EXAMINER HEARING
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
May 6, 1958

IN THE MATTER OF: Case No. 1429

TRANSCRIPT OF PROCEEDINGS

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IN THE MATTER OF:

Application of Standard Oil Company of Texas for a dual completion and for permission to commingle the production from two common sources of supply. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its V. L. Leavitt No. 2 Well, located 1650 feet from the North line and 2310 feet from the West line of Section 13, Township 18 South, Range 26 East, Eddy County, New Mexico, in such a manner as to permit the production of oil from the Atoka-Grayburg Pool and oil from the Atoka (San Andres Pool through parallel strings of tubing; and further, for permission to commingle the production from the said V. L. Leavitt No. 2 Well from both of the above-described pools in common tankage after separately measuring the oil from each of said pools by means of volume type meters. Case 1429

BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF PROCEEDINGS

MR. NUTTER: We will take next Case 1429.

MR. PAYNE: Case 1429: Application of Standard Oil Company of Texas for a dual completion and for permission to commingle the production from two common sources of supply.

MR. ELLIOTT: I am R. A. Elliott, attorney for the Applicant, Standard Oil Company of Texas, and we will offer one witness, Mr. R. H. Stewart.

(Witness sworn.)

R. H. STEWART

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

DIRECT EXAMINATION

By MR. ELLIOTT:

Q Will you please state your full name, the company by whom you are employed, and your occupation or profession?

A I am R. H. Stewart, employed by Standard Oil Company of Texas, Houston, Texas, as petroleum engineer.

MR. ELLIOTT: Mr. Stewart has previously testified before the Commission as an expert witness. Will he be accepted?

MR. NUTTER: Yes, sir, he is.

MR. ELLIOTT: We will offer four exhibits in support of our application at the conclusion of the testimony.

Q (By Mr. Elliott) Mr. Stewart, are you familiar with the Atoka Field and the application under consideration at this hearing, Case No. 1429?

A Yes.

(Standard's Exhibit No. 1 marked for identification.)

Q Have you a map marked Exhibit No. 1, which was prepared by you or under your supervision?

A Yes, I have.

Q Will you describe, please, the map, and point out the lease and well involved?

A On Exhibit No. 1 Standard Oil Company of Texas lease is colored red. The Leavitt No. 2 Well for which dual completion application is being made is indicated in red. It's located on an 80-acre lease, the east end of the Leavitt lease. Two wells are circled which indicate that they are Grayburg producers. The other wells produce from the San Andres.

Q Mr. Stewart, by what method do we propose to complete the Leavitt No. 2 Well?

(Standard's Exhibit No. 2 marked for identification.)

A We propose to dual complete the Leavitt No. 2 with two strings of 2-1/16 inch tubing. It is shown on Exhibit 2, a diagrammatic sketch. There will be a packer separating the two zones, a seating nipple will be located near the bottom of each of the two strings to provide for pumping the well. We feel that that will be necessary before long. The productive capacity doesn't indicate continued flow.

Q Mr. Stewart, you have indicated that two strings of tubing will be used. Is this a recognized and an effective method of dual completion?

A Yes, it is. I would like to point out, too, that the perforations for the two zones are in the Grayburg, 990 feet to 1,000 feet, and in the San Andres from 1731 feet to 56 feet.

Q You, I believe, also mentioned that you anticipate that in the very near future it will be necessary to pump the well?

A Yes, we feel it will be.

(Standard's Exhibit No. 3 marked for identification.)

Q Mr. Stewart, do you have a temperature log of the well, which has been marked Exhibit 3, showing the top of the cement?

A Yes, that has been submitted.

Q Will you explain Exhibit 3 to the Commission?

A The temperature log indicates the top of the cement to be at 708 feet, which, of course, is above the upper producing zone.

(Standard's Exhibit No. 4 marked for identification.)

Q Do you have marked Exhibit 4, an electrical log of this well, the Leavitt No. 2?

