other State Engineer Office

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 4257
Order No. R-3898

APPLICATION OF SOHIO PETROLEUM COMPANY
FOR SALT WATER DISPOSAL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9:30 a.m. on December 17, 1969, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 24th day of December, 1969, 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, Sohio Petroleum Company, is the owner and operator of the Phillips Lea SWD Well No. 4, located in Unit M of Section 31, Township 17 South, Range 34 East, NMPM, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the San Andres formation, with injection into the open-hole interval from approximately 4920 feet to 4995 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 4880 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should

-2-

CASE No. 4257

Order No. R-3898

be attached to the annulus at the surface in order to determine leakage in the casing, tubing, or packer.

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

IT IS THEREFORE ORDERED:

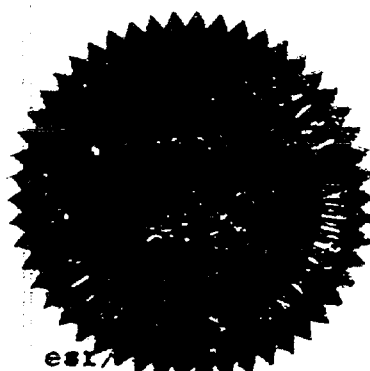
(1) That the applicant, Sohio Petroleum Company, is hereby authorized to utilize its Phillips Lea SWD Well No. 4, located in Unit M of Section 31, Township 17 South, Range 34 East, NMPM, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 4880 feet, with injection into the open-hole interval from approximately 4920 feet to 4995 feet;

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

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

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

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



STATE OF NEW MEXICO
OIL CONSERVATION COMMISSION

David F. Cargo
DAVID F. CARGO, Chairman

Alex J. Armiijo
ALEX J. ARMIJO, Member

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

Docket No. 34-69

DOCKET: EXAMINER HEARING - WEDNESDAY - DECEMBER 17, 1969

9:30 A. M. - OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING - SANTA FE, NEW MEXICO

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

CASE 4276: Application of Humble Oil & Refining Company for a special
gas-oil ratio limitation, Lea County, New Mexico. Applicant,
in the above-styled cause, seeks an exception to Rule 506 of
the Commission Rules and Regulations to provide for a limiting
gas-oil ratio of 6,000 cubic feet of gas per barrel of oil in
the Oil Center-Blinbry Pool, Lea County, New Mexico.

CASE 4277: Application of Pan American Petroleum Corporation for two un-
orthodox gas well locations, Rio Arriba County, New Mexico.
Applicant, in the above-styled cause, seeks approval of two
unorthodox gas well locations in Township 26 North, Range 4
West, Blanco-Mesaverde Gas Pool, Rio Arriba County, New Mexico,
as follows:

Jicarilla Apache 102 Well No. 15 located
790 feet from the South line and 1190 feet
from the East line of Section 9;

Jicarilla Apache 102 Well No. 16 located 1070
feet from the South line and 1450 feet from
the East line of Section 10.

CASE 3455: (Reopened) Continued from the November 5, 1969 Examiner
Hearing

In the matter of Case No. 3455 being reopened pursuant to the
provisions of Order No. R-2565-B, which order, among other
things, established 320-acre spacing units for the West Puerto
Chiquito-Mancos Oil Pool, Rio Arriba County, New Mexico, for
a period of three years. All interested parties may appear
and show cause why said pool should not be developed on 40-acre
spacing units.

CASE 4257: (Continued from the November 19, 1969 Regular Hearing)

Application of Sohio Petroleum Company for salt water disposal,
Lea County, New Mexico. Applicant, in the above-styled cause,
seeks authority to dispose of produced salt water into the
San Andres formation in the open-hole interval from 4920 feet
to 4995 feet in its Phillips Lea SWD Well No. 4 located in
Unit M of Section 31, Township 17 South, Range 34 East, Vacuum
Grayburg-San Andres Pool, Lea County, New Mexico.

CASE 4263: (Continued from the November 25, 1969 Examiner Hearing)

Application of Wynn & Brooks for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Federal "E" Well No. 3, to be located 590 feet from the South line and 1590 feet from the West line of Section 13, Township 27 North, Range 8 West, Blanco-Mesaverde and Basin-Dakota Pools, San Juan County, New Mexico.

