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BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
March 20, 1963

EXAMINER HEARING

IN THE MATTER OF:

Application of Cima Capitan, Incorporated, for a waterflood project, Eddy County, New Mexico. Applicants, in the above-styled cause, seek authority to institute a waterflood project by the injection of water into the Grayburg-San Andres formation, Red Lake Pool, Eddy County, New Mexico, through 13 wells located in Sections 22 and 27, Township 17 South, Range 28 East.

Case No. 2775

BEFORE: Elvis A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: Case Number 2775.

MR. DURRETT: Application of Cima Capitan, Incorporated, et al, for a waterflood project, Eddy County, New Mexico.

MR. WATSON: I am Fred Watson of the law firm of Watson and Watson of Artesia, New Mexico, representing the applicant in this case. I have with me Burt Murphy, who is the president of Cima Capitan, Incorporated.

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

MR. WATSON: If the Examiner please, I do have a



letter of authorization from Red Lake Oil Company and Castle and Wigzell to give to Cima Capitan, to represent them in this hearing. Would the Examiner like to have this file?

MR. UTZ: I think it will be well to have a copy made a part of the record.

MR. WATSON: We introduce these three operators at the outset of the application for cooperative waterflood. The leases will still stand on an individual basis.

BERT MURPHY

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

DIRECT EXAMINATION

BY MR. WATSON:

Q Would you state your full name, Mr. Murphy?

A Bert H. Murphy.

Q What is your residence?

A Artesia, New Mexico.

Q What is the extent of your education, Mr. Murphy?

A I have a Bachelor of Science degree in Petroleum Engineering from Stanford University and I have done graduate work in reservoir and oil properties appraisal in the University of Southern California.

Q I see, what is your practical experience in it?

A I have participated in approximately, oh, five waterfloods; one, being in California and the rest in the mid-

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continent, in one or more capacities, as Project Engineer or Supervisor or Chief Engineer in a waterflood. I have also been Coordinator and Engineer and Owner of some of these waterfloods.

MR. WATSON: Are the witness' qualifications acceptable?

MR. UTZ: Yes, they are.

Q (By Mr. Watson) Mr. Murphy, I will hand you what has been marked as Exhibit Number 1 in Case 2775 and ask you to state what that is and what it depicts?

A This is a blueprint from the Southwest Line Company showing the operating leases on and around the proposed project in Section 22 of Township 17, 28. It shows this for a distance of approximately two miles south, two north and two east and two west.

Q It shows the ownership within more than a mile from the radius of the project?

A Yes, sir.

Q The proposed project is marked in yellow?

A Yes, it showed that the project will cover the entire Section 22 with the exception of the southeast to the southwest and the southeast to the southeast. It will also include the north half of the north half of Section 27.

Q I will hand you Exhibit Number 2 and ask you if that is a picture of the immediate project area?

A Yes, this map shows Section 22 in the north half of

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the north half of Section 27 and an area of approximately one-half mile around the proposed project area. It also shows the proposed injection wells and producing wells for the project.

Q Does it show those wells which are now producing, which are proposed to be converted into injection wells?

A It shows--the wells presently producing to be converted, are the solid center circle with an additional circle around that. The ones that are proposed to be drilled are shown as concentric circles not colored in the center of them.

Q Does this project show that there is 80 acres described as the northeast of the northwest and the northwest of the northeast are operated by Castle and Wegzell?

A That is correct.

Q Or, it shows Castle and Wegzell's Gulf State lease? Cima Capitan is shown as the owner of the operating rights?

A The remainder of the section, with the exception of the southeast to the southwest and the southwest to the southeast.

Q As, the Red Lake is shown to have the northeast of the northwest of Section 27?

A Yes.

Q Does this Exhibit Number 2 reflect the type of pattern you will use for the proposed waterflood?

A Yes, it does.

Q What type of pattern is it?



A It is a modified five spot pattern type of flood.

Q What is the reason for it being modified?

A It is modified to take advantage of existing facilities and to conform with the reservoir characteristics.

Q Part of the reason it is modified is because of the irregular spacing of the existing wells?

A That is correct. Also, of course, to protect correlative rights.

Q Do you feel that this pattern will give an effective sweep efficiency?

A Yes.

Q Do you feel it will protect the correlative rights of interested parties?

A Yes, with one modification that has been pointed out to us by the State Land Department, in that you have State and Federal leasing adjoining between Sections 22 and 15 and at this time, the effectiveness of the flooding in that area is unknown and there has been no arrangements made with Kincaid and Watson or with Phillips who own Kincaid and Watson, the southeast quarter; as, we would propose that the Castle Gulf State Number 1 not be converted until cooperation is arranged with them or in the event that it can not be arranged, to move the proposed injection well location from the northeast of the northeast, up to the line to protect correlative rights between the State and Federal leases.

