

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
November 8, 1961

EXAMINER HEARING

IN THE MATTER OF:

Application of Skelly Oil Company for authority to inject water into the Horseshoe-Gallup Oil Pool, San Juan County, New Mexico. Applicant, in the above-styled cause, seeks authorization to inject water into the Gallup formation underlying the Navajo "M" lease, comprising all of Sections 33 and 34, Township 32 North, Range 17 West, Horseshoe-Gallup Oil Pool, San Juan County, New Mexico, through the Navajo "M" Well No. 2 located 1980 feet from the South and West lines of said Section 33, for the purpose of secondary recovery.

CASE NO.
2423

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

EXAMINER UTZ: We will call Case No. 2423.

MR. MORRIS: Application of Skelly Oil Company for authority to inject water into the Horseshoe-Gallup Oil Pool, San Juan County, New Mexico.

MR. WHITE: Charles White, of Gilbert, White, & Gilbert, Santa Fe, appearing on behalf of the applicant.

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We have associated with us Mr. George S. Saling of the Oklahoma bar, of Tulsa. We have one witness.

EXAMINER UTZ: Are there other appearances to be made in this case?

(Witness sworn.)

R. J. JACOBS,

called as a witness by and on behalf of Applicant, having been duly sworn on oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. WHITE:

Q Will you state your full name, please.

A R. J. Jacobs.

Q By whom are you employed and in what capacity?

A Skelly Oil Company, senior proration engineer.

Q Have you previously testified before the New Mexico Oil Conservation Commission?

A No, sir, I have not.

Q Will you briefly state your educational background and your professional qualifications?

A I graduated in 1953 from the University of Tulsa with a B.S. degree in petroleum engineering. I spent two years in the Army. I was employed for five years by Sunray Mid-Continent Oil Company; four years as a reservoir engineer, approximately one year as a district staff engineer. Since June of 1960 I have been employed by Skelly Oil Company in my present capacity.

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Q Are you familiar with the subject application?

A Yes, sir, I am.

MR. WHITE: Are the witness's qualifications acceptable?

EXAMINER UTZ: Yes, they are.

Q (by Mr. White) Are you familiar with what Skelly is seeking in Case No. 2423?

A Skelly Oil is seeking permission to inject water into the Horseshoe-Gallup formation in our Navajo "M" Well No. 2 located in the northeast quarter of the southwest quarter of Section 33, Township 32 North, Range 17 West, San Juan County, New Mexico.

Q Will you refer to Exhibit 1 and describe that to the Examiner, please?

A Exhibit 1 is a plat of the area surrounding the proposed injection well. Shown on the map are the producing injection wells and other dry holes within a considerable area around the well, specifically within two miles of the proposed injection well indicated by a red circle. It shows all the names of all the operators to the best of our knowledge who are presently operating in this area.

Q The Navajo "M" lease is delineated in yellow on the plat?

A It appears that there is another lease over on the right hand side of the Navajo "M" lease consisting of Sections 33 and 34 of said Township and Range.

Q How many wells are producing on this particular lease?



A There is only one producing well on this lease, Well No. 1.

Q Where is it located?

A In the southwest quarter of the southwest quarter of Section 33, Township 32 North, Range 17 West, San Juan County.

Q Have any other wells been drilled on the lease?

A Yes. Five additional wells have been drilled. They have all been dry holes.

Q What is the production of your Well No. 1?

A Well No. 1 on recent test indicated production of seven barrels oil per day and no water. However, the actual production for the preceding months indicates that the -- for instance, September, 1961, production from this well averaged 4.2 BPD.

Q Point out the location of the proposed injection well.

A It is offset to the northeast of the only producing well on this lease and that is in the northeast quarter of the southwest quarter of Section 33. It is indicated on the map by a red circle around a number 2 there.

Q Describe your casing program.

A Casing in this No. 2 well was 8 5/8 inches OD. 28 pounds set at 32 feet and cemented to the surface. 5 inch OD, 11½ pound J 55 casing set at 1,246 feet and cemented with 50 sacks.

