BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

CASE NO. 1612

TRANSCRIPT OF HEARING

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March 11, 1959

BEFORE THE
OIL CONSERVATION COMMISSION
SANTA FE, NEW MEXICO

IN THE MATTER OF:

Application of Santiago Oil & Gas Company for an oil-gas dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its State No. 1-30 Well located 660 feet from the North line and 1980 feet from the East line of Section 30, Township 12 South, Range 34 East, Lea County, New Mexico, in such a manner as to permit the production of oil from an undesignated Upper-Pennsylvanian oil pool and the production of gas from an undesignated Devonian gas pool through parallel string of 2 inch tubing.

CASE NO. 1612

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: We will take next Case 1612.

MR. PAYNE: Case 1612. Application of Santiago Oil & Gas Company for an oil-gas dual completion.

MR. CHRISTY: Sim Christy of Hervey, Dow and Hinkle for the Applicant, Santiago Oil & Gas Company. As will be developed in the testimony, Pan American, Texas Pacific Coal and Iron, Phillips, and Amerada are the offset owners of the land involved in this application, and Mr. Henson is the nearest

offset person. We have, on February 11, 1959, mailed true and correct copies of the application to these offset operators, and we offer in evidence the registered return receipts in connection with that mailing.

MR. NUTTER: Do you want to label those as an exhibit, Mr. Christy?

MR. CHRISTY: Let's make them Exhibit 4.

MR. NUTTER: These registered return receipts have been marked as Santiago's Exhibit 4.

MR. CHRISTY: Thank you.

MR. NUTTER: Is there objection to the introduction of the registered return receipts in this case? If not, the receipts will be received.

MR. CHRISTY: We have one witness for the Applicant.

(Witness sworn.)

D. BACUM

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

DIRECT EXAMINATION

BY: MR. CHRISTY:

Q Would you please state your name, address, and occupation?

A D. Bacum, 3001 East Over Drive, Odessa, Texas.

Q By whom are you employed and in what capacity?

A For Santiago Oil and Gas as vice president and

manager of operations.

Q Are you familiar with the application in Case No. 1612 filed in this connection and the matters therein contained?

A Yes, sir.

Q Now, have you previously testified before the New Mexico Oil Conservation Commission?

A No, sir.

Q As an expert in matters akin to the subject of this application?

A No, sir, I have not.

Q Now, would you please briefly tell the Examiner your experience and your work and your familiarity with dual completion matters?

A I have had twenty-five years experience, mostly with Humble Oil and Refining Company, as toolpusher, assistant and district superintendent in charge of drilling and production in various localities and districts and was associated with Mr. House before he passed away, worked with him for quite some time, and in the West Texas area we did dual completions of the deeper wells in the Empire Field located in Kimble County, and also, since I have been with Santiago, several wells in Ector County.

Q Have you personally managed and supervisied dual completion of a number of wells in the last three or four years?

A Some fourteen wells.

MR. CHRISTY: Does the Commission have any questions concerning the qualifications of the witness to testify?

MR. NUTTER: No, please proceed.

Q Will you tell us what is sought by this application, Mr. Bacum?

A To obtain approval to produce oil from the Pennsylvanian and gas from the Devonian in Santiago Well No. 1-30, and that's located 660 feet from the North line and 1980 from the East line of Section 30, Township 12 West, Range 34 East in Lea County, New Mexico.

Q That is, to obtain this production by dual completion methods?

A Yes, sir, that's correct.

Q Now, do you consider that the facts stated in this application are true and correct?

A Yes, sir.

Q Now, was the well that is the subject of this application, was it drilled under your supervision?

A It was.

Q Have you conducted tests to determine whether or not the well is susceptible to production of oil or gas in one or more zones?

A Yes, sir.

Q And what are the results of those tests?

A Drill stem tests were taken of both the Pennsylvanian

and the Devonian, and it was found that it was susceptible to oil out of the Pennsylvanian and gas out of the Devonian.

Q Now, have you taken completion tests on this well?

A No, sir.

Q Would you explain to us the manner in which you attempted to make completions of these two zones that you spoke of?

