

CASE 3906: Application of SKELLY  
OIL COMPANY FOR A WATERFLOOD  
PROJECT, LEA COUNTY, N. MEX.

Case Number

3906

Application  
Transcripts.

Small Exhibits

ETC.

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

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BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
October 23, 1968  
EXAMINER HEARING

-----  
IN THE MATTER OF: )  
)

Application of Skelly Oil )  
Company for a Waterflood )  
Project, Lea County, New )  
Mexico. )  
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Case No. 3906

BEFORE: Daniel Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Case 3906.

MR. HATCH: Application of Skelly Oil Company for a waterflood project, Lea County, New Mexico.

MR. JACOBS: If the Commission please, Ronald J. Jacobs appearing on behalf of the Applicant, Skelly Oil Company. The Commission's files will reflect a letter from Mr. L. C. White signifying that he is resident counsel for us in this matter. We have one witness.

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

LARRY R. HALL, being first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. JACOBS:

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

A Larry R. Hall. I am employed by Skelly Oil Company, Hobbs, New Mexico, as Advanced Production Engineer.

Q Mr. Hall, have you previously testified before this Commission as a petroleum engineer and on such occasion, have your qualifications recognized?

A I have testified before the Commission before, yes.

Q Are you familiar with the application in Case 3906 and if so, could you explain what is being sought by the application?

A Case 3906 is an application of Skelly Oil Company for authority to institute a pilot waterflood project by injecting water into the Langlie-Mattix Pool through the Mattix A number 4 well in Lea County, New Mexico.

Q Please refer to what has been marked for identification as Exhibit number 1. Would you relate to the examiner what this exhibit shows?

A Exhibit number 1 is a copy of the map showing a portion of the Langlie-Mattix Pool. The Langlie-Mattix Pool is the areal largest and one of the earliest developed pools in southeast New Mexico. There has been considerable interest in secondary recovery. Several operators in the Pool have formed projects and several others are anticipating projects and are instituting pilots.

We have outlined on this map an outline of the proposed Langlie-Mattix unit. We call it the proposed **Miers** Langlie-Mattix unit of which Skelly Oil Company is the unit expediter. This proposed

area includes some ten thousand acres and some two hundred seventeen wells. Now we have performed a secondary recovery study on the proposed Langlie-Mattix unit, and we have to date, something over 75% of the working interest on approval. But due to the large number of working interests owners and extreme number of royalty interests, the earliest expected effective date is mid-year 1969. The Skelly Oil Company Mattix A lease is shown on the eastern portion of this unit and is outlined in yellow.

This disposal of produced water in the surfact pit is to be prohibited after January first, 1969. Since the no-pit order comes in effect prior to our expected unitization date, it means for disposal of produced water within this proposed unit must be provided. Skelly Oil Company desires to establish a pilot water flood by converting the Mattix A number 4 to water injection surface. Most of the produced water was in the Miers Langlie-Mattix will be injected into the pilot injection well.

Now waterflood study in the case of the proposed unit area will be a successful project. Also

considering the large number of waterflood units that are now in operation with the Langlie-Mattix Pool, in fact that all known projects which have utilized pilots have expanded during process of expanding. The floodability of the Langlie-Mattix zone is established to Skelly Oil Company.

Q Now, I know that this particular well you are looking at right here marked in red on the map. That is the Mattix A number 4 well?

A That is the proposed injection well, yes.

Q Now you are familiar, are you not, with the proposed injection scheme for the entire unit should it be finally approved and formulated. Is that correct?

A Yes, I am.

Q Will this well be one of those wells that will be proposed for injection when the unit is in full scale?

A The proposed injection well is -- fits both patterns as far as in the case of a lease flood or the proposed unit. There will be an injection well in both cases, yes.

Q Please refer to what has been marked for identification as Exhibit number 2. Would you explain what this exhibit shows?

A Exhibit number 2 is a two-mile radius map around the proposed injection well. On this exhibit the Mattix A number 4 is circled in red. It is located 1980 feet from the south line and 1986 feet from the west line of section 2, township 24 south, Range 37 east, Lea County, New Mexico. This exhibit also shows the location of ownership of all leases within a two mile radius of the proposed injection well.

I have shaded the Mattix State A lease in yellow. Skelly Oil Company is the only operator in section 2, with the west half of the section being the Mattix A leases and the east half of the section being the Skelly Mexico P lease.

Q Please refer to what has been marked for identification as exhibit number 3. Would you relate to the examiner what this exhibit shows?

A This exhibit is a down hole schematic of the proposed injection well, the Mattix A number 4. It shows the size and setting depth of the casings, the quantities used and the top of the cement. In



both cases, the cement strings have been circulated. The size and setting depth of the tubing and the location of the packer and proposed injection interval. The Mattix A was drilled to a total depth of 3594, was plugged back to 3587. The well is currently completed open hole from 3438 to 3587. The Mattix A number four, as I think I have testified previously here, was selected as the proposed injection well since it did fit the pattern of the proposed unit and it is also located in the area of highest water production within the proposed Miers Langlie-Mattix unit. The current production on this well is currently pumping approximately three barrels of oil a day, 27 barrels of water. It is cumulative at 26,173 barrels of oil as to August first, 1968. The average cumulative within the proposed unit area is 42,000 barrels.

Q That is per well?

A Per well cumulative. That is correct.

The Langlie-Mattix vertical limit includes the lower feet of the Seven Rivers and the Queen formation. The principal producing zone of the Langlie-Mattix is the Penrose member, which is the lower Queen. The Penrose is better developed in the area of the proposed injection well and in the central portion of

our proposed unit. The average log properties determined in our secondary recovery study of the proposed unit area are 14.3% velocity and 7.2 permeability.

Our injection will be confined to the Langlie-Mattix interval. Injection will be down internally coated tubing below a packer into the open hole section. Our initial anticipated injection rate of 300 to 400 barrels per day are expected at a maximum injection pressure of 900 pounds initially, with our pressures increasing over the life of the project to approximately 2,000 pounds. Now they included a copy of the portion of the radioactivity log on this well as exhibit number 4.

Q That is a copy of the radioactivity log from the Mattix A number 4?

A That is correct.

Q Please refer to what has been marked for identification as exhibit number 5. Relate to the examiner what this exhibit shows.

A Exhibit number 5 is an analysis of the water produced from the Mattix A lease. The analysis shows the water to be mineralized water, and unsuitable

for domestic, stock, irrigation or general use. Currently this water and similar water is being disposed of in surface pits within the proposed Miers unit. Upon Commission approval of this pilot water application, injection well will be made available for disposal of produced water within this area.

Q Mr. Hall, in your opinion what affect will the injection of water into the Mattix A number 4 have on the recovery of oil in the area?

A It is my opinion that the injection of water into this proposed injection will definitely increase production in the offsetting wells. Based on performance of the waterflood unit and pilots, Skelly has in operation and other operators have within the Langlie-Mattix Pool, we expect that 90% of the Langlie-Mattix Wells will be subject to water fluid operation. Predicted recovery from our Miers unit is some 7.3 million barrels of oil. This is equal to approximately 80 barrels of the ultimate primary. Response to water injection -- response to water injection into our Mattix A 4 is not expected before our currently anticipated date of unitization, which is January 1, 1969. But we expect it to occur shortly thereafter. We

anticipate some 60,000 barrels of water to be injected into this proposed injection well between January 1, 1969, and July 1, 1969.

Q Mr. Hall, will the granting of this application result in waste?

A No. The result of this application will be to provide a place for down hole disposal of the produced water within this area which is presently being disposed of in surface pits. In addition, injection of water into the proposed injection well is expected to increase production in the offset wells and thereby recover oil that might not be otherwise recovered.

Q Mr. Hall, will the granting of this application, in your opinion, result in any impairment of correlative rights.

A No. In my opinion, the granting of this application will not result in any impairment of correlative rights. We do not expect adverse drainage of our Mattix A lease. From this pilot project since the proposed well is located on the eastern edge of the Langlie-Mattix Pool and a relative volume of some 50,000 barrels is expected to be injected prior to unitization.

Q Mr. Hall, were exhibits 1 through 5 prepared by you or under your supervision and direction?

A Yes, they were. Exhibits 1 through 3 were prepared directly by me and exhibits 4 and 5 were taken from well data currently available on the well.