Q Will you state the proposed location of your perforation



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point and in so doing refer to Exhibit No. 2.

A The plans are to re-enter Well No. 2 which has been plugged and drill out the cement and reperforate the Gallup sand between the intervals of 1,156 to 60 and 1,167 to 73. We will set a Baker Model B packer above these perforations at approximately 1,156.

Q How much water will you inject?

A Between 50 and 150 barrels water per day.

Q At what variation per pressure?

A Between zero and 600 psi maximum pressure.

Q Would you repeat those perforation points?

A The Gallup sand between the intervals 1,156 feet to 60 and 1,167 feet to 73.

Q You will set the Model B packer where?

A Approximately 1,136 which is above the perforations.

Q What is your source of water supply, Mr. Jacobs?

A Water will be purchased from Humble Oil & Refining Company, which is conducting a waterflood project directly offsetting us to the south and southeast.

Q Is their waterflood project described on Exhibit No. 1?

A Yes, sir. In looking at Exhibit 1 you will see indicated the producing wells and the water injection wells on the Humble Navajo leases. The injection wells are generally to the northeast flank of the producing wells and our proposed injection well will be merely an extension of this type of pattern flood.



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Q Are the water injection wells shown on the Plat No. 1?

A The letters WI are shown next to a smaller circle indicating water injection well.

Q Is your waterflood program in reality an extension of Humble's?

A Yes, sir, it is. Our injection well will be in approximately the same position and we will attempt to push oil from the northeast toward the southwest.

Q In other words, your program will be synchronized with that of Humble?

A That is correct.

Q What additional production do you estimate from the waterflood program?

A It is extremely difficult to tell at this time but we know that the anticipated additional oil will more than exceed the cost of this program. It will recover oil which would not otherwise be recovered and our best estimate of it at this time is that it will recover approximately 30,000 barrels of additional oil.

Q Have you obtained approval from the USGS?

A We have received approval from the USGS through a letter signed by John Anderson.

Q Have you previously furnished the Commission with a list of the names and addresses of all offset operators?

A In our application, we indicated on that application



the names and addresses of the operators or lease ~~holder~~ owners in the two-mile radius surrounding the proposed injection well.

Q Will this proposal in your opinion recover oil that would not otherwise be recovered?

A Yes, sir, definitely.

Q In essence it is a salvage operation?

A Yes, sir. In view of the very low production from this one-well lease, we think it imperative that the operators do something to recover all the oil that can be recovered from this lease.

MR. WHITE: I offer Exhibit 1 and Exhibit 2 at this time.

EXAMINER UTZ: Without objection Exhibits 1 and 2 will be entered into the record of the case.

MR. WHITE: That concludes our presentation.

CROSS EXAMINATION

BY EXAMINER UTZ:

Q Where's the top of the five inch?

A The top of the five inch has been -- when the well was plugged it was cut off at approximately 793 feet and was recovered when the well was plugged and abandoned. We will go in and clean out this well and set the Baker packer, as I indicated, and the water will be injected through the tubing down through the packer into the perforations of the Gallup sand.

Q What size tubing?



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A We are not sure. I think it will be $2\frac{1}{2}$ inch.

Q What type of packer was it?

A Baker Model B.

Q How are you going to test this packer to see whether or not it is holding?

A We will pressure test the packer. It is a latch-in type packer.

Q Pressure-blow the packer?

A Yes, sir.

Q You'll do that before you perforate?

A Yes.

Q You will have to go down $2\frac{1}{2}$ inches.

A Yes, sir, correct.

Q The tubing will be set above the perforations, then?

A Yes, sir.

Q What type of water is this that you're going to inject, fresh?

A We think it is fairly fresh. The water is being purchased and contract is being executed between the operators of this, our Navajo "M" lease and Humble, who have the water rights. We have not had it as yet analyzed but we are purchasing the water from them.

Q How about your corrosion problems in your injection string? What means are you going to take to prevent corrosion?

