

NEW MEXICO SERVICE 090

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION

Santa Fe, New Mexico

June 25, 1969

EXAMINER HEARING

IN THE MATTER OF:

Application of Texaco, Inc. for a
unit agreement, Lea County,
New Mexico.

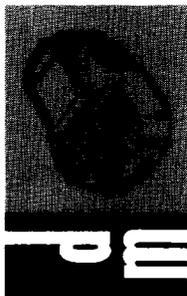
Application of Texaco Inc. for
a waterflood project, Lea County,
New Mexico.

Case 4157

Case 4158

BEFORE: ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING



MR. UTZ: Cases 4157 and 4158.

MR. HATCH: Case 4157, application of Texaco, Inc. for a unit agreement, Lea County, New Mexico.

Case 4158, application of Texaco Inc. for a waterflood project, Lea County, New Mexico.

MR. KELLY: Booker Kelly of White, Gilbert, Koch & Kelly, appearing in behalf of the Applicant. I have one witness who will testify in both Cases. I ask that we consolidate both Cases for Hearing.

MR. UTZ: Any other appearances?

(Thereupon, Applicant's Exhibits 1, 2, and 3 in Case 4157 were marked for identification.)

DALE McCARTER

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

DIRECT EXAMINATION

BY MR. KELLY:

Q State your name, position, and employer, please?

A I am Dale McCarter with Texaco, Incorporated.

I am the Assistant District Engineer in charge of reservoir at Hobbs, New Mexico.

Q Have you previously testified as an expert witness before this Commission?

A Yes, I have.

Q Now, referring to the phase of Texaco's application concerning the unit agreement, and referring to the copy of the unit agreement marked Exhibit 1, have you participated in the preparation of this agreement, and are you familiar with its terms?

A Yes, I am.

Q Could you show the Examiner where the plat that shows the proposed unit area is located in this exhibit?

A The plat of the unit area is attached to the unit agreement as Exhibit A, and it is marked by paper clip in your copy.

Q And it shows the unit area in the cross hatched outlined, is that correct?

A Yes, in the dashed outlined.

Q Now, in the unit agreement, proposed unit agreement, is the actual legal description also set out somewhere?

A The legal description is set out as Exhibit B, immediately following Exhibit A of the unit agreement, and it is referred to in Section 1.3 on Page 2 of the unit agreement. It is referred to in that Section.

Q What are the total number of acres in the proposed unit?

A 1.516.31 acres.

Q Can you explain to the Examiner what type of

acreage this concerns, as far as State, Federal, or fee?

A This proposed unit contains State and fee acreage. There is no Federal acreage involved. The State acreage is 1,196.31 acres, and the fee acreage is 320 acres, or approximately 79 percent of the unit area is State royalty.

Q Now, referring to what has been marked as Exhibit 2, how do you stand as far as the approval of the State land Office?

A Exhibit 2 is a letter from the State Land Office, Commissioner of Public Lands, approving the form and content of the unit agreement. The State has not actually signed the ratification from of the agreement yet.

Q It is pending?

A It is pending the OCC approval.

Q Except for that, then, you would have, just based on the State's consent alone, almost 80 percent of the royalty interest approved?

A Based upon the State's interest alone, it would be approximately 95 percent.

Q Of the royalty interest?

A Of the royalty interest involved.

Q The first figure you gave was acreage interest?

A Acreage interest, yes.

Q How do you stand, as far as your royalty agreement with the fee land?

A Exhibit 3 is a status sign-up as of June 23, 1969. The three fee tracts are tracts 4, 8, and 12. The royalty interest on tract 4 is 77.54 percent signed. On tract 8, there are 32.81 percent signed. And on tract 12, there is 97.06 percent signed. You will also notice that 100 percent of the working interest of all tracts have been signed.

Q Who are the other working interest owners?

A The Texaco as operator, Phillips, Gulf Oil Corporation, Atlantic Richfield, and Sun Oil Company, DX Division.

Q Now, do you anticipate that there will be any problem of getting the other royalty interests up to your 75 percent qualification minimum?