Q Well, exhibits 4 and 5, then, do correctly reflect the information contained thereon?

A That is right.

MR. JACOBS: We offer into evidence exhibits 1 through 5.

MR. NUTTER: Skelly's exhibits 1 through 5 will be admitted in evidence.

(Whereupon, Applicant's exhibits 1 through 5 were admitted in evidence.)

Q (By Mr. Jacob): Mr. Hall, you are also asking the Commission to provide for a Rule where the project can be expanded administratively without the necessity of showing a response as a general exception to the statewide rule. Is this because you may find it necessary to select another well in which to inject water in case it is not capable of accepting all the water you anticipate?

A This is true. It is possible that we will

have -- when we get all the waters collected -- within the unit, we will have more volume than we have now anticipated and this one well may not have the capacity so we are asking for administrative approval to expand in this area. When it comes time for the entire unit area, we will approach that with another hearing.

Q So that when it comes time for the entire Miers Langlie-Mattix unit area, you will present that application at that time, but you are asking for administrative approval on this particular lease?

A This is true.

MR. JACOBS: This is all we have.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Hall, how many wells did you say are included in the proposed unit?

A Some 217 wells, some ten acres.

Q Now, what will be the source of the water for injection into this number 4 well? Will it only be from the Skelly leases here, or will you be taking water from other leases as well?

A We plan to, and are approaching the operator

now with the letter ballot telling them of our intentions. This well will be made available to all produced water within this proposed unit area.

Q And in that event, you have to run gathering lines all over the place to pick up that water?

A At this time that is not economically feasible because it will be such -- we will have our injection system installed later. We plan to set a collection tank and a triplex pump to pump the water to the well.

Q Now you mentioned that this area right here produces more water than most of the other parts of the unit?

A Yes. This is true.

Q How much water does your lease right here in itself make?

A Our lease -- I am calling from memory -- I think it is 243 barrels a day. Approximately 75% of the proposed unit water is in the vicinity of this lease.

Q I see. It is all over here on the east side of the state?

A Yes.

Q Now what about the annulus here, Mr. Hall.  
Will it be loaded with some kind of inert fluid?

A The annulus will be loaded with inert fluid.

Q And equipped with a guage at the surface?

A Yes.

Q And that tubing will be coated inside?

A Yes.

MR. NUTTER: Are there any other questions  
of Mr. Hall? You may be excused.

(Whereupon the witness was excused.)

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

MR. JACOBS: Nothing further on this case.

MR. NUTTER: Does anyone have anything they  
wish to offer in case number 3906? Take the case  
under advisement and call case number 3907.



I N D E X

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WITNESS

LARRY R. HALL

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Direct Examination by Mr. Jacobs

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Cross Examination by Mr. Nutter

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EXHIBIT

Applicant's  
1 through 5

MARKED

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OFFERED AND ADMITTED

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## C E R T I F I C A T E

I, BRENDA BURKS, Court Reporter, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission, was reported by me and contains a true and correct record of said Hearing, to the best of my knowledge, skill and ability.

WITNESS MY HAND THIS 19th day of November, 1968.

Brenda Burks  
Court Reporter

I do hereby certify that the foregoing is a correct record of the hearing held before the New Mexico Oil Conservation Commission on 10/23 1968 at 3906 68

[Signature]  
New Mexico Oil Conservation Commission

OIL CONSERVATION COMMISSION

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

November 4, 1968

C Mr. Ronald J. Jacobs  
Skelly Oil Company  
Post Office Box 1650  
Tulsa, Oklahoma 74102

Dear Sir:

O Reference is made to Commission Order No. R-3543, recently entered in Case No. 3906, approving the Skelly Langlie Mattix State Pilot Waterflood Project.

P Initial injection is to be through the one authorized water injection well, which shall be equipped with plastic-coated tubing set in a packer at approximately 3363 feet. The casing-tubing annulus shall be loaded with a corrosion-inhibited fluid and equipped with a pressure gauge to facilitate detection of leakage in the casing, tubing, or packer.

Y As to allowable, our calculations indicate that when the authorized injection well has been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 252 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

**OIL CONSERVATION COMMISSION**

P. O. BOX 2088

SANTA FE, NEW MEXICO 87501

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Mr. Ronald J. Jacobs  
Skelly Oil Company  
Tulsa, Oklahoma 74102

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

ALP/DSN/ir

cc: Oil Conservation Commission  
Hobbs, New Mexico

Mr. D. E. Gray  
State Engineer Office  
Capitol Building  
Santa Fe, New Mexico

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P  
Y

ROUGH DRAFT FOR WATERFLOOD LETTERS

Mr. Ronald J. Jacobs  
Skelly Oil Company - P. O. Box 1650  
Tulsa, Oklahoma 74102

Dear Sir:

*Sent*  
*Reference is made to* Commission Order No. R-3543, *recently* entered in Case No. 3906, approving the *Skelly Langlie Mattip* ~~Waterflood~~ *Waterflood* Project.

*Initial injection is to be through the one authorized water injection well, which shall be equipped with plastic coated tubing set in a packer at approximately 3363 feet. The casing tubing annulus shall be loaded with a corrosion-inhibited fluid and equipped with a pressure gauge to facilitate detection of leakage in the casing tubing and packer.*  
As to allowable, our calculations indicate that when ~~all of~~ the authorized injection wells ~~have~~ been placed on active injection, the maximum allowable which this project will be eligible to receive under the provisions of Rule 701-E-3 is 252 barrels per day when the Southeast New Mexico normal unit allowable is 42 barrels per day or less.

Please report any error in this calculated maximum allowable immediately, both to the Santa Fe office of the Commission and the appropriate district proration office.

In order that the allowable assigned to the project may be kept current, and in order that the operator may fully benefit from the allowable provisions of Rule 701, it behooves him to promptly notify both of the aforementioned Commission offices by letter of any change in the status of wells in the project area, i.e., when active injection commences, when additional injection or producing wells are drilled, when additional wells are acquired through purchase or unitization, when wells have received a response to water injection, etc.

Your cooperation in keeping the Commission so informed as to the status of the project and the wells therein will be appreciated.

Very truly yours,

A. L. PORTER, Jr.  
Secretary-Director

cc: OCC: Hobbs X  
Artesia         
Aztec       

USGS       

~~Mr. Frank Eby~~, State Engineer Office, Santa Fe, New Mexico

Mr. D. E. Gray

GOVERNOR  
DAVID F. CARGO  
CHAIRMAN

State of New Mexico  
**Oil Conservation Commission**



LAND COMMISSIONER  
GUYTON B. HAYS  
MEMBER

P. O. BOX 2088  
SANTA FE

October 31, 1968

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

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

Re: Case No. 3906  
3907

Order No. R-3543 & R-3544

Applicant:

Skelly Oil Company

Dear Sir:

Enclosed herewith is a copy of the above-referenced Commission order recently entered in the subject case. Letter pertaining to conditions of approval and maximum allowable to follow.

Very truly yours,

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

ALP/ir

Carbon copy of order also sent to:

Hobbs OCC x  
Artesia OCC         
Aztec OCC         
State Engineer x

Other Mr. Ronald Jacobs

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. 3906  
Order No. R-3543

APPLICATION OF SKELLY OIL COMPANY  
FOR A WATERFLOOD PROJECT, LEA COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 23, 1968, at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 31st day of October, 1968, 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, Skelly Oil Company, seeks permission to institute a waterflood project in the Langlie-Mattix Oil Pool by the injection of water into the Queen formation through its Mattix "A" Well No. 4, located in Unit K of Section 2, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

(3) That the applicant further seeks an administrative procedure whereby said project could be expanded to include additional lands and injection wells in the area of the said project as may be necessary in order to complete an efficient injection pattern; that said administrative procedure should provide for administrative approval for conversion to water

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CASE No. 3906

Order No. R-3543

injection in exception to the well response requirements of Rule 701 E-5 of the Commission Rules and Regulations.

(4) That the wells in the project area are in an advanced state of depletion and should properly be classified as "stripper" wells.