CASE 4264: (Continued from the November 25, 1969, Examiner Hearing)

Application of Wynn & Brooks for an unorthodox gas well location, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks approval for the unorthodox location of its Federal "J" Well No. 1, to be located 2390 feet from the South line and 2410 feet from the East line of Section 11, Township 27 North, Range 8 West, Blanco-Mesaverde and Basin-Dakota Pools, San Juan County, New Mexico.

CASE 4278: Application of Anne Burnett Windfohr, dba Windfohr Oil Company, for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's Gissler B Wells Nos. 11 and 12, located, respectively, in Units J and I of Section 23, Township 17 South, Range 30 East, Jackson-Abo Pool, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by said wells in unlined surface pits in the vicinity of said wells.

CASE 4279: Application of Anne Burnett Windfohr, dba Windfohr Oil Company, for an exception to Order No. R-3221, as amended, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks an exception to Order No. R-3221, as amended, which order prohibits the disposal of water produced in conjunction with the production of oil on the surface of the ground in Lea, Eddy, Chaves, and Roosevelt Counties, New Mexico. Said exception would be for applicant's Gissler B Well No. 4 located in Unit B of Section 8, Township 17 South, Range 30 East, Grayburg-Jackson Pool, Eddy County, New Mexico. Applicant seeks authority to dispose of salt water produced by said well in an unlined surface pit in the vicinity of said well.

December 11, 1969 - Examiner Hearing

Docket No. 11-10

- CASE 4280: Application of J. M. Huber Corporation for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Lower Wolfcamp formation in the perforated interval from 10,358 feet to 10,419 feet in its Stoltz State Well No. 1 located in Unit M of Section 6, Township 15 South, Range 35 East, Morton-Wolfcamp Pool, Lea County, New Mexico.
- CASE 4281: Application of Continental Oil Company for a dual completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval for the dual completion (conventional) of its SEMU Well No. 21 located in Unit O of Section 19, Township 20 South, Range 38 East, Lea County, New Mexico, in such a manner as to produce oil from an undesignated Blinebry oil pool and gas from an undesignated Drinkard gas pool through parallel strings of tubing.
- CASE 4282: Application of Continental Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the East E-K Unit Area by the injection of water into the upper Queen formation through two wells located in Units N and P of Section 22, Township 18 South, Range 34 East, East E-K Queen Pool, Lea County, New Mexico.
- CASE 4283: Application of Continental Oil Company for a unit agreement, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of the East E-K Unit Area comprising 400 acres, more or less, of state lands described as the NW/4, E/2 SW/4 and SE/4 of Section 22, Township 18 South, Range 34 East, East E-K Queen Pool, Lea County, New Mexico.
- CASE 4284: Application of Continental Oil Company for salt water disposal, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water in its Springs SWD Wells Nos. 1 and 2, located in Unit F of Section 3 and Unit A of Section 4, respectively, Township 21 South, Range 25 East, Springs-Upper Pennsylvanian Gas Pool, Eddy County, New Mexico. Disposal into Well No. 1 would be into the Bone Springs Wolfcamp and Upper Pennsylvanian formations in the openhole interval from 2700 feet to 8350 feet. Disposal into Well No. 2 would be into the Upper Pennsylvanian formation in the perforated interval from 8300 feet to 8400 feet.

CASE 4265: (Readvertised):