A After drilling the well, or starting the well, if you will notice Exhibit 2--

Q That's the diagrammatic sketch?

A That's the diagrammatic sketch.

Q And it has been marked as Santiago's Exhibit 2 in this case?

A It has been marked as Santiago's Exhibit 2 in this case.

Q Continue, if you please.

A If you will notice the pipe, which is 9-5/8 inch, was cemented at 4130, circulated. The hole was drilled 13,103 feet, which the 7 inch casing was set and cemented at 13,102. Now, we used 750 sacks of 4 per cent jell in the cement, and after the cement set for twelve hours, ran a temperature survey, found the top of the cement back at 8200. After 36 hours we tested the casing with 3,000 pounds for two and a half hours, and we found no drawdown at all.

Q Is this pressure continuous?

A Continuous.

Q All right, go ahead.

A Then we perforated the Devonian formation from 12,899 to 12,924, also the Pennsylvanian from 10,218 to 10,236, from 10,250 to 10,258, then a Baker Model "K" Production Packer was set on a wireline at 12,875 feet.

Q Is that a permanent type of packer?

A Permanent type of packer, and then tubing was ran for the Devonian and was set at 12,910 feet through the Baker Production Packer, with the dual string Baker Production Packer set at 10,190 feet, then the Pennsylvanian 2 inch tubing string was ran and set at 10,225. After cementing these strings, the Devonian was acid treated through the bottom perforations using 10,000 gallons of 15 per cent acid. It was swabbed back to flow and the upper perforation was treated through the perforations with 3,000 gallons of 15 per cent acid, and it was swabbed to flow, and on a four hour test of the Pennsylvanian, through an 18/64 inch choke, we recovered 48 barrels of 45 gravity pipeline oil, or for a calcualted 24-hour test of 288 barrels, with a ratio of 475 to 1; on a 24-hour test of the Devonian, through 20/64 inch choke, producing at the rate of nine and a half million MCF per day, with 54 barrels of 64 degree gravity distillate per one million cubic feet of gas.

Q Now, in your opinion would this proposed method of dual completion tend to protect correlative rights?

A Yes, sir.

Q Now, have the tests which you mentioned indicated that the well is susceptible to producing oil and gas in more than one pay zone?

A Yes, sir.

Q Now, let me refer you to Exhibit 1 and ask you if you will please identify and explain it.

A Exhibit 1 is a plat showing the location of all wells on the applicant's lease, and all offset wells on the offset leases, and the names and addresses of offset operators and all the leases offsetting the leases.

Q I believe you previously explained Exhibit 2, and I noticed that your application indicates that you propose to produce oil from the Upper Pennsylvanian formation at the two zones that you testified about, as well as gas from the Devonian formation in the zone you testified, is that correct?

A That's right.

Q Now, you have demonstrated this Devonian production as distillate in the application. Will you please explain to the Commission the composition of this hydrocarbon and why you previously mentioned it was gas and then the application mentioned it was distillate?

A It is definitely distillate. As I stated, it is 62 degree gravity. This was determined by running a pressure bomb inside of the tubing to approximately 12,900 feet. The tubing

was found dry of fluid, then the well was flowed on a small choke at the rate of 25,945 MCF of gas for a ratio of 20,900 cubic feet of gas per barrel of stock tank fluid over a 24-hour period, and this fluid was gas distillate, as we have a sample to show you.

Q We don't propose to offer this in evidence, but we thought the Examiner and staff might be interested in finding out exactly what the fluid looks like.

MR. NUTTER: That is untreated fluid?

A That is untreated fluid right from the separator.

Q (By Mr. Christy) So as I understand you, the hole does not have liquid in it, it is in a gaseous state until it reaches the choke to the surface?

A That is correct.

Q Now, have you recently had Core Laboratories make a study of this fluid?

A Yes, Core Laboratories ran this test for us, and they are in the process of finishing the test at this time, but we do have a letter from Core Laboratories stating just what I read and gave you a moment ago.

Q I believe that has been marked Santiago's Exhibit 5?

A That is correct.