(5) That the proposed waterflood project should result in the recovery of otherwise unrecoverable oil, thereby preventing waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided however, that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

IT IS THEREFORE ORDERED:

(1) That the applicant, Skelly Oil Company, is hereby authorized to institute a waterflood project in the Langlie-Mattix Oil Pool by the injection of water into the Queen formation through its Mattix "A" Well No. 4, located in Unit K of Section 2, Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That the subject waterflood project is hereby designated the Skelly Langlie Mattix State "A" Waterflood Project and shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commission may approve expansion of the Skelly Langlie Mattix State "A" Waterflood Project to include such additional lands and injection wells in the area of said project as may be necessary to complete an efficient water injection pattern; that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.



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CASE No. 3906

Order No. R-3543

(3) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1120 of the Commission Rules and Regulations.

(4) 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, Chairman

GUYTON B. HAYS, Member

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

esr/

Docket No. 31-68

DOCKET: EXAMINER HEARING - WEDNESDAY - OCTOBER 23, 1968

9 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 3894: Application of Signal Oil and Gas Company for a non-standard oil proration unit, Lea County, New Mexico. Applicant, in the above-styled cause, seeks approval of a non-standard oil proration unit comprising the W/2 NE/4 and the N/2 SE/4 of Section 17, Township 10 South, Range 34 East, Vada-Pennsylvanian Pool, Lea County, New Mexico, said unit to be dedicated to its State AP Well No. 1 located 1980 feet from the South line and 660 feet from the East line of said Section 17.

CASE 3895: Application of Sun Oil Company for a pressure maintenance project, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pressure maintenance project in its New Mexico State "H" Lease by the injection of water into the San Andres formation through its New Mexico State "H" Well No. 13 located in the SE/4 SE/4 of Section 16, Township 8 South, Range 30 East, Cato-San Andres Pool, Chaves County, New Mexico. Applicant further seeks the promulgation of special rules to govern operation of said pressure maintenance project.

CASE 3887: (Continued from the October 9, 1968, Examiner Hearing)

Application of Kersey & Company for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project by the injection of water into the Premier sand of Grayburg formation through two wells to be located in Units E and K of Section 12, Township 18 South, Range 28 East, Artesia Pool, Eddy County, New Mexico. Applicant further proposes to produce oil from the Upper Grayburg through parallel strings of tubing, if said zones are productive in the subject wells.

CASE 3896: Application of Kersey & Hanson, Yates Drilling Company, and John H. Trigg for several waterflood projects, Eddy County, New Mexico. Applicants, in the above-styled cause, seek authority to institute several cooperative waterflood projects by the injection of water into the Queen and Grayburg formations through four injection wells located in Sections 21

CASE 3896 continued

and 28, Township 18 South, Range 29 East, Turkey  
Track Queen-Grayburg Pool, Eddy County, New Mexico.

CASE 3897: Application of Kersey-Wittkopp and E. A. Hanson for two waterflood projects, Eddy County, New Mexico. Applicants, in the above-styled cause, seek authority to institute two cooperative waterflood projects by the injection of water into the Queen formation through two injection wells located in the NW/4 SE/4 and the SW/4 SE/4 of Section 6, Township 19 South, Range 31 East, Shugart Pool, Eddy County, New Mexico.

CASE 3898: Application of Tenneco Oil 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 Queen formation in the open-hole interval from approximately 3258 feet to 3341 feet in its Ginsberg-Federal Well No. 6 located in Unit E of Section 31, Township 25 South, Range 38 East, Langlie-Mattix Field, Lea County, New Mexico.

CASE 3899: Application of Cities Service Oil 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 interval from approximately 4087 feet to 4176 feet in its State AD Well No. 8 located in Unit J of Section 22, Township 10 South, Range 32 East, Mescalero-San Andres Pool, Lea County, New Mexico.

CASE 3900: Application of Continental Oil Company for downhole commingling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to commingle production from the Vacuum Wolfcamp Pool and the North Vacuum Abo Pool in the well-bore of its State H-35 Well No. 7 located 660 feet from the North line and 1780 feet from the East line of Section 35, Township 17 South, Range 34 East, Lea County, New Mexico.

CASE 3901: Application of Continental Oil 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 approximately 3330 feet to 3552 feet in its Lynn A-28 Well No. 6 located in Unit H of Section 28, Township

(CASE 3901 continued)

23 South, Range 36 East, Jalmat Pool, Lea County, New Mexico.

CASE 3902: Application of Continental Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Queen formation through its Stevens "B" Well No. 8 located in Unit A of Section 12, Township 23 South, Range 36 East, Langlie-Mattix Pool, Lea County, New Mexico.

CASE 3903: 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 by the injection of water into the Delaware formation in the perforated intervals from approximately 4675 feet to 4765 feet in its Payne Well No. 11 and from 4666 feet to 4740 feet in its Payne Well No. 12 located 660 feet from the South line and 1650 feet from the West line of Section 30, 1935 feet from the North line and 2090 feet from the West line of Section 31, respectively, Township 26 South, Range 33 East, El Mar-Delaware Pool, Lea County, New Mexico.

CASE 3904: Application of Continental Oil Company for a waterflood project, Lea County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the Delaware formation through its Thompson Federal 19 Well No. 2 located in Unit F of Section 19, Township 26 South, Range 32 East, North Mason-Delaware Pool, Lea County, New Mexico.

CASE 3905: Application of Texas Pacific Oil 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 Devonian formation in the open-hole interval from approximately 12,269 feet to 12,541 feet in its State "O" Well No. 1 located in Unit J of Section 15, Township 10 South, Range 36 East, South Crossroads-Devonian Pool, Lea County, New Mexico.

CASE 3906: Application of Skelly Oil 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 Queen formation through its Mattix "A" Well No. 4 located in Unit K of Section 2, Township 24 South, Range 37 East, Langlie-Mattix Oil Pool, Lea County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 3907: Application of Skelly Oil Company for a waterflood project, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a pilot waterflood project by the injection of water into the San Andres formation through its Hobbs "W" Well No. 9 located in Unit F of Section 29, Township 7 South, Range 34 East, Chaveroo-San Andres Pool, Roosevelt County, New Mexico. Applicant further seeks a procedure whereby said project may be expanded administratively without a showing of well response.

CASE 3908: Application of Pan American Petroleum Corporation for salt water disposal, Chaves County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into the San Andres formation in the perforated interval from approximately 3932 feet to 4027 feet in its Miller Federal Well No. 4 located in Unit L of Section 35, Township 7 South, Range 31 East, Tom-Tom San Andres Pool, Chaves County, New Mexico.

CASE 3909: Application of Champlin Petroleum Company for salt water disposal, Roosevelt County, New Mexico. Applicant, in the above-styled cause, seeks authority to dispose of produced salt water into San Andres formation, Chaveroo-San Andres pool, Roosevelt County, New Mexico, through the following two wells located in Township 7 South, Range 33 East:

Champlin Lauck-Federal Well No. 12,  
Unit J of Section 29; Disposal Interval -  
4202 feet to 4404 feet;

Champlin State 32-7-33 Well No. 5, Unit J  
of Section 32; Disposal Interval - 4303  
feet to 4425 feet.

- CASE 3910: Application of Atlantic Richfield Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Bough "C" zone of the Pennsylvanian formation underlying the SW/4 of Section 17, Township 10 South, Range 34 East, Vada-Pennsylvanian Pool, Lea County, New Mexico. Said acreage to be dedicated to a well located in the NE/4 SW/4 of said Section 17.
- CASE 3911: Application of Atlantic Richfield Company for compulsory pooling, Lea County, New Mexico. Applicant, in the above-styled cause, seeks an order pooling all mineral interests in the Bough "C" zone of the Pennsylvanian formation underlying the SE/4 of Section 8, Township 10 South, Range 34 East, Vada-Pennsylvanian Pool, Lea County, New Mexico. Said acreage to be dedicated to a well located in the NW/4 SE/4 of said Section 8. In the alternative applicant seeks approval of a non-standard oil proration unit comprising the E/2 SE/4 of said Section 8 and the W/2 SW/4 of Section 9, said Township and Range, said unit to be dedicated to a well to be drilled in the NE/4 SE/4 of said Section 8.
- CASE 3882: (Continued from the October 9, 1968, Examiner Hearing)  
Application of Solar Oil 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 Teague Blinbry Pool, Lea County, New Mexico.
- CASE 3883: (Continued from the October 9, 1968, Examiner Hearing)  
Application of Solar Oil 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 Imperial Tubb-Drinkard Pool, Lea County, New Mexico.