A If necessary, if we feel corrosion is occurring in the



tubing, we will, of course, run a plastic line tubing in and then we'll just run regular tubing.

Q Will you make that determination, then, before you complete the well?

A Yes. We will make a complete study and ascertain the method that Humble has used and check the exact content of the water to see the possibility of the tubing corroding during the life of the flood, which we think will be relatively short.

Q How long do you think it might be?

A It's difficult to ascertain that right now, but we do not expect production from this well or this lease "M" to exceed the allowable for the well.

EXAMINER UTZ: Are there any other questions of the witness?

CROSS EXAMINATION

BY MR. MORRIS:

Q Mr. Jacobs, the other wells located at the Navajo "M" lease, as you stated, are plugged and abandoned, wells numbers 3, 4, 5, 6. Do you propose to re-enter these wells and convert them to producing wells?

A No, sir. The San Juan is developed at those locations and we think there is not sufficient oil to justify going in and extending this project any further.

Q You don't contemplate any expansion of the project area?

A No, sir.



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Q Now, since this is an extension of the maintenance project that Humble has directly to the south, do you propose that your project be limited by the same rules as those in effect in the Humble area?

A We have no objection to that at all.

Q Those rules provide for, I believe, a limit of two times the top unit allowable to be produced in any given well. That would place that limit, I suppose, upon your Number 1 well.

A Yes, since these are diagonal offsets, the injection well and the one producing well. We are continually producing more than that anyway.

Q You would be limited to the allowable of your injection well plus your producing well, which would be that allowable.

A Correct.

Q Do you have any figures of the amount of production coming from the wells in the Humble area immediately to the south of your No. 1 well?

A No, sir, I do not.

Q You don't know what rates these wells are producing at?

A No, sir.

Q Have you any figures with respect to the well shown on Bailey's property?

A No, sir.

MR. MORRIS: Thank you.

CROSS EXAMINATION



BY MR. NUTTER:

Q Mr. Jacobs, which of the two sands is this that is being flooded in this area?

A I believe this is locally called the Tocito.

Q Is this the upper sand?

A Upper of the two.

Q Is the lower developed at all in this area?

A No, sir. We have all of the dry holes to prove that.

Q How much did this well make on primary, Mr. Jacobs?

A I do not know the exact figure on primary. I am sorry I didn't get that. For the last year, since January '61, the well has averaged 3.3 BPD; 5.4, 4.2, 5.6; very, very low, and as shown from that, it is a salvage-type operation for this well.

Q Recent tests have indicated 7 BPD. Would you attribute this increase from 3 or 4 barrels to the 7 barrels to the Humble injection program?

A No, sir. This test was taken early in the summer and this was what the well could produce on a 24-hour basis, but in actuality, sustained production over a period of a month has in fact averaged 4.2.

Q You don't know whether Humble has had any response on their property or not?

A No, sir, I do not.

Q Do you have sand development in the No. 2 well?

A Yes.

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Q Is there any sand development in No. 3?

A Yes, there is a little bit, but it wasn't sufficient to complete a well.

Q Do you anticipate re-opening the No. 3 well?

A Not at this time. We anticipate simply one injection well and one producing well.

MR. NUTTER: That's all. Thank you.

EXAMINER UTZ: Are there other questions of the witness?

The witness may be excused.

(Witness excused.)

EXAMINER UTZ: Are there any other statements to be made in this case?

The case will be taken under advisement.

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STATE OF NEW MEXICO)
) ss.
 COUNTY OF SAN JUAN)

I, THOMAS F. HORNE, NOTARY PUBLIC in and for the County of San Juan, State of New Mexico, do hereby certify that the foregoing and attached transcript of hearing was reported by me in stenotype and that the same was reduced to type-written transcript under my personal supervision and contains a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

Thomas F. Horne
 NOTARY PUBLIC

My Commission Expires:

October 2, 1965

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner Hearing of Case No. 2423 heard by me on Nov. 8, 1964.
John P. [Signature]
 Examiner
 New Mexico Oil Conservation Commission

