

CASE 4031: Application of TEXACO
FOR SALT WATER DISPOSAL, LEA
COUNTY, NEW MEXICO.

Case Number

4031

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
January 22, 1969
EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco, Inc. for
salt water disposal, Lea County,
New Mexico.

Case No. 4031

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case 4031.

MR. HATCH: Case 4031, application of Texaco, Incorporated, for salt water disposal, Lea County, New Mexico.

MR. UTZ: Any other appearances? You may proceed.

MR. KELLY: Booker Kelly, of White, Gilbert, Koch and Kelly, appearing on behalf of the applicant.

(Whereupon, Applicant's Exhibits Numbers 1 through 5, inclusive, were marked for identification.)

C. L. WHIGHAM

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

DIRECT EXAMINATION

BY MR. KELLY:

Q State your name, position, and employer, please.

A My name is C. L. Whigham, Jr. I am employed by Texaco, Incorporated, in Midland, Texas, as Division Proration Engineer.

Q Have you previously qualified as an expert witness before this Commission?

A Yes, I have.

Q Will you briefly state what Texaco seeks by this application? Referring to what has been marked as Exhibit Number 1?

A In this case, we seek authority to dispose of produced salt water into the Yates-Seven Rivers Formation in an open-hole interval from approximately 2,964 feet to 3,119 feet, in Texaco's C. W. Shepherd Federal B Well No. 5, located in the Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico.

Exhibit Number 1 is a map showing the extreme south end of the Jalmat Yates-Seven Rivers Oil Pool. Designated by a triangle colored red in Section 1, Township 26 South, Range 36 East, is the proposed injection well, Texaco's C. W. Shepherd Federal B Well No. 5.

Q Now, on Exhibit 1, you have shown all offset operators, and you have also notified all offset operators of this application, have you not?

A Yes, we have.

Q What is the present status and the history of the proposed injection well?

A The proposed injection well, Well No. 5, was completed in 1961 at a rate of 51 barrels of oil a day, and 153 barrels of water per day from an interval from 2,934 feet to 2,938 feet.

Then by April, 1963, the production from this well had declined to 3 barrels of oil a day and 310 barrels of water a day, and it became uneconomical to operate at that time.

So, from that date until the present time, this well

has been held in reserve for possible use for salt water disposal.

Q Now, water from what wells will be injected into your Well No. 5?

A The only water that we are planning currently to inject into Well No. 5 is the water produced in conjunction with the oil from Texaco's Well Nos. 3 and 4 on the C. W. Shepherd A Lease, which is the quarter section immediately north of the proposed injection well.

Q Can you give the Examiner the figures for each well, as far as production of water?

A Yes, the well immediately north of the proposed injection well is currently producing 160 barrels of water daily. And just north of that, Well No. 4 is currently producing 40 barrels of water daily. So we expect to initially inject in the order of 200 barrels of water daily to the proposed injection well.

Q Would that be under pressure or by vacuum?

A We expect to be able to inject the water on a vacuum.

Q What other experience has there been in this area of injecting water?

A Well, in the section immediately north of the one

where the proposed injection well is located, Ralph Lowe is operating an injection well in Unit G of Section 36, Township 25 South, Range 36 East. And the injection interval in Lowe's well correlates to be exactly the same injection interval as that we are proposing in our well, and that particular well of Lowe's is currently making 1,400 barrels of water daily on a vacuum.

Q Now, Exhibit Number 2 is the log on that well, is that right?

A Yes, that's correct.

MR. UTZ: Which well was that again?

THE WITNESS: That is Ralph Lowe's Humble Well -- Humble Well No. 1, located in Unit G of Section 36, Township 25 South, Range 36 East.

MR. UTZ: That is the one you have circled there?

THE WITNESS: Yes.

Q (By Mr. Kelly) Do you have anything you want to add on Exhibit Number 2?

