

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE 1614

TRANSCRIPT OF HEARING

MARCH 11, 1959

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BEFORE THE
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IN THE MATTER OF:

CASE 1614: Application of Texas Consolidated Oils, Inc., for an order authorizing a pilot water flood project in the Square Lake Pool in Eddy County, New Mexico, and for capacity allowables for said project. Applicant, in the above-styled cause, seeks an order authorizing it to institute a pilot water flood project in the Square Lake Pool in Eddy County, New Mexico. Applicant proposes to inject water into the Grayburg and San Andres formations through four wells located in Section 34, Township 16 South, Range 30 East. Applicant further seeks capacity allowables for nine wells in said Section 34.

BEFORE:

Daniel S. Nutter, Examiner

T R A N S C R I P T O F P R O C E E D I N G S

MR. NUTTER: Take next Case 1614.

MR. PAYNE: Case 1614. Application of Texas Consolidated Oils, Inc., for an order authorizing a pilot water flood project in the Square Lake Pool in Eddy County, New Mexico, and for capacity allowables for said project.

MR. EDWARDS: My name is Mac Edwards, Edwards & Reese of Hobbs, appearing on behalf of the applicant, Texas Consolidated Oils, Inc. We have one witness.

(Witness sworn)

PAUL R. GREGORY

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

MR. EDWARDS: If it please the Examiner, I would like to state at the outset that we would like to withdraw from his consideration our request for an exception under Rule 502, as of this time --

MR. NUTTER: You are amending your application, Mr. Edwards, to withdraw --

MR. EDWARDS: Withdraw our request for exception under Rule 502 in connection with the application. I would like to also state that on Page 3 after the period I would like to amend the application to strike that following sentence with reference to approval from the U.S.G.S. pertaining to water.

MR. NUTTER: What sentence is that?

MR. EDWARDS: It is the sentence following the period in the first line.

MR. NUTTER: You would strike the word -- starting with the word "Approval" and ending with the word "survey?"

MR. EDWARDS: Yes.

MR. NUTTER: Are there any further amendments?

MR. EDWARDS: Also it has been stated here in that -- I think that takes care of all of the --

MR. NUTTER: Would all of Paragraph 9 be stricken,

Mr. Edwards?

MR. EDWARDS: Yes, all of Paragraph 9 would likewise be stricken because I don't want that to be considered at this hearing.

MR. NUTTER: Is there objection to the amendment of the application as so moved this morning? If there is no objection, the application will be amended.

MR. EDWARDS: At this time I would like to offer in evidence Exhibits 1, 2, 3 and 4 pertaining to notice to the United States Department of Interior.

MR. NUTTER: These are all government forms which have been filed with the U.S.G.S., is that correct?

MR. EDWARDS: Yes, sir.

MR. NUTTER: If there is no objection, these Exhibits will be entered in Case 1614, Exhibits 1 through 4.

MR. EDWARDS: And at this time I would also like to offer in evidence Exhibit 5, which is an Affidavit of Mailing to offsetting operators within the distance provided by the Rules.

MR. NUTTER: Is there objection to the introduction of Exhibit 5 in Case 1614? If not, it will be admitted.

DIRECT EXAMINATION

BY: MR. EDWARDS:

Q Would you state your name, please?

A My name is Paul R. Gregory.

Q By whom are you employed and in what capacity?

A I am employed by Texas Consolidated Oils as production superintendent.

Q And how long have you been a production superintendent for Texas Consolidated?

A For two and a half years.

Q And prior to that time, what was your business.

A I was employed by Fain McGaha Oil Company in Wichita Falls in the production department.

Q And how long were you employed in that capacity?

A I was with that company for a period of nine years in all phases of production work.

Q And are you familiar with and have you had experience in water flooding projects?

A Yes, sir. I assisted in the installation of the flooding of approximately seventy-five wells in Hartley County, Texas.

Q Would you briefly give the Examiner some history of Texas Consolidated Oils with regard to its ownership?

A All right, yes. Texas Consolidated Oils is a company that has been taken over by the R.F.C. It was originally R.F.C. It is now the Treasury Department. And it is our job to retire a fifteen million dollar loan, and we have this application for a water flood project in Eddy County, New Mexico due to the fact that these wells have reached their economic limit by primary recovery. We are requesting permission to water flood.

MR. PORTER: Is this the property formerly owned by Snowden International?

A Yes, sir, that's correct.

Q (By Mr. Edwards) Now, Mr. Gregory, directing your attention to Exhibit B, would you explain to the Examiner the proposed injection wells?

A You are referring to the map?

Q Is that Exhibit A or B?

A That would be A in Section 34, Township 16 South and 16, 30 East; we propose to inject through old producing wells which were drilled in 1942. The location would be in the northeast quarter of Section 34 Wells No. 2 and 3. In the southeast quarter of Section 34 it would be Well No. 1, and in the northwest quarter of Section 34 Well No. 5. We propose to inject into two zones the upper and lower which are sometimes called Grayburg and San Andres in the Square Lake Field.