A The only tract which you could possibly have this problem with would be tract 8. There is one major unsigned interest holder in this tract which hasn't signed. However, there is a method set out in the unit agreement whereby the tract can be included, as long as it has 100 percent working interest sign-up.

Q So the area that is shown on Exhibit A will be totally committed to the unit, as far as you are aware of?

A As far as we are aware now, all tracts will qualify.

Q And Texaco will be the operator of the unit?

A Yes.

Q Now, what zones are to be unitized?

A The Grayburg formation and the top 150 feet of the San Andres will be the unitized interval.

Q What paragraph or section of the unit agreement specifies the unitized zones in the well from which the log is taken?

A This is Section 1.4 on Page 2 of the unit agreement. This ties this interval into a log interval, and one of the Texaco wells.

Q The purpose of this unit is for secondary recovery operations, is that correct?

A Yes, it is.

Q Is this proposed unit agreement similar to other unit agreements that have been approved by this Commission?

A Yes, it is.

Q In your opinion, will this agreement protect the correlative rights of all parties that would be bound thereunder?

A Yes, it will.

Q Is Exhibit No. 1 a true copy of the proposed unit agreement?

A Yes, it is.

MR. KELLY: At this time, I move the introduction of Texaco's Exhibits 1 through 3 in Case 4157.

MR. UTZ: Without objection, Exhibits 1, 2, and 3, will be entered into the record of this Case.

MR. KELLY: That is all we have on this phase.

MR. UTZ: Any questions of the witness? You may proceed.

(Thereupon, Applicant's Exhibits 1 through 7 in Case 4158 were marked for identification.)

BY MR. KELLY:

Q Going on to that phase of the application concerning the waterflood project, and referring to what has been marked as Exhibit 1 in Case 4158, would you explain the plat to the Examiner?

A Exhibit 1 is a plat of the proposed unit area and the surrounding wells, with the numerous producing pools as defined in the nomenclature of the New Mexico Oil Conservation Commission designated by different color codes, which is in the legend of the plat.

Q And the cross hatched area is the proposed unit?

A Yes.

Q Now, I notice that some of the wells in the northern part of the proposed unit are in a different pool. How do you plan to handle that?

A Eight of the wells in the northern row of the unit area are in the Monument Pool. The remainder of the

wells in the unit area are in the Eunice pool. These wells have been recommended to be removed from the Monument pool and placed into the Eunice pool, so that all of the project will fall in the Eunice pool, and this is scheduled for the July nomenclature hearing.

MR. HATCH: You already gave that information to Mr. Nutter?

THE WITNESS: I have.

Q (By Mr. Kelly) Now, is there a previous approved waterflood unit in this proposed new waterflood unit?

A There is a previously approved project.

Q Project, excuse me.

A Which was approved by NMOCC Order R-3398 in April of 1968, for the conversion to water injection of Texaco's New Mexico C, State NCT State No. 2, Well No. 7, located in Unit G of Section 19, Township 20 South, Range 37 East. It is designated by the triangle on the plat.

Q What area does that area include?

A That project includes the northeast quarter of Section 19.

Q Now, I believe you stated this is for water injection. This was an application for secondary recovery?

A Yes, it was.

Q What has Texaco done, as far as injection in this

well?

A Texaco initiated injection in 1968. We have been injecting since that time at a reduced rate. We started out about 100 barrels a day, and we are down to about 50. We are not applying any pressure to the well, other than just a minimum. I think it is 10 pounds, or something of this nature.

Q So I assume you haven't had any kind of response from that injection well?

A No, we have not.

Q Do you feel the lack of response is any reflection on the lack of success of this larger project?

A No, I do not.

MR. KELLY: Mr. Examiner, we would ask that that original Order be rescinded on the assumption that this new project be approved, because this well will form a part of the new waterflood project.

MR. HATCH: What was the Order No. on that?

MR. UTZ: 3398. There is a question in my mind how would they rescind the Order, what authority would they have. I guess the Order would be good for the period of time he was injecting in the well.