A It might be well to explain the color coding that we have marked on Exhibit Number 2. Exhibit Number 2 is the gamma ray neutron log for Ralph Lowe's injection well. And there in the Lower Yates section, we have colored various intervals blue, yellow, green and red. And we've done that simply for the

purpose of ease of correlation.

The other two logs that will be entered have been marked in a similar manner, and it is used to show the correlative zones across these three wells.

In this particular log, we have indicated the current injection interval with red coloration, and this proposed injection interval -- I mean this actual injection interval in this well is from a depth of 2,975 feet to 2,982 feet.

Q You might go ahead and explain the significance of the other logs. Exhibit Number 3, I believe, is the log on your producing Well No. 3, and immediately offsetting the injection well.

A Exhibit Number 3 is colored in the same manner as Exhibit Number 2, to show the coloration, and again we have designated the current producing interval by coloring it red, and it is from a depth of 2,928 feet to 2,934 feet.

Then referring to Exhibit Number 3 --

Q Isn't that Exhibit Number 4?

A Yes, Exhibit Number 4 is the gamma ray neutron log for the proposed injection well. Laying it beside the other two logs, you will see that it is marked in the same manner, and we show the current producing interval or the interval that was opened in this well -- no, the interval colored red on this

log indicates the proposed injection interval.

Now, in this well, the casing, four and a half-inch casing is set at a depth of 2,964 feet, and we propose to drill out below that casing seat to a depth of approximately 3,119 feet, so the interval marked in red on this particular log shows the top of the proposed injection interval.

I might mention also that this particular well was eventually completed at a depth of 2,934 to 2,938. Several intervals below this completion interval were tested before final completion, and each one made 100 per cent water. So we have concluded that the oil-water contact is well below the last perforated interval in which the well was actually completed, and we estimate that the oil-water contact is at an approximate depth in this particular well of 2,952 feet. Considering the elevation of the well, that makes the oil-water contact at a subsea depth of 50 feet. And it also shows that the top of the proposed injection interval is 12 feet below this oil-water contact.

Q All right. Referring to what has been marked as Exhibit Number 5, your diagrammatic sketch of the proposed installation, will you go through that for the Examiner?

A This sketch shows that seven and five-eighths-inch casing was installed to a depth of 458 feet, and cement was

circulated to the surface. Then the production casing was set at a total depth of 2,964 feet, with 700 sacks of cement.

You will note here that we have indicated that the top of the cement is unknown.

Four and a half-inch casing cemented in six and three-quarter-inch hole, with 700 sacks of cement should permit the cement to fill all the way to the surface. In fact, 700 sacks of cement would fill to the surface if the well bore had been washed out to approximately nine inches in diameter. So, since the cement did not circulate, we would assume that the well bore did wash out to approximately nine inches, or slightly in excess of nine inches. But we would expect more than a thousand feet of fill behind the four and a half-inch casing.

So we feel that this casing installation is sufficient to confine the injected fluid into the proposed injection interval. We show a proposed installation to include two and three-eighths-inch internally plastic-coated tubing set just above the casing seat, with a packer at 2,900 feet. Then we show the proposed open-hole interval.

As mentioned before, the total depth of the well at the present time is 2,964 feet, and we propose to deepen the well from that depth down to a depth of 3,119. Inhibited fluid will be placed in the annulus between the injection tubing and

the casing, and a valve will be installed at the surface so as to observe any pressure buildup that might occur in the annulus.

MR. UTZ: Is that a valve or a gauge?

THE WITNESS: A valve and gauge.

Q Are you aware of any fresh water in this area?

A No, I do not have any information on the proximity of fresh water in this area. However, there should be no danger of this water being injected below 2,964 feet. There should be no danger of this injected fluid contaminating any of the upper water zones.

Q Do you feel that that installation will prevent migration of your injection fluid to any other zone?

A Yes, it should be well confined to the proposed injection interval.

Q Now, this is just a situation of re-injecting produced water from the same zone which it was originally produced?