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Q Actually, all the wells shown on here as either producing and to remain producing or shown as to be converted as injection wells or to be drilled as producing or injection wells are based upon a modified five spot pattern?

A Yes.

Q Application has been made, but this is proposed?

A Yes.

Q Name the producing wells that are proposed to be converted to injection wells?

A The producing wells proposed to be converted to injection are the Capitan Wells Number 3, 4 and 6 and to recomplate the Castle Well Number 1 or if it is impossible to recomplate that well, to drill a new injection well in the vicinity of the abandoned location or the abandoned well.

Q As to the wells which you have identified, they are numbered in Exhibit Number 2 in accordance with the numbers you have just given?

A Yes, sir.

Q And, the project depends on the performance from this initial five spot, as to whether the applicant will go on beyond that?

A Yes.

Q But, they are applied for?

A Yes.

Q I will now hand you Exhibits 3A, 3B and 3C and I



will ask you what these exhibits depict?

A These exhibits show the production in barrels per year for the three tracts that have separate operators. Exhibit 3A is the Capitan-Red Lake lease in Section 22, showing the production history from January 1st, 1933 to January 1st, 1963.

Q On the 480 acres which Capitan has been operator of?

A Yes. Exhibit 3B shows this information for the Red Lake Oil Company levers lease in Section 27 from--actually, there is no record from 1935 through '40 but from 1941 again to the 1st of January of 1963. And, Exhibit 3C shows this information for the Castle and Wegzell Gulf State lease for the years--this is a recently drilled lease--for the years 1959 to the 1st of January, 1963.

Q Leaving Exhibits 3A through 3C inclusive, I would like for you to turn to Exhibit 4A, 4B and 4C and I will ask you what these are?

A Again, that is these data on production in graphic form. The production has been graphed, showing years along the bottom and production rates and average barrels per month along the vertical scale. It also shows that the present production on the Capitan-Red Lake lease is on an average 1.2 barrels per day per well. On the Red Lake Oil Company levers lease--

Q That is in Section 27?

A Yes. The average is 1.1 barrels per day, per well.

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And, on the Castle and Wegzell State lease, the average is 3 barrels per day per well.

Q Exhibit 4A then is a graphic reproduction of the annual production of the 480 acres of which you are operators?

A Yes, sir.

Q Exhibit 4B shows the annual production, graphically, of the Red Lake levers lease of Section 27?

A That is right.

Q And coming to the 4C is the 180 acre tract of Castle and Wegzell's Gulf State lease?

A That is right.

Q From these graphs, and tabulations of annual production, would you say that the leases for which this application is sought are approaching an economic limit?

A Yes, they are marginally producing leases. The graphic data indicates clearly that they have declined to marginal or stripper condition.

Q Do you believe that flooding these leases in accordance with the application made here would tend to conserve oil which would otherwise be lost?

A Yes.

Q I will hand you what are marked as Exhibits 5A, 5B and 5C and ask you to state what these exhibits reflect?

A These exhibits tabulate the well data. Again, Exhibit 5A is the Capitan-Red Lake. Exhibit 5B is the Red Lake levers

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lease; and, Exhibit 5C is the Castle and Wegzell Gulf State lease. And, the information shown on these exhibits are the well number, location, completion date, total depth casing record and treatments where that information was available to us.

Q Where the information was not available, the treatment is of course, marked "NR", no record?

A That is correct.

Q Will you please identify Exhibit Number 6?

A Exhibit Number 6 is a Gamma-Ray neutron log, a well log of the Red Lake Oil Company levers lease 24, which is located in the Section 27. It is our only available electric type log on these wells.

Q And, where does the log show the pay interval?

A It shows the pay interval in this well by approximately 1900 feet. The top of it at approximately 1923 feet, going through to the bottom of the pay zone at 1937. This is the premier sand zone.

Q Premier sand of the Grayberg?

A Yes, sir.

Q Do you know whether or not this is the same zone which has been flooded before?

A Yes, it has been flooded and it is being flooded in the western portion of the Red Lake field and it has been flooded in other projects in the area.



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Q From your knowledge, have these been successful flood projects?

A They have indicated success, yes.

Q Now, on this proposed flood, will you have water available for the flood?

A Yes, we will have.

Q I will hand you Exhibit Number 7 and ask you to identify that and read it into the record, please.

