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.

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 afor 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. Jacobs) 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.

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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 complete record of the proceedings in the Examiner hearing of Case No. 3906 heard by me on 10/23, 68.

New Mexico Oil Conservation Commission