**WHITE, GILBERT, KOCH & KELLY**  
(GILBERT, WHITE AND GILBERT)  
ATTORNEYS AND COUNSELORS AT LAW  
LINCOLN BUILDING  
SANTA FE, NEW MEXICO 87501

CARL H. GILBERT (1891-1953)  
L. C. WHITE  
WILLIAM W. GILBERT  
SUMNER S. KOCH  
WILLIAM BOOKER KELLY  
JOHN F. MCCARTHY, JR.

October 7, 1968

*Case 3906*

POST OFFICE BOX 787  
TELEPHONE 982-4301  
(AREA CODE 505)

New Mexico Oil and Gas Conservation Commission  
State Land Office  
P. O. Box 2088  
Santa Fe, New Mexico

Attn: Mr. A. L. Porter, Jr.  
Secretary-Director

Re: Skelly Oil Company's Application to  
conduct a water flood project in the  
Lenglie Mattix Pool  
Mattix "A" Well No. 4, Unit K,  
Section 2, Township 24 South,  
Range 37 East, Lea County, N. M.

Gentlemen:

Please enter the undersigned as local counsel of record for  
Skelly Oil Company in the above application.

Very truly yours,

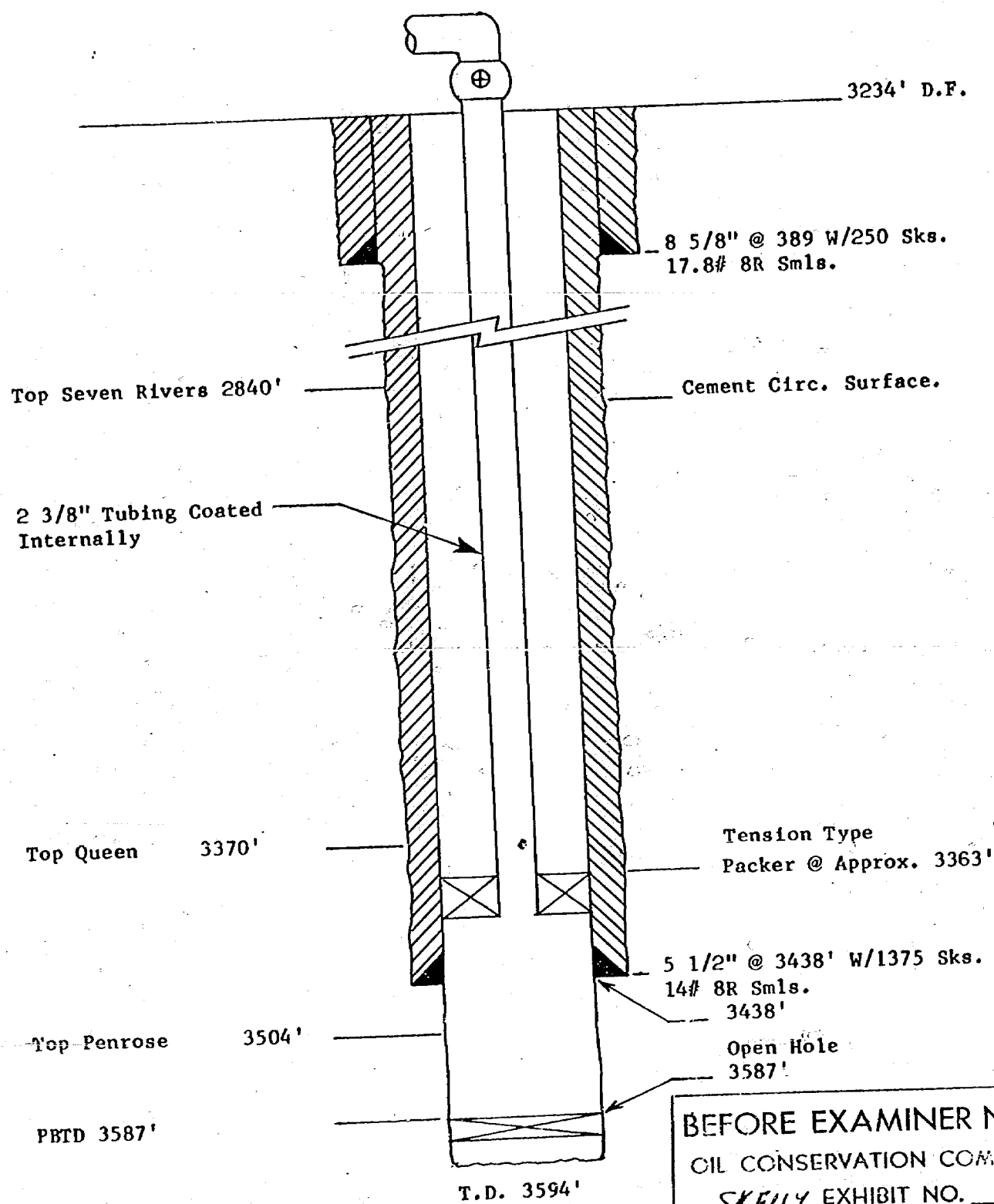
*L. C. White*

L. C. WHITE

LCW:nb  
cc: Ronald J. Jacobs

*Docket  
Mailed  
10-11-68*

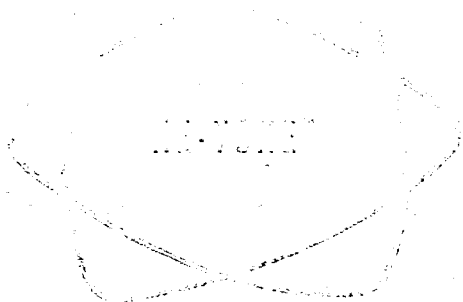
SKELLY OIL COMPANY  
 MATTIX "A" WELL NO. 4  
 1980' FSL & 1986' FWL  
 Section 2-24S-37E  
 Lea County, New Mexico



BEFORE EXAMINER NUTTER  
 OIL CONSERVATION COMMISSION  
 SKELLY EXHIBIT NO. 3  
 CASE NO. 3906

9-30-68  
 HED/bh





# STATE OF NEW MEXICO

OF NEW MEXICO

601 NORTH LEECH

P. O. BOX 1499

HOBBS, NEW MEXICO 88240

Company Skelly Oil Company  
 Field Langley Mattix  
 Lease Phillips Mattix Sampling Date 11/9/67  
 Type of Sample Heater treater

## WATER ANALYSIS

IONIC FORM	mg/l	mg/l
Calcium (Ca++)	53.89	1080
Magnesium (Mg++)	163.99	1994
Sodium (Na+) (calculated)	722.62	16,613
Iron		19
Bicarbonate (HCO <sub>3</sub> <sup>-</sup> )	36.39	2220
Carbonate (CO <sub>3</sub> <sup>-2</sup> )		Not Found
Hydroxide (OH <sup>-</sup> )		Not Found
Sulphate (SO <sub>4</sub> <sup>-2</sup> )	114.51	5500
Chloride (Cl <sup>-</sup> )	789.60	28,000