A This is a letter from the Caprock Water Company to Cima Capitan Incorporated dated March 16, 1963, and it says:

"Gentlemen:

Thank you for your inquiry regarding injection water for your waterflood project in Section 22, T17S, R28E.

We have water available in your area and are willing to furnish the necessary amounts to you at your plant site.

Yours Very Truly,

CAPROCK WATER COMPANY"

Signed by Roy Elliott, who is assistant to Harold Morgan.

Q Has Cima Capitan Incorporated prepared a skematic showing the manner in which they will complete the injection wells?

A Yes, they have.

Q Is this depicted on what has been marked Exhibit Number 8?

A Yes, it is.

Q Would you state what Exhibit Number 8 shows?



A Exhibit Number 8 shows that the pay interval occurs at approximately 2,000 feet and that it has been, on the wells to be converted to present producing status that they have been shot with nitroglycerine and cleaned out, leaving a shot cavity. It shows that it is planned by Capitan to run casing to just above the pay zone and cement this casing to the surface so that you have a cased and cemented well to the surface. It also shows that in the old producing wells that 8-5/8 inch casing had been set. It is Capitan's further plan to inject through tubing by setting a packer near the bottom of the casing.

Q Do you believe that the proposed completion shown on Exhibit Number 8 will adequately protect the surface waters in the area, if any?

A Yes, sir.

Q Do you know whether or not the casing skematic of the injection well completion, do you know whether this exhibit has been submitted to the State Engineering Office?

A I believe it has been.

Q More for summary than anything else, then, is it your opinion that the leases for which this waterflood application is made are not at the economic limit but reaching the economic limits; and, is it your further opinion that this proposed waterflood project as outlined in these exhibits and the application will result in conservation of oil which would otherwise be lost?

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A Yes.

Q Do you believe that the program as set up will protect correlative rights?

A Yes.

MR. WATSON: At this time the Applicant offers Exhibits 1 through 8 inclusive.

MR. UTZ: Without objection, Exhibits 1 through 8 will be admitted.

MR. DURRETT: Mr. Murphy, for the purpose of the record, Exhibits 1 through 8, with the exception of the log and the letter were prepared by you or under your direction?

A Yes, they were.

MR. DURRETT: Thank you.

MR. UTZ: Are there any questions of the witness?
Mr. Irby?

CROSS EXAMINATION

BY MR. IRBY:

Q Frank Irby, State Engineer's Office. I would like Mr. Murphy to state for the record the source of the water which Caprock is furnishing for this flood?

A Mr. Irby, that water is from the Red Lake area which is several miles north of here. This water was used by the Gray Ridge Oil Company in their waterflood in the Artesia field. It is under the State water easements and is outside the Artesian Basin. It is salty.



Q Yes, sir. Do you have a copy of the analysis of this water available?

A I do have. I don't have one with me but I have one available in Artesia. I'd be happy to submit one.

MR. IRBY: I would appreciate receiving one and that is all I have.

MR. UTZ: Any other questions?

BY MR. UTZ:

Q Do you intend to utilize tubing either plastic or cement for your injection strike?

A Yes, plastic coated tubing.

Q I believe you stated in relation to Exhibit 8 that all your injection wells would have casing set to the top of the pay and cement circulating to the surface?

A Yes, sir, in the case of a new injection well, we might set through the pay and perforate; but, that would be the only change in the completion.

Q On your Cima Capitan Red Lake lease, you have stated that the average production per day is 1.2 barrels. How long a period is this average for? Is it just for the last month?

A The last year.

Q 1962 production?

A Yes.

Q Now, what is the range of production among those wells? In other words, what is the low and high?

A They are on a central power and the facilities for

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frequent tests are not available but they have been tested over the past year. I believe the highest is in the order of $3\frac{1}{2}$ barrels per day and the low is--I don't know what--something less than a barrel.

Q Well, if it is only $3\frac{1}{2}$ barrels for high, I wouldn't worry about the low one.

A Yes.

Q How about your Red Lake lease or the Red Lake levers lease? What would be your high for that?

A I don't have that data but I can state that there would be no well there making in excess of 3 barrels.

Q On your Castle and Wigzell, you only have two wells on that lease, do you not?

A Yes, two wells and they are averaging 3.

Q On your Exhibit Number 1, you have shown what I would interpret to be a Red Lake unit. Is that a waterflood to the west?

A Yes, that is Cursy and Company.

Q That is called the Red Lake unit 1 flood?

A I believe, yes.

Q That is the closest flood to this area then?

A That is correct.

Q Is that flood operating under Rule 701?

A I am quite sure it is.

MR. UTZ: Are there any questions of the witness?

