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

APRIL 29, 1964

EXAMINER HEARING

IN THE MATTER OF: Application of Curtis J. Little for a pressure maintenance project, San Juan, County, New Mexico.

Case No. 3036

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The Hearing will come to order. We will call Case Number 3036.

MR. DURRETT: Application of Curtis J. Little for a pressure maintenance project, San Juan, County, New Mexico.

MR. SPERLING: I am J. E. Sperling, Modreall, Seymour, Sperling, Albuquerque, New Mexico, appearing on behalf of the

Applicant; and we have one witness.

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

MR. SPERLING: Before proceeding with the presentation of our case, Mr. Examiner, I would like to commend Mr. Nutter for his alertness in calling to our attention at the time of filing this Application an error. This is simply further evidence of the excellence of the Commission Staff and our confidence in the Commission Staff. We appreciate it.

(Whereupon, Applicant's Exhibits Numbers 1 through 6 were marked for identification.)

CURTIS J. LITTLE,

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

DIRECT EXAMINATION

BY MR. SPERLING:

Q Would you state your name, please?

A Curtis J. Little.

Q Have you testified on previous occasions before the Commission?

A I have.

Q Your qualifications are then a matter of record?

A Yes, sir.

Q Would you please tell us what is sought by the Application

in this Case?

A To establish a pressure maintenance program under my Navajo lease.

Q I understand that you are the operator and Applicant in this Case and the operator of the leasehold area on what has been marked as Exhibit One; is that correct?

A Yes, sir.

Q Would you explain what is purported on that Exhibit?

A Exhibit One, the project area is outlined in blue and encompasses Sections 22, 27 and 28 of 32 North, 17 West. It's in the northwestern end of the Many Rocks Gallup Field Oil Pool. We have shown the accurate location of all wells drilled in the project area; the elevations, total depths, both surface casing and production casing sizes and amounts, cement, calculated tops of perforations, fractures, treatments, initial potential, and the date thereof, and the cumulative production as of the first of this month.

Q Mr. Little, have you caused to be made a feasibility study by an independent engineering service company relating to this project?

A I have.

Q And who made that study?

A The reservoir engineer section of Core Laboratories Incorporated, out of Dallas, Texas.

Q What has been the cumulative production to date from the project area?

A About 150,000 barrels.

Q Now, would you please refer to what has been marked as Exhibit Two and tell us what that Exhibit shows?

A Exhibit Two is a Schlumburger Induction Gamma-Ray Log showing the Pay zones, the Gallup Tocito sandstone and one of the proposed injection wells, the perforations from 1713 to 1133.

Q Would you point out the location of the well, the log of which you have just referred to, by referring back to Exhibit Number One?

A It is in Unit O of the Southwest-Southeast Section 27.

Q And that is proposed as the presently drilled injection well?

A That's correct.

Q Now, while we are still looking at Exhibit Number One, would you point out the location of the other proposed injection wells?

A The proposed injection well Number 10-27 in the North-west Northwest of Section 27, and proposed injection well Number 4-28, located in the Northeast Southeast of Section 28.

Q Now, these are the locations of injection wells that have been recommended by Core Laboratories in the course of their recent studies; is that correct?

A That's correct.

MR. UTZ: That was 2-28?

A 4-28 and 10-27, both of them are open circles with an arrow.

MR. UTZ: All right.

A They have not been drilled.

Q (By Mr. Sperling) So, so far as injection wells are concerned, you propose to complete one presently drilled well as an injection well and drill two additional injection wells; is that correct?

A To convert one pumping oil well to an injection well, which is 3-27-X, and complete as injection wells the other two.

Q Now, would you please refer to Exhibit Number Three, and tell us what that is?

A That is the proposed water injection methods for when we convert Navajo 3-X-27 from an oil producer to an injection well, to run tubing with a packer set directly above the perforated pay zone and inject water in that manner.

Q Now, I refer to Exhibit Number Four, which appears to be a proposed completion program for the wells which are to be drilled for purposes of water injection.