Q (By Mr. Kelly) Now, you will be injecting -- for the record, give us the zones that you will be injecting into?

A We will be injecting into the unitized interval which is the Grayburg and the San Andres.

Q Now, what is your average daily production on the producing wells on that proposed unit now?

A The average daily production, oil production is 6 barrels of oil per day per well.

Q In your opinion, are the wells on the proposed unit in the advanced stage of depletion?

A Yes. I have calculated depletion at 88 percent.

Q Now, referring to what has been marked as Exhibit No. 2, which is your performance curves, would you go over those for the Examiner?

A Exhibit 2 shows the oil production in barrels per month, the gas-oil ratio in cubic feet per barrel, and the water production in barrels per month for the time period of 1951 through early 1969. The oil production from the proposed unit area is currently around six barrels per day -- six barrels per month, excuse me, or of barrels per day per well. The average gas-oil ratio is 4,300, and the average water production is 13,000 barrels of water per month.

Q Does the Exhibit No. 2 show the performance curves for oil and water from the beginning of this reservoir?

A No, sir, it does not. Some of these wells were completed in the late 30's, or most of them were completed in the late 30's and early 40's.

Q So you probably passed your peak of production in the 40's, is that correct?

A Probably did, yes.

Q You have about 13,000 barrels of water per month. What are you doing with this water now?

A This water now is being disposed of through the Rice Engineering operated Eunice- Monument salt water disposal system.

Q Do you plan to produce this produced water in your own injection project?

A Yes, we will reinject produced water in this project.

Q Will you have any other type of water?

A We will use fresh water under existing water rights held by Texaco. We have 500-acre feet appropriated under water right permit L-4410.

Q Now, how many injection wells will there be?

A There will be 18 wells used for injection. This includes the previously authorized one well.

Q And all of these are existing wells now?

A Yes.

Q Either presently in production or temporarily abandoned?

A That's correct.

Q What will be your injection rate per well?

A Injection rate will be approximately 500 barrels of water per day. We estimate 500 pounds of pressure.

Q Do you have an estimate of how long you would expect to have to go before you get response, or before you get fillup?

A We have estimated response in approximately 18 months.

Q Prior to fillup?

A Yes.

Q What is the drive mechanism in this reservoir?

A Solution gas drive.

Q Can you give the Examiner a figure for the cumulative oil production?

A Cumulative production to April 1, 1969 is 7,366,000 barrels.

Q And you have, I think, previously testified that you have estimated 88 percent of primary has been produced, is that right?

A That's right.

Q What do you feel your success will be on secondary recovery?

A Well, we feel that the project will be successful, and we have estimated that we will recover 75 percent of our ultimate primary recovery during secondary recovery operations.

Q What spacing pattern do you plan to use?

A This will be an 80-acre five spot pattern.

Q Referring to Exhibit No. 3, which lists all the wells in the project area, will you explain the significance of that to the Examiner?

A Exhibit 3 lists all of the wells by lease name, by location, by well number, and also contains the allowable which has been set by the Commission for the month of June.

Q And the average production rate then for all these wells is about six?

A Yes. And you notice there are a few wells on here capable of producing around 30 barrels per day.

Q Exhibit No. 4 is the list and location of proposed injection wells, is that correct?

A That's correct. This lists the proposed injection wells by operator, by lease name, and well number.

Q And will this be redesignated once the unit is into effect?

A Yes, when the unit goes into effect, all the wells will have a list name of the ~~Eunice~~-Monument unit with a designated unit number.

Q And the Commission will be advised of the new designation?

A Yes.

Q Are all of the proposed injection wells single completion wells?

A Yes, they are.

Q Referring to Exhibit No. 5, your diagrammatic sketch, would you locate the well that this depicts on your Exhibit 1, and describe it?

A We have used Exhibit No. 5 as a typical injection well to show the Commission. It is Texaco's New Mexico H State NCT 2, Well No. 16, which is located in the northeast quarter of the southwest quarter of Section 20. The proposed installation, or this installation shows the surface casing with the cement circulating to surface, showing the intermediate casing set at 1,182 feet, and the amount of cement used, and that the cement did circulate to the surface. And then the production string of 5 1/2 inch casing set out 3,650 feet, cemented with 150 sacks.