8.2 pH @ 68 °F

Dissolved Solids on Evap. at 103° - 105° C

Hardness as Ca CO<sub>3</sub> 217.88 10,894

Carbonate Hardness as CaCO<sub>3</sub> (temporary) 36.39 1820

Non-Carbonate Hardness as CaCO<sub>3</sub> (permanent) 181.49 9075

Alkalinity as CaCO<sub>3</sub> 36.39 1820

Specific Gravity @ 68° F 1.025

mg/l = milligrams per liter

me/l = milliequivalents per liter

Calcium Carbonate Scaling Index - Positive @ 84°F

Calcium Sulfate Scaling Index - Negative

BEFORE EXAMINER NUTTER

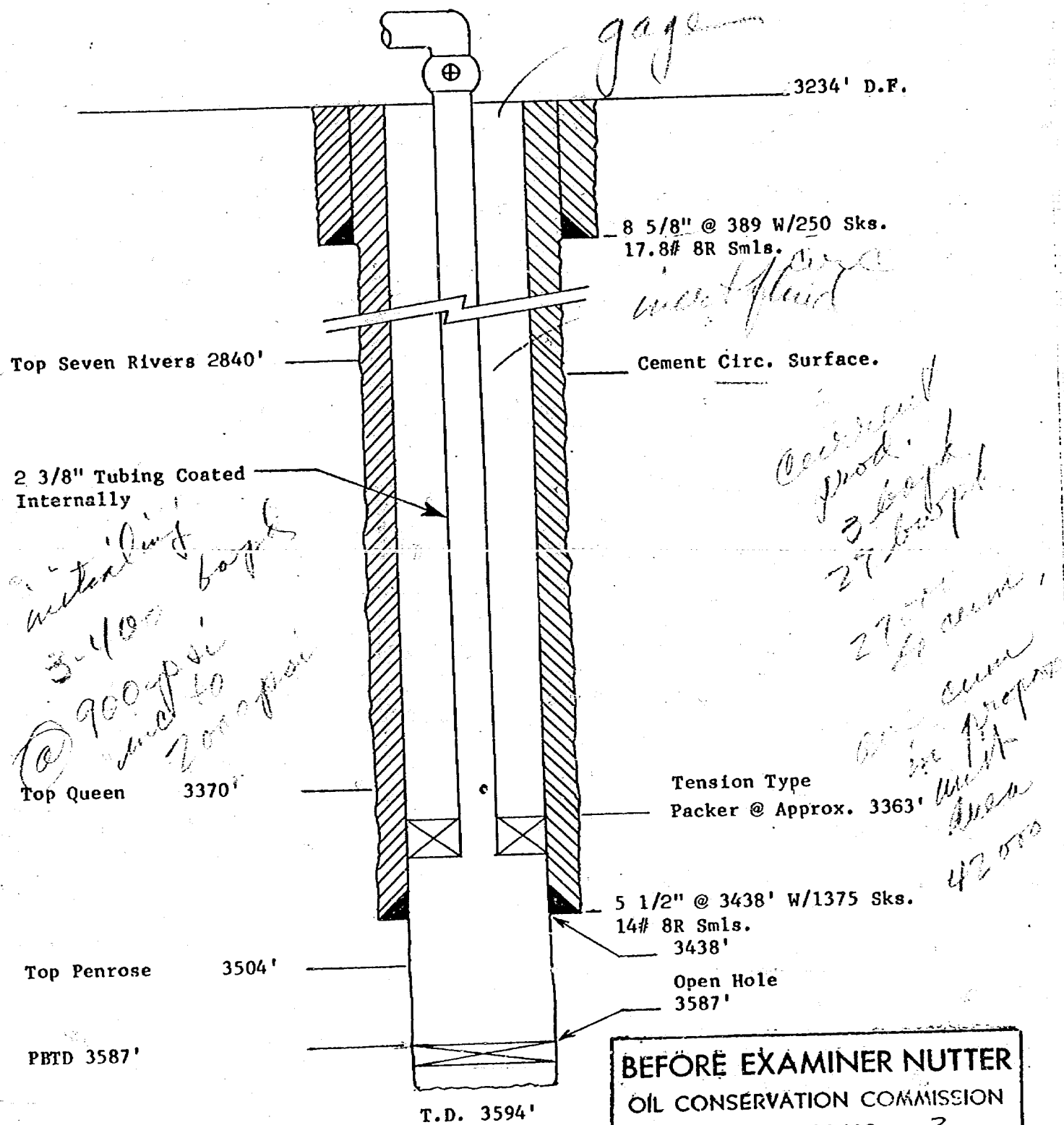
OIL CONSERVATION COMMISSION

Skelly EXHIBIT NO. 5

CASE NO. 3906

SKELLY OIL COMPANY

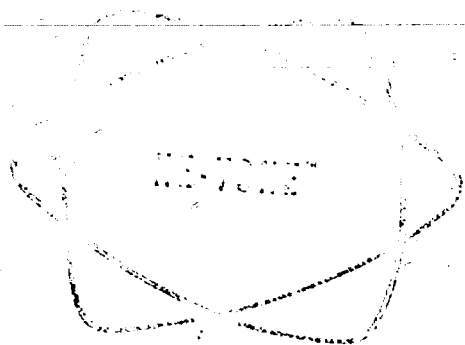
MATTIX "A" WELL NO. 4  
1980' FSL & 1986' FWL  
Section 2-24S-37E  
Lea County, New Mexico



9-30-68  
HED/bh

BEFORE EXAMINER NUTTER  
OIL CONSERVATION COMMISSION  
SKELLY EXHIBIT NO. 3  
Case No. 3906

PHONE HOBBS 393.6215



# UNITED CHEMICAL CORPORATION

OF NEW MEXICO

601 NORTH LEECH

HOBBS, NEW MEXICO 88240

P. O. BOX 1499

Company Skelly Oil Company  
 Field Langley Mattix  
 Lease Phillips Mattix  
 Type of Sample Heater treater Sampling Date 11/9/67

## WATER ANALYSIS

IONIC FORM	me/l	me/l
Calcium (Ca++)	53.89	1080
Magnesium (Mg++)	163.99	1994
Sodium (Na+)	722.62	16,613
Iron (calculated)		19
Bicarbonate (HCO <sub>3</sub> -)	36.39	2220
Carbonate (CO <sub>3</sub> -)	Not Found	
Hydroxide (OH-)	Not Found	
Sulphate (SO <sub>4</sub> -)	114.51	5500
Chloride (Cl-)	789.60	28,000
8.2 ph c 68 °F		
Dissolved Solids on Evap. at 103° - 105° C		
Hardness as Ca CO <sub>3</sub>		
Carbonate Hardness as CaCO <sub>3</sub> (temporary)	217.88	10,894
Non-Carbonate Hardness as CaCO <sub>3</sub> (permanent)	36.39	1820
Alkalinity as CaCO <sub>3</sub>	181.49	9075
Specific Gravity c 68° F	36.39	1820
1.025		

me/l = milligrams per liter  
 me/l = milliequivalents per liter

Calcium Carbonate Scaling Index - Positive @ 84°F  
 Calcium Sulfate Scaling Index - Negative

BEFORE EXAMINER NUTTER  
 OIL CONSERVATION COMMISSION  
SKELLY EXHIBIT NO. 5  
 CASE NO. 3906

*Makes Water Work*



# SKELLY OIL COMPANY

P. O. BOX 1850

TULSA, OKLAHOMA 74102

## PRODUCTION DEPARTMENT

C. L. BLACKSHER, VICE PRESIDENT  
W. P. WHITMORE, MGR. PRODUCTION  
W. D. CARSON, MGR. TECHNICAL SERVICES  
J. R. TEEL, MGR. JOINT OPERATIONS  
GEORGE W. SELINGER, MGR. CONSERVATION

October 1, 1968

Re: Langlie Mattix Pool  
Mattix "A" Well No. 4, Unit K  
Section 2, Township 24 South,  
Range 37 East,  
Lea County, New Mexico

3 OCT 3

New Mexico Oil and Gas Conservation Commission  
State Land Office  
P. O. Box 2088  
Santa Fe, New Mexico 87501

Attention: Mr. A. L. Porter, Jr.  
Secretary-Director

*Case 3906*

Gentlemen:

We are attaching in triplicate our application to conduct a waterflood project in the Langlie Mattix Pool by injection into our Mattix "A" Well No. 4 located in Unit K of Section 2, Township 24 South, Range 37 East, Lea County, New Mexico.

We would appreciate you setting this matter down for the next examiner's hearing which we understand will be October 23, 1968.

Very truly yours,

*Ronald J. Jacobs*  
Ronald J. Jacobs

RJJ:mw  
Attach.

cc-Mr. L. C. White w/attach.

DOCKET MAILED

Date 10-11-68

BEFORE THE OIL CONSERVATION COMMISSION OF THE STATE OF NEW MEXICO

IN THE MATTER OF THE APPLICATION OF SKELLY )  
OIL COMPANY FOR AN ORDER AUTHORIZING A )  
WATERFLOOD INTO THE LANGLIE MATTIX POOL )  
BY INJECTION INTO ITS MATTIX "A" WELL NO. 4 )  
LOCATED IN UNIT "K" SECTION 2, TOWNSHIP 24 )  
SOUTH, RANGE 37 EAST, LEA COUNTY, NEW )  
MEXICO. )

CASE NO. 3906

A P P L I C A T I O N

Page 3

Comes now Skelly Oil Company and alleges and states:

1. That it is a Delaware Corporation authorized to do business in the State of New Mexico and that it operates a number of wells and leases in the Langlie Mattix Pool and that in the near future it will form the Myers Langlie-Mattix Unit covering considerable area in Township 23 and 24 South, Range 36 East, 37 East, and 38 East, Lea County, New Mexico.

