

CASE 3195: Application of H & M
OIL CO. et al for a waterflood
project in Square Lake Pool.

At the hearing
the following was
presented:
The case.

CASE NO.

3195

Application,

TRANSCRIPTS,

SMALL Exhibits

ETC.

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. 3195
Order No. R-2871

APPLICATION OF H & M OIL COMPANY, ET AL.,
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on January 27, 1965, at Santa Fe, New Mexico, before Examiner Elvis A. Utz and was continued to February 24, 1965.

NOW, on this 5th day of March, 1965, 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 applicants, H & M Oil Company, Kincaid & Watson, N. E. Salsich, Jr., and Kersey, seek permission to institute a waterflood project in the Square Lake Pool by the injection of water into the Grayburg and San Andres formations through six injection wells in Section 1, Township 17 South, Range 29 East and one injection well in Section 6, Township 17 South, Range 30 East, NMPM, Eddy County, New Mexico.

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

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

(5) 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.

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CASE No. 3195

Order No. R-2871

IT IS THEREFORE ORDERED:

(1) That the applicants, H & M Oil Company, Kincaid & Watson, N. E. Salsich, Jr., and Kersey, are hereby authorized to institute a waterflood project in the Square Lake Pool by the injection of water into the Grayburg and San Andres formations through the following-described seven wells:

SECTION 1, TOWNSHIP 17 SOUTH, RANGE 29 EAST, NMPM
EDDY COUNTY, NEW MEXICO

H & M Oil Company Bedingfield Well No. 1, Unit J
H & M Oil Company Bedingfield Well No. 2, Unit N
H & M Oil Company Root Well No. 1, Unit F
H & M Oil Company Root Well No. 3, Unit L
Neil E. Salsich Root Federal Well No. 5, Unit P
Kincaid & Watson Wright Federal Well No. 4, Unit H

SECTION 6, TOWNSHIP 17 SOUTH, RANGE 30 EAST, NMPM
EDDY COUNTY, NEW MEXICO

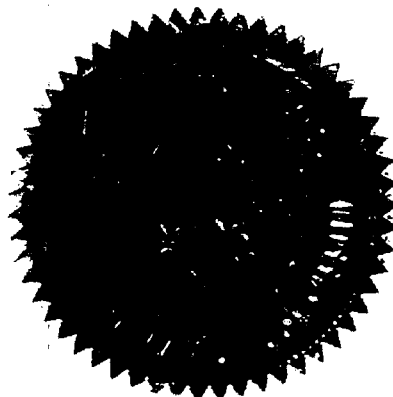
Neil E. Salsich Root Federal Well No. 1, Unit L

(2) That the subject waterflood project shall be governed by the provisions of Rules 701, 702, and 703 of the Commission Rules and Regulations.

(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

Jack M. Campbell
JACK M. CAMPBELL, Chairman

Guyton B. Hays
GUYTON B. HAYS, Member

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

1951/

GOVERNOR
JACK M. CAMPBELL
CHAIRMAN

State of New Mexico
Oil Conservation Commission



LAND COMMISSIONER
E. B. JOHNNY WALKER
MEMBER

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

P. O. DRAWER DD
ARTESIA, NEW MEXICO
March 10, 1965

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

Attention: Mr. D. S. Nutter and
Mr. E. A. Utz

Re: Order R 2871

Dear Dan and Elvis:

Order R 2871 authorized a waterflood project for H & M Oil Company, Kincaid & Watson, Neil E. Salsich, Jr. and Harold Kersey. All operators except Harold Kersey will operate authorized water injection wells. All operations apparently will be as individuals. Neil Salsich and Kincaid & Watson have waterfloods offsetting the flood authorized by the subject order.

Therefore, unless you or the operators have an objection we will add Kincaid & Watson's and Neil E. Salsich's new injection wells to their existing floods and prorate H & M Oil Company's and Harold Kersey's wells separately.

If there is any confusion as to what I mean, give me a call.

Very truly yours,

OIL CONSERVATION COMMISSION

A handwritten signature in dark ink, appearing to be "R. L. Stamets".
R. L. Stamets

RLS/uh

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 27, 1965

EXAMINER HEARING

IN THE MATTER OF:

APPLICATION OF H&M OIL COMPANY, ET AL,
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO

Case No. 3195

BEFORE:

ELVIS A. UTZ

TRANSCRIPT OF HEARING

MR. UTA: Case Number 3195.

MR. DUNRETT: Application of H&M Oil Company, et al, for a waterflood project, Eddy County, New Mexico.

MR. RUSSELL: John F. Russell, Roswell, New Mexico, appearing on behalf of the applicant in Case Number 3195. I have one witness, Mr. Hogan.

MR. UTA: Are there other appearances in this case? You may proceed.

MR. RUSSELL: Mr. Examiner, at the outset I would like to make a statement in connection with this case. When the original application was filed the plat which accompanied it did not, in my opinion, cover the two-mile area to the east and west, and I advised the Commission that new plats would be furnished prior to the hearing, and I advised Mr. Hogan by letter back in January--January 7th, I believe, of the necessity; but Mr. Hogan unfortunately has not been in his office from about 20 December until this Monday, and it was impossible for him to--he did not get the letter and it was impossible for us to comply, but we would like to state that we will furnish such additional plat as the Examiner feels is necessary for this hearing. Likewise, since Monday it has developed that it has been possible to add in the application an additional injection well, but the notice only covered six, and it will probably be necessary to re-advertise to include all

seven wells, but we would like, if there is no objection, to proceed at this time with the evidence, and then the case to be re-advertised in the absence of objection; to be taken under advisement at the next Examiner hearing.

MR. UTZ: As far as the plat is concerned, the plat that is submitted here as Exhibit A will be satisfactory. Insofar as the seventh well is concerned, which is the Salsich Root Federal Number 7, is it?

MR. RUSSELL: Number 1.

MR. UTZ: Had you thought of requesting administrative approval for extension of waterflood for that well?

MR. RUSSELL: We felt that whichever way the Commission felt would be most satisfactory to handle it, would be agreeable to us.

MR. UTZ: It doesn't make too much difference to us--one way we would have to run an ad; the other way you would have to wait so many days before we can give you approval on the seventh well. If you're in a hurry--either way it would be about the same length of time.

MR. RUSSELL: May we proceed with the evidence and then advise you in the next day or two which method we prefer? Thank you.

* * *

S A M W. H O O A N, the witness, having been duly

sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. RUSSELL:

Q Please state your name and occupation.

A Sam W. Hogan, Fort Worth, Texas. I am self-employed.

Q In what capacity?

A Consulting engineer.

Q Have you previously qualified to give testimony before this Commission?

A No, I have not.

Q Will you give a brief resume of your educational background and practical experience in the field as a petroleum engineer or consulting engineer.

A I graduated from the University of Oklahoma in 1933 with a degree in mechanical engineering, with the petroleum engineering background. I have practical work for companies until 1954 as an engineer, production superintendent, drilling operation, completion of oil wells, management of property.

Q And you have had experience in waterflood field?

A Yes.

Q Are you familiar with the joint application filed in Case Number 3195?

A Yes, sir.

Q And did you prepare or were the exhibits you are

using prepared under your direction?

A Yes.

Q Referring to what has been marked Exhibit A, will you explain what that portrays, locate the area which you propose to flood and generally explain what that exhibit shows.

A The exhibit shows the floods that are in the process now, that have been installed and are in operation in flood in Section 36 to the north and the three 40-acre tracts on the north and west portion of the Section 1 are under the Nealy-Salsic flood. Section 31 and the north half of Section 6 on the plat are under flood by Texaco. The area outlined in Section 1 in 17 South, 29 East and in the southwest 80 acres of Section 6, 17 South, 30 East, is the area that we propose to inject water into on a cooperative basis. The wells circled are the proposed injection wells with the double circle around the injection well. It will be a five-spot pattern. We will continue on the same pattern that has been established by the other two floods in the area.

Q Is HEM to be the operator on various leases, or is each to operate his own lease?

A Each operator will operate his own lease. This is a cooperative line agreement flood project.

Q Have there been any lease line agreements or pooling arrangements made in connection with the flood?

A Agreements are verbal at this time. The agreements are in the process of being drawn.

Q But you have reached accord on them?

A Yes.

Q With reference to the producing wells within the area you propose to flood, what is the average production of oil per day per well at this time?

A It's less than three barrels per day on the Bedding Field leases and a barrel and a half to two barrels per day on the Root lease.

Q What is the approximate maximum production of the highest well?

A I would estimate that three barrels would be the highest.

Q And in your opinion this area is in an advanced state of depletion?

A Yes.

Q And do you feel that granting the application for flood of this area will recover oil which is otherwise not recoverable, and prevent waste?

A That is correct.

Q Now, into what formations do you plan to inject water within this area?

A We plan to inject into the Grayburg zone and into the

San Andres zones. There are several producing sections in the Grayburg that are capable of producing oil and we would like-- those are called the Local Hills, the Metex and the Premier, and also the Lovington of the San Andres.

Q What will be the source of your water?

A We are negotiating at the present time with two sources of commercial water--Yucca Water Company and the Caprock Water Company.

Q Water from the Yucca Water Company is fresh water, is it not?

A Yes.