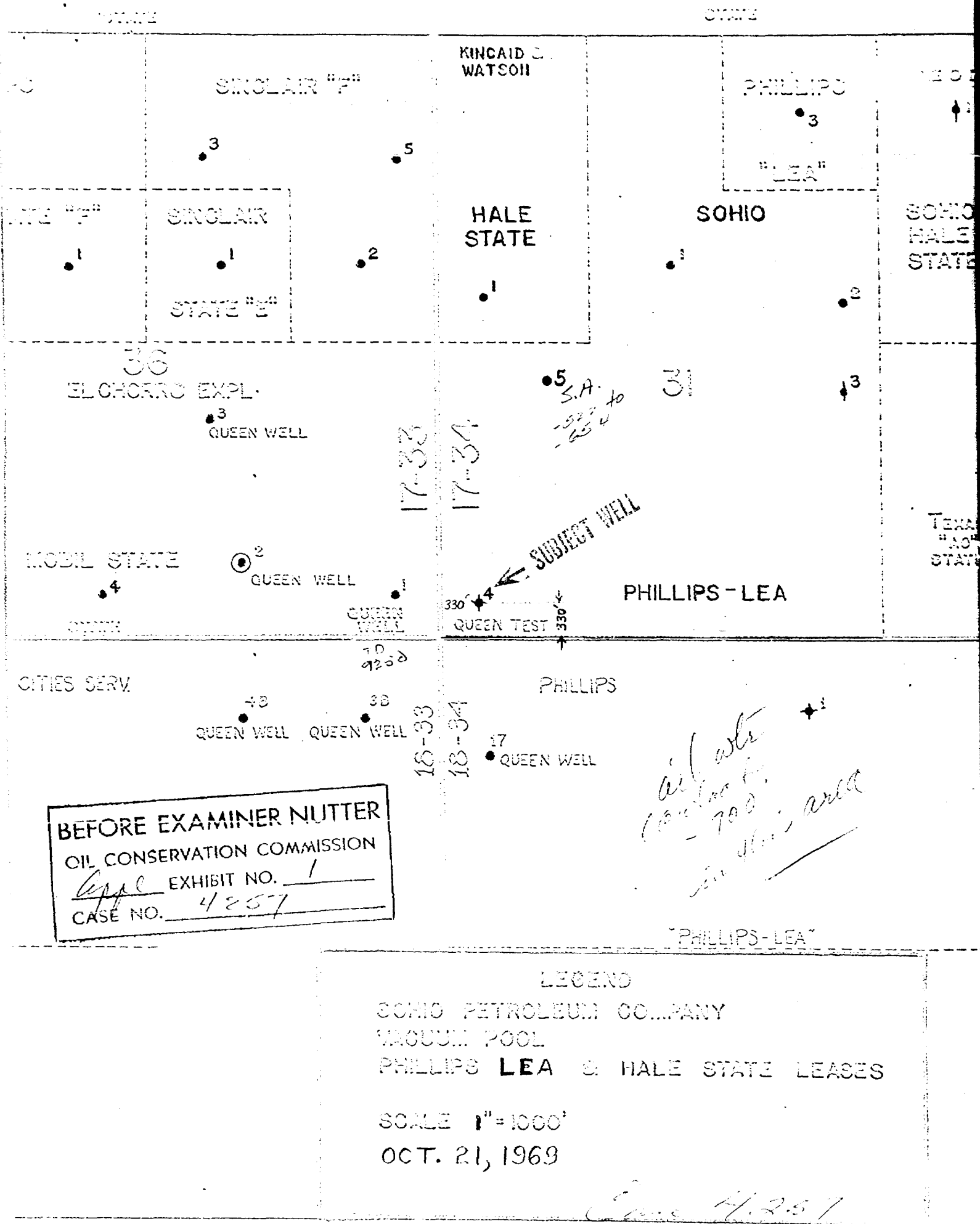
Application of Union Oil Company of California for salt water disposal, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the Yates, San Andres and other formations in the open-hole interval from approximately 4450 feet to 6067 feet in its Midway State Well No. 3 located in Unit J, Section 12, Township 17 South, Range 36 East, Lovington Field, Lea County, New Mexico.

CASE 4285: Application of Southwestern Natural Gas Inc., for an unorthodox gas well location, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an exception to the special rules and regulations governing the North Osudo-Morrow Gas Pool to permit the drilling of a well at an unorthodox gas well location 1980 feet from the South line and 660 feet from the East line of Section 19, Township 20 South, Range 36 East, Lea County, New Mexico.

Talked to

PAUL Shostall. Midland
Nov 20th.

Will appear on Dec 17th.