A Yes. On the electrical log are marked the tops of the various zones with the interval perforated.

Q Mr. Stewart, have these two zones been designated by the Commission as separate sources of supply?

A Yes, they have.

Q Mr. Stewart, have you estimated the oil reserve underlying the 40-acre tract upon which the well is completed which is allocated to the well?

A Yes, we estimate the reserves in the Grayburg of 54,000 barrels, and in the San Andres 32,000 barrels.

Q Mr. Stewart, have you made an analysis of the cost of development of the reservoirs and other economic factors pertaining thereto?

A Yes.

Q Will you briefly describe the economics involved in developing these reservoirs?

A It's felt to complete a well in the San Andres would cost approximately $58,000, with the reserves I gave, the rate of return is approximately seven percent, which is low. The cost of development is approximately $2.00 per barrel. Now to dual a single well in the San Andres and the Grayburg, an additional sum would be required, but the cost to dual we estimate to be $64,000. That raises the rate of return to 34 percent, approximately, which of course presents a much more attractive picture. It also lowers the cost of development to something like seventy-five cents per barrel.

Q In your opinion, Mr. Stewart, would the economics justify the drilling of an independent and separate well to the San Andres?

A No.

Q Mr. Stewart, what is the usual production history of wells in the area of the Leavitt No. 2 Well?

A Well, the nearest well is the Leavitt No. 1, which is completed in the San Andres. It's a capacity producer and for the past year has produced at a rate approximately 20 barrels per month of oil.

Q You mean 20 barrels per day, per month?

A Yes, excuse me. 20 barrels per day.

Q Well, Mr. Stewart, the application requests permission to

produce into common tankage production from the San Andres and Grayburg after computing the production from each reservoir separately by volume type meters. Will you explain the method proposed to be used to account for the commingled production?

A It is proposed to install a single volume meter to measure production from the Grayburg zone. The production from the San Andres will be determined by the subtraction of Grayburg production from total production.

Q Is it proposed to check the accuracy of the meter by monthly tank test?

A Yes, as a matter of fact, it is a company policy that the meters are checked more often than that; however, it's proposed to submit test forms once a month.

Q Mr. Stewart, in your opinion will the granting of this application prevent waste?

A Yes, we feel that it will prevent both physical and economical waste; as I said earlier, I don't feel that it's a wise economic venture to drill a well for San Andres production with the indicated reserves. We feel that by a dual completion, we will be able to prevent waste by producing the oil, the recoverable oil from both of the intervals, and at the same time have an economic, wise economic investment.

Q Mr. Stewart, in your opinion would the granting of this application in any manner impair correlative rights?

A No. No. We see no reason why the granting of this

application should impair correlative rights, and the other operator would be free to dually complete one of his wells in the two zones if he saw fit.

Q Do you have any recommendations to make to the Commission?

A We recommend that the Commission approve the application with provision for metering production from a single zone and subtracting production from that zone, from total production, to determine production from each of the individual zones.

MR. ELLIOTT: We now offer the four exhibits as heretofore identified, No. 1 through 4.

MR. NUTTER: Is there objection to the introduction of Standard's Exhibits 1 through 4? If not, they will be received. Anyone have any questions of the witness? Mr. Cooley.

CROSS EXAMINATION

By MR. COOLEY:

Q Mr. Stewart, what is the underlying purpose behind your application to commingle production from the two separate pools?

A Well, principally economic. Of course, by dually completing this well and commingling production, the cost to develop will be less.

Q This is aside from the dual completion facet of it. The only purpose for commingling the oil would be the economic saving that you will realize thereby?

A It will prevent the installation of separate battery facilities, which would prevent waste in the long run because of

the ultimate pay-out period of the well.

Q Lower operating costs --

A (Interrupting) Yes.

Q -- would permit longer production?

A That's right.

Q What is the approximate cost of tank battery installations in the event you were required to install two separate facilities?

A Well, I'm sorry, I haven't that information. We don't have proposed battery installations worked out, and I have nothing here on it.