MR. DURRETT: Yes, I have one. Mr. Murphy, do I

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understand correctly that concerning your Castle and Wigzell Gulf State's Well Number 1, which is located in the northwest quarter of the northeast quarter of Section 22, that you don't propose to put that well on injection until you have worked out an agreement or received approval from the Federal Government to do so?

A Well, it would be a line cooperation with Kincaid and Watson. In other words, if and when they apply for flooding on their lease and would work out something and protect the correlative rights between the states and Federal public lands and if it was harming the floods and delaying it, then we would propose not to put that on and move the injection well from the northeast to the northeast up to the line so that it was 15 feet from the line. Next, we would have a situation similar to our pattern in the center of Section 22 where we have two inside producers surrounded by injection wells. It should be a sufficient pattern.

MR. DURRETT: Thank you. I think that is all cleared up.

MR. UTZ: Mr. Murphy, are all of your proposed injection wells listed on your Exhibit 5A, B and C?

A They are listed, I believe, they are listed in the application.

MR. WATSON: If we could look those over just a moment?

MR. UTZ: Yes. They are probably listed but not as



injection wells.

A This 5A shows all the presently active wells on the Capitan and it doesn't specify that they are producing or injection wells but 3, 4 and 6, on that list would be.

Q Well, if you know them readily, let's just state on each one what the injection wells are?

A On 5A, the Capitan Red Lake, the well No. 3, 4 and 6 are proposed as injections. All the other injection wells that are proposed on that lease or that operation or location so there is no data shown.

MR. UTZ: You don't know where you intend to drill those wells?

A We have them shown in the units, production units, that they would be in on Exhibit Number 2 and they would be located approximately as shown on this map, with any modifications that might develop from data developed as the project goes on that would change the locations being submitted to the Commission.

Q Then, it would probably be better for you not to apply now for the locations, but get administrative procedure at the time you are to drill them.

A Yes, sir.

MR. UTZ: Can you identify the proposed injection wells on the Red Lake lease?

A The proposed injection wells are numbered 20 and 24. And on the Castle and Wigzell Exhibit 5C, it is Well Number 1

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with the qualifications as outlined concerning correlative rights.

Q How about the second well that you show on your exhibit?

A This is presently a well that has been plugged and abandoned and we would propose to re-enter that well and complete it as an injection well if possible, or if not, drill a new injection well in that vicinity.

Q Well, that is the well in the southwest corner of that Gulf State lease that you are speaking of?

A Yes, sir.

Q How about the one which you show as an injection well, which is not a producing well?

A That is the one I suggested the qualifications are for protecting correlative rights. It is a proposed injection well but the conversion of it depends upon something that is satisfactory to the State Land Office on protecting correlative rights between the Federal and State leases.

Q And, you don't know for sure whether you want to use that one as an injection well or not?

A That is right.

Q So, actually, all you are requesting at this time on that particular lease is one well as an injection well?

A Yes, sir.

MR. UTZ: Any other questions of the witness? The



witness may be excused. Any other statements to be made in this case?

MR. WATSON: Mr. Examiner, I am not sure that I understand one of your remarks as to the wells which the Applicant proposed to drill. Should we file an amended application leaving those out or what?

MR. UTZ: The usual waterflood order includes an administrative procedure for further injection wells which may be applied for and granted in the judgement of the Secretary-Director.

MR. WATSON: In other words, the owner will merely give approval to the program subject to the various applications?

MR. UTZ: For the number of wells that you have so stated you want, you know the exact location of three. For instance, in paragraph number 5 of the application, we have seven tentative wells to be drilled in this program if the additional five spot warrants it.

(To the witness) Now, all that we have discussed up to now on Exhibit 5A, B and C, are five wells?

A Yes.

MR. WATSON: Well, actually, there'd be six wells, I believe.

MR. UTZ: That is true.

MR. WATSON: The owner itself wouldn't encompass these proposed wells to be drilled. They have to be applied for?

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MR. UTZ: Not unless you state what the locations are and that you intend to drill them.

MR. DURRETT: I think the wells that you propose to drill are not included in any order that the Commission might issue approving your application. That might be handled by the Administrative Rules.

MR. WATSON: In other words, the owner will accept the six present wells we are talking about now?

MR. UTZ: Unless you want to change the location of these wells in the record?

MR. WATSON: We prefer to handle it by administrative procedure. I just didn't want there to be any conflict as to what the Examiner is willing to put in the Order and what we have applied for. We will handle the drilled wells by administrative action.

MR. UTZ: All right, sir. Any statements to be made? If there are not, the case will be taken under advisement and we will have a 15 minute recess.

(Whereupon a recess was taken at 10:30 A.M.)

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