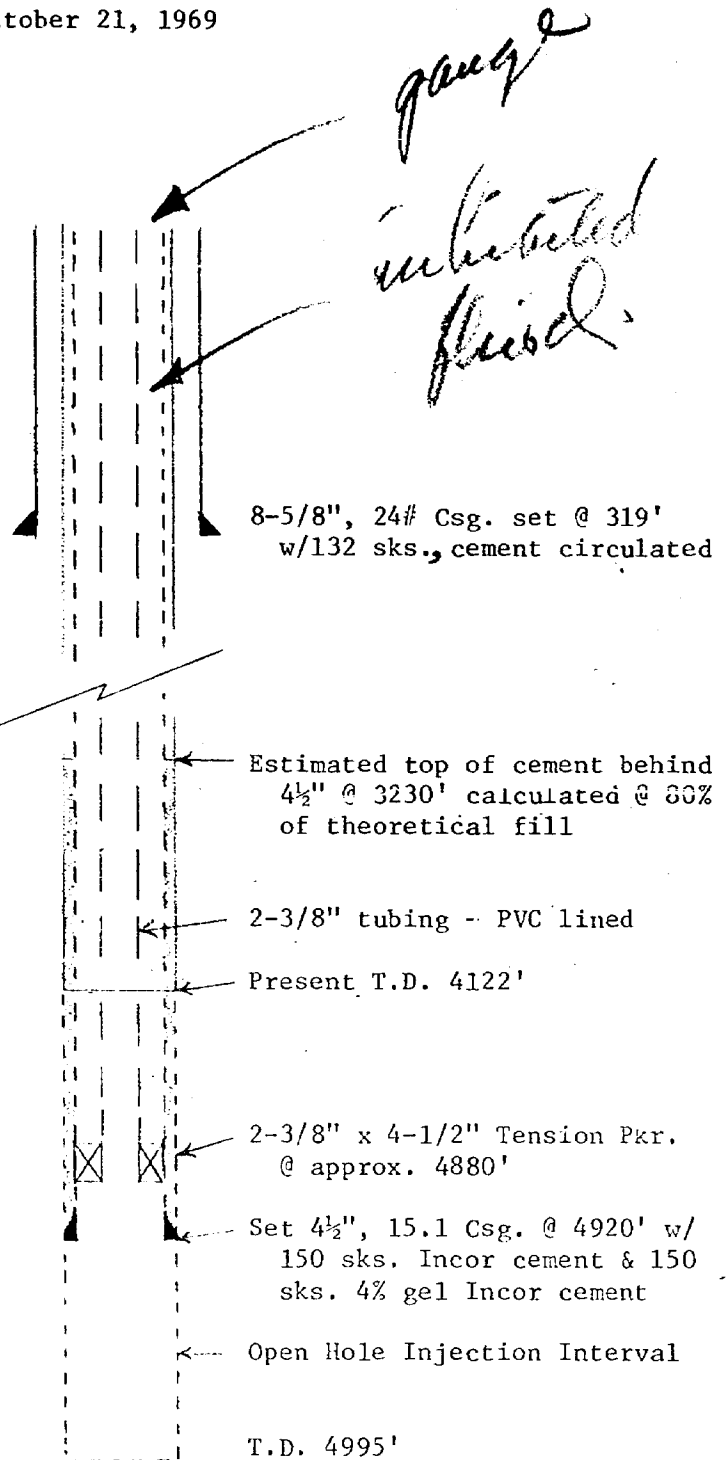


SOHIO PETROLEUM COMPANY
Phillips Lea #4 (SWD)
Diagrammatic Sketch
of Proposed Completion

October 21, 1969

*as per MC Moore
character pressure
will be used to
displace
105 heavy d.
cement good*

BEFORE EXAMINER NUTTER
CONSERVATION COMMISSION
App. EXHIBIT NO. 3
4257



HALLIBURTON DIVISION LABORATORY
HALLIBURTON COMPANY
MIDLAND DIVISION

LABORATORY WATER ANALYSIS No. 10-114-69

To Mr. J. H. Smith, Jr.

Date 9-18-69

7-15-69

10-114-69

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

Submitted by _____ Date Rec. 9-23-69

Well No. 10-114-69 Depth _____ Formation Sandstone

County Van Field Van Source _____

Resistivity 1047 @ 76 F.

Specific Gravity 1.000

pH 6.6

Calcium (Ca) 2,000 *MPL

Magnesium (Mg) 1,500

Chlorides (Cl) 10,000

Sulfates (SO₄) 2,000

Bicarbonates (HCO₃) 925

Soluble Iron (Fe) 100

Remarks: From upper end of perforations

BEFORE EXAMINER NUTTER
OIL CONSERVATION COMMISSION
EXHIBIT NO. _____
CASE NO. _____

Respectfully submitted,

Analyst: W. H. Smith

cc:

HALLIBURTON COMPANY

By James H. Smith, Jr.
DIVISION CHEMIST

NOTICE

This report is limited to the described sample tested. Any user of this report agrees that Halliburton shall not be liable for any loss or damage, whether it be to act or omission, resulting from such report or its use.