A This is our proposed casing program for the two injection wells Number 10-27 and 4-28, and it's a tubing completion using

2 and 7/8ths OD tubing to be set below and cemented, perforated and water injected into.

Q All right, sir. Now, would you please refer to what has been marked as Exhibit Number Five, and explain to us what that Exhibit is designed to show?

A Exhibit Number Five is an Isopach of Lower Gallup sand showing the Many Rock San Bar gas cap associated with it which will be further substantiated by a structure map to be introduced later. It shows the "zero" the "correction", the edges of the Many Rocks Sand and the zero limits of the horseshoe sand, which is another sand bar paralleling Many Rocks to the southwest, and northwestern portion which I believe has a terminology of the Mesa Gallup Oil Pool, both of which have an associated gas cap.

Q What does the red area indicate on Exhibit Number Five?

A That is a free gas cap that has been delineated by the wells which I have drilled. One well that T.P has drilled, Texas Pacific, and one well that the Murphy Corporation has drilled.

Q Then the reservoir mechanism in affect is an expanding gas cap in your opinion?

A An expanding gas cap and associated with that, a solution gas drive

Q Now, you made reference to a subsequent Exhibit. Perhaps we had better, in order to keep these in order, refer first to Exhibit Number Five, again tell us what that is designed to show.

A Exhibit Number Six is an Isopach Map showing oil sand with greater than nine and a half percent porosity as determined by core analysis, and/or porosity type logs throughout the Many Rocks Oil Pool, and in addition to the undesignated field which extends further on up in the northwestern area to the line.

Q Well, this again shows the delineation of the gas cap area, and the gas oil contact as established by the wells previously drilled to which you have referred; is that correct?

A That is right.

Q All right. Now, going on to the next Exhibit, I believe is Seven, I think this is the Exhibit that you referred to previously as one to be considered as a later date. Would you please explain what this is?

A This is a structure map on the Sanostee limestone which underlies the pay sand, the Gallup Sanostee Oil Sand by approximately 10 feet. That is a good structural datum that is traceable through the northwestern portion of the State of New Mexico. Its contours accurately localized the gas oil contract on the previous two Exhibits. You will note, that the

associated high, as it goes through, commonly known in this area as the Blue Hill. Structural features causes gas to be accumulated on top of it where the low portion is Murphy's in the northwestern area, and lined with Little, Skelly and Humble. As we go off of the structural features, you leave the gas cap and get into pure oil.

Q Then, you feel that these last three Exhibits to which you have referred establish, without question, the existence of the gas cap and its accurate location as of this time, or at least as of the time of the drilling of the wells which you have referred to, as well as the structural position of the wells, which you propose to produce and which you proposed to inject?

A That's correct. Core Lab, the engineering department has come up with the recommendation to inject two wells at the gas-oil contact and the third well on an agreement worked out between himself and Skelly on a joint lease line agreement.

Q Would you point out the location of that well?

A That is the 3-27-X Well in the Southwest Southwest, Skelly has agreed to inject into there M-12 located just to the Southwest of my 3-27-X.

Q I take it from what you say, then, that there is in existence, a lease line agreement sofaras Skelly, the offset operator to the Southeast of the project area is concerned?

A Yes, sir, we have met and agreed in Skelly District level

in Hobbs, the arrangement of injecting equal amounts of water in these two wells.

Q What is proposed as the injection rate for these two wells?

A Approximately two-hundred barrels per day per well.

Q I see. Now, would you point out to us in general the location of the similar pressure maintenance projects in the Many Rocks Field under authority previously granted by the Commission?

A Humble's project, in Sections One, Two, and Twelve, of 3117, was the first project to get underway and water has been going into the ground there for several months. The second application, and I am not sure where water is actually going in the ground as yet, was the Atlantic application in Sections 6, 7 and 8 on the map, and that goes on to the Southwest a couple of extra miles and the third application was by Skelly to inject in their P-6 in the Southeast quarter, Southeast quarter of Section 35, 3217.