A Yes, sir, that is correct.

Q In your opinion, would the granting of this application protect correlative rights and prevent waste?

A Yes, sir.

Q Were Exhibits 1 through 5 prepared by you or under your supervision?

A Yes, they were.

MR. KELLY: I move the introduction of the Texaco's Exhibits 1 through 5.

MR. UTZ: Without objection, Exhibits 1 through 5 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits Numbers 1 through 5, inclusive, were admitted in evidence.)

MR. KELLY: We have no further direct testimony.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Whigham, you did testify that that tubing would be internally plastic-coated, didn't you?

A Yes, sir.

Q How salty is this water in this area?

A I didn't obtain an analysis on this water, Mr. Examiner. However, it's being returned to the same formation from which it came, so we don't anticipate any comparison of the quality of the water.

MR. UTZ: Any other questions of the witness? You may be excused.

I N D E X

| <u>WITNESS</u> | | <u>PAGE</u> |
|---------------------------------|--|-------------|
| C. L. WHIGHAM | | |
| Direct Examination by Mr. Kelly | | 2 |
| Cross Examination by Mr. Utz | | 10 |

| <u>EXHIBITS</u> | <u>MARKED</u> | <u>OFFERED AND ADMITTED</u> |
|---|---------------|---------------------------------|
| Applicant's Exhibits Numbers 1 through 5 | 2 | 10 |

STATE OF NEW MEXICO)
) ss.
 COUNTY OF BERNALILLO)

I, SAMUEL MORTELETTE, 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.

Samuel Mortelette
 COURT REPORTER

I do hereby certify that the foregoing is
 a true and correct record of the hearing in
 the above captioned case of file no. 4031
 held at the New Mexico Oil Conservation Commission
Shirley G. [Signature]
 Secretary

GOVERNOR
DAVID F. CARGO
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
GUYTON S. HAYS
MEMBER

P. O. BOX 2088
SANTA FE

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

January 24, 1969

Mr. Booker Kelly
White, Gilbert, Koch & Kelly
Attorneys at Law
Post Office Box 787
Santa Fe, New Mexico

Re: Case No. 4031
Order No. R-3665
Applicant:
TEXACO INC.

Dear Sir:

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

Very truly yours,

A. L. PORTER, Jr.
Secretary-Director

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x

Artesia OCC

Aztec OCC

Other State Engineer Office

Bureau of Land Management

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. 4031
Order No. R-3665

APPLICATION OF TEXACO INC.
FOR SALT WATER DISPOSAL,
LEA COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on January 22, 1969, at Santa Fe, New Mexico, before Examiner Elvis A. Utz.

NOW, on this 24th day of January, 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, Texaco Inc., is the owner and operator of the C. W. Shepherd Federal "B" Well No. 5, located in Unit I of Section 1, Township 26 South, Range 36 East, NMPM, Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico.

(3) That the applicant proposes to utilize said well to dispose of produced salt water into the Yates-Seven Rivers formations, with injection into the open-hole interval from approximately 2964 feet to 3119 feet.

(4) That the injection should be accomplished through 2 3/8-inch plastic-lined tubing installed in a packer set at approximately 2900 feet; that the casing-tubing annulus should be filled with an inert fluid; and that a pressure gauge should

-2-

CASE No. 4031
Order No. R-3665

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:

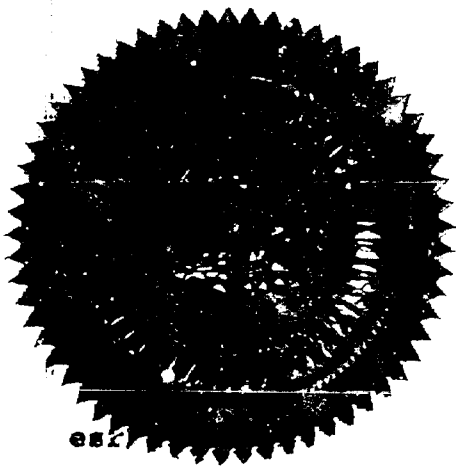
(1) That the applicant, Texaco Inc., is hereby authorized to utilize its C. W. Shepherd Federal "B" Well No. 5, located in Unit I of Section 1, Township 26 South, Range 36 East, NMPM, Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico, to dispose of produced salt water into the Yates-Seven Rivers formations, injection to be accomplished through 2 3/8-inch tubing installed in a packer set at approximately 2900 feet, with injection into the open-hole interval from approximately 2964 feet to 3119 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 P. Cargo
DAVID P. CARGO, Chairman

Alex J. Armlino
ALEX J. ARMLINO, Member

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

Case 4031

Heard 1-22-69

Rec. 1-22-69

Grant Texas a permission to connect their C.W. Shephard Fed. 'B' #5, I-1-26S-36E. to a SWD well. Injection to be in the Yates & S-R from 2964-3119 in open hole. 2-7/8 Int. plastic coated tubing and a packer shall be used. Annulus to be filled w/ inert fluid w/ pressure gauge at surface.

Thur. A. Hf

DOCKET: EXAMINER HEARING - WEDNESDAY - JANUARY 22, 1969

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

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

CASE 4013: (Continued and Readvertised)

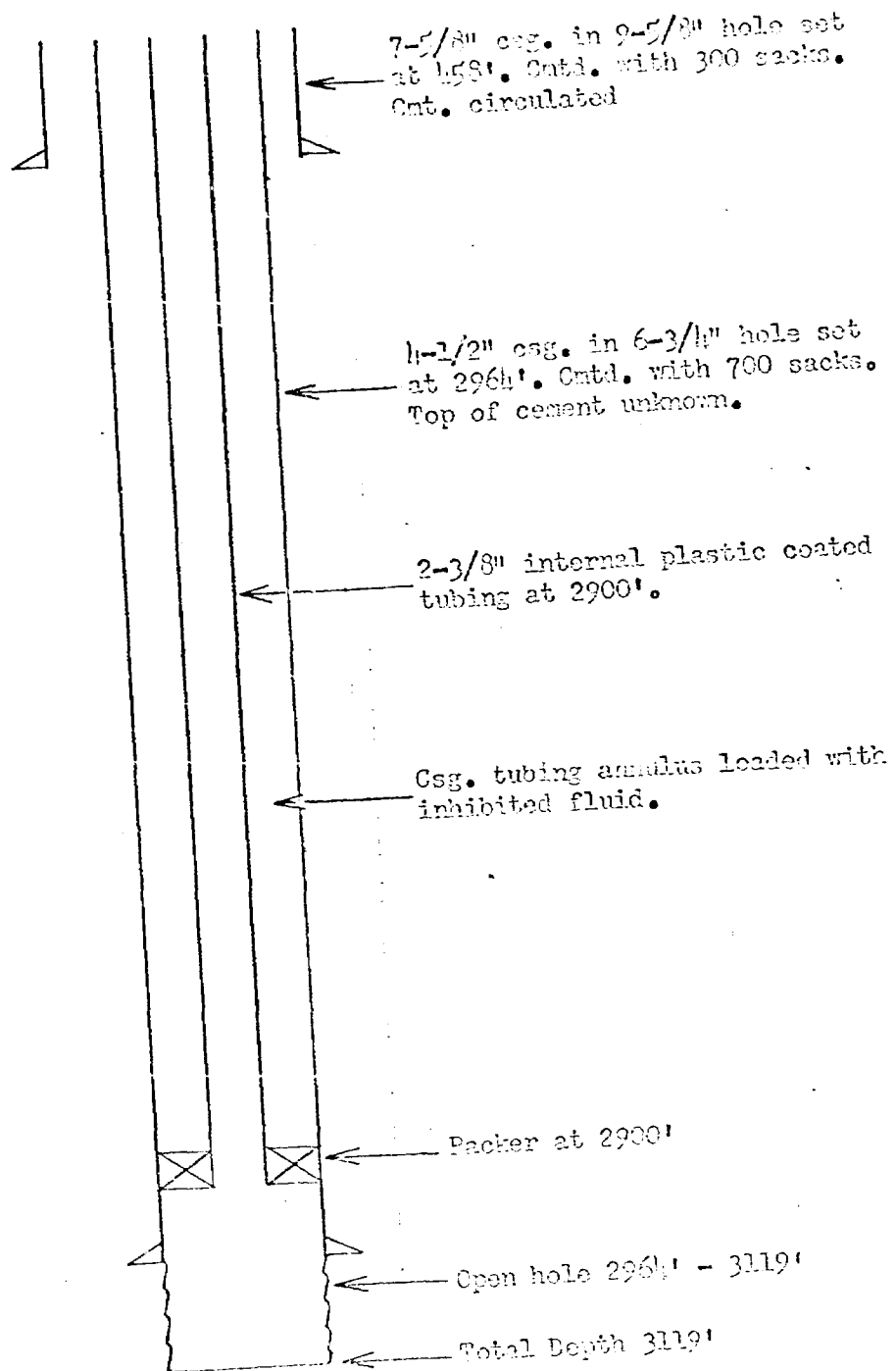
Application of Redfern Development Corporation and Wil-Mc Oil Corporation for salt water disposal, Lea County, New Mexico. Applicants, in the above-styled cause, seek authority to dispose of produced salt water into the San Andres formation in the interval from approximately 4042 feet to 4179 feet in the Wil-Mc State K Well No. 1 located in Unit O of Section 11, Township 10 South, Range 32 East, Mescalero-San Andres Pool, Lea County, New Mexico.