Case 4257

To Schrie Petroleum Company
Mr. C. E. Carter
Box 3162-Midland, Texas

Well & Lease Phillips State #1

Location _____ Field _____

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

Date Received 5-21-56

Confirmed

Depth _____ Formation San Andres

Water

| | | | |
|------------------------------|-------------|----------------|----------------|
| Specific gravity 60/60 | <u>76.2</u> | <u>1.132</u> | <u>1.145</u> |
| Color, filtrate | | <u>Clear</u> | |
| pH | | <u>7.2</u> | |
| Resistivity | <u>76.2</u> | <u>0.060</u> | <u>135,900</u> |
| | | ppm (mpl) | |
| Chlorides, Cl | | <u>134,400</u> | |
| Sulfates, SO ₄ | | <u>250</u> | |
| Alkalinity, HCO ₃ | | <u>885</u> | |
| Calcium, Ca | | <u>4,000</u> | |
| Magnesium, Mg | | <u>680</u> | |
| Iron, Fe | | <u>Nil</u> | |
| Sodium, Na ⁺ | | <u>ND</u> | |
| Sulfides, H ₂ S | | <u>Trace</u> | |

Remarks _____

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

Laboratory Analyst

Whitfield

cc: Mr. L. G. Moffatt

Respectfully submitted

HALLIBURTON COMPANY

By F. D. Whitfield

F. D. Whitfield

Field Chemist

NOTICE

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By F. D. Whitfield

DIVISION CHEMIST

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Case 4257

OCT 29 1969

NEW MEXICO OIL CONSERVATION COMMISSION

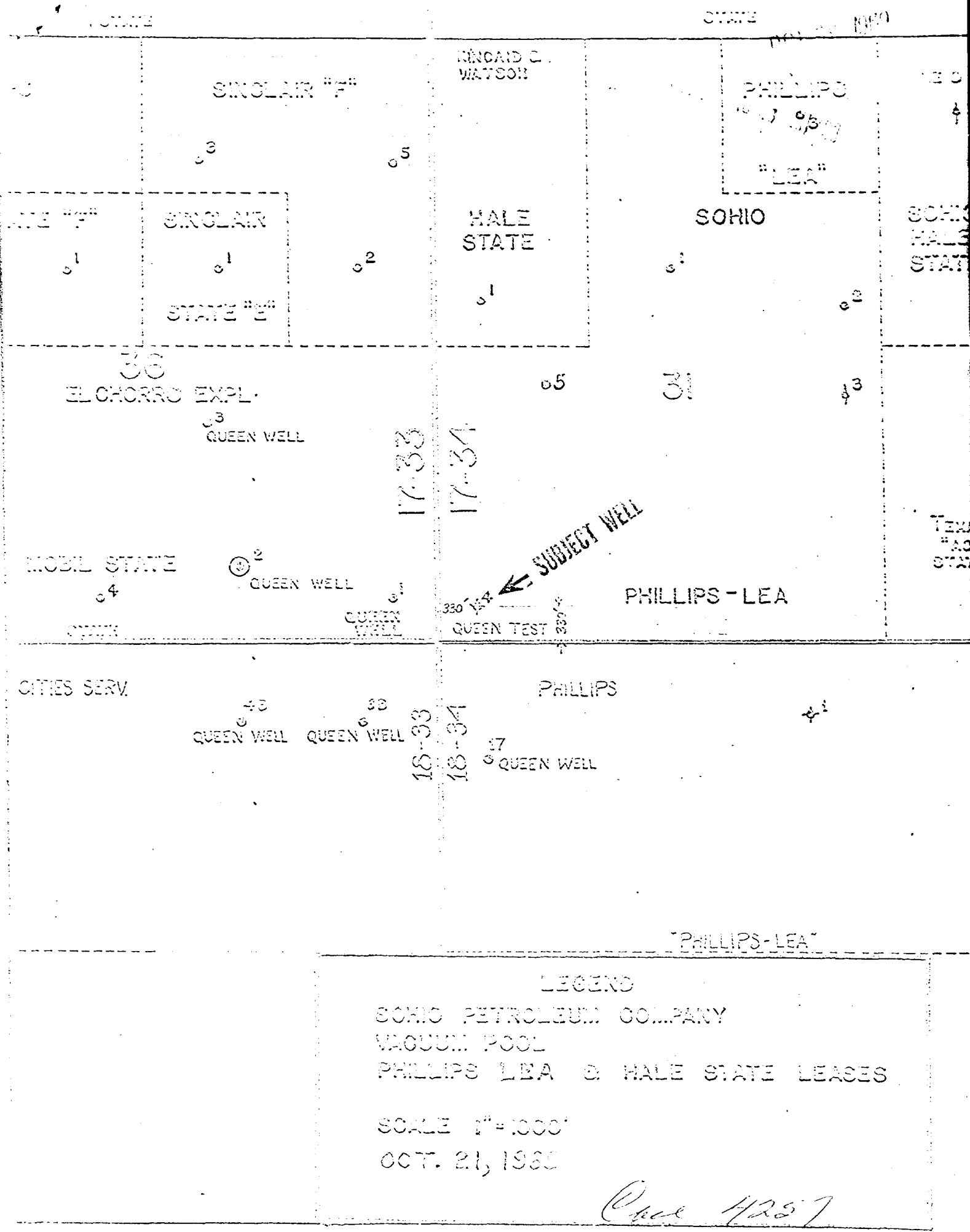
APPLICATION TO DISPOSE OF SALT WATER BY INJECTION INTO A POROUS FORMATION

| | | | |
|---|--|--|---|
| OPERATOR SOHIO PETROLEUM COMPANY | | ADDRESS Box 3167, Midland, Texas 79701 | |
| LEASE NAME Phillips Lea | WELL NO. 4 SWD | FIELD Vacuum Grayburg San Andres | COUNTY Lea |
| LOCATION UNIT LETTER M ; WELL IS LOCATED 330 FEET FROM THE South LINE AND 330 FEET FROM THE West LINE, SECTION 31 TOWNSHIP 17S RANGE 34E NMPM. | | | |
| CASING AND TUBING DATA | | | |
| NAME OF STRING Current | SIZE 8 5/8 | SETTING DEPTH 319 | SACKS CEMENT 132 |
| TOP OF CEMENT Circulated | | TOP DETERMINED BY - | |
| INTERMEDIATE | None | | |
| LONG STRING Proposed | 4 1/2 | 4920 | 150 Sks 4% Gel Incor 150 Sks Incor 3230 |
| TUBING Proposed | 2 3/8 | 4880 | NAME, MODEL AND DEPTH OF TUBING PACKER Johnston 101 @ 4880 |
| NAME OF PROPOSED INJECTION FORMATION Aquifer of San Andres | | TOP OF FORMATION 4679 (Estimated) | BOTTOM OF FORMATION Below i.D. |
