BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 16, 1974

EXAMINER HEARING

IN THE MATTER OF:

Application of Hanson Oil Corporation for a waterflood project, Lea County, New Mexico.

Case No. 5150

BEFORE: Richard L. Stamets, Examiner.

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the New Mexico Oil Conservation Commission:	Thomas Derryberry, Esq. Legal Counsel for the Commission State Land Office Bldg. Santa Fe, New Mexico
For the Applicant: (Hanson Oil Corporation)	Thomas W. Kellahin, Esq. KELLAHIN & FOX 550 Don Gaspar Santa Fe, New Mexico

I N D E X

E X H I B I T S

	Marked	Admitted
Applicant's Exhibits 1 thru 17	--	11

MR. STAMETS: We'll call Case 5150.

MR. DERRYBERRY: Case 5150. Application of Hanson Oil Corporation for a waterflood project, Lea County, New Mexico.

MR. STAMETS: Call for appearances in this case.

MR. KELLAHIN: Tom Kellahin, Kellahin and Fox, appearing on behalf of the Applicant, Hanson Oil Corporation. I have one witness to be sworn.

MR. STAMETS: Any other appearances in this case?

(Witness sworn.)

RALPH G. GRAY

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. Gray, would you state your full name, by whom you are employed and in what capacity?

A Ralph Gray and I am self-employed with a consulting engineering business in Artesia.

Q Have you previously testified before this Commission?

A Yes, sir.

Q What is your working relationship with Hanson Oil

Corporation with regards to this particular Application?

A I have assisted Hanson Oil Corporation in getting this waterflood project started.

MR. KELLAHIN: If the Examiner please, are the qualifications of the witness acceptable?

MR. STAMETS: They are.

BY MR. KELLAHIN:

Q Mr. Gray, would you please refer to what has been marked as Exhibit No. 1 and identify it.

A Exhibit No. 1 is a map of the general area and this shows all the leases within two-mile radius of the proposed waterflood project. The Mescalero Ridge Unit is shown by the yellow border on the map and this takes in a portion of Section 26 and all of Section 25, Township 19 South, Range 34 East.

Q Has this unit previously been approved by the Oil Conservation Commission?

A Yes.

Q What type of land is involved here, Mr. Gray?

A This is all federal land within the unit.

Q Please continue.

A Exhibit No. 1 further shows the source for our water supply for the waterflood project, being the Marathon

Lea Unit in Section 12, Township 27, Range 34 East. Agreement has been worked out with these people whereby Hanson will be permitted to take Devonian water that is produced at one of their Devonian wells.

The approximate location of the supply line is indicated on Exhibit 1 by this green line.

Q Please refer to Exhibit No. 2 and identify it.

A Exhibit No. 2 is a more detailed map of the unit and this shows the location of eight injection wells which are proposed for immediate conversion indicated by the blue colored circles.

Q All of these to be converted production wells?

A Yes. They are presently producing and it's proposed to convert these to water injection.

Q What is indicated by the difference between the blue and red circles?

A The red locations are proposed for later conversion at such time as this operator might work out a suitable line agreement with the offset operators.

Q I don't know if you've stated or not, but what is the producer formation for these wells?

A These are the producing Queen formation.

Q The source of your injection water will be a

Devonian formation, is that correct?

A That's correct.

Q Would you please refer to Exhibit No. 3 and identify it?

A Exhibit No. 3 is a table showing pertinent well data of all of the wells located within the unit. These wells have casings set through the pay and there are various pay zones present that are producing, I think there are six producing sands in some of these wells. They are not all productive in all the wells, but they are present in some of the wells over the entire area. The casing has been perforated and most of the wells have been dry.

Q Does Exhibit 3 contain a well data on each of the proposed injection wells?

A Yes. This will include not only the proposed injection wells, but also the producing wells.

Q Would you please refer to Exhibit 4 and identify it?

A Exhibit No. 4 is a structure map with contours drawn on the top of the Queen formation. The structure is a small-finial-type structure and this indicates most of the production is well on the higher portions of the structure.

Q Does this structure map indicate that waterflood

project would be feasible in and even successful?

A I doubt if the structure really is too important in the flood itself other than consideration of more information, I would say, than the structure.

Q All right. Let's do altogether Exhibits 5 through 13. Would you identify them and explain what they are?

A Exhibits 5 through 14, I believe are logs of all of the proposed water injection wells. These show the locations and formations of the markers and the yellow coloring is used to indicate the zones that are presently opened in the wells.

I might refer you to the Exhibit 8. It's a more typical log of this area. If you will note in this case there are five zones present in this particular case. The chief producing zones we think is the Upper Queen Zone, which is the top zone shown on it. We think this zone is thicker and has furnished by far the most of the primary oil that has been recovered. These other zones, which occur in what is called the top middle Queen and the Lower Queen, top Penrose, top middle Penrose and the lower Penrose are less significant and generally these are very thin zones with limited permeability and sometimes these peter out from well to well. They aren't predominant as the top zone which

we call the upper Queen zone.

Q Would you please refer to Exhibit No. 15?

A Exhibit No. 15 is a diagramatic sketch of all of the proposed injection wells. This shows the locations of the eight and five-eighths casing, number of sacks of cement used, the estimated top of the cement behind the pipe. Then, it shows the total depth, location of five and half casings, number of sacks of cement, estimated top of the cement behind the pipe, the perforated intervals from the top to bottom and this shows also the locations, the approximate location of a packer which will be installed to separate the upper Queen zone from the other zones.