Q Can't you approximate a cost of a tank battery and the separator and the other installations necessary to equip a well for production in this area?

A Based on the expended amount for our Leavitt 1.job, I would estimate the cost of a battery would be something like possibly nine or ten thousand dollars.

Q This is for a single well?

A Yes.

Q Now, would the cost of that be doubled in the event you were required to install two separate tank batteries for each horizon and each individual piece of equipment would have to be duplicated?

A Yes, the requirement would be double there.

Q Would the cost of the single battery be increased if you were allowed to commingle it, and would the cost of the single battery

in which you propose to commingle production be any greater than the single battery which you have just described?

A No, I feel possibly by a single tank; however, as I said, I haven't the plans here. I don't know what has been planned for the battery. It would be slightly reduced, I would say.

Q What type meters do you propose to install?

A At the present time we propose to install a Rolochek type volume meter.

Q Is that what has been previously referred to in this Commission as the "positive displacement" type meter?

A No.

Q Is it the dump type meter?

A It is a dump type meter, yes. We feel that this type meter is as accurate or possibly more accurate than positive displacement type meter.

Q Would the oil be metered after any water had been knocked out of it?

A The oil would be metered downstream from separation.

Q Downstream?

A Yes.

Q In your application, Mr. Stewart, paragraph 4 thereof, you state that the applicant requests permission to produce into common tankage production from the San Andres and Grayburg reservoir after accounting for production from each reservoir separately by the use of volume type meters?

A Yes.

Q In the plural. Do you feel that this, your proposal at the hearing is in accord with the application, seeing that you propose the installation of two meters, one for each horizon?

A I would say that it isn't the way that reads, no, sir; I have proposed the use of a single meter.

Q The case was also advertised in that fashion, taken directly from the application;"and further,"I quote from the advertisement, "and further for permission to commingle the production from the said V. L. Leavitt No. 2 Well from both of the above-described Pools in common tankage after separately measuring the oil from each of said pools by means of volume type meters". In view of your application and the manner in which this case was advertised, I feel that maybe it is jurisdictional, because we claim jurisdiction in the case only by virtue of our advertisement. It might well be that some operator in the pool would have objection to the subtraction method that you here propose.

A Yes, I understand.

Q In the event the Commission sees fit to grant the application in all other respects, would Standard Oil Company of Texas be willing to revert to its original application and install meters for each of the two horizons?

A I feel it would, yes.

MR. COOLEY: That's all the questions I have.

MR. NUTTER: Mr. Porter.

By MR. PORTER:

Q Have you had experience with this type meter?

A Yes, sir, I have.

Q Has it proven satisfactory?

A Yes, sir.

MR. NUTTER: Any further questions? Mr. Utz.

By MR. UTZ:

Q What is the cost of this type of meter?

A I don't have that information.

Q Do you have any idea? It would be less than another tank battery, wouldn't it?

A I beg your pardon?

MR. PORTER: It would be less than another tank battery, wouldn't it?

A I hope so.

Q (By Mr. Utz) What is the I.D. of the 2-1/16 inch tubing?

A 1-3/4 inches.

MR. UTZ: That's all I have.

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

By MR. NUTTER:

Q Would you give me the interval of perforations in the Grayburg zone, please?

A Yes, sir, 985 feet to a thousand.

Q 985 to 1,000?

A Yes.

Q What is the interval of perforation in the San Andres?

A 1731 to 1756.

Q What is the gravity of the oil from the Grayburg?

A Approximately 40.

Q What is the gravity from the San Andres?

A I think that that is about the same. I would say it's about the same.

Q What is the bottom-hole pressure in the Grayburg zone?

A Based on a drill stem test, the bottom-hole pressure was, this is shut-in, 450 pounds.

Q What about the Grayburg -- that was the San Andres, is that correct?

A That was Grayburg. I don't have it for the San Andres.

Q There have been bottom-hole pressures taken in this area in the San Andres formation, have there not?