| IS INJECTION THROUGH TUBING, CASING, OR ANNULUS? Tubing (PVC lined) | | PERFORATIONS OR OPEN HOLE? Open Hole | PROPOSED INTERVAL(S) OF INJECTION 4920 - 4995 (-813 to -888) |
| IS THIS A NEW WELL DRILLED FOR DISPOSAL? No | IF ANSWER IS NO, FOR WHAT PURPOSE WAS WELL ORIGINALLY DRILLED? Dry Queen test drilled by Neville G. Penrose-Hole | | HAS WELL EVER BEEN PERFORMED IN ANY ZONE OTHER THAN THE PROPOSED INJECTION ZONE? No |
| LIST ALL SUCH PERFORATED INTERVALS AND SACKS OF CEMENT USED TO SEAL OFF OR SQUEEZE EACH (-700) | | | |
| DEPTH OF BOTTOM OF DEEPEST FRESH WATER ZONE IN THIS AREA 300' | | DEPTH OF BOTTOM OF NEXT HIGHER OIL OR GAS ZONE IN THIS AREA San Andres Pay Zone 4807 | DEPTH OF TOP OF NEXT LOWER OIL OR GAS ZONE IN THIS AREA None-Queen test was dry |
| ANTICIPATED DAILY INJECTION VOLUME (BBLs.) 90 | MINIMUM 330 | MAXIMUM 330 | OPEN OR CLOSED TYPE SYSTEM Closed |
| IS INJECTION TO BE BY GRAVITY OR PRESSURE? Pressure | | APPROX. PRESSURE (PSI) 30 psi | |
| 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 San Andres | NATURAL WATER IN DISPOSAL ZONE San Andres |
| ARE WATER ANALYSES ATTACHED? Yes | | | |
| NAME AND ADDRESS OF SURFACE OWNER (OR LESSEE, IF STATE OR FEDERAL LAND) Scarbauer Cattle Company, 111 South Loraine St., Midland, Texas 79701 | | | |
| LIST NAMES AND ADDRESSES OF ALL OPERATORS WITHIN ONE-HALF (1/2) MILE OF THIS INJECTION WELL | | | |
| El Chorro Exploration, Inc., Citizens National Bank Bldg., Abilene, Texas 79603 | | | |
| Kincaid and Watson, Box 498, Artesia, New Mexico 88210 | | | |
| Atlantic Richfield Company, Box 1710, Hobbs, New Mexico 88240 | | | |
| Phillips Petroleum Company, Phillips Building, 4th & Washington, Odessa, Texas 79760 | | | |
| Cities Service Oil Company, Box 69, Hobbs, New Mexico 88240 | | | |
| HAVE COPIES OF THIS APPLICATION BEEN SENT TO EACH OF THE FOLLOWING? Yes | SURFACE OWNER Yes | EACH OPERATOR WITHIN ONE-HALF MILE OF THIS WELL Yes | THE NEW MEXICO STATE ENGINEER Yes |
| ARE THE FOLLOWING ITEMS ATTACHED TO THIS APPLICATION (SEE RULE 701-B)? Yes | PLAT OF AREA Yes | ELECTRICAL LOG No (Will submit after deepening) | DIAGRAMMATIC SKETCH OF WELL Yes |