CASE 4029: Application of General American Oil Company for a waterflood expansion, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to expand its pilot waterflood project in the Grayburg zone of the San Andres formation in the Grayburg-Jackson Pool, Eddy County, New Mexico, authorized by Order No. R-2324, by the conversion to water injection of 13 additional injection wells located in Township 17 South, Ranges 29 and 30 East, Eddy County, New Mexico.

CASE 4030: Application of Argus Production 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 Seven Rivers formation in the perforated and open-hole interval from approximately 3554 feet to 3775 feet in its J. T. Lynn A-28 Well No. 3, located 2310 feet from the South line and 1650 feet from the East line of Section 28, Township 23 South, Range 36 East, Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico.

CASE 4031: Application of Texaco 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 Yates-Seven Rivers formations in the open-hole interval from approximately 2964 feet to 3119 feet in its C. W. Shepherd Federal "B" Well No. 5 located in Unit I of Section 1, Township 26 South, Range 36 East, Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico.

- CASE 4032: In the matter of the hearing called by the Oil Conservation Commission upon its own motion to consider the establishment of non-standard gas proration units and unorthodox gas well locations, where necessary, in the Aztec and Blanco-Pictured Cliffs Gas Pools in Sections 6, 7, 18, 19, 30, and 31, Townships 29 and 30 North, Ranges 8 and 9 West, San Juan County, New Mexico. Said non-standard units and locations being necessitated by variations in said legal subdivisions of the U. S. Public Land Surveys.
- CASE 4033: Application of Phillips 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 Yates-Seven Rivers formations in the perforated interval from 3606 feet to 3740 feet in its Cruces Federal Well No. 5 located in Unit P of Section 26, Township 20 South, Range 34 East, Lynch Yates-Seven Rivers Pool, Lea County, New Mexico.
- CASE 4034: Application of Phillips 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 Yates-Seven Rivers formations in the open-hole interval from 3360 feet to 3520 feet in its C. D. Woolworth Well No. 9 located in Unit B of Section 27, Township 24 South, Range 36 East, Jalmat Yates-Seven Rivers Pool, Lea County, New Mexico.
- CASE 4035: Application of Phillips Petroleum Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formations through its Philmex Well No. 5 located in Unit N of Section 27, Township 17 South, Range 33 East, Maljamar Grayburg-San Andres Pool, Lea County, New Mexico.



