

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO
December 11, 1961

-----)
IN THE MATTER OF:)

Application of Zapata Petroleum Corporation)
for a waterflood project in the Maljamar)
(Grayburg-San Andres) Pool, Lea County,)
New Mexico. Applicant, in the above-styled)
cause, seeks permission to institute a)
waterflood project in the Maljamar (Gray-)
burg-San Andres) Pool in Sections 17 and 20,)
Township 17 South, Range 33 East, Lea)
County, New Mexico, with the injection of)
water initially to be through three wells)
located in said Sections 17 and 20; said)
project is to be governed by Rule 701.)

Case 2458

-----)
BEFORE:)

Elivs A. Utz, Examiner.

TRANSCRIPT OF HEARING

MR. UTZ: We will take up next Case 2458.

MR. WHITFIELD: Application of Zapata Petroleum Corporation for a waterflood project in the Maljamar (Grayburg-San Andres) Pool, Lea County, New Mexico.

MR. CAMPBELL: Jack M. Campbell, Campbell and Russell, Roswell, New Mexico, appearing on behalf of the applicants. I have one witness to be sworn.

(Witness sworn)

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

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KENNETH R. HUDDLESTON, called as a witness, having been first duly sworn, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CAMPBELL:

Q State your name, please.

A Kenneth R. Huddleston.

Q Where do you live, Mr. Huddleston?

A In Midland, Texas.

Q By whom are you employed and in what capacity?

A By Zapata Petroleum, 901 West Missouri, petroleum engineer.

Q Will you give the examiner a brief statement of your educational and professional background, please?

A Graduated from Texas A and M, 1951, employed by Ohio Oil Company from June, 1953 until July, 1957. At that time was employed by the Zapata Petroleum Corporation.

Q Have you done work in the Permian Basin area?

A All of that time was in the Permian Basin, except from 1955 until 1957.

Q Are you acquainted with the application of Zapata in this case?

A Yes, sir, I am.

(Whereupon, Applicant's Exhibit 1 was marked for identification.)

Q I hand you what has been identified as Exhibit Number

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1, and ask you to state what that is, please.

A This is a plat of the East Maljamar field area. The lease circled in red is our Western State lease located in the South Half of Section 17, North Half of Section 20, Township 17 South, Range 33 East.

Q This is all one lease, is it?

A Yes, sir, that's correct.

Q Your company is the operator of that lease?

A Yes, sir, that's correct.

Q Go ahead and state what the circled wells indicated?

A The wells circled in red are the proposed injection wells for our pilot, and the wells circled in green are the proposed injection wells of our offset operator.

Q Have you made some studies of the wells on this lease with regard to their completion and production history?

A Yes, sir, we have.

(Whereupon, Applicant's Exhibit 2 was marked for identification.)

Q I hand you what's been identified as Applicant's Exhibit Number 2 and ask you please to state what that is.

A This is a resume of the well histories showing their location, when they were completed, where the surface pipe was set at, the total depth to which they were set, and the total depth of the wells and the size of casing, and the total depth at which it was set and the amount of cement with which it was

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cemented, with perforations and treatment records potentials and work-overs.

Q From an examination of the history of the completion and production and work-overs of these wells, does it appear that they received initial treatments and that the wells have been worked over within economic limits to obtain the greatest possible primary recovery from the wells?

A Yes, sir, these wells, with the exception of one or two, fracked and completed and several worked over in '57, '58, '60.

Q Have you compiled the per monthly production from this lease and the total cumulative production from December 1, 1961?

A Yes, sir, this was compiled.

(Whereupon, Applicant's Exhibit 3 was marked for identification.)

Q I'll hand you what has been identified as Exhibit 3, and ask you if that is that compilation?

A Yes, sir, that is correct.

Q Referring to Exhibit 3, does this indicate that since 1958 there has been a consistent decline in the cumulative monthly production from this lease?

A Yes, sir, that's correct.

Q What has the cumulative production been from the lease to December 1, 1961?

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A 734,099 barrels of oil.

Q Have you made a test of these wells recently to determine the present producing status of each of the 16 wells situated upon this lease?

A Yes, sir, we have.

(Whereupon, Applicant's Exhibit 4 was marked for identification)

Q I hand you what has been identified as Applicant's Exhibit Number 4, and ask you to state if that is that compilation?

A Yes, sir, this is a copy of the well tests that were conducted starting on about the 15th of October.

Q I refer you to the wells 1-X and 2, and well 16 which appear to have been daily producing wells, would you make a comment concerning those particular wells?

A 1-X and 2 have been recently worked over, and were fracked. Well No. 16 was not drilled until in '58 and hasn't gone as sharp a decline as the other wells have yet.

Q Based upon your knowledge of the decline of primary production from these wells since they have been completed on the lease, and I'm speaking now of all the wells, do you anticipate that there will be a steady decline in the producing rate of the three wells that have been referred to?

A Yes, sir, they'll decline as these other wells have, I'm sure.

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Q What is the average production per well on this lease, based upon these tests as indicated by Exhibit 4?

A A little over ten barrels per day.