Q Do you have at hand the order numbers which granted approval to these applications that you have referred to?

A Humble's Case was 2865. I do not have the "R" Number. Atlantic's Case was 2948, "R" Number 2622, Skelly's Case was 2994,"R" 2664.

Q I think you are still referring to Exhibit Six, here, you

can locate for us the proposed source well or water supply well for your project. Would you point that out, please?

A Its a deep basement test drilled to below 9,000 feet by Texas Pacific Coal and Oil in the Northwest Quarter Section 28, their 1-B Navajo drilled and plugged in 1960, there is 9 and 5/10ths inch casing set at 4200 feet and cement was circulated. We propose to reenter the abandoned well and perforate the water sand and make that a water supply well.

MR. UTZ: In what zone?

A Entrada.

MR. UTZ: Entrada.

A Now, an attempt will be made to do that. If it is unsuccessful, either the second choice, which would be the Jurassic Marrison, third choice would be the Jurassic Bluff.

Q What evidence or information do you have as to the presence of water in the zones that you have indicated?

A The Schlumburger log interpretation shows that all three sands contained water, water is presently being produced from the Jurassic Marrison by Humble and Atlantic, for their injection purposes.

Q Now, the Schlumburger log that you referred to, was run in the well, which you propose to convert?

A Yes, it was.

Q Were any fresh water zones encountered in the course of

drilling the wells, the producing wells within the project area?

A Not within the project area.

I have drilled 17 wells, 16 shown the 3-X well with the 3-27 was lost and the 29 hole, the 3-X-27 was drilled some 20 feet away. In all 17 wells we encountered no water in any amount, all of it was drilled with air to the pay sand.

Q Have you submitted to the office of the State Engineer the copies of the Exhibits and an explanation of what is proposed insofar as this project is concerned?

A I have.

Q You have discussed that with Mr. Irby?

A I have.

Q Has any objection been made?

A None. He has requested the chemical analysis of the water sample, the water out of water supply well, to be furnished him as soon as I obtain the sample.

Q When do you anticipate this will be forthcoming?

A In the next two or three weeks.

Q I believe you stated previously that the cumulative production to date has been something in excess of one hundred thousand barrels within the project area outlined?

What do you anticipate as the result of the institution of this pressure maintenance program?

A An additional four hundred thousand barrels according to Core Laboratories. Without instituting pressure maintenance, they calculate that we will only recover an additional rimer before abandoment of the field.

Q What will be the result in your opinion if these wells continue to produce at their present rate having in mind the gascap area that you have already outlined for us?

A As the fluids are withdrawn, the gascap will expand and gas out the three wells that are nearest the gascap which are wells Number 1-28, 8-28 and 7-27, as the gascap expands.

Q What do you anticipate as the approximate length of time required to fill up after the initation of the project?

A The Core Laboratories Engineering Section estimates at the injection rate of some six hundred barrels a day, two hundred barrels per day in each of the three wells it will take approximately one year before we will get a response.

Q Well, I assume from what you say, that with the present rate of production, this is a matter of some urgency in order to prevent the migration of the gascap into the oil area?

A That is true.

Q Your application, Mr. Little, has requested the adoption of special rules for this project. In the event that this is approved by the Commission, what are the rules that you propose?

A The identical rules that were given to Humble, Atlantic, and Skelly in their previous hearings.

Q As contained in orders to which you previously referred?

MR. PORTER: Was that in the Horseshoe?

A Many Rocks.

MR. PORTER: I mean, the other pressure maintenance was in the Many Rocks, too?

A I understand they also follow the rules that the Horseshoe pressure maintenance had.

MR. PORTER: Yes, sir. Thank you.

A That was Humble's testimony at their first Hearing.

Q (By Mr. Sperling) Do you have anything else to add, Mr. Little?

A No, I believe not.

MR. SPERLING: At this time, Mr. Examiner, I would like to offer Exhibits One through Six into evidence.