Q How will you regulate the volumes of water between the upper Queen and the other Queen zones?

A It's proposed to use a packer-down-hole regulator which will regulate the amount of water that goes into the upper Queen zone and will regulate the amount of water that's injected below the packer.

(Whereupon, a discussion was held off the record.)

Q Would you please refer to Exhibits 16 and 17?

A Exhibit 16 is a table showing monthly oil, water and gas production for wells located in Section 16 for 1971

and 1972 and 1973 through September. Also, these show the cumulative oil recovered and the cumulative gas recovered.

Exhibit No. 17 is ia similar table showing the same information for wells located in Section 35.

I'd just like to point out that these wells are stripper-type wells. For example, in Section 26 these wells average about six barrels of oil per day in wells in Section 35, about 10 barrels per day.

Q In your opinion, the production has declined to such an extent that you would recommend the institution of secondary recovery by waterflood?

A Yes, sir.

Q Will the proposed waterflood adversely effect the correlative rights of anyone else?

A No.

Q And it is your opinion, reached from these Exhibits that this unit area can be successful economically waterflooded?

A Yes, we think so.

Q Will your proposed Application, if approved, result in recovery of oil that is otherwise not recoverable?

A Yes.

Q Would you please refer now to the quality and nature of this Devonian water that you are going to attain

from the Marathon Lea Unit and its compatability with your Queen formation?

A We have had a test run on this water by Martin Laboratories and other people, and they tell us that the water can be treated successfully so that it can be used for an injection fluid.

Q Is it your intention to have this water treated in such a manner so that it is compatible with the water fluid project?

A Yes.

Q In addition, with regard to your proposed injection wells, your tubing, will this be coated in any manner?

A Yes, the tubing will be initially coated with either plastic or cement lining. Also, the surface injection lines will similarly be coated inside.

Q What volume of water do you anticipate injecting?

A It's expected that approximately 300 barrels of water per day per injection well would be used at pressures ranging up to a final maximum pressure of maybe 2,400 psi. We don't expect our pressure for the first three or four year period to exceed maybe 1,600 or some such figure.

Q Were Exhibits 1 through 17 prepared by you or prepared under your direction and supervision?

A Yes.

MR. KELLAHIN: Move the introduction of Exhibits 1 through 17.

MR. STAMETS: These Exhibits will be so admitted.

(Whereupon, Applicant's Exhibits Nos. 1 through 17 were admitted in evidence.)

CROSS EXAMINATION

BY MR. STAMETS:

Q Mr. Gray, referring to Exhibit No. 2, you seek authority at this time to have Wells No. 1 and 15 authorized as injection wells with the provision that no injection will take place until you have agreement of the offset operators?

A Yes, I think it should be approved as part of the program at such time as suitable agreement is worked out.

Q And that could be furnished to the Commission after that date?

A Yes.

Q Looking at the logs that were furnished, I see that a number of different zones in there, productive, will water be going into all of those zones? Are sufficient offset producing wells completed in these zones to insure the oil will be produced?

A Yes, there will be some additional zones opened that aren't presently open in some of these wells. We have gone through the connected log and tried to be sure we knew which zones should be opened. We made a recommendation to the operator that these zones be opened and treated. It is my understanding he has proceeded with that work.

Q Referring to Exhibit No. 15, it appears as though a packer is set below perforations into which you intend to inject water; is that correct?

A Yes, the packer will be set below the upper Queen zone in all cases and this would project the production casing to a Devonian water and to pressures injection, yes.

Q So, you would not be able to enclose the annulus in this case with intended fluid and put a gauge on there to determine whether or not there is leakage of the injection tubing or the production casing?

A Well, of course, once the hole is loaded, of course, it can be loaded with fluid which contains chemical to protect corrosion. The entry of water, of course, will be from the bottom and normally you wouldn't expect any movement of water above this thing. It's more or less a tactic condition. Movement of water will be from the lower part of the tubing up into these perforations so that I wouldn't expect very

much movement really of that fluid. It's trapped up above there.

Q If a hole did develop in the casing above that point, for whatever reason, the fluid could migrate up the casing and out the hole at that time and into any formation lined, this five-and-a-half inch casing?

A That's true.

Q It is possible, is it not, to install this type of system with packer above the upper most perforation and packer between two zones of interest, the second packer above the top most perforation?

A Yes, I think it is possible. I think they prefer not to make that kind of an installation.

(Whereupon, a discussion was held off the record.)

Q Mr. Gray, if a second packer were required in this well, would the Applicant be willing to load the annulus space with inhibited fluid and install a gauge or some other attention attracting lead detection device on the injection wells?

A Yes, sir.

Q The operator will have field men around at most normal times to report any leakage from injection wells to

producing wells to the Commission?

A Yes.

MR. STAMETS: Any other questions of this witness?

MR. KELLAHIN: No, sir

MR. STAMETS: You may be excused.

(Witness excused.)

MR. STAMETS: Anything further to offer in this case? Take the case under advisement.

STATE OF NEW MEXICO)
)ss.
COUNTY OF SANTA FE)

I, RICHARD L. NYE, 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 the same is a true and correct record of the said proceedings, to the best of my knowledge, skill and ability.

RICHARD L. NYE, Court Reporter

I hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 5150, heard by me on Jan 16, 1974.

Richard L. Stamets, Examiner
New Mexico Oil Conservation Commission

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