Q And as to Caprock, do you know whether you will be obtaining from their Caprock operation on the Caprock, which is fresh water, or Red Hills, which is somewhat brackish?

A It is my understanding that the source at the present time is from the Red Hills--Red Lake, it is, I believe.

Q At what rate do you anticipate injecting water into this project?

A We're anticipating a maximum of three to four hundred barrels per day per well.

Q Will that be injected under pressure?

A Yes.

Q Do you know what approximate pressure?

A Approximately 1,300 pounds.

Q Now, referring you to Exhibit B, I ask you to explain what that exhibit portrays.

A This is a schematic drawing of the proposed injection wells. We have shown on this the surface pipe setting, casing, production string casing setting, amount of cement-- both strings of casing have been cemented; with the perforated zones that are open at this time in these wells. We have also shown a proposed packer setting in case of leaks on the casing. What we would like to do is inject water down the casing, but in case of a leak developing or showing up we would run a packer in and set it above the injection zones on tubing in the manner we are showing on this plan.

Q Now, will you please identify the seventh well, which was not initially included in your application.

A The seventh well is what is now known as the Nealy Salsich Root Number 1; sometimes called Root Federal Wilson Number 1, which is in Section 6 in the southeast quarter.

MR. UTZ: What do you choose to call it? In other words, what is your C-110 file--what does that file on that well show?

A This information was furnished me by Mr. Salsich, and I presume I will have to call it the Root Number 1.

MR. UTZ: Salsich Root Number 1?

A Salsich Root Number 1.

MR. RUSSELL: This Exhibit B--you have a note at the bottom of it which states, "Tubing and packer settings are tentative and depend upon pressure tests of casing." Is it your intent to either take pressure tests in these wells prior to injection, or do you intend to inject through tubing and packer?

A Well, our feeling was that the casing is in good condition, has been fractured through and subjected to high fraction pressure; that for that reason it should be properly tested, and we would propose to inject down the casing without testing. In case a leak would develop then we would immediately take remedial steps to shut off any leak. That would be easily determined by loss of pressure on any injection well, and we feel that we can adequately keep up with our injection, as to where injected water was going, by that method.

Q Assuming that you would discover a drop in pressure in one of these wells, what would be your remedial action at that point?

A We would have a choice of going in there and finding the leak by use of one of the well-known or accepted practices of setting the packer and testing the casing to find the leak, to remedy the leak by either squeezing or running tubing or packer and setting it below the leak, and immediately above the injection zones, which would isolate the water from going

into the area where the leak developed.

Q In the event that such a situation should develop, would you notify the office of the State Engineer and the Oil Conservation Commission what has happened, and what remedial steps you are taking?

A Yes, we would do that.

Q Now, are you aware of any fresh water zones in this area?

A No, I am not aware of any in that area. Zones of fresh water are very, very scattered, where you find any production at all of water, and we feel that surface casing has been set through to protect any known fresh water zones, or what could be classed as fresh water zones.

Q Surface casing has been set in all wells?

A Yes.

Q And in your opinion that would prevent contamination of any fresh water zones ther were encountered?

A Yes.

Q You have previously conferred with Mr. Irby in connection with your completion program, have you not?

A Yes, I have.

Q And he, as a result of that, has raised certain questions with respect to your exhibits and cement tops, is that not true?

A Yes.

Q As to Root 1, he has asked what are the cement tops surrounding the 8-5/8 inch casing and the 5 1/2-inch casing. Can you answer that at this time?

A According to our records on the 8-5/8, cement was circulated to surface. There is no log available on the 5 1/2-inch, but from our experience in the field and the number of sacks of cement that were used, we would estimate 2,000, minimum.

Q What was the grade and condition of the casing when it was installed in December 1959?

A Fourteen-pound casing, and it was new.

MR. UTZ: That's 2,000 feet. Is that from the bottom, or up to?

A Up to.

MR. UTZ: In other words, the top is at 2,000?

A Yes.

MR. RUSSELL: Has the Root Number 3--as to that, what are the cement tops on the 8-5/8 and 5 1/2?

A The records indicate that the cement on the 8-5/8 was circulated. No log or temperature survey was run on the 5 1/2--again, we would estimate the top to be at 2,000.

Q What was the grade and condition of the casing when it was installed in 1953?



A 15 $\frac{1}{2}$ -pound casing, and it was new.

Q And as to the Bedding Field Number 1, is the 8-5/8 inch casing set at 446 or 466?

A The correct setting depth is 446.

Q And it is in error in both exhibits, B and C?

A Only in Exhibit C.

Q And what are the cement tops again, on the 8-5/8 inch and the 5 $\frac{1}{2}$ -inch?

A The records indicate that the 8-5/8 inch cement was circulated. Temperature survey available on the 5 $\frac{1}{2}$ -inch indicates the top of the cement to be at 1765.

Q And what was the condition of the casing when it was installed in April 1959?

A Fourteen-pound, new.

Q As to Bedding Field Number 2, is the 8-5/8 inch set at 442 or 422?

A It is set at 422, as shown on Exhibit C. The sketch was in error--a transposition of figures.

Q What are the cement tops surrounding the 8-5/8 and the 5 $\frac{1}{2}$ -inch in this well?

The temperature survey available indicates the top at 2105 feet on the 5 $\frac{1}{2}$ -inch casing and that the cement was circulated on the 8-5/8 inch casing string.

Q And what was the age condition of that in 1959, when



it was installed?

A It was 5 $\frac{1}{2}$ -inch, 17-pound casing, new.

Q Kincaid & Watson, Wright Federal Number 4--what are the cement tops around the 8-5/8 and the 4 $\frac{1}{2}$ -inch casing?

A I have no factual information on that well. That information wasn't furnished to me by Kincaid & Watson. I would assume, though, that the 8-5/8 was circulated, as all these wells were, and the 4 $\frac{1}{2}$ should be adequately protected because of the fact that they were perforating it in the area of 2,500 feet under surface, so that would be a sufficient amount not to cover 200 to 400 feet above that. That would be purely an assumption.

Q Do you know the completion date of the well or the grade and condition of the casing when it was installed?

A I do not. I cannot answer that question at this time.

Q Will you make an effort to get that from Kincaid & Watson, and furnish it to the State Engineer?

A Yes.

Q Going to the Healy Salsich Root Federal Number 5, Mr. Irby asked when tests are conducted and the packer set at such depth between the 7/8 inch casing, will the liner be adequately tested below the top of the liner.

A I think I can start answering that question in this

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manner. Our information is that the well was drilled originally and 7-inch casing was set at 2,500 feet. The well was later deepened to 3,435 feet and a 4½-inch liner was run and set and cemented. The bottom of the liner was at 3,430 feet and the top of that 7-inch liner was at 2,434. The liner was then cemented with 100 sacks and circulated over the top of the liner, so that the liner is cemented from top to bottom. Therefore the well has been perforated and fractured since that time, and I would see no reason for running an additional test on that liner at this time.

Q What are the cement tops surrounding the 10-3/4 and the 7-inch casing and the 4½-inch liner, if you know?

A On the 10-3/4 the cement was circulated and on the 4½ the cement was circulated. On the 7-inch casing, it was cemented with 100 sacks at 2,500 feet, and I would estimate that it had at least five to 600 feet of cement behind it at that depth.

Q Do you know the completion date of the well?

A The work-over was completed 10/4/63.

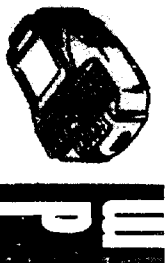
Q And what was the grade and condition of the casing that was installed?

A It was new, and I don't know the grade of it. The 4½-inch was probably 9½-pound pipe, though--that's the common weight of it.

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Q Your diagram shows a 4 $\frac{1}{2}$ -inch liner at 3,430 and your Exhibit C shows a total depth of 3,435 feet. Is there five feet of open hole not shown on the diagram?

A No, the pipe was swung off the bottom by five feet and cemented, but there's a shoe on it and there's no open hole.

Q I believe you previously said that each of the owners will operate his own particular lease?

A That is correct, yes, sir.

Q Referring to your Exhibit C, what does that reflect?

A Exhibit C is the completion information on the six proposed injection wells and shows the dates of completion, setting and surface pipe, amount of cement, 5 $\frac{1}{2}$ -inch casing, setting depth, amount of cement used and perforated zones.

Q You don't have that information at this time for Well Number 7, do you?

A The only information I have on Well Number 7 at this time would be as shown on the schematic diagram, which shows the setting depth of the surface pipe, the production string, and its completion method of open hole to a total depth of 2,730 feet.

Q And you will furnish to the State Engineer and the Commission the additional well information as soon as you can obtain it?

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A Yes, I will.

Q Now, referring you--

MR. UTZ: Just a moment. You call it Well Number 7. I believe the exhibit shows Well Number 1.

MR. RUSSELL: The seventh well is what I meant to say --Well Number 1. I refer you to Exhibit D and ask you what that exhibit reflects.

A Exhibit D is a cross-section across Section 1. It also includes one well in Section 2, but it shows the relative depths of the Grayburg and the San Andres producing zones. This was presented to show that the zones are continuous zones across the section and in the area, and the feasibility of injecting water into these various zones for recovery of secondary oil. On this cross-section we are showing are the Root Federal Number 3 and Root Federal Number 1, and the Bedding Field Number 1, which are three of the proposed injection wells.