MR. UTZ: Without objection Exhibits One through Six will be entered into the record of this Case.

(Whereupon, Applicant's Exhibits Numbers One through Six were admitted into evidence.)

MR. SPERLING: That's all of the direct examination, Mr. Examiner.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Little, your wells that you intend to drill, I note on your Exhibit Four the top of the cement on the two and seven-eighths OD, would be eight hundred feet. The bottom of the cement on your five and a half surface will be 33 feet. Now, what lies in between 33 feet and eight hundred feet? Is there any potable water in that area?

A No, sir.

Q No producing oil or gas zones?

A No, sir.

Q Will this tubing be plastic coated?

A If the water is of quality that would rust of deteriorate the pipe.

Q Then, you don't have an analysis of that water to know whether --

A No, sir.

Q Will you have an analysis on that water before you complete these wells?

A Yes, sir.

Q And if it is corrosive, is it ever your intention to use plastic coating?

A Yes, sir.

Q How about your Number 327, how is that well completed?

A That will have 5 inch sets to 1805, calculated cement top is at 967 feet. One hundred percent calculation. The seven foot of sand was perforated with shots per foot and fractured. We plan

to run tubing in and set a packer directly above the perforations.

Q What size was your production string string again?

A Five inch.

Q And what size of tubing do you intend to run?

A Two and seven-eights.

Q Two and seven eights. And you don't know whether that will be plastic coated until you have the water analysis?

A I might add this: I have tentatively worked out an agreement with Skelly rather than have me laying approximately two miles of line to inject water in this well, Skelly has agreed to furnish and inject water into this well for me at cost, and that will be Marrison water.

Q Marrison water, did you say?

A Skelly plans to drill a Marrison water well just a half a mile Southeast of this well, three-eights well.

Q Now, of course, you don't know what kind of water that is, yet?

A No, but with reference to a study of the log we can almost be certain that it would be identical to the Skelly and Atlantic's present water supply.

Q Was that corrosive water?

A No, sir.

Q It was relatively smooth?

A It's black sulphur water.

Q Sulphur water?

A But not salty.

Q I see.

A And to my knowledge, Humble and Atlantic are not running any particular type tubing, but I am not certain about that.

Q Now, your Number 3-27 Well, you intend to put any kind of a tubing gauge on the surface so you can detect any deterioration of the pressure?

A Yes, sir.

Q Your request for an Order 2624 will be adequate for you in all the details, even to the tables?

A Yes, sir.

Q All right, sir. Are there any other questions of the witness?

CROSS EXAMINATION

BY MR. DURRETT:

Q I have one question. Will you state the average production on your wells within the project area in the recent past? What are they making now?

A Today they are producing two hundred fifty barrels.

Q That is on the average?

A That is my lease total.

Q That is the total for the lease. What does that calculate out on a per well average, do you have any idea?

A I have two wells that are making allowable, which are Wells Number Seven and Number Eight. The Number Two was the discovery well in the entire field, Many Rocks Gallup Oil Pool and it is now making 56 barrels per day, approximately. The other wells run anywhere from 15 to 20, 30 barrels a day.

Q Your lowest one is about 15?

A Yes, sir.

Q Thank you.

A We are getting extra decline in the last sixty days with an accompanying increase in Yor's.

MR. UTZ: You are not asking for increased allowance here, this is pressure maintenance program?

A Yes, sir.

MR. UTZ: Are there any other questions? The witness may be excused. Are there any other statements in this Case?

The case will be taken under advisement and the Hearing is adjourned.

STATE OF NEW MEXICO)
) ss.
COUNTY OF BERNALILLO)

I, CHARLES FLOYD WALKER, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill, and ability.

Witness my hand and seal of office, this 29th day of June, 1964.

NOTARY PUBLIC

My Commission Expires:

March 25, 1968.

Apr. 29 3036
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E X H I B I T S

NUMBER	MARKED FOR IDENTIFICATION	OFFERED	ADMITTED
"1" through "6"	2	13	13