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

(Signature) **A. K. Hood**District Superintendent
(Title)**October 21, 1969**
(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.

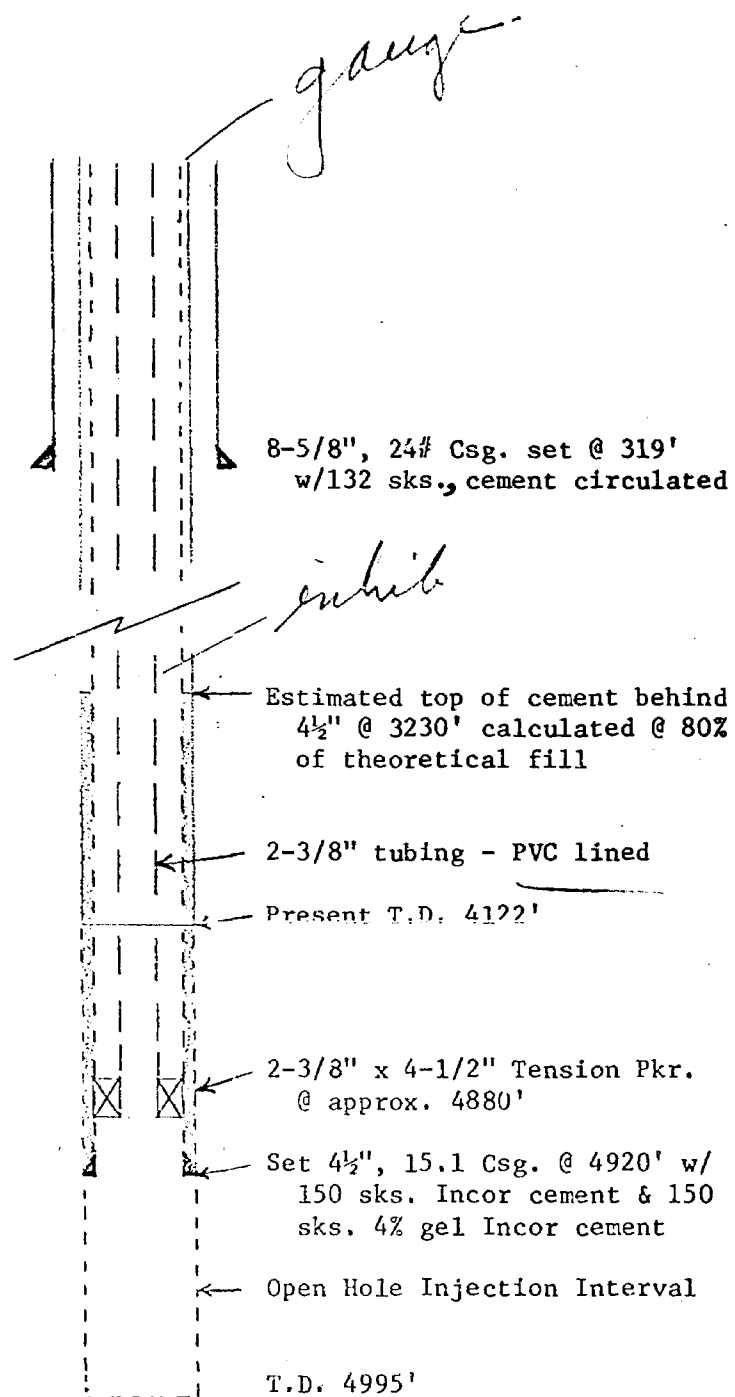


SOHIO PETROLEUM COMPANY
 Phillips Lea #4 (SWD)
 Diagrammatic Sketch
 of Proposed Completion