MR. RUSSELL: At this time I would like to offer Applicant's Exhibits A through D, inclusive.

MR. UTZ: Without objection, Exhibits A through D will be accepted into the record.

MR. RUSSELL: I have no further questions of the witness at this time.

MR. UTZ: Are there other questions of the witness?

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MR. IRBY: Yes, sir. Frank Irby, State Engineer's Office. Mr. Hogan, as I understood your testimony, you do not propose to make any casing test prior to injecting water, is this correct?

A That is correct, yes.

Q And further, you don't propose to make any test of the seal between the casing and the liner--the 7-inch casing and the liner, in the Salsich Root Federal Number 5?

A Isn't that the Root Number 1--Salsich Number 1 in Section 6--Number 50?

Q Number 5.

A No, we--I think under normal procedures we would not do it, because the zone has been perforated and fractured and there have been no leaks.

Q At what date?

A In 1963. 100 sacks of cement were used and the cement, according to the records I have, was circulated between the liner and the casing and it was pressure tested before it was fractured, which is the normal procedure--to pressure test that liner and casing before it was fractured; and then it was fractured.

Q What was the extent of the pressure test in 1963?

A I don't have that pressure test information available at this time.

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Q You couldn't tell me whether it exceeds the anticipated injection pressure of 1,800 PSI?

A I would say that it did, because the fractured pressures in this area are 3,000 pounds and over, and if you're fracturing down the casing, which they have done on all these wells, you're exposing that casing to that type of pressure, which is 3,000 to 3,500 pounds hydraulic pressure.

Q Mr. Hogan, you made reference in discussion of this application with me, and certainly when you and Mr. Dalton were in my office I had no idea you intended to inject into the wells without first performing a casing test in excess of the anticipated injection pressure, and I don't feel that the State Engineer can fail to object unless recent pressure tests are submitted and found adequate. This is to me something very unusual--I don't recall ever having had an applicant come before the Commission and request that he be permitted to inject water or any fluid without first having tested the casing; and for these reasons I must state to the Examiner that the State Engineer objects to the granting of this application until such time as tests are performed to prove the adequacy of the casing program to a point in excess of the anticipated injection pressure, or submission of recent tests which would reveal the same information.

MR. UTZ: In other words, your recommendation is that

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the casing be tested at something in excess of 1,800 pounds at the surface?

MR. IRBY: That is correct, Mr. Examiner.

MR. UTZ: Your objection will be noted and taken into consideration.

MR. HOGAN: Mr. Irby, would a pressure of 2,000 pounds be sufficient on that?

MR. IRBY: I would leave this to the judgment of the Examiner.

MR. HOGAN: That would be 2,000 pounds in excess of--

MR. UTZ: At surface.

MR. HOGAN: At surface.

MR. IRBY: I have a little curiosity, Mr. Examiner-- he spoke of historical tests of 3,000 to 3,500, and this arouses my curiosity when he goes back to 2,000 at this point. However, as I stated previously, I will leave this to the judgment of the Examiner.

MR. UTZ: I believe a 2,000 pound test at surface pressure, plus hydrostatic head, has been in the past the usual test for casing in these areas in Eddy County. Are there any further questions? ... The witness may be excused. Are there other statements to be made in this case? ... The case will be taken under advisement.

* * *

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STATE OF NEW MEXICO)
COUNTY OF BERNALILLO) ss

I, ELIZABETH K. HALE, Notary Public and Court Reporter, do certify that the foregoing transcript of proceedings in Case Number 3195, made by me, is a true and accurate record of proceedings to the best of my knowledge, skill and ability.

Witness my hand and seal of office this 16th day of February, 1965.

Elizabeth K. Hale
Notary Public

My commission expires May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the hearing of Case No. 3195, heard on Jan. 27, 1965.
Theresa A. [Signature], Examiner
New Mexico Oil Conservation Commission

dearnley-meier reporting service, inc.

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
February 24, 1965

EXAMINER HEARING

IN THE MATTER OF:

APPLICATION OF H & M OIL COMPANY, ET AL
FOR A WATERFLOOD PROJECT, EDDY COUNTY,
NEW MEXICO

Case No. 3195

BEFORE:

ELVIS A. UTZ

TRANSCRIPT OF HEARING



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MR. DURRETT: Application of H&M Oil Company, et al
for a waterflood project, Eddy County, New Mexico.

MR. UTZ: Are there appearances in this case? ...

Let the record show that there were none.

* * *

[illegible]

I, ELIZABETH K. HALE, Notary Public and Court Reporter,
hereby certify that proceedings in Case Number 3195 were taken
by me in shorthand and transcribed by me, and that such proceed-
ings are a true and accurate reflection of proceedings to the
best of my knowledge, skill and ability.

Notary Public

My commission expires
May 23, 1968.

I do hereby certify that the foregoing is a complete record of the proceedings in the Exam. or Hearing of Case No. 3185, heard by me on Feb. 24, 1965.

Shirley A. [Signature], Examiner
New Mexico Oil Conservation Commission

FEBRUARY 9, 1965

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NEW MEXICO STATE ENGINEERS OFFICE
P. O. BOX 2088
SANTA FE, NEW MEXICO

RE: MAL-GRA UNIT
LEA COUNTY, NEW MEXICO

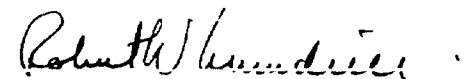
ATTENTION: MR. FRANK IREY

GENTLEMEN:

THE NMCCO HEARD OUR APPLICATION TO CONDUCT A WATERFLOOD ON OUR PROPERTIES IN SECTIONS 20, 21 AND 29, 17S-33E, LAST SEPTEMBER. YOUR ONLY REQUIREMENT FOR APPROVAL WAS THAT WE SHOULD EQUIP EACH INJECTION WELL WITH A PACKER ON THE TUBING WITH THE PACKER SET IN THE BOTTOM JOINT OF CASING, IN THOSE WELLS COMPLETED IN OPEN HOLE, AND IN THE JOINT ABOVE THE UPPERMOST PERFORATION, IN THOSE WELLS COMPLETED THROUGH CASING.

THIS IS TO ADVISE THAT WE WILL COMPLETE THE INJECTION WELLS AS YOU HAVE SPECIFIED.

YOURS VERY TRULY,



ROBERT W. ARRENDIELL
PRODUCTION MANAGER
WEST TEXAS DIVISION

RDW:MM

CC: NMCCO SANTA FE, N.M.
ATTN: MR. JAN NUTTER

COMMISSION OF PUBLIC LANDS
SANTA FE, N.M.
ATTN: MRS. MARION KNEA

State of New Mexico
Oil Conservation Commission



P. O. BOX 2088
SANTA FE

Re: Case No. 3195
Order No. R-2871
Applicant:

H & M Oil Co.

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

OTHER _____

Case 3195

Heard 1-27-65

Rec. 1-27-65

1. Grant, W.M. oil Co., Kincaid & Watson,
H. E. Salsich, Jr., Keene permission to
form ~~3~~ ^{gradually} ~~presently~~ operated waterflood
area's immediately South of an area being operated
by several waterflood ^{units} and permission to connect the
following wells to water injection
well:

W.M. oil Co. - Beddingfield #1 J - 1-165-29E

" " " " #2 N " " "

" " " Root #1 F " " "

" " " Root #3 L " " "

Neil E. Salsich - Root Ded #5 P " " "

Kincaid & Watson - Wright Ded. #4 H " " "

? Salsich - Root Ded # # L 6-165-30E

2. Operate under Rule 701. —

3. Casing shall be tested to 2000 # p.s.i.
or injection shall be thru tubing and
under a packer.

Should be treated to
prevent corrosion if boratish
water is used.

Hold & readiness to include 7th well.
Salsich-Root Ded. #1, L-6-165-30E.

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. 2776
Order No. R-2458

APPLICATION OF INTERNATIONAL OIL
& GAS CORPORATION FOR A WATERFLOOD
PROJECT, HIGH LONESOME POOL, EDDY
COUNTY, NEW MEXICO.

ORDER OF THE COMMISSION

BY THE COMMISSION:

This cause came on for hearing at 9 o'clock a.m. on March 20, 1963, at Santa Fe, New Mexico, before Elvis A. Utz, Examiner duly appointed by the Oil Conservation Commission of New Mexico, hereinafter referred to as the "Commission," in accordance with Rule 1214 of the Commission Rules and Regulations.

NOW, on this 27th day of March, 1963, the Commission, a quorum being present, having considered the application, the evidence adduced, and the recommendations of the Examiner, Elvis A. Utz, 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, International Oil & Gas Corporation, seeks permission to institute a waterflood project in the High Lonesome Pool by the injection of water into the Penrose section of the Queen formation through its McCallister Federal Well No. 4, located in the SE/4 SE/4 of Section 15, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico.

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

(4) That the proposed waterflood project is in the interest of conservation and should result in recovery of otherwise unrecoverable oil.

(5) That the applicant proposes to inject water down 5 1/2-inch OD casing into an open hole interval at approximately 1969

-2-

CASE No. 2776
Order No. R-2458

to 1999 feet; that in order to assure adequate protection of producing formations in the area, if the casing will not withstand 2000 pounds pressure psi, injection should be accomplished through internally plastic-coated tubing installed in a packer set above the injection interval.