Q Now, these two reservoirs we have spoken of, they are separated in the well behind the pipe?

A Yes, sir.

Q And in your opinion, do you feel that there is a possibility of commingulation of these fluids between the upper Pennsylvanian and the Devonian formation?

A No, sir.

Q How about the fresh water zones are they protected?

A Yes, sir.

Q In your opinion, is the proposed dual completion installation in accordance with good engineering practices and principles?

A Yes, sir.

Q Is this type of dual completion one customarily used in the Lea County area?

A It is.

Q Has this type of dual completion operation proven successful in actual field tests?

A Yes, sir.

Q Now, let's turn to the surface equipment, will it be so designed and installed that the reservoirswill be separately produced and their fluids separately tanked and gauged?

A Yes, sir, it surely will.

Q Will you elaborate on that a little bit from Exhibit 2, extending it to the surface, please.

A Turning back to Exhibit 2, you have the two strings of tubing coming to the top of the surface, and after it reaches

the top of the surface, you have two wing valves, which is separating the two zones, and two chokes with two wings going in opposite directions, the two flow lines going to two separate tank batteries.

Q Now, is this dual completion technique generally accepted in the oil industry and by other regulatory bodies?

A Yes, sir.

Q How about corrison, do you feel that has been a problem?

A No, sir.

Q Do you have any paraffin problems?

A To a certain extent. Out of the Pennsylvanian formation we do have some paraffin. Now, this paraffin has been cut by the wireline method, but we anticipate installing what is better known as a plunger that will drop every so often, and when the well comes back on and kicks on, it will come to the top and cut the paraffin, therefore keeping it clean as it flows.

Q That cleaning out will be more often,about every four to six hours?

A I would say four to six hours.

Q Do you feel that that type of technique will maintain a satisfactory paraffin control in this well?

A Yes, sir.

Q Now, does this proposed dual completion technique possess any possibility for leakage or commingulation of the

two reservoirs than any other accepted method?

A No, sir.

Q Now, if the application is granted, does Santiago understand that it may be necessary to take packer leakage tests and otherwise comply with various rulings of the Commission?

A Yes, sir, and Santiago also agrees to comply with all the rules in that respect, and also Rule No. 112-A-5. That takes in the pressure test and circulating test, the filing of reports, reserve pressures, packer setting affidavits, and we have, in Exhibit --

Q Now, I refer you to Exhibit 2, that is a diagrammatic sketch of the actual completion installation, is that correct, sir?

A That is true.

Q Now, under this proposed method of dualling, is it possible to make bottom hole pressure tests on each separate zone, and if so, will you please explain?

A We do that by running a bottom hole pressure bomb inside the two inch string to a depth of 12,900 feet to the Devonian, and inside the two inch tubing string to 10220 for the Pennsylvanian, and recording each zone pressure by chart method.

Q Do you have initial bottom hole pressures on this well from the two zones?

A Yes, sir. The bottom hole pressure from the Devonian was 4930 and the Pennsylvanian was approximately 3800.

Q Are those the latest figures you have available?

A Those are the latest ones we have.

Q Now, turning to the economics of the matter, what is the difference in cost of dual completing this well or drilling a twin well to the Pennsylvanian?

A Approximately $235,000.

Q That is what it would cost to drill a Pennsylvanian well?

A To drill a Pennsylvanian well, and I believe it would cost about $75,000 to dual complete it.

Q So that there is a saving of approximately $165,000?

A That is correct.

Q Now, sir, do you have an electric log on this well?

A We do, and --

Q Has that been marked as Santiago's Exhibit 3?

A Yes, sir.

Q Now, were Exhibits 1 and 2 prepared by you or under your direction or supervision?

A Yes.

MR. CHRISTY: Santiago offers in evidence Exhibits 1, 2, 3, and 5. At this time we offer all of the Exhibits, except 4, and that has previously been admitted.

MR. NUTTER: Without objection, Exhibits 1, 2, 3, and 5 will be admitted in evidence.

Q (By Mr. Christy) Mr. Bacum, is there anything that

I failed to ask you that you feel might be of interest to the Commission in consideration of this application?