October 21, 1969

*Current lease
 water
 105 BWD
 &*

64 #3



Page 4257

HALLIBURTON DIVISION LABORATORY
HALLIBURTON COMPANY
MIDLAND DIVISION

LABORATORY WATER ANALYSIS No. 10-401-69

To Mr. J. E. Anderson, Houston

Date 9-17-69

Dist. 10-69

17-2-69, 6-69

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

Submitted by _____ Date Rec. 9-18-69

Well No. 17-2-69, 6-69 Depth _____ Formation San Antonio

County Tam Field _____ Vacuum _____ Source _____

Resistivity 10.47 @ 76 F.

Specific Gravity 1.138

pH 6.6

Calcium (Ca) 2,000 *MPL

Magnesium (Mg) 1,500

Chlorides (Cl) 100,000

Sulfates (SO₄) 2,000

Bicarbonates (HCO₃) 98.5

Soluble Iron (Fe) 11.1

Remarks: From upper set of perforations *Milligrams per liter

Respectfully submitted,

Analyst: 10-401-69
cc:

HALLIBURTON COMPANY

By James W. H. H.
DIVISION CHEMIST

NOTICE

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Case 4257

To Sohio Petroleum Company
Mr. C. E. Carter
Box 367-Midland, Texas

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Date Received 5-2-55

Well & Lease Phillips State #1

Depth San Andres

Formation Water

Location

Field

Specific gravity 1.132
60/60 76.2

1.132

Color, filtrate Clear

pH 7.2

Resistivity 0.060

76.2 ppm (mpl)

134,400

135,900

Chlorides, Cl 250

Sulfates, SO₄ 885

Alkalinity, HCO₃ 4,000

Calcium, Ca 680

Magnesium, Mg Nil

Iron, Fe ND

Sodium, Na* Trace

Sulfides, H₂S

Remarks

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

Laboratory Analyst

Whitfield

cc: Mr. L. G. Moffatt

Respectfully submitted

HALLIBURTON COMPANY

By F. D. Whitfield

F. D. Whitfield

Field Chemist

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By

F. D. Whitfield
DIVISION CHEMIST

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Case 4257

DRAFT

GMH/esr

BEFORE THE OIL CONSERVATION COMMISSION
OF THE STATE OF NEW MEXICO

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

CASE No. 4257

Order No. R- 3898

APPLICATION OF SOHIO PETROLEUM COMPANY
FOR SALT WATER DISPOSAL, LEA COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

9:30

This cause came on for hearing at 9 a.m. on December 17, 1969,
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 17 day of December, 1969, 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, Sohio Petroleum Company,
is the owner and operator of the Phillips Lea SWD Well No. 4,
located in Unit M of Section 31, Township 17 South, Range
34 East, NMPM, Vacuum Grayburg-San Andres Pool, Lea
County, New Mexico.

(3) That the applicant proposes to utilize said well to
dispose of produced salt water into the San Andres
formation, with injection into the open-hole interval
from approximately 4920 feet to 4995 feet.

(4) That the injection should be accomplished through
2 3/8-inch plastic-lined tubing installed in a packer set at

approximately 4880 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should be attached to the annulus ~~or the annulus left open~~ at the surface in order to determine leakage in the casing, tubing, or packer.

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

IT IS THEREFORE ORDERED:

(1) That the applicant, Sohio Petroleum Company, is hereby authorized to utilize its Phillips Lea SWD Well No. 4 located in Unit M of Section 31, Township 17 South, Range 34 East, NMPM, Vacuum Grayburg-San Andres Pool, Lea County, New Mexico, to dispose of produced salt water into the San Andres formation, injection to be accomplished through 2 7/8-inch tubing installed in a packer set at approximately 4880 feet, with injection into the open-hole interval from approximately 4920 feet to 4995 feet;

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

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

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

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

CASE 4258:

SOUTHEASTERN NEW MEXICO
NOMENCLATURE