(6) That the subject application should be approved and the project should be governed by the provisions of Rule 701 of the Commission Rules and Regulations.

IT IS THEREFORE ORDERED:

(1) That the applicant, International Oil & Gas Corporation, is hereby authorized to institute a waterflood project in the High Lonesome Pool by the injection of water into the Penrose section of the Queen formation through its McCallister Federal Well No. 4, located in the SE/4 SE/4 of Section 15, Township 16 South, Range 29 East, NMPM, Eddy County, New Mexico.

(2) That the applicant shall test the casing in the subject well prior to injection and upon notification to the Commission's Artesia office, and if the casing will not withstand 2000 pounds pressure psi, injection shall be accomplished through internally plastic-coated tubing installed in a packer set above the injection interval.

(3) That the subject waterflood project shall be governed by the provisions of Rule 701 of the Commission Rules and Regulations, including the allowable provisions thereof, and including the provisions with respect to expansion of the waterflood project.

(4) That monthly progress reports of the waterflood project herein authorized shall be submitted to the Commission in accordance with Rules 704 and 1119 of the Commission Rules and Regulations.

(5) 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

JACK M. CAMPBELL, Chairman

E. S. WALKER, Member

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

S E A L

esr/

LAW OFFICES OF
JOHN F. RUSSELL
SUITE 1010 SECURITY NATIONAL BANK BUILDING
P. O. DRAWER 640
ROSWELL, NEW MEXICO 88201

TELEPHONE 622-4641
AREA CODE 505

January 29, 1965

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

Attention: Mr. Elvis Utz

Re: Case No. 3195
Application of H & M Oil
Company, et al, for Water
Flood Project

Dear Mr. Utz:

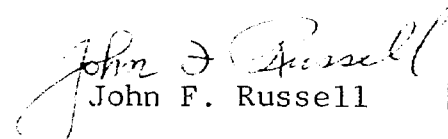
I would like to make the following statement and request in connection with the above captioned case, which was heard by you on January 27, 1965.

The applicants in the above case agree to the conditions set out by Mr. Frank Irby, Office of State Engineer, at the hearing, namely, that all casings will be pressure tested prior to the conversion of the proposed injection wells.

You will recall that we introduced exhibits and testimony in connection with the Root Federal No. 1 Well which was not included in the Application for this hearing. It is respectfully requested that this case be readvertised to include this well and the matter reset for hearing.

Thanking you for your cooperation in this matter, I remain

Very truly yours,


John F. Russell

DOCKET MAILED

JFR:pv
cc: H & M Oil Company

Date _____

DOCKET: EXAMINER HEARING - WEDNESDAY - FEBRUARY 24, 1965

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 2942: (Reopened and continued from the February 10, 1965 Examiner Hearing)
In the matter of Case No. 2942 being reopened pursuant to the provisions of Order No. R-2645, which order established temporary 160-acre spacing and fixed well locations for the Simanola-Pennsylvanian Pool, Lea County, New Mexico, for a period of one year. All interested parties may appear and show cause why said pool should not be developed on 40-acre spacing units.
- CASE 3195: (Continued from the January 27, 1965 Examiner Hearing)
Application of H & M Oil Company, et al for a waterflood project, Eddy County, New Mexico. Applicants, H & M Oil Company, Kincaid & Watson, N. E. Salsich, Jr., and Kersey, seek authority to institute a waterflood project in the Square Lake Pool by the injection of water into the Grayburg and San Andres formations through six injection wells in Section 1, Township 17 South, Range 29 East, and one injection well in Section 6, Township 17 South, Range 30 East, Eddy County, New Mexico.
- CASE 3198: (Continued from the January 27, 1965 Examiner Hearing)
Application of Texaco Inc. for an amendment of Order No. R-2758, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks an amendment to Rules 6 and 8 of Order No. R-2758, which order promulgated special pool rules for the Tocito Dome-Pennsylvanian "D" Pool, San Juan County, New Mexico. Applicant seeks a 160-acre proportional factor for said pool of 4.77 rather than a factor of 2.77 as previously established by the Commission.
- CASE 3210: Application of Monsanto Company for the creation of a new oil pool and for special pool rules, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks the creation of a new oil pool for Upper Pennsylvanian production for its Monsanto-Hondo Well No. 1 located in Unit C of Section 31, Township 19 South, Range 25 East, Eddy County, New Mexico, and for the promulgation of special pool rules for said pool, including a provision for 160-acre spacing.
- CASE 3211: Application of Archie M. Speir for a unit agreement, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks approval of the South Red Lake Grayburg Unit Area comprising 1442 acres, more or less, of State and Federal lands in Sections 35 and 36, Township 17 South, Range 27 East, and in Sections 1 and 2, Township 18 South, Range 27 East, Eddy County, New Mexico.
- CASE 3212: Application of Archie M. Speir for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Red Lake Pool by the injection of water into the Premier San-Grayburg formation through 18 injection wells in Sections 35 and 36, Township 17 South, Range 27 East, and in Sections 1 and 2, Township 18 South, Range 27 East, Eddy County, New Mexico.

- 2 -

February 24, 1965 Examiner Hearing

CASE 3213: Application of International Oil & Gas Corporation for a waterflood project, Eddy County, New Mexico. Applicant, in the above-styled cause, seeks authority to institute a waterflood project in the Artesia Pool by the injection of water into the Grayburg and Queen formations through two injection wells in Sections 25 and 36, Township 17 South, Range 28 East, Eddy County, New Mexico.

H & M OIL COMPANY

809 Continental Life Bldg.
Ft. Worth 2, Texas

February 19, 1965

100 Feb 23 1965

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

Attention: Mr. Elvis Utz

Re: Case No. 3195
Application of H & M Oil
Company et al for
Waterflood Project

Dear Mr. Utz:

In connection with the above captioned case, which was heard by you on January 27, 1965, it was agreed that additional information would be furnished to you and Mr. Frank Irby, Office of State Engineer, concerning the condition of tubular goods used in wells completed and owned by other operators, and certain other completion information.

The information that is to be used to supplement our testimony, and exhibits on this hearing are enclosed.

Thank you for your cooperation in this hearing.

Yours very truly,

Sam W. Hogan
Sam W. Hogan

SWH:lh

cc: Mr. Frank Irby
Mr. John F. Russell

H & M OIL COMPANY

COMPLETION INFORMATION

Kincaid & Watson Wright Federal No. 4 - Section 1-17S-29E

Completed 4-12-62

8-5/8" casing, cemented with 50 sacks. Calculated top 47' from surface.

Grade and condition - good used, 24# casing.

4 1/2" casing, cemented with 125 sacks. Calculated top 1815' from surface.

Grade and condition - new 10.5#, J-55.

Neil P. Salsich Root No. 1 - Section 6-17S-30E

This well was completed March 16, 1945.

8 1/4" surface casing was set at 500' and cemented with 50 sacks of cement. Cement circulated - condition of the casing was new.

5 1/2" new casing was set at 2500' and cemented with 100 sacks, estimated top of cement 1880' from surface.

The completion was made in open hole, 2500' to T.D. 2780'.

The well was shot with 240 quarts of nitroglycerin from 2665 to 2761', which covers the Metex and Premier zones of the Grayburg section.

Neil P. Salsich Root Federal No. 5 - Section 1-17S-29E

This well was completed using the following equipment:

10-3/4" surface casing - new - set at 558'. Cement was circulated to surface.

New 7" 20# casing was set at 2434'. Estimated top of cement is 1845' below surface.

New 4 1/4" 10.5# liner was set from 1780 to 3430'. Cement was circulated over top of liner at 1780'. Completion date 10-4-63.

LAW OFFICES OF
JOHN F. RUSSELL

SUITE 1010 SECURITY NATIONAL BANK BUILDING
P. O. DRAWER 640
ROSWELL, NEW MEXICO 87501

TELEPHONE 622-4641
AREA CODE 505

December 30, 1964

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

Gentlemen:

I transmit herewith a joint application for an order authorizing a waterflood project in the Square Lake Pool, Eddy County, New Mexico.

The exhibit referred to in the application as Exhibit "A" was not furnished to me in a complete form and I am requesting that this be made available as soon as possible and, upon receipt, will be promptly filed with your office.

I do enclose for your preliminary information a diagram showing most of the pertinent information which will be included in Exhibit "A" when received.

Very truly yours,

John F. Russell
John F. Russell

JFR:np

cc: Mr. Frank Irby
Office of State Engineer
State Capitol
Santa Fe, New Mexico 87501

DOCKET MAILED

Date 1-2-65

DOCKET MAILED

Date 1-15-65

BEFORE THE OIL CONSERVATION COMMISSION

STATE OF NEW MEXICO

IN THE MATTER OF THE JOINT APPLICATION)
OF H & M OIL COMPANY, KINCAID & WATSON,)
N. E. SALSICH, JR., AND KERSEY FOR AN)
ORDER AUTHORIZING THEM TO COMMENCE A)
WATERFLOOD PROJECT CONSISTING OF CERTAIN)
LANDS LOCATED WITHIN SECTION 1, TOWNSHIP)
17 SOUTH, RANGE 29 EAST, AND SECTION 6,)
TOWNSHIP 17 SOUTH, RANGE 30 EAST, IN THE)
SQUARE LAKE POOL OF EDDY COUNTY, NEW)
MEXICO, BY INJECTION OF WATER INTO THE)
PREMIER, LOCO HILLS AND METEX ZONES OF)
THE GRAYBURG FORMATION AND THE LOVINGTON)
ZONE OF THE SAN ANDRES FORMATION.)