Q Why have you selected this particular injection pattern?

A Due to the fact that in the past five to seven years quite a few of the wells in this Field have been plugged and abandoned, and in order to get a good pattern we had to select these four wells, and I am sure that if this pilot flood proves successful that these plugged wells will be redrilled or re-entered.

Q Can you give the Examiner a brief history with re-

gard to the production of these wells since they were drilled in 1942?

A The cumulative production, to the 1st of January, 1958, these wells had produced approximately 50,000 barrels per well.

Q Can you give the Examiner any figure with regard to the overall production for the sixteen wells in the section?

A Yes, sir. That is approximately 800,000 barrels, since 1942.

Q Now, according to the information you have, based upon reservoir engineering reports, what percentage of the estimated reserves has been recovered to date?

A Between eighteen and twenty percent.

Q Do you feel that it is absolutely essential at this time that an injection program be commenced?

A Yes, I do. The wells can no longer be produced at their present rate of production.

Q What are these wells making now?

A Approximately one to two barrels a day.

Q And do you feel that a secondary recovery program is absolutely essential to recover as much as possible of the existing known reserves?

A Yes, sir, I do.

Q Do you feel that the program which you will commence and continue is in keeping with the conservation practice of the

State of New Mexico?

A I definitely do.

Q And do you feel that the program will prevent waste and protect the correlative rights of surrounding interests?

A Yes, sir, I do.

Q Now, what is your source of water on this particular program?

A We propose to use water from Santa Rosa formation from two wells that we have drilled in Section 33; that would be in the southeast quarter of Section 33.

Q You also have a gas lease where these wells are drilled?

A That is correct.

MR. NUTTER: What is the general or specific locations of those wells in the southeast quarter, Mr. Gregory?

A The No. 1 water well, which is in that southeast quarter. It is plugged. Do you see the plug marker? And the No. 2 water well is 600 feet northeast of that.

Q (By Mr. Edwards) Approximately how much water do you anticipate using for the four proposed injection wells?

A I believe the engineers have figured on 500 barrels per day, per well.

Q Now, with reference to Exhibit B, would you explain to the Examiner what your casing program has been and what you intend to do?

A Due to the fact that we are going to be able to use fresh water, we plan to inject through the casing, and these wells were cased according to specifications of State Rules and Regulations when they were originally drilled. They each have the proper amount of surface pipe, and the oil string in three wells, we have five and a half inch pipe set to the top of the formation. And the other wells have seven inch pipe which has all be tested and is in good shape.

Q What remedial work has been done on each of these wells, Mr. Gregory, with regard to efforts to increase the production?

A No. 5 Leonard was sand fraced approximately four years ago with very unfavorable results.

Q Would you explain in a little more detail exactly what you did?

A The well was sand fraced through the casing with 10,000 gallons and a pound and a half of sand. That is the only well that has been fraced. And since that time these four proposed injection wells have been cleaned at the bottom and are now setting.

Q Do you have an opinion with regard to how long you think it will take before you see appreciable results from this project, if it is approved?

A Should take between six and seven months to determine that from Well No. 1 in the northeast quarter of Section 34.

Q What was the primary recovery drive in this pool?

A Gas. I believe the average gas-oil ratio was between 900 and 950 when the well was originally completed.

Q Do you feel that your program, if approved here, this pilot flood, will adequately protect the correlative rights of General American --

A General American.

Q -- on the north?

A General American is operating two wells adjacent to this proposed flood, and Collier Production to the south, and they should definitely benefit by it.

MR. EDWARDS: Does the Examiner have any questions?

MR. NUTTER: Does anyone have any questions of this witness?

CROSS EXAMINATION

BY: MR. FISCHER:

Q Mr. Gregory, you said that the primary production mechanism was gas. Was that solution gas or gas gas?

A Solution gas.

MR. FISCHER: That's all I have.

QUESTIONS BY MR. IRBY:

MR. IRBY: Mr. Nutter, I am Frank Irby from the State Engineers office. I was absent when the witness testified concerning the source of supply of water for this flood project.

MR. NUTTER: I don't believe the witness testified

as to the formation and so forth that the water would be coming from.

MR. EDWARDS: I think he did. Santa Rosa.

A This is the Santa Rosa formation, producing fresh water at approximately 400 feet.

MR. EDWARDS: One further question. Is this on a Federal lease and not in an established water basin?

A That's correct. It is not in a designated water area.

MR. PORTER: Are there wells in the vicinity of the injection wells?

A Yes, sir, within a mile.

QUESTIONS BY MR. IRBY:

Q Do you have an analysis of the water?

A I don't have a copy with me. We have had it analyzed, but I failed to bring a copy of it with me.

Q Would you be willing to furnish the State Engineers with a copy of that?

A Yes, sir.