Q Do you believe that within the time required to get reaction from any of those wells from injection with water, that the wells will average below ten barrels per day?

A Yes, sir, I do, because the November production averaged 10.3 barrels of oil per day per well.

Q Have you, Mr. Huddleston, based upon the primary oil production, prepared a decline curve for your Western State lease that's involved in this application?

A Yes, sir, we have.

(Whereupon, Applicant's Exhibit
5 was marked for identification)

Q I hand you what has been identified as Exhibit No. 5, and ask you to state if that is that decline curve?

A Yes, sir, this is the decline curve that we prepared on this Western State lease.

Q I refer you to a rather sharp increase in production about the middle of 1960, following which there has been a consistent decline in the cumulative production. Would you refer to that and give the Examiner your explanation of that situation?

A At this time this lease was owned and operated by Western Oil Fields and they worked over several of the wells



on the lease, as is indicated by the resume of the well record, and they continued these work-overs until they realized it was uneconomical to continue doing so, and at that time the lease went back on its normal decline.

Q Do you believe that your projection of anticipated further decline in production is a reasonable projection based upon the history of primary production on this lease?

A Yes, sir, I do.

Q Mr. Huddleston, have you made any calculations with regard to the estimated primary and waterflood reserves and the possible ultimate recovery, both primary and cumulative, on this lease?

A Yes, sir, I have.

(Whereupon, Applicant's Exhibit
6 was marked for identification)

Q I refer you to what has been identified as Applicant's Exhibit Number 6, and ask you if that is your calculation.

A Yes, sir, that's correct.

Q Will you explain briefly to the Examiner the basis for the calculation of your reserves and the data that you had available to make these calculations?

A This data was taken primarily from core analysis and gamma ray neutron logs that were run on the wells.

Q Which well had the core analysis?

A The well number 4. The primary reserves, of course,

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was arrived at by an extrapolation of the production decline curve. Our waterflood reserves were calculated to be approximately a hundred percent times ultimate primary reserves.

Q You calculated your ultimate reserves as slightly over a million barrels, is that correct?

A Yes, sir. We calculated the ultimate primary reserves to be a million forty-two thousand four barrels of oil.

Q And your ultimate waterflood reserves?

A A million forty-three thousand nine hundred twenty-six barrels of oil.

Q Do you believe that the reserves for secondary, as you have indicated, are recoverable only by the secondary methods that you propose here?

A Yes, sir, that's correct.

Q Now, will you refer to Exhibit Number 1, which is the plat, and identify for the Examiner the wells which you propose to use initially for injection wells?

A The wells number 6, 8, and 15, with well number 11 being the closed five-spot well.

Q Have you prepared and made as part of your application the casing records on these three proposed injection wells?

A Yes, sir, that's correct.

(Whereupon, Applicant's Exhibit
7 was marked for identification)

Q I hand you what has been identified as Applicant's

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Exhibit Number 7, and ask you to state if this is the casing record on these three wells?

A Yes, sir, this is the casing record on our three proposed injection wells on the Western State lease.

Q I refer you to those casing records, and will you state to the Examiner what they reflect with regard to cement that was used on the completion of these wells?

A Yes, sir, the number 6 well had ten and three-quarters pipe set at 277, cement was circulated; had 7-inch set at 4450 and cement was also circulated on the oil string. Well number 8 had ten and three-quarters pipe set at 297, the cement was circulated; 7-inch oil string set at 4497 and the top of cement is 515 feet by temperature survey. Well number 15 had nine and five-eighths, set at 279, with cement circulated, and five and a half set at 4470, and top of the cement at 725.

Q Do you believe that the treatment given these wells is sufficient to protect any formations in the water injection program?

A Yes, sir, I do.

Q You mentioned that you intend to use well number 11 as the initial five-spot well. Will you state to the Examiner what you plan to do in connection with preparing that well for production under the secondary program?

A The well itself is in satisfactory condition to be used as a five-spot well. There is a dry hole located

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100 feet West of the well and it will have to be replugged to prevent possible migration of oil.

Q What was the depth of that well?

A It was drilled to 1309.

Q What is it you intend to do?

A We plan to clean the well out to the top of the cement plug at 4200 feet and cement it back with cement plug to approximately 4000 feet.

Q Do you have available for the Examiner logs on the three proposed injection wells?

A Yes, sir, we do.

(Whereupon, Applicant's Exhibit 8-A, 8-B, 8-C marked for identification.)

Q I'm going to hand you an exhibit marked 8-A, and ask you which well log that is?

A This is a log of our Phillips or Western State Number 15. We changed the name of this lease in order to avoid confusion with a lease that we had already designated as Phillips State.

Q And Exhibit 8-B?

A This is a log of the Phillips State Number 6.

Q And Exhibit 8-C?

A Log of Western States Number 8.

Q What have you shown on these logs, Mr. Huddleston?

A We've indicated the intervals that are perforated and

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from which these wells are producing on the detailed section of the logs.

MR. UTZ: On all of them?

A Yes, sir, I believe so. There they are, right there.

Q Do you also have available for the Examiner a log on the Phillips State Number 11 which is the five-spot well on this pattern?