A No, sir, I do not.

MR. CHRISTY: We have no further questions of this witness.

MR. NUTTER: Any questions of Mr. Bacum?

MR. FISCHER: Yes.

MR. NUTTER: Mr. Fischer.

CROSS EXAMINATION

BY: MR. FISCHER:

Q What type of tubing is that that you were putting in this well, upset --

A Upset two inch; 80 on the long string and flush joint Hydril on the upper string.

Q I don't recall if you said this, was this packer, this lower packer at 12,875, pressure tested?

A Yes, sir.

Q And found to be in good shape?

A Yes, sir.

MR. FISCHER: That's all.

MR. PORTER: I have a question. Is this a wildcat well?

A Yes, sir.

MR. PORTER: Both zones?

A Yes, sir.

MR. PORTER: Thank you.

QUESTIONS BY MR. NUTTER:

Q Mr. Bacum, what did you say the depth of the 7 inch casing was?

A The 7 inch casing is set at 13,102 feet.

Q This exhibit shows the casing shoe at 13,085. Would you correct that then, if that is in error?

A Yes, sir, that is in error.

MR. CHRISTY: So that Exhibit 2, you are changing 13,085 to 13,102?

A Yes.

MR. FISCHER: I have one more question, Mr. Examiner.

MR. NUTTER: Mr. Fischer.

QUESTIONS BY MR. FISCHER:

Q Mr. Bacum, what will happen to the paraffin that's cut, coming out of this plunger?

A It will flow on with the fluid. We are flowing this well, or we will flow it intermittently, you can set it to flow over a period, and when it comes back, it will flow through the choke into the battery and deposit the oil and the oil will be sold.

Q Also, Mr. Bacum, I believe you stated that when you took your potential test on the Devonian, that the potential was nine and a half million MCF. That was nine and a half million cubic feet, is that correct?

A That's right.

Q Now, with reference to this letter from Core Laboratories they stated they have taken 48 hours of test, being from 8:00 a.m. March the 1st, to 8:00 a.m. March the 2nd and March the 2nd, 8:00 a.m. to March 3rd. Has that well been produced any except this one 48-hour period?

A Yes, sir, it has during one period, and what they were trying to do, they were trying to reach a stablizedpoint, and this test is for reservoir studies.

Q Do you think that the 48-hour flow that they had there, did that result in a stablized condition in the well?

A Yes, sir.

Q So that your potential then, for 48 hours will be in the neighborhood of twenty-five barrels of fluid and approximately five to six million cubic feet of gas?

A At the rate they were flowing it, yes.

Q At the rate they were flowing it?

A Yes, sir.

Q And with a stablized GOR in the range of 20,900?

A Yes.

Q You stated the gravity was 62 degrees in the Devonian?

A Yes, sir.

MR. FISCHER: That's all.

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

MR. FISCHER: I have one other question.

QUESTIONS BY MR. FISCHER:

Q Is it your opinion Mr. Bacum that the Devonian is a gas pool, condensate pool?

A Yes, sir.

Q Or a gas --

A It is gas, and you have no condensate or anything until it hits the surface and through the choke.

MR. FISCHER: That's all.

MR. NUTTER: To your knowledge, has the Oil Conservation Commission to date advertised any case for the creation of a pool for either of these zones?

A No, sir.

MR. NUTTER: They are still undesignated.

MR. CHRISTY: That is correct.

MR. NUTTER: Any further questions? If not, Mr. Bacum may be excused from the stand.

MR. CHRISTY: That is all for the applicant in this case.

MR. NUTTER: Does anyone have anything further they wish to offer in Case 1612? We will take the case under advisement and take a five minute break.

STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, Joseph 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 Hearing was reported by me in Stenotype and that the same was reduced to typewritten transcript by me and contains a true and correct record of said hearing, to the best of my knowledge, skill and ability.

DATED this 19th day of March, 1959, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Joseph A. Trujillo
NOTARY PUBLIC

My Commission Expires:

October 5, 1960

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1612, heard by me on 3-11, 1959, Examiner
New Mexico Oil Conservation Commission