No. 3195

APPLICATION

COME NOW Applicants, H & M Oil Company, Kincaid & Watson,
N. E. Salsich, Jr., and Kersey, by their attorney, John F. Russell,
and state:

1. They are the operators of the oil and gas leases
covering the $S\frac{1}{2}N\frac{1}{2}$, $N\frac{1}{2}S\frac{1}{2}$, $NE\frac{1}{4}NE\frac{1}{4}$, $SE\frac{1}{4}SW\frac{1}{4}$ and $S\frac{1}{2}SE\frac{1}{4}$ of Section 1,
Township 17 South, Range 29 East, and the $W\frac{1}{2}SW\frac{1}{4}$ of Section 6, Town-
ship 17 South, Range 30 East, N.M.P.M., Eddy County, New Mexico.

2. They propose to institute a waterflood project for
the secondary recovery of oil on said leases and attach hereto a
plat, marked Exhibit "A", showing the location of the six proposed
injection wells and the location of all other wells within a radius
of two miles from said injection wells.

3. Applicants, at the hearing, will present such logs
as are available covering the injection wells.

4. Diagrammatic sketches of the proposed injection wells
are attached hereto and marked Exhibit "B".


5. Completion data on the proposed injection wells is attached hereto and marked Exhibit "C".

6. They propose to operate their properties individually and to inject water into the Premier, Loco Hills and Metex Zones of the Grayburg Formation and the Lovington Zone of the San Andres Formation at an estimated maximum rate of approximately 400 barrels per day per well. Water for injection purposes will be obtained either from Yucca Water Company or Caprock Water Company.

7. Pursuant to Memorandum No. 5-58, they have furnished a copy of this Application and Exhibits thereto to the State Engineer.

WHEREFORE, Applicants request the Commission to set this matter down for hearing before an examiner, to publish its notice as provided by law, and, after hearing, to issue its order authorizing the waterflood project as requested in the Application.

Respectfully submitted,


John F. Russell
Attorney for Applicants

P. O. Drawer 640
Roswell, New Mexico 88201

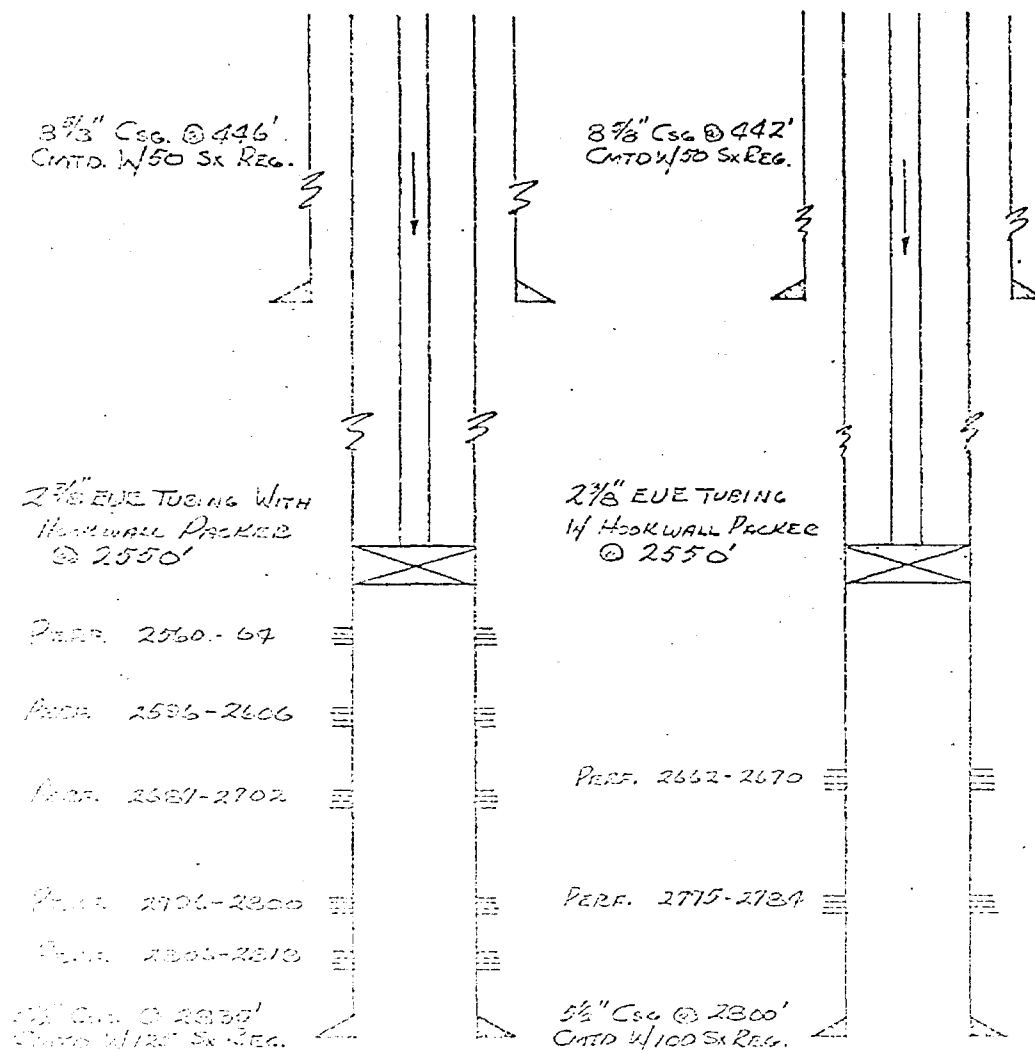
DATED: December 30, 1964

EXHIBIT "B"

SCHEMATIC DIAGRAM
PROPOSED INJECTION WELLS
SECTION ONE, SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO.

H.E.M. OIL COMPANY
BEDINGFIELD No. 1

H.E.M. OIL COMPANY
BEDINGFIELD No. 2

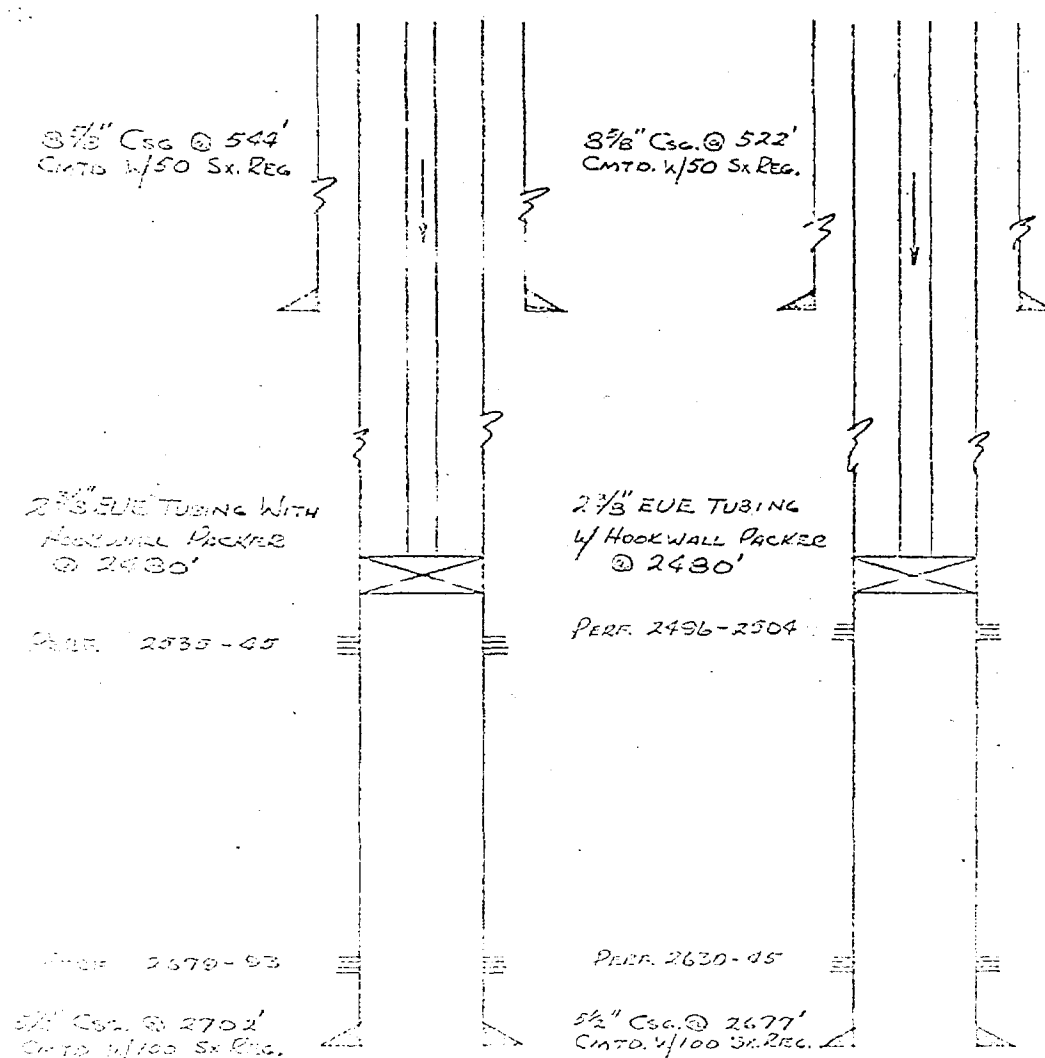


NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

SCHEMATIC DIAGRAM
OF
PROPOSED INJECTION WELLS
SECTION ONE SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO.