MR. EDWARDS: Certainly, sir.

MR. NUTTER: Any further questions?

MR. IRBY: No.

MR. PORTER: One question.

QUESTIONS BY MR. PORTER:

Q Approximately how many wells are owned by Texas

Consolidated in this Square Lake Pool?

A You mean producing wells or altogether, plugged and abandoned?

Q I know there are quite a few that are plugged and abandoned, quite a few that are temporarily abandoned, but I was referring to producing wells.

A Producing wells, approximately 55 in this Field.

MR. PORTER: Thank you, sir.

MR. NUTTER: Any further questions of Mr. Gregory?

MR. CHRISTY: Sim Christy of Hervey, Dow & Hinkle for Humble Oil & Refining Company, who is operating in the Square Lake Pool. We would like to ask one question of the witness and perhaps his attorney would care to answer. We understand the application as amended and deleted here, that Texas Consolidated does not seek any increase or change in the Field for statewide allowables for this application?

A Not at the present time.

MR. EDWARDS: That is correct.

MR. CHRISTY: No further questions.

QUESTIONS BY MR. NUTTER:

Q Mr. Gregory, what is your anticipated injection pressure?

A The peak should be around 1200 pounds, the maximum.

Q I notice on your Exhibit B that you have tested

ILLEGIBLE

casing to 2500 pounds. Those tests already have been conducted, is that correct?

A Yes, sir. Yes, sir.

Q Will the injection plus the hydrostatic head on that water exceed the 2500 pounds that you tested the casing to?

A I am not sure about that and I am not in a position to answer, but I wouldn't think so.

Q I also note from Exhibit B that the surface casing is set in the range of 500 to 555 feet, and cemented with 50 sacks of cement, is that correct?

A Yes, sir.

Q Did that cement circulate to the surface when that casing was set?

A Our records don't show that, but --

Q Would it be likely that 50 sacks would have caused cement to return?

A From my experience in that field, it should; it should circulate.

Q Now, what will be your injection interval, an open hole interval there, or through perforation?

A Yes, sir, open hole. Those wells were completed in open hole.

Q And how much pay is there that will be --

A The open hole section will average approximately 200 feet.

Q And a similar interval will be opened in the producing wells?

A Yes, sir.

Q What is the expected amount of oil that will be recovered as a result of this secondary recovery program, Mr. Gregory?

A They assume that there is between two and three million barrels in place still in that Field.

Q Now, we have recovered to date eighteen to twenty percent, is that correct?

A Yes, sir.

Q With relation to the amount of oil that has already been recovered, how much do they expect to recover from the secondary recovery? Is it anticipated less than or equal to or more than the primary?

A It should be equal to and perhaps more.

MR. PORTER: Mr. Nutter, does your question have reference to the whole pool?

MR. NUTTER: Of course, we can't talk about the whole pool on water flood yet because we are only injecting water into four wells. I think the question was probably with reference to one well that would be subject to the water flood at this time.

MR. PORTER: Well, what I was getting at, did the eighteen percent represent a percentage as provided to the whole

pool?

A Yes, sir, I believe that is a figure for the whole pool.

Q (By Mr. Nutter) This acreage that we are considering today is an average of the entire pool, probably?

A Yes, it is, a good average for the entire Square Lake Pool.

MR. NUTTER: Are there any questions anyone may have of Mr. Gregory? If not, you may be excused.

(Witness excused)

MR. EDWARDS: Mr. Examiner, would you like to have a structure map of this area, would it be helpful?

MR. NUTTER: I believe that it would be, Mr. Edwards. We would like to know just where it is.

MR. EDWARDS: Actually, I took this up with Mr. Gregory. It was not prepared under his supervision, but I think it would be admissible within the discretion of the Examiner, and he can use it for what purposes he wants in making his decision.

MR. NUTTER: We will label this as Exhibit No. 6.

MR. EDWARDS: For the sake of the record, I will hand you Exhibit No. 6 and ask you to indicate in pencil on this structure map the proposed injection wells.

A (Witness complies)

MR. EDWARDS: We offer this in evidence.

MR. NUTTER: Is there objection to the introduction

of applicant's Exhibit No. 6? If not, the Exhibit will be admitted in evidence.

Does anyone have anything further they wish to offer in Case 1614? We will take the case under advisement and take next Case 1294.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, J. A. Trujillo, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Proceedings before the New Mexico Oil Conservation Commission was reported by me in Stenotype and reduced to typewritten transcript by me, and that the same is a true and correct record to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this, the 17th day of March,
1959, in the City of Albuquerque, County of Bernalillo, State of
New Mexico.

NOTARY PUBLIC

My Commission Expires:

October 5, 1960

I do hereby certify that the foregoing is a complete record of the proceedings at the Examiner's hearing of Case No. 1614, heard by me on 3-11-57.

Examiner

heard by me on January 14, 1954, Examiner
New Mexico Oil Conservation Commission