2. That a number of wells and leases operated by applicant are producing considerable volumes of produced salt water that in view of the Commission's pending deadline for the elimination of surface disposal pits it is necessary and desirable that the produced water be disposed of underground.

3. That pending final approval by the various interest owners prior to the formation of the Myers Langlie-Mattix Unit, Skelly Oil Company proposes to conduct a waterflood into the producing formation by converting its Mattix "A" Well No. 4 to injection and that in the future when the unit is formed said well will be one of the injection wells in the unit.

4. That attached hereto and made a part hereof is Exhibit "A", a plat showing the location of the proposed injection well and the location of all other wells within a radius of two miles from the proposed injection well the formation from which said wells are producing or have produced. The plat also indicates the leases within the aforementioned two mile radius.

5. That attached hereto and made a part hereof is Exhibit "B", a log of the proposed injection well.

6. That attached hereto and made a part hereof is Exhibit "C", a diagrammatic sketch of the proposed injection well showing all casing strings, including diameter and setting depths; quantities used and tops of cement; perforation interval; tubing strings, including diameter and setting depths; and the type and location of packers.

7. That applicant proposes to inject into the Langlie Mattix Pool through open hole below 3438' in said well that the fluid to be injected will initially be produced salt water from the Langlie Mattix Pool on applicant's Mattix "A" lease and other leases in the immediate vicinity and applicant anticipates that the initial volume will be 400 barrels of water per day.

WHEREFORE, PREMISES CONSIDERED, applicant prays that this Commission set this matter down for hearing that notice hereof be given as required by law and that at the conclusion of said hearing based on the evidence adduced, the Commission enter its order granting Skelly Oil Company permission to conduct a waterflood project in the Langlie Mattix Pool through injection into its Mattix "A" Well No. 4, located in Unit K of Section 2, Township 24 South, Range 37 East, Lea County, New Mexico and for such other orders, rules and regulations that may be necessary in the premises.

Respectfully submitted,

SKELLY OIL COMPANY

George W. Selinger  
Ronald J. Jacobs  
Its Attorneys

By Ronald J. Jacobs

Of Counsel:

Mr. L. C. White  
White, Gilbert, Koch & Kelly  
P. O. Box 787  
Santa Fe, New Mexico

[illegible]

File

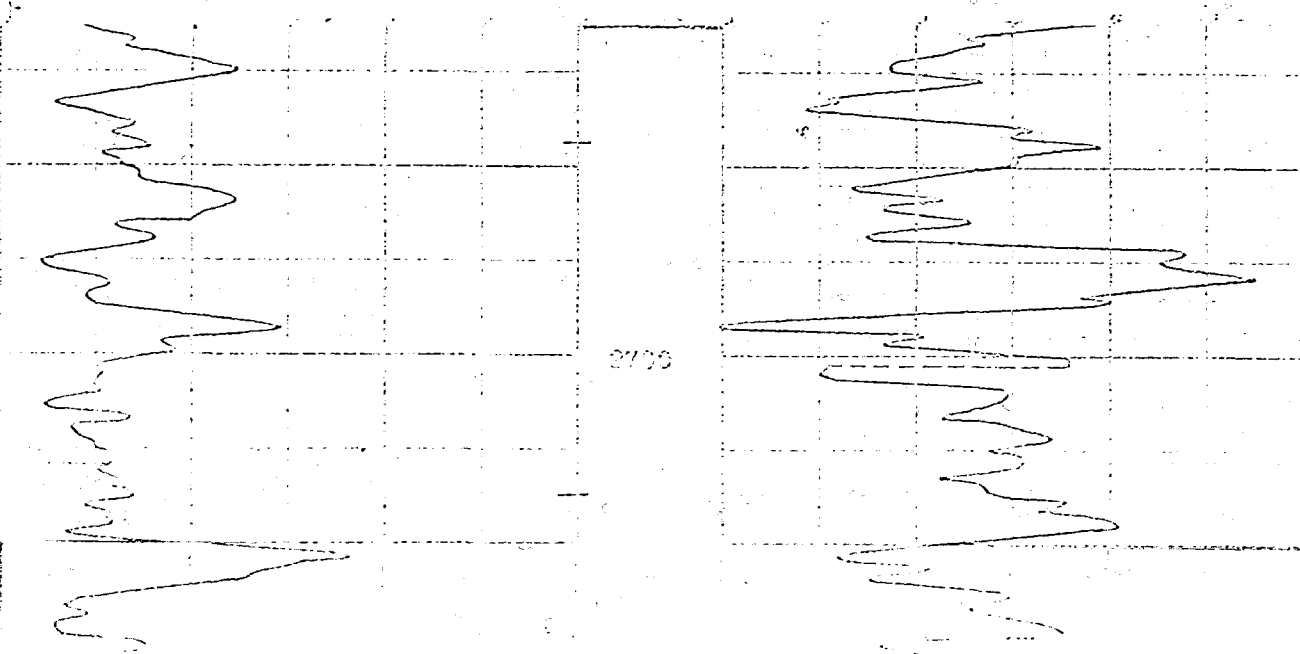
EXHIBIT NO. B  
DOCKET OR  
CASE NO. \_\_\_\_\_