Now, we have calculated the cement top on this at 1,855 feet. This was calculated using a 75 percent fillup factor. You will notice these wells are openhole completions. We have indicated the openhole interval and the TD. It shows that we will run two inch internally plastic coated tubing, and will be set on a tension packer approximately 50 to 100 feet above the casing shoe, and the tubing casing annulus will be filled with an inhibited fluid, with a pressure gauge at the surface.

Q All of these wells are presently opened in the proposed injection zone?

A Yes.

Q Now, Exhibit No. 6 contains all the same pertinent data for each of the proposed injection wells, is that correct?

A It shows the same data. However, it does not show where the tubing is going to be set, but I have previously said the tubing will be set on a packer approximately 50 to a 100 feet above the casing shoe.

Q And will the tubing be plastic coated?

A Yes.

Q And you will have inert fluid in all your annuluses along with a pressure gauge?

A Yes.

Q Is there any producing formation upstructure on these wells?

A Yes, the Eumont-Queen gas is productive above the Eunice pool.

Q Are you aware of any fresh water zones?

A Yes, Ogallala is present. That is where we will get our fresh water injection source.

Q In your opinion, will your casing and cementing program **prevent** migration of any fluid to any other zones, including fresh water zones?

A Yes.

Q Exhibit No. 7 is a log. Would you identify the

well that that log is taken from?

A This is the same well which we used to show the diagrammatic sketch. It is Texaco's State H NCT 2, Well No. 16.

Q Is this log typical of any other wells in the proposed unit?

A Well, I would say it would be typical, yes.

Q Are there any other logs available, as far as you know?

A There are a few other logs there, but I don't know how many. I haven't made a search of the record.

Q The Commission would have the log on the prior approved injection well, I assume?

A Yes, they would have that.

MR. KELLY: Mr. Examiner, would you want to have any other logs? We can locate them.

MR. UTZ: I don't think it is necessary.

Q Now, in your opinion, would the granting of this application prevent waste by allowing Texaco to recover oil and gas that would otherwise be left in place?

A Yes, I do.

Q Do you feel that the proposed secondary recovery project will have any adverse effect on any operators in the area?

A No, I do not.

Q Were Exhibits 1 through 7 prepared by you or under your supervision?

A Yes, they were.

MR. KELLY: At this time, I move the introduction of Texaco's Exhibits 1 through 7.

MR. UTZ: Without objection, Exhibits 1 through 7 will be entered into the record of this Case.

(Thereupon, Applicant's Exhibits 1 through 7 in Case 4158 were admitted in evidence.)

MR. KELLY: Mr. Examiner, at this time I would ask that our application be amended to allow Texaco, on the assumption that this Order is approved -- or the application is approved, upon Administrative application to have their waterflood project expanded prior to response. They have discussed this with the attorney beforehand.

MR. MATCH: I don't think it would be necessary to put ~~it~~ in the unit agreement.

MR. UTZ: Can we do that without readvertising?

MR. HATCH: Yes.

MR. KELLY: That is all we have on direct.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. McCarter, are all your injection wells shown on Exhibit 3? I found that two of them, so I assume --

A Exhibit 3 contains all of the wells that will be in the unit. Exhibit 4 just takes the injection wells out of that exhibit and identifies them.

Q I need the exact location, so I can use Exhibit 4 and find the exact location on Exhibit 3.

A That's correct.

MR. UTZ: Any other questions? You may be excused. Any statements? We will take the Case under advisement.

I N D E XWITNESS PAGE

DALE McCARTER

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

I, SAMUEL MORTELETTE, Court Reporter 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.

Samuel P. Mortelette

I do hereby certify that the foregoing is a complete record of the proceedings in the hearing of Case No. 41-57 heard by the Commission on August 25, 1969.
[Signature]
New Mexico Oil Conservation Commission