H. & M. OIL COMPANY
ROOT NO. 1

H. & M. OIL COMPANY
ROOT NO. 3



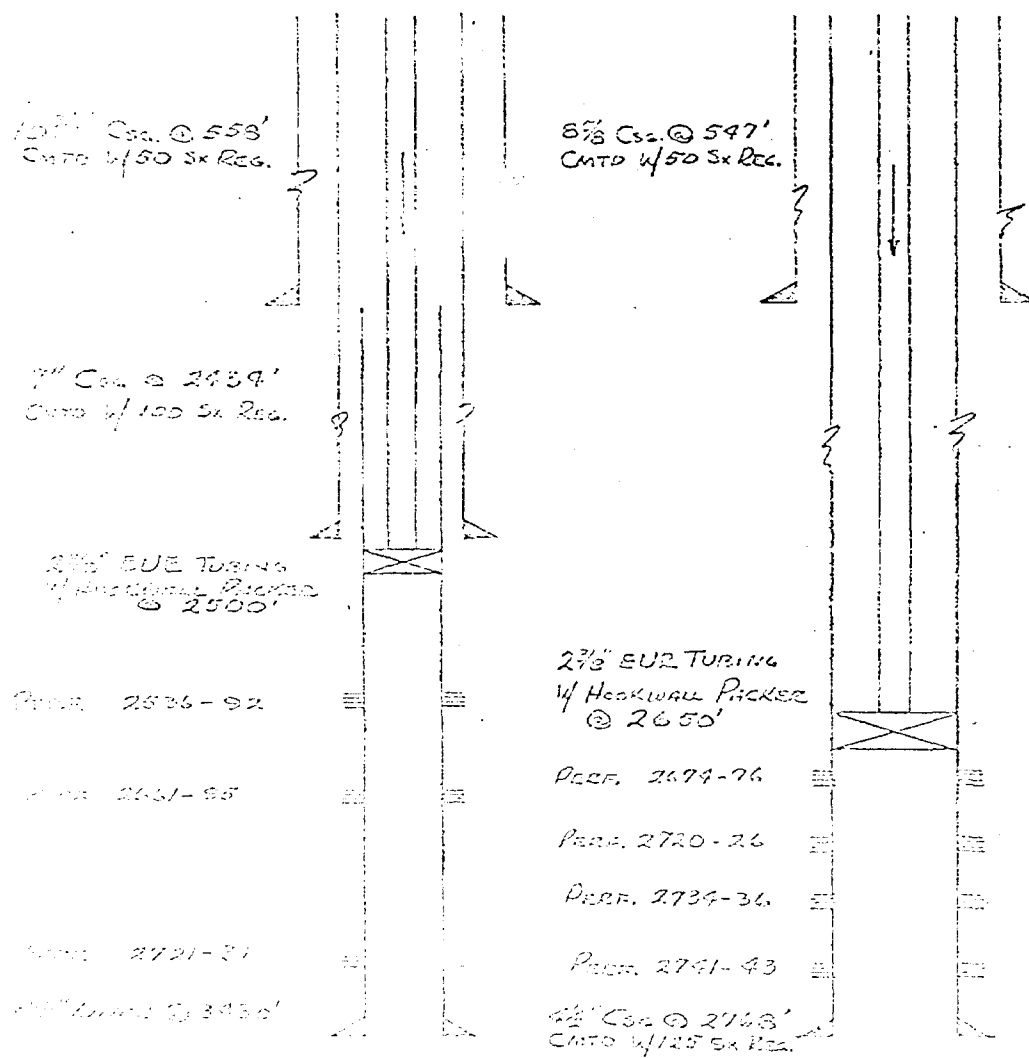
NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

3-95

SCHEMATIC DIAGRAM
OR
PROPOSED INJECTION WELLS
SECTION ONE SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO.

NEIL E. SALGICH
ROOT FEDERAL No.5

KINCAID & WATSON DRILLING CO.
WEIGHT FEDERAL No.4



NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

3,125

EXHIBIT "C"

H & M OIL COMPANY

Root No. 1 was completed in December 1959. 8-5/8" casing was set at 544' and cemented with 50 sacks of regular cement. 5 1/2" casing was set at 2702' and cemented with 100 sacks regular cement. Completion was made thru perforations in the Premier zone from 2677 to 2693 feet and the Loco Hills zone from 2535 to 2545 feet, both zones are in the Grayburg. Water will be injected down the casing into both zones simultaneously after the casing has been tested to determine if it is serviceable.

Root No. 3 was completed in August of 1958. 8-5/8" casing was set at 522' and cemented with 50 sacks of regular cement. 5 1/2" casing was set at 2677' and cemented with 100 sacks of regular cement. The well was completed thru perforations in the Premier zone from 2630 to 2645 and the Loco Hills zone from 2496 to 2504, both zones are in the Grayburg. We plan to refrac the Loco Hills zone before starting injection down the casing in both zones simultaneously. The casing will be tested before injection is started.

Bedingfield No. 1 was completed in April 1959. 466' of 8-5/8" casing was set and cemented with 50 sacks of regular cement for the protection of shallow water sands. 2835' of 5 1/2" casing was set and cemented with 125 sacks of regular cement. The well was completed through perforations in the Lovington section of the San Andres from 2796-2800 and 2806-2818, and the Premier zone of the Grayburg 2687-2902, the stray zone of the Grayburg 2596-2606, and recently in the Loco Hills zone of the Grayburg, 2560-64. It is proposed to inject water down the casing into all of these zones simultaneously after first testing the casing to determine if it is in serviceable condition.

The Bedingfield No. 2 was completed in 1959. 8-5/8" surface casing was set at 422' and cemented with 50 sacks of regular cement. 5 1/2" casing was set at 2800' and cemented with 100 sacks of regular cement. Completion was made through perforations in the Lovington zone of the San Andres at 2775 to 2784' and the Premier zone of the Grayburg at 2662 to 2670'.

Kincaid & Watson Wright Federal No. 4 has 8-5/8" surface casing set at 547', cemented with 50 sacks of regular cement. 4 1/2" casing is set at 2768', cemented with 125 sacks of regular cement. Completion was made through perforations: 2674-76 in the Metex zone and perforations at 2720-26; 2734-36; 2741-43 in the Premier zone of the Grayburg section.

Neil E. Salsich Root Federal No. 5 has 10-3/4" surface casing set at 558', cemented with 50 sacks regular cement. 7" casing is set at 2434', cemented with 100 sacks of regular cement. TD of hole was 3435. 4 1/2" liner is set from 1720' to 3430', cemented with 100 sacks regular cement. Completion was made through perforations 2536-92 in the Loco Hills zone, 2661-95 in the Metex zone and 2721-31 in the Premier zone of the Grayburg section.

25-113

January 14, 1965

87501

Mr. John F. Russell
Attorney at Law
P. O. Drawer 640
Roswell, New Mexico 88201

Dear Mr. Russell:

Reference is made to the application of H & M Oil Company, Kincaid & Watson, W. E. Salsich, Jr., and Kersey seeking authority from the Oil Conservation Commission to commence a waterflood project in Sec. 1, T. 17 S., R. 29 E., and Sec. 6, T. 17 S., R. 30 E., in the Square Lake Pool which was submitted by you on December 30, 1964. After studying the diagrammatic sketches for the six proposed injection wells, I find that I will need the following information in order to reach a reasonable conclusion.

1. Root No. 1

What are cement tops surrounding 8 5/8 inch casing and 5 1/2 inch casing?

What was grade and condition of casing when installed in December 1959?

2. Root No. 3

What are cement tops surrounding 8 5/8 inch casing and 5 1/2 inch casing?

What was grade and condition of casing when installed in August 1958?

3. Bedingfield No. 1

Is 8 5/8 inch casing set at 446 feet or 466 feet?
(Reference Exhibits B & C)

What are cement tops surrounding 8 5/8 inch casing and 5 1/2 inch casing?

What was grade and condition of casing when installed in April 1959?

4. Bedingfield No. 2

Is 8 5/8 inch casing set at 442 feet or 422 feet?

What are cement tops surrounding 8 5/8 inch casing and 5 1/2 inch casing?

What was grade and condition of casing when installed in 1959?

5. Kincaid & Watson - Wright Federal No. 4

What are cement tops surrounding 8 5/8 inch casing and 4 1/2 inch casing?

What is the completion date of this well?

What was the grade and condition of casing when installed?

6. Neil E. Salsich - Root Federal No. 5

When tests are conducted will packer be set at such depth that the seal between the 7 inch casing and the liner will be adequately tested (below top of liner)?