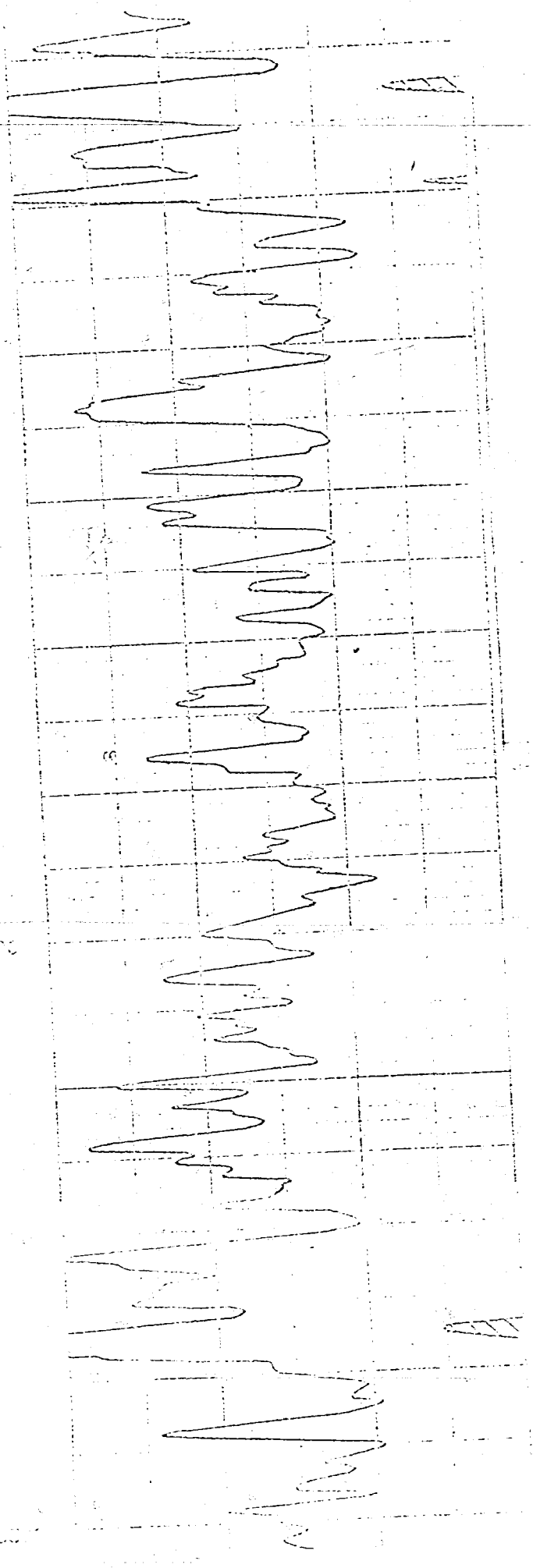
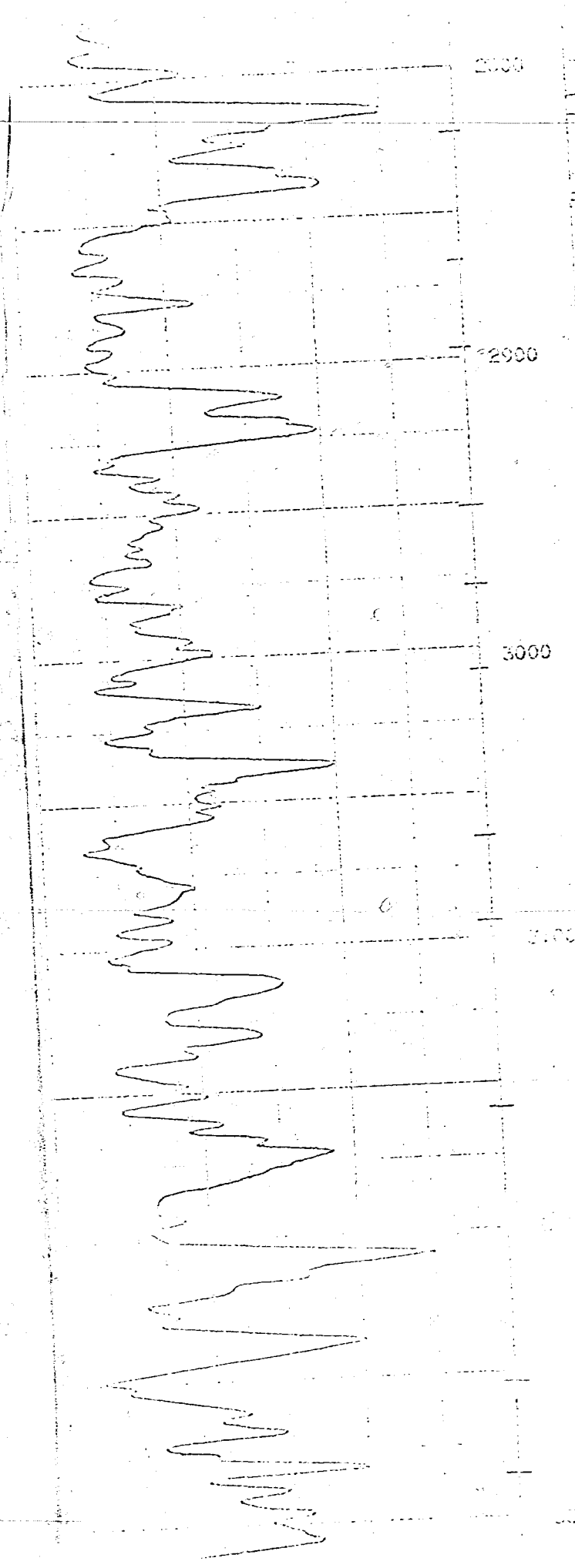
DATE October 23, 1968

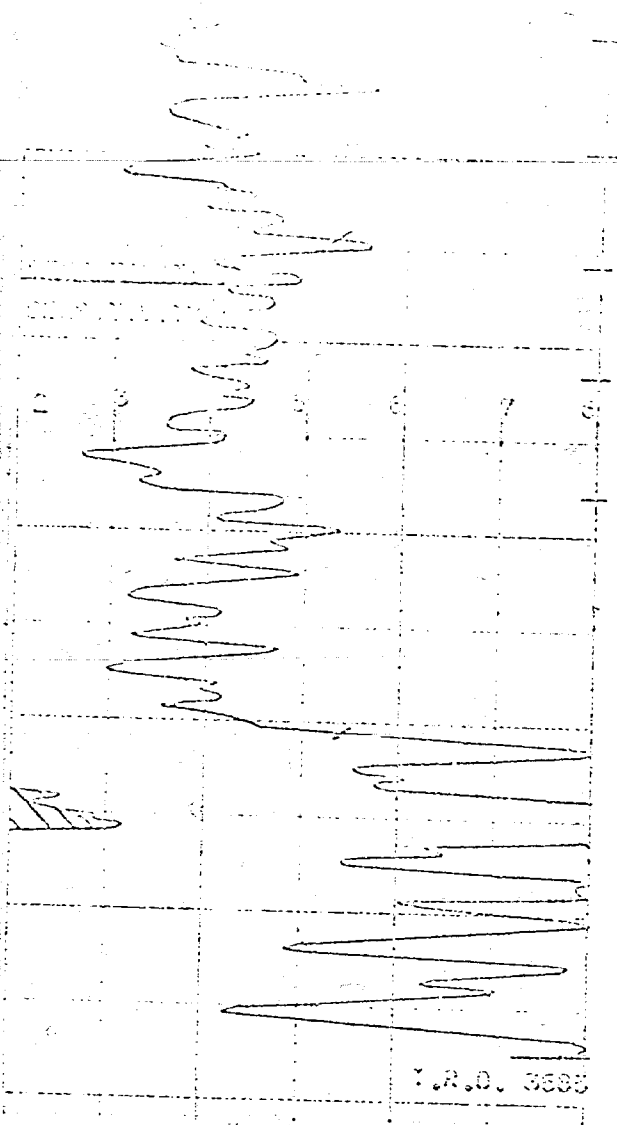
Case 3906

CASING RECORD				OPEN HOLE RECORD			
RUN NO.	SIZE, IN.	WHICHY, LB.	SURFACE	INTERVAL	BY SIZE, IN.	INTERVAL	
ONE	51/2			to 3439			
						3439	to 3591

REMARKS AND OTHER DATA



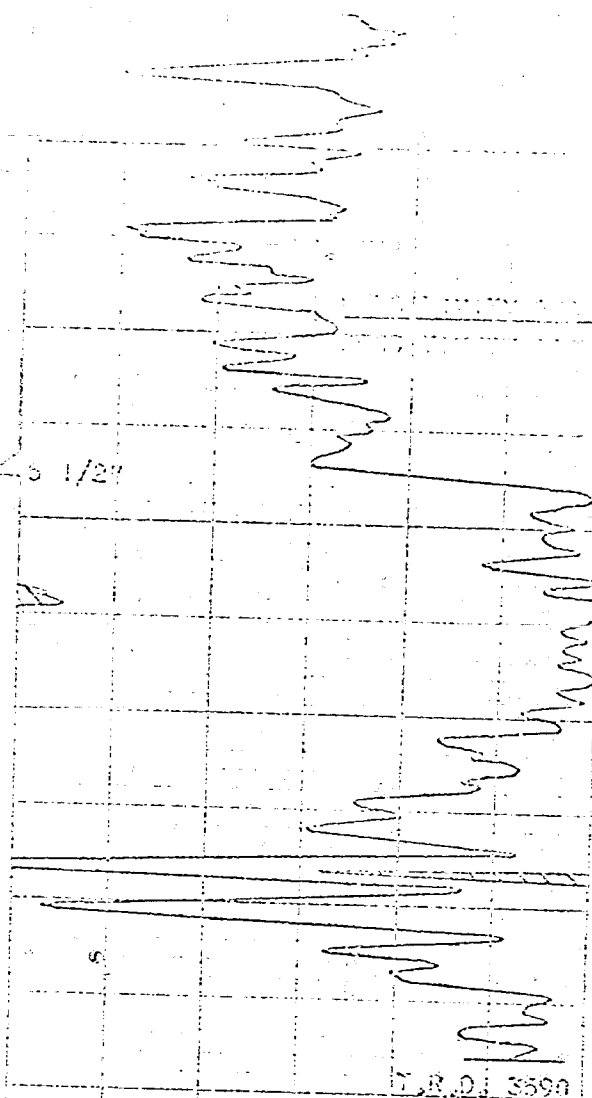




3400

5 1/2"