A Yes, sir, we do.

(Whereupon, Applicant's Exhibit 9 was marked for identification)

Q I hand you what has been identified as Applicant's Exhibit Number 9, and ask you to state whether that is the log on well Number 11?

A Yes, sir, this is the log on the Western State Number 11. It also has perforations marked in the zones which it is producing from.

Q Now, Mr. Huddleston, at what rate do you intend to inject water in these three injection wells initially from the fill-up?

A Initially we plan to inject 400 barrels of water a day during fill-up.

Q Then what do you propose to do after fill-up, particularly in relationship to Commission Rule 701?

A After we have reached fill-up, we plan to inject at a rate which will conform with Rule 701.

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Q What range do you expect that to be?

A We think that that will be in the range of 150 to 300 barrels of water per day per well.

Q What is the source of your water?

A We plan to purchase water from Yucca Water Company.

Q Has Yucca Water Company furnished you with an analysis of the water they propose to sell to you to use for this program?

A Yes, sir, that's correct.

(Whereupon, Applicant's Exhibit 10 was marked for identification)

Q I hand you what has been identified as Applicant's Exhibit Number 10, and ask you to state if that is the analysis furnished to you by Yucca Water Company?

A Yes, sir, that's correct.

Q Exhibit Number 1 indicated that there will be an injection program by Murphy H. Baxter adjacent to your proposed flood. Are you negotiating a line agreement with Murphy H. Baxter in connection with that situation?

A Yes, sir, we're at this time negotiating a line agreement.

Q And will the injection of any water be held up until such time as the agreement is consummated between the parties?

A Yes, sir, that's correct.

Q Do you believe, Mr. Huddleston, based upon the information that you have furnished the Examiner and upon your know-



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ledge of this property, that the institution of a pilot water-flood program here will be in the best interest of conservation?

A Yes, sir, I do.

Q Do you believe that when the line agreement is entered into, that the correlative rights of the parties involved will be adequately protected?

A Yes, sir, I do.

Q Were all of these exhibits prepared by you or under your supervision?

A Yes, sir.

MR. CAMPBELL: I would like to offer Applicant's Exhibits 1 through 10.

(Whereupon, Applicant's Exhibits 1 through 10 offered in evidence)

MR UTZ: Applicant's Exhibits 1 through 10, including 8-A, 8-B, and 8-C will be entered into the record.

MR. CAMPBELL: That's all the questions I have at this time, Mr. Examiner.

CROSS EXAMINATION

BY MR. UTZ:

Q When do you anticipate fill-up in this unit?

A We anticipate the fill-up will be in a period from six to nine months.

Q From what date?

A From the date we start injecting water.



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Q You don't know what that date is?

A We anticipate that it will probably take us two months to be injecting water upon approval by the Commission.

Q Somewhere around August, then, next year?

A Yes, sir.

Q After fill-up, you would reduce your rates to about, what did you estimate, 150 to what?

A Three hundred barrels of water a day.

Q Per well?

A Yes, sir.

Q In regard to the wells Number 1-X, 2 and 16 which are still producing sizable amounts of oil, it is your contention that they will be depleted to the point that you can consider them stripper wells by next August?

A Yes, sir, I think so, because the Number 2 well was dead, or the Number 1 well was dead at the time we took the lease over and we installed pumping equipment and that accounts for part of its producing rate.

Q The Number 16 is capable of producing top allowable at this time, is it not?

A Yes, sir, that's correct.

Q Well, the entire 640 is now known as the Phillips State lease?

A The Western State.

Q The Western State?



A Yes, we had a Phillips State lease. We had to designate it as Western State to avoid confusion.

Q Then all wells will be known as Zapata Western State Number so and so?

A Yes, sir, that's correct.

Q And the ownership, royalty, working interest, and so forth is common under the entire lease?

A Yes, sir, that's correct.

MR. UTZ: Any other questions of the witness?

MR. CAMPBELL: I have one other question.

RE-DIRECT EXAMINATION

BY MR. CAMPBELL:

Q Mr. Huddleston, in the event Murphy H. Baxter commences to inject water in the wells immediately to the West of your lease, will it be necessary, in your opinion, for you to commence this program in order to protect your correlative rights?

A Yes, sir.

Q One other question. Zapata appears to own some leasehold interest in Section 19 lying to the Southwest of your Western State lease, is that correct?

A Yes, sir, that's correct.

Q Do you contemplate, at a future date, that you will commence some sort of a waterflood program on that particular lease?

A Yes, sir, we do.

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MR. CAMPBELL: That's all I have.

MR. UTZ: Any other question? The witness may be excused.

(Witness excused.)

MR. UTZ: Any other statements in this case? The case will be taken under advisement.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Notary Public in and for the County of Bernalillo, 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 typewritten transcript under my personal supervision and contains a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

DATED this 11th day of December, 1961, in the City of Albuquerque, County of Bernalillo, State of New Mexico

Ada Dearnley
NOTARY PUBLIC

My Commission Expires:
June 19, 1963.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2455 heard by me on Dec 11, 1961.

Thomas A. Utz
Examiner
New Mexico Oil Conservation Commission