PROPOSED SALT WATER DISPOSAL COMPLETION

DETOX EXAMINER ULZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. 5
CASE NO. 4031

TEXACO INCORPORATED
C.V. SHEPHERD FEDERAL "B" No. 5
JALMAT POOL
IEA COUNTY, NEW MEXICO



PETROLEUM PRODUCTS

PRODUCING DEPARTMENT
UNITED STATES
MIDLAND DIVISION
DARRELL SMITH
DIVISION MANAGER

December 31, 1968

TEXACO INC.
P. O. BOX 3109
MIDLAND, TEXAS 79701

Case 4031
HEARING REQUEST
SALT WATER DISPOSAL
JALMAT YATES SEVEN RIVERS POOL
LEA COUNTY, NEW MEXICO

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

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

Gentlemen:

It is respectfully requested that an Examiner hearing be scheduled on the next available docket in Santa Fe, New Mexico to consider the application of Texaco Inc. to convert its C. W. Shepherd Federal "B" Well No. 5 to salt water disposal service in the Jalmat Yates Seven Rivers Pool. The subject well is located in Unit I, Section 1, Township 26 South, Range 36 East, Lea County, New Mexico.

Texaco Inc. proposes to squeeze the existing perforations and drill the well deeper from 2964' to 3119'. Injection into the C. W. Shepherd Federal "B" Well No. 5 will be down 2-3/8" internally plastic coated tubing set on a packer at 2900' and into an open hole interval from 2964' to 3119'. The injection fluid will be salt water produced in conjunction with oil produced on Texaco's Inc. C. W. Shepherd Federal "A" Lease, Jalmat Yates Seven Rivers Pool, which adjoins the C. W. Shepherd Federal "B" Lease to the north, at a rate of approximately 215 barrels of water per day. It is anticipated that this volume will be disposed of on a vacuum.

In compliance with Statewide Rule 701, we attach a radioactivity log, diagrammatic sketch of the subsurface installation, area map showing the location of the proposed injection well and

DOCKETED

Date *1-9-69*

Oil Conservation Commission

-2-

December 31, 1968

other wells in the vicinity and a list of the five (5) offset operators, each of whom is receiving a copy of this letter.

Yours very truly,

Darrell Smith

By Carl L. Whigham
Carl L. Whigham JMO
Division Proration Engineer

DDD/pw

Attachments (4)

cc: U.S.G.S.
Box 997
Roswell, New Mexico

OFFSET OPERATORS
TEXACO Inc.