3500

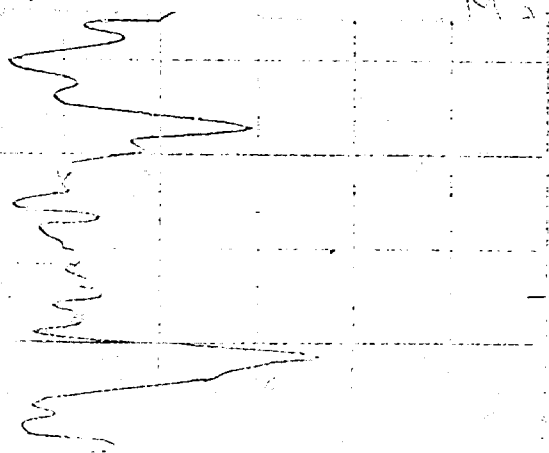


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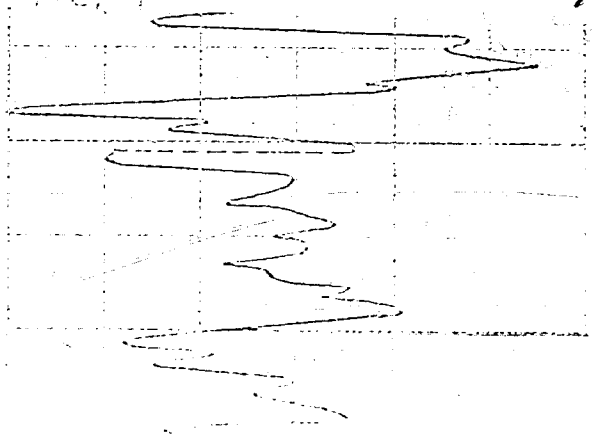
Log Book

Master No. 4

Cue 3906



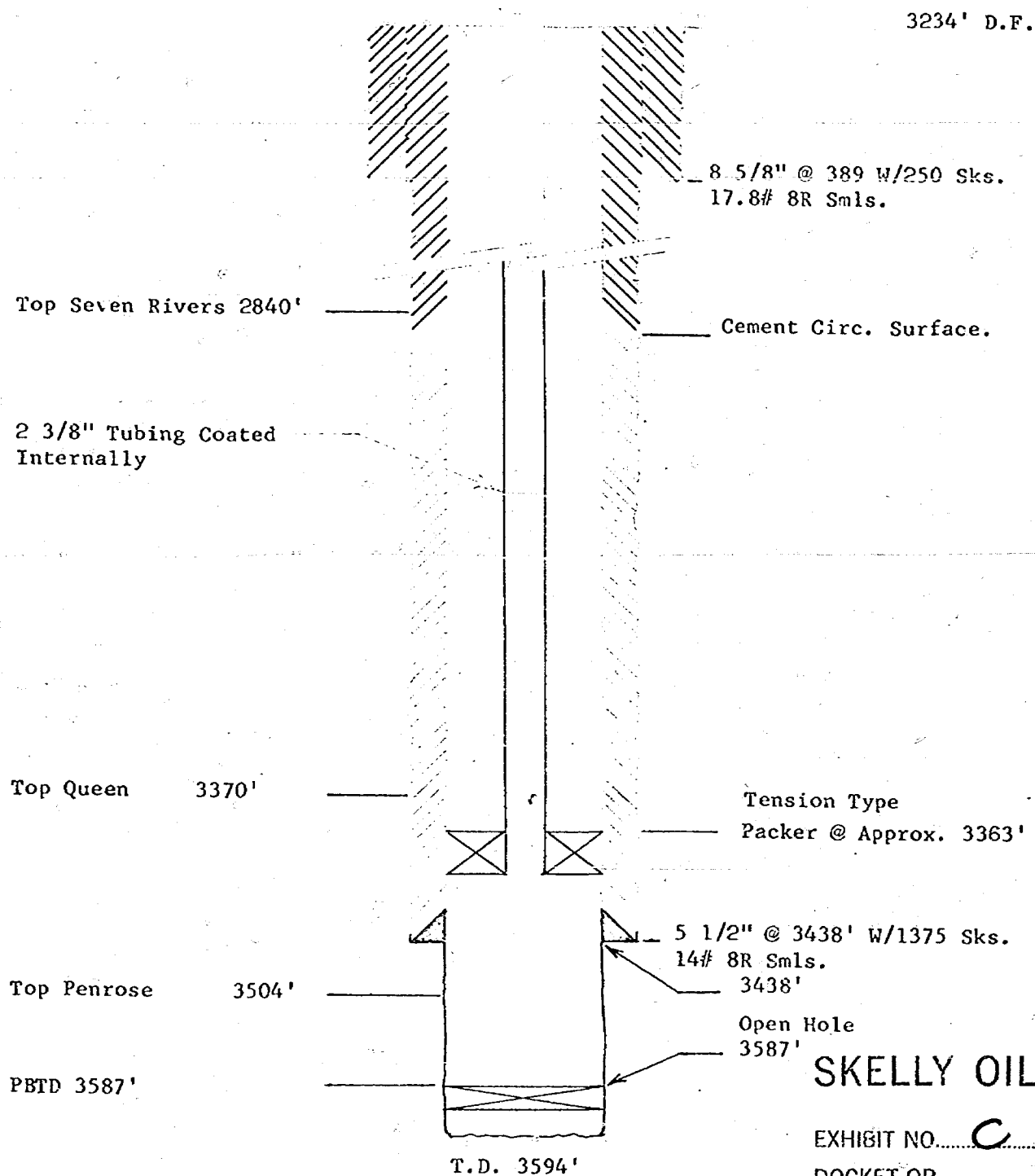
3400





SKELLY OIL COMPANY

MATTIX "A" WELL NO. 4  
1980' FSL & 1986' FWL  
Section 2-24S-37E  
Lea County, New Mexico



SKELLY OIL CO.

EXHIBIT NO. C

DOCKET OR CASE NO. 3906

DATE October 23, 1968

9-30-68  
HED/bh

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. 3906

Order No. R- 3543

APPLICATION OF SKELLY OIL COMPANY  
FOR A WATERFLOOD PROJECT, LEA COUNTY,  
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 a.m. on October 23, 1968,  
at Santa Fe, New Mexico, before Examiner Daniel S. Nutter.

NOW, on this 20th day of October, 1968, 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, Skelly Oil Company,  
seeks permission to institute a waterflood project in the  
~~Unit Area~~ Langlie-Mattix Oil Pool by  
the injection of water into the Queen formation  
its Mattix "A" Well No. 4, located in Unit K of Section 2,  
through ~~injection wells in Section~~  
Township 24 ~~North~~ South, Range 37 ~~West~~ East, NMPM,  
Lea County, New Mexico.

(3) That the applicant further seeks an administrative  
procedure whereby said project could be expanded to include  
additional lands and injection wells in the area of the said  
project as may be necessary in order to complete an efficient  
injection pattern; that said administrative procedure should  
provide for administrative approval for conversion to water  
injection in exception to the well response requirements of  
Rule 701 E-5 of the Commission Rules and Regulations.

waste.

(6) That the subject application should be approved and the project should be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations; provided however, that the showing of well response as required by Rule 701 E-5 shall not be necessary before obtaining administrative approval for the conversion of additional wells to water injection.

(1) That the applicant, Skelly Oil Company,  
is hereby authorized to institute a waterflood project in the  
~~Unit Area~~ Langlie-Mattix Oil Pool  
by the injection of water into the Queen formation  
~~through the following described wells in Township~~  
~~North, South, Range~~ West, East, NMPM,  
~~County, New Mexico~~

through its Mattix "A" Well No. 4, located in Unit K of Section 2,  
Township 24 South, Range 37 East, NMPM, Lea County, New Mexico.

(2) That the subject waterflood project is hereby designated  
the Skelly Langlie Mattix State "A" Waterflood Project and shall  
be governed by the provisions of Rules 701, 702, and 703 of the  
Commission Rules and Regulations;

PROVIDED HOWEVER, that the Secretary-Director of the Commis-  
sion may approve expansion of the Skelly Langlie Mattix State "A"  
Waterflood Project to include such additional lands and injection  
wells in the area of said project as may be necessary to complete  
an efficient water injection pattern; that the showing of well  
response as required by Rule 701 E-5 shall not be necessary before  
obtaining administrative approval for the conversion of additional  
wells to water injection.

entry of such further orders as the Commission may deem necessary.

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