A I'm sure there have in the area; however, I haven't those here.

Q Would you provide us with the bottom-hole pressures for the San Andres formation?

A Yes.

MR. UTZ: Also the gravity.

A All right.

Q (By Mr. Nutter) What about the GOR's in the two zones, Mr. Stewart?

A The only production which we have had at this time in the

San Andres in this well has followed a frac of the zone and there will not be a GOR for that. I don't have that information with me here. I would like to say that the well has been producing since the 23rd of March, and that explains my lack of production history.

Q What formation?

A Grayburg.

Q It's producing from the upper zone?

A It's producing at this time from the Grayburg.

Q You can obtain the GOR for the Grayburg and San Andres?

A I can't at this time for the San Andres; after it is put on production, of course.

Q How about the adjoining San Andres wells, do you have GOR's on them?

A Yes, I have that for the Leavitt No. 1.

Q What is the GOR on that?

A Approximately 1170.

Q Do you have any GOR's for any Grayburg wells in this area?

A No, I haven't.

Q How long have your No. 1 and 3 wells east of this No. 2 well been completed in the Grayburg?

A Those are not Standard wells, Mr. Nutter. Those are Illinex wells, listed that way on the proration schedules. They're not operated by Standard. Standard has that acreage below 2474 feet.

Q Mr. Stewart, I noticed on your Exhibit No. 2 that you have

used a Baker Model "H" packer, in this dual completion. Would you describe the Baker Model "H" packer to me, please?

A The Model "H" packer is one in which the tubing is sealed; when the tubing is removed from the packer a flapper valve-type arrangement closes, thereby isolating the lower zone.

Q Is this the type of a packer that is commonly known as a permanent-type packer, or can it be removed?

A I believe this type can be removed. I believe this type can be removed, yes, sir.

Q It would be classified as a retrievable type packer?

A Would you let me check on that?

Q Please do.

A Mr. Nutter, I'm going to have to reverse and say that I feel this is a permanent-type packer. I don't believe it can be removed.

Q Are you aware of any dual completions having been authorized for completion with the retrievable type packer?

A No, I can't think of any right now.

Q Would you confirm your statement that you believe this is a permanent-type packer?

A Yes, sir, I will.

Q Mr. Stewart, you stated, I believe, that it would cost $64,000 to dually complete this well?

A Yes, I think that's our estimate.

Q What is the estimate for a single completion in the Grayburg?

A Fifty-one thousand.

Q What is the estimate for a single completion in the San Andres?

A Fifty-eight thousand.

Q What would the total cost of two single completions to each of the two zones be, then?

A One hundred nine thousand.

Q So a dual completion would represent a saving of how much money?

A Approximately forty-five thousand dollars.

MR. NUTTER: Does anyone have any further questions of Mr. Stewart?

By MR. PORTER:

Q That drilling cost seems a little high for those depths.

A We have based those, Mr. Porter, on the final cost for drilling and completing the Leavitt No. 1 for the Grayburg. We have reduced it by the difference in depth with the resulting drilling cost reduction and pipe reduction.

Q Your Grayburg is approximately 900 feet?

A Approximately.

Q And the San Andres between seventeen and eighteen hundred?

A Yes, approximately seventeen hundred feet.

Q Your figure here is based on the experience you have had with the other well?

A Yes, sir.

MR. PORTER: All right.

MR. NUTTER: Any further questions of Mr. Stewart? If not, he will be excused.

(Witness excused.)

MR. NUTTER: Does anyone have anything further they wish to offer in Case 1429? If not, we will take the case under advisement.

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C E R T I F I C A T E

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 Proceedings before the New Mexico Oil Conservation Commission was reported by me in stenotype and reduced to typewritten transcript under my personal supervision, 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 12th day of May, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley
NOTARY PUBLIC

My commission expires:

June 19, 1959.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1429, heard by me on 5-6, 1958.

....., Examiner
New Mexico Oil Conservation Commission