What are cement tops surrounding 10 3/4 inch casing, 7 inch casing and 4 1/2 inch liner?

What is the completion date of this well?

What was the grade and condition of the casing when installed?

Diagram shows 4 1/2 inch liner at 3430 feet and Exhibit C shows total depth of hole at 3435 feet.

Is there 5 feet of open hole not shown in diagram?

Is H & M Oil Company the operator for all six wells?

If it is convenient for you and your clients, I would appreciate receiving this information prior to the hearing.

Very truly yours,

S. E. Reynolds
State Engineer

FEI/ma
cc-Oil Conservation Commission
F. H. Hennighausen

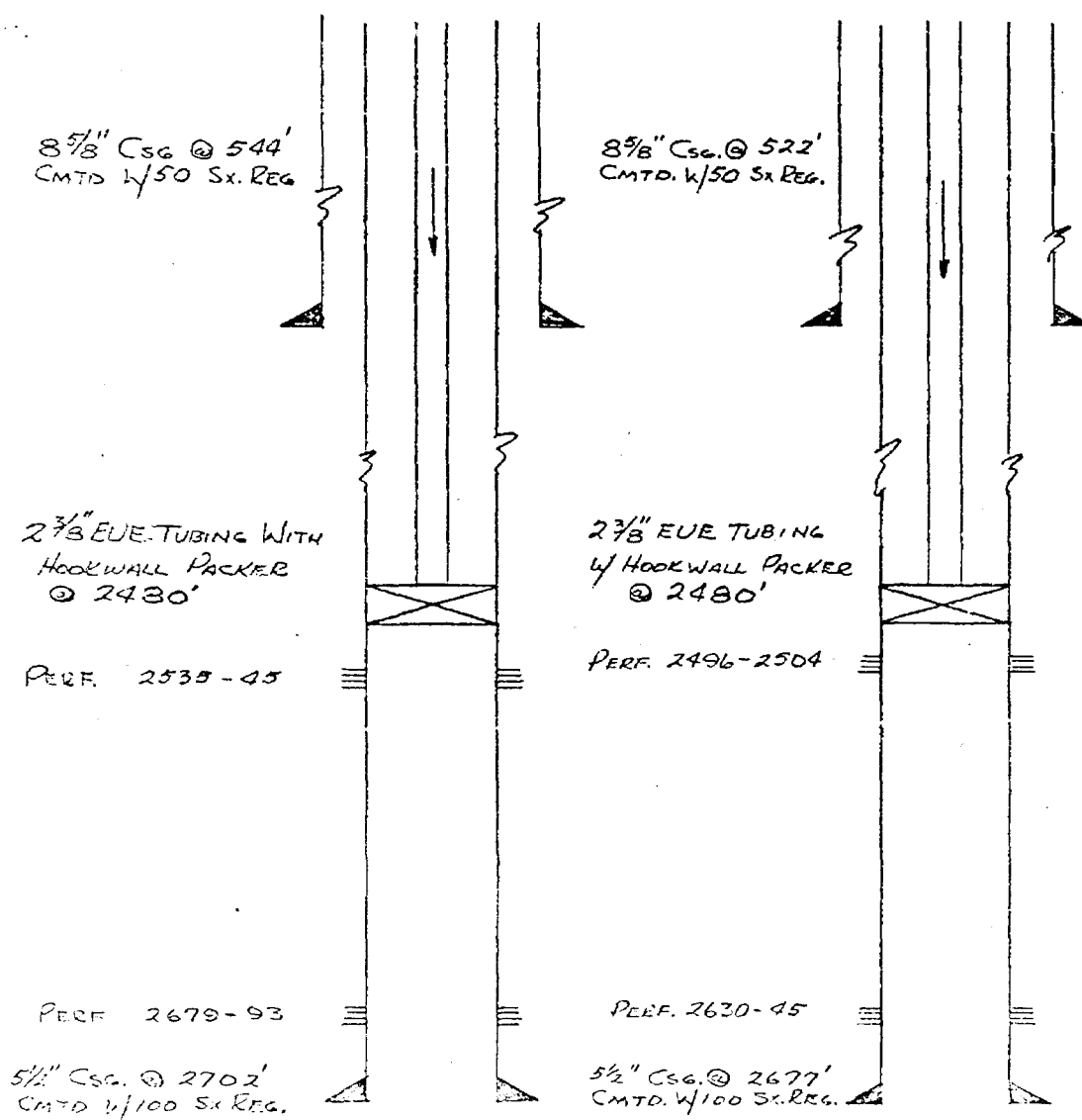
By:
Frank E. Irby
Chief
Water Rights Division

SCHEMATIC DIAGRAM
OF
PROPOSED INJECTION
SECTION ONE SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO

BEFORE EXAMINER UTZ
OIL CONSERVATION COMMISSION
EXHIBIT NO. B
CASE NO. 3195

H. & M. OIL COMPANY
ROOT No. 1

H. & M. OIL COMPANY
ROOT No. 3

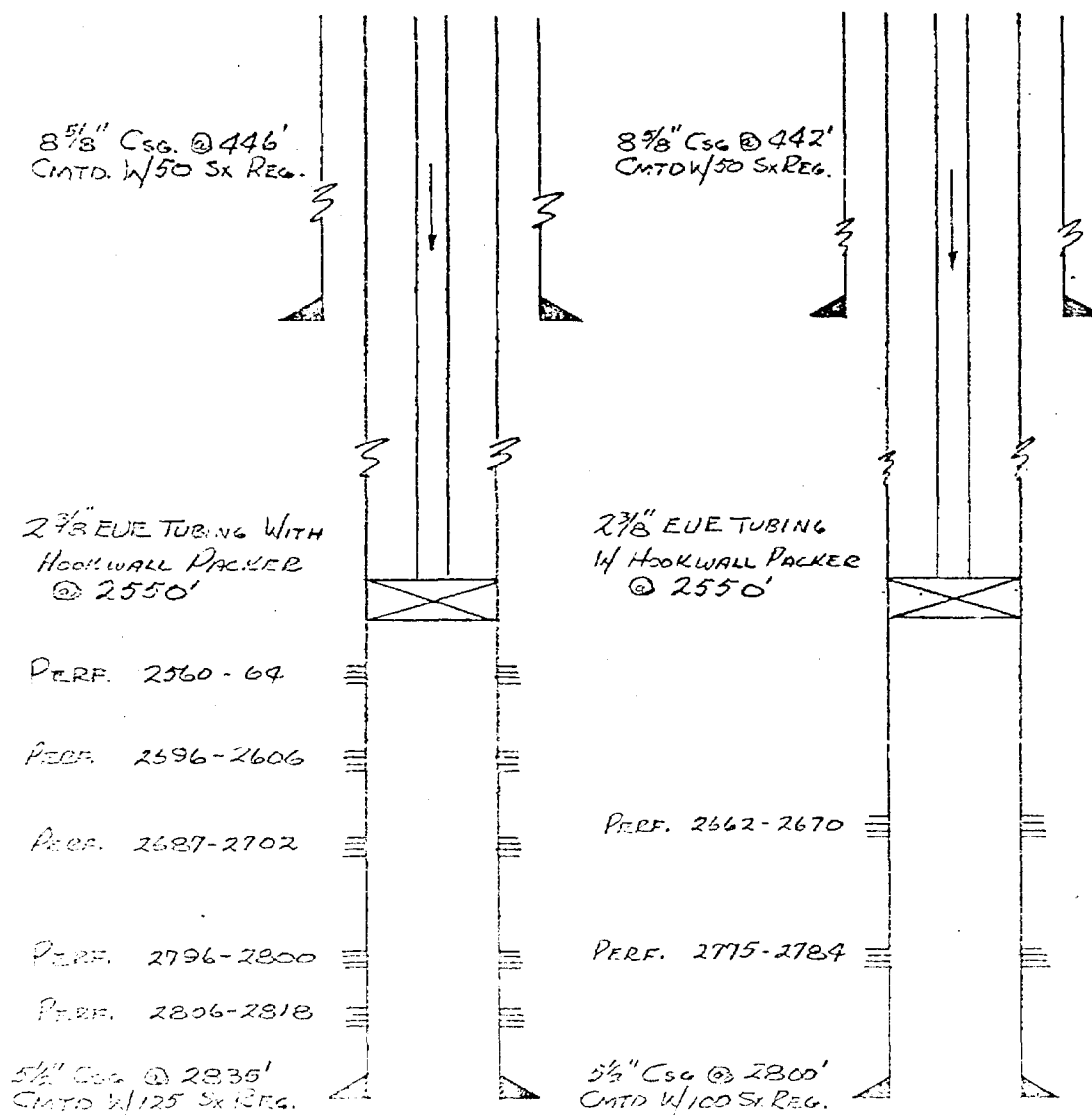


NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

SCHEMATIC DIAGRAM
OF
PROPOSED INJECTION WELLS
SECTION ONE, SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO.