C. W. SHEPHERD 'B' FEDERAL LEASE
LEA COUNTY, NEW MEXICO

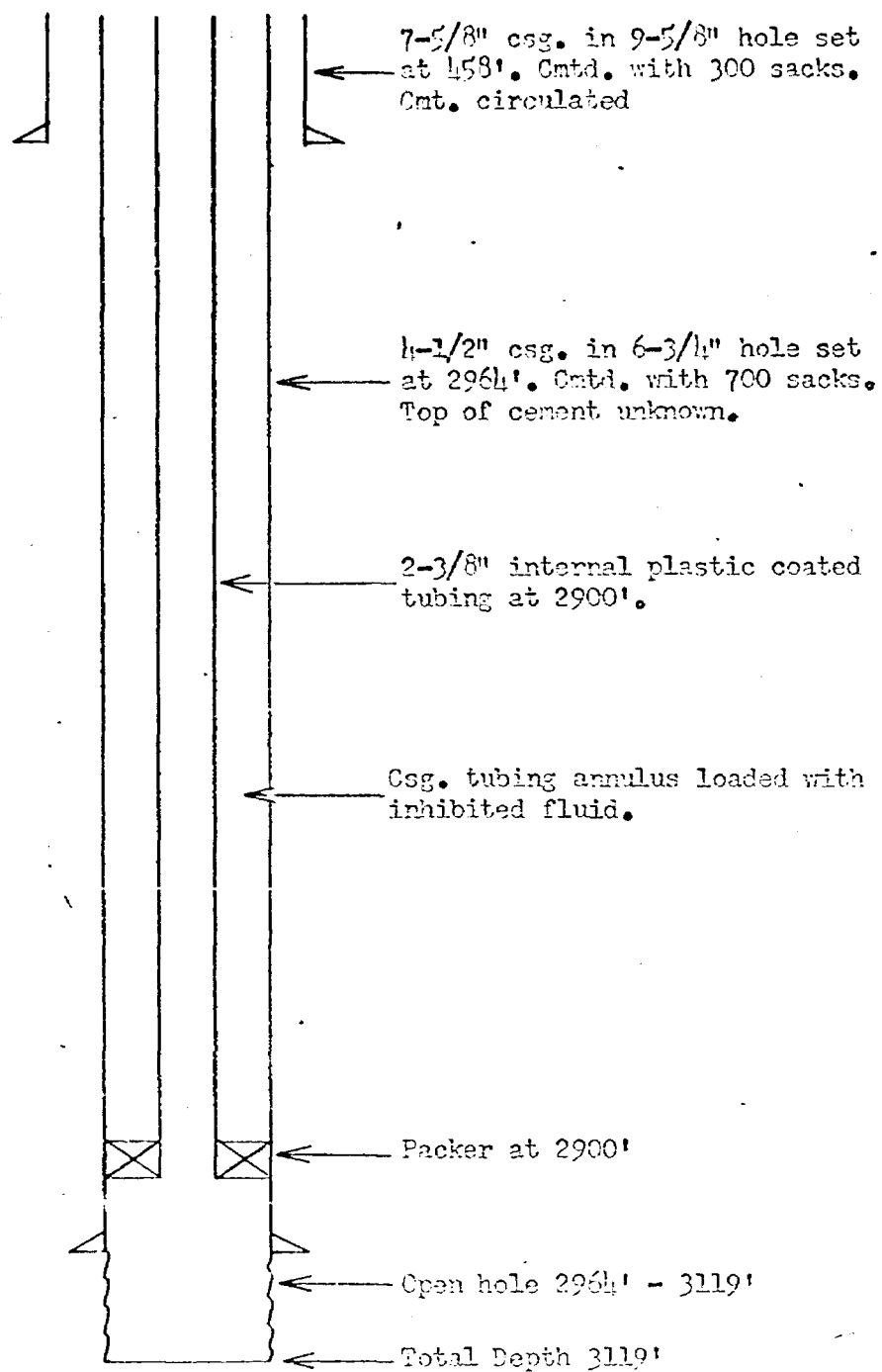
Amerada Petroleum Corporation
P. O. Box 312
Midland, Texas 79701

Cities Service Oil Company
Western Regional Office
P. O. Box 4906
Midland, Texas 79701

El Paso Natural Gas
P. O. Box 1492
El Paso, Texas 79900

Gulf Oil Corporation
P. O. Box 1938
Roswell, New Mexico 88201

Pan American Petroleum Corp
P. O. Box 1410
Fort Worth, Texas 76101



PROPOSED SALT WATER DISPOSAL COMPLETION

TEXACO INCORPORATED
C.W. SHEPHERD "B" NO. 5
JALMAT POOL
LEA COUNTY, NEW MEXICO

Case 4031

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. 4031

Order No. R- 3665

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NOW, on this day of January, 196⁹, the Commission, a
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(3) That the applicant proposes to utilize said well to
dispose of produced salt water into the Yates-Seven Rivers
formations, with injection into the open-hole interval
from approximately 2964 feet to 3119 feet.

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

approximately 2900 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:

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