H.E.M. OIL COMPANY
BEDINGFIELD No. 1

H.E.M. OIL COMPANY
BEDINGFIELD No. 2

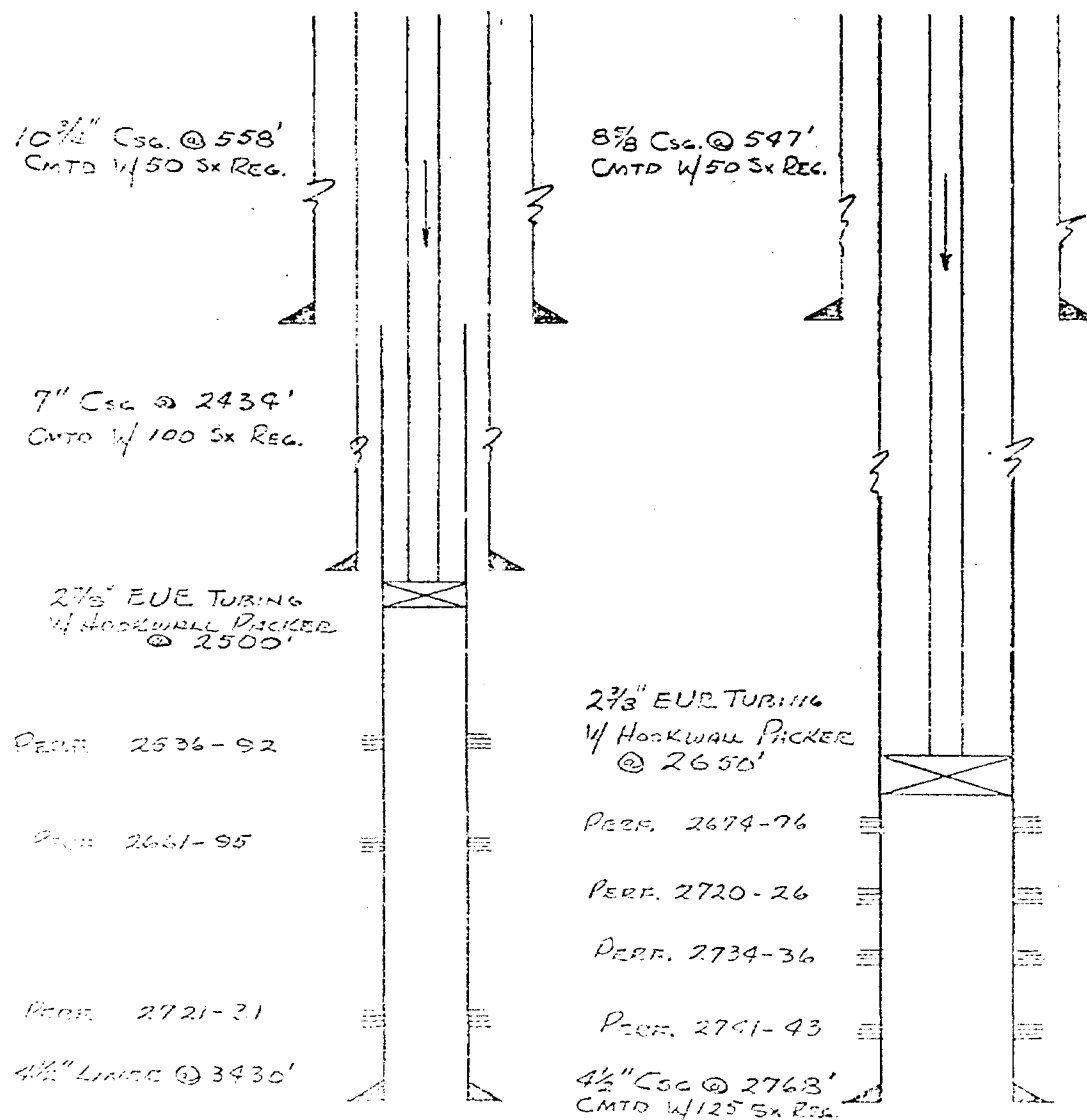


NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

SCHEMATIC DIAGRAM
OF
PROPOSED INJECTION WELLS
SECTION ONE SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO.

NEIL E. SALSICH
ROOT FEDERAL No. 5

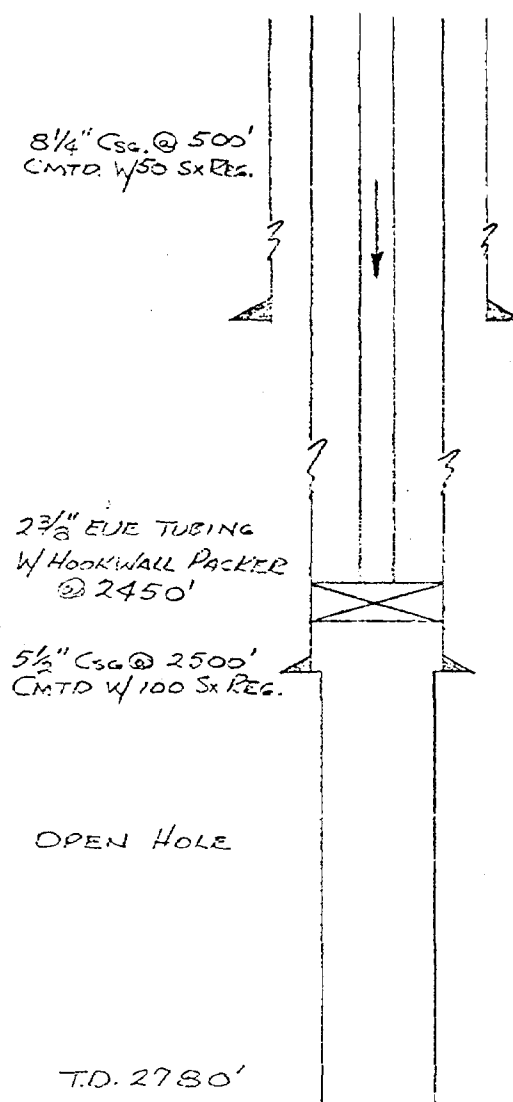
KINCAID & WATSON DELG. CO.
WRIGHT FEDERAL No. 4



NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

SCHEMATIC DIAGRAM
OF
PROPOSED INJECTION WELL
SECTION SIX SQUARE LAKE FIELD
EDDY COUNTY, NEW MEXICO.

NEIL E. SALSICH
ROOT (FED. WILSON) No. 1.



NOTE:
TUBING & PACKER SETTINGS ARE TENTATIVE & ARE
DEPENDENT UPON PRESSURE TESTS OF CASING.

H & M OIL COMPANY

Root No. 1 was completed in December 1959. 8-5/8" casing was set at 544' and cemented with 50 sacks of regular cement. 5 1/2" casing was set at 2702' and cemented with 100 sacks regular cement. Completion was made thru perforations in the Premier zone from 2677 to 2693 feet and the Loco Hills zone from 2535 to 2545 feet, both zones are in the Grayburg. Water will be injected down the casing into both zones simultaneously after the casing has been tested to determine if it is serviceable.

Root No. 3 was completed in August of 1958. 8-5/8" casing was set at 522' and cemented with 50 sacks of regular cement. 5 1/2" casing was set at 2677' and cemented with 100 sacks of regular cement. The well was completed thru perforations in the Premier zone from 2630 to 2645 and the Loco Hills zone from 2496 to 2504, both zones are in the Grayburg. We plan to refrac the Loco Hills zone before starting injection down the casing in both zones simultaneously. The casing will be tested before injection is started.

Bedingfield No. 1 was completed in April 1959. 466' of 8-5/8" casing was set and cemented with 50 sacks of regular cement for the protection of shallow water sands. 2835' of 5 1/2" casing was set and cemented with 125 sacks of regular cement. The well was completed through perforations in the Lovington section of the San Andres from 2796-2800 and 2806-2818, and the Premier zone of the Grayburg 2687-2902, the stray zone of the Grayburg 2596-2606, and recently in the Loco Hills zone of the Grayburg, 2560-64. It is proposed to inject water down the casing into all of these zones simultaneously after first testing the casing to determine if it is in serviceable condition.

The Bedingfield No. 2 was completed in 1959. 8-5/8" surface casing was set at 422' and cemented with 50 sacks of regular cement. 5 1/2" casing was set at 2800' and cemented with 100 sacks of regular cement. Completion was made through perforations in the Lovington zone of the San Andres at 2775 to 2784' and the Premier zone of the Grayburg at 2662 to 2670'.

Kincaid & Watson Wright Federal No. 4 has 8-5/8" surface casing set at 547', cemented with 50 sacks of regular cement. 4 1/2" casing is set at 2768', cemented with 125 sacks of regular cement. Completion was made through perforations: 2674-76 in the Metex zone and perforations at 2720-26; 2734-36; 2741-43 in the Premier zone of the Grayburg section.

Neil E. Salsich Root Federal No. 5 has 10-3/4" surface casing set at 558', cemented with 50 sacks regular cement. 7" casing is set at 2434', cemented with 100 sacks of regular cement. TD of hole was 3435. 4 1/2" liner is set from 1780' to 3430', cemented with 100 sacks regular cement. Completion was made through perforations 2536-92 in the Loco Hills zone, 2661-95 in the Metex zone and 2721-31 in the Premier zone of the Grayburg section.

BEFORE EXAMINER UTZ	
OIL CONSERVATION COMMISSION	
ADON	EXHIBIT NO. C
CASE NO.	3195