BEFORE THE
OIL CONSERVATION COMMISSION
DECEMBER 10, 1958

IN THE MATTER OF:

APPLICATION OF CONTINENTAL OIL COMPANY, CASE ~~1564~~ 1565

TRANSCRIPT OF HEARING

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BEFORE THE
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IN THE MATTER OF:
Application of Continental Oil Company for a dual completion. Applicant, in the above-styled cause, seeks an order authorizing it to dually complete its Warren Unit Well No. 9 located in the SW/4 NW/4 of Section 27, Township 20 South, Range 38 East, Lea County, New Mexico, in such a manner as to permit the production of gas from the Warren-Tubb Gas Pool and oil from the Warren-Drinkard Oil Pool through parallel strings of tubing.

Case 1565

BEFORE:
Daniel S. Nutter, Examiner.

TRANSCRIPT OF HEARING

MR. NUTTER: The hearing will come to order, please. The next case on the docket will be Case 1565.

MR. PAYNE: Case 1565, Application of Continental Oil Company for a dual completion.

MR. KELLAHIN: Jason Kellahin, of Kellahin and Fox, Santa Fe, New Mexico, representing the Applicant. We will have one witness, Mr. Francis.

(Witness sworn.)

R. J. FRANCIS

the witness, having been first duly sworn, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q State your name, please?

A R. J. Francis.

Q By whom are you employed, Mr. Francis?

A By Continental Oil Company.

Q What is your position?

A Production engineer working in the Hobbs District.

Q Have you testified before this Commission as a production engineer and had your qualifications as a production engineer accepted?

A Yes, sir, I have.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: Yes, sir, please proceed.

Q (By Mr. Kellahin) Mr. Francis, are you familiar with the application in Case 1565?

A Yes, sir.

Q Would you state briefly what is proposed in that application?

A An order for dovelopment and production in the Tubb formation underlying the proposed well and unit as proven by offset development. It is proposed to dually complete our Warren Unit Well No. 9, currently completed as a Warren-Drinkard oil well as a dual, producing Tubb gas from the Warren-Tubb Pool and Drinkard oil from the Warren-Drinkard Pool.

Q Referring to what has been marked as Exhibit 1, would you state what that shows?

(Marked Continental Oil Company Exhibit 1 for identification.)

A Exhibit 1 is a structure map of the vicinity of the subject well contoured on top of the Tubb. The subject well is encircled in red and as located there is situated1980 feet from the north and 660 feet from the west, 4838 east. The proposed unit to be assigned to the well for the production of Tubb gas is outlined in Red. Outlined in green is the offset wells completed in the Tubb formation, with the unit assigned to them also outlined in green.

It may be seen from the structure map that the subject well in the proposed unit occupies a comparable position to those offset wells completed in the Tubb.

Q On the **pays**, and that will be productive of gas from the Tubb?

A Yes, sir.

Q What is the present status of the well that is proposed to be dually completed?

A The well is presently completed in the Drinkard pay, the Warren-Drinkard pay. It has a present allowable of 30 barrels of oil a day based on a recent test of 43 API with a penalized ratio of 4,000 to 47.

(Marked Continental Oil Company Exhibit 2 for identification.)

Q Referring to Exhibit 2, particularly the portion of the sketch to the left of the exhibit, would you describe the completion in the Warren-Drinkard Unit Drinkard Well No. 9?

A Primarily that portion which you refer to is the casing record for the well as it now exists. It may be seen that a string of 13 3/8 inch surface casing is set at 269 feet, cemented with sufficient cement to return to the surface. The intermediate string is a 9 5/8 inch casing set at a depth of 3050 feet, the cement returning to about 1150 feet behind the pipe. The production string is set at a plugged-back depth of 7775 feet, beside a $5\frac{1}{2}$ inch 17 pound pipe cemented with sufficient cement to return behind the pipe to approximately 3632 feet.

Q With that cementing program, is there any danger of communication behind the casing if this dual completion is approved as applied for?

A It isn't anticipated. Referring to the proposed dual completion equipment and the proposed perforated intervals in the Tubb and the present perforated intervals in the Drinkard, it may be seen there is approximately 143 feet separating these two pays, and it is believed that will be sufficient distance to prevent the breaking down of the cement sheet between the two zones as a result of treatment.

Q Referring to the remaining portion of what is marked Exhibit Two, describe what is proposed to be done in this well?

A With respect to the proposed dual completion, it is proposed to utilize a Baker Model D permanent type production packer to be set at 6700 feet to separate the production from the Tubb gas zone and the Drinkard gas zone to prevent the commingling

of production.

The well will be equipped with parallel strings of tubing, with the Drinkard oil being produced below the packer through two inch non upset 4.6 pound tubing. Production from the Tubb zone above the packer will be through 1.8 pound Hydril "CS" joint tubing.

Q Now, the exhibit shows the installation of three circulating valves. What is the function of those?

A Circulating valves as they are situated -- well, primarily the reason for the circulating valves is so that we can by manipulation of these valves we can isolate the Drinkard zone and open the valve above the packer for determining the bottom hole pressures in the Tubb zone. The reason for having two circulating valves in the Drinkard pay is that it's anticipated eventually the Drinkard zone will require pumping, and because of the higher ratio, it's thought it would be necessary to utilize probably hollow rods to produce that amount, use a rod tubing annulus to produce gas.

Q On this type of completion, will it be possible to pump the Drinkard oil zone?

A Yes, sir, I think so.

Q Will you be able to produce the Drinkard to depletion with this type of equipment?

A Yes, sir.

Q In regard to the Tubb gas zone using one inch tubing,

will there be any production losses as a result of that?

A Yes, sir, there will be. The present bottom hole pressure will not affect the allowable of the well. This will maintain a production of 2 million cubic feet of gas per day through the one inch line with a bottom hole pressure of 2700 pounds. In the later stages of depletion, it is anticipated probably the one inch tubing will not be capable of producing allowable production.

Q What will be done in that event?

A We propose to produce the Tubb gas through another casing annulus with the one inch tubing used to produce the distillate in the well bore.

Q Is there any danger of communication, in your opinion, between the Tubb and Drinkard zones?

A No, I don't see why we should anticipate any communication.

Q Will that type of completion enable you to make such tests as are necessary and may be required by the Commission of the two zones?

A Yes, sir.

Q And will that type of completion permit you to perform any reasonably anticipated treatment as may be necessary to the two different zones?

A Yes, sir. We could do any, make any necessary treatment with this hookup as we could otherwise. It may be noted that

for acidizing or such as that, the one inch tubing could be utilized. That would be any minor stimulation to the Tubb zone. Of course, any treatment to the Drinkard zone would necessarily have to be down tubing under the packer.

In the event major stimulation was necessary to the upper zone, it would be possible for us to blank off the Drinkard zone with a tubing plug and pull over the safety joint to the seating nipple as shown on the schematic diagram and pull this tubing and either use it to treat that.

Q Has this particular type of dual completion been approved by the Commission in other areas?

A In essence it has. The only variation would be that we are utilizing one inch tubing as opposed to larger diameters in some other areas.

Q Now, referring to what has been marked as Exhibit Three, explain what that is?

A Before leaving Exhibit Two, I would like to mention something. If you will note the copies of the exhibit I submitted today, you will see that on the schematic drawing of the proposed dual has been amended to show there is a gas outlet on the casing where it is not shown on there.

MR. NUTTER: Thank you, sir.

A Getting back to Exhibit Three, this is a copy of the radio activity log from the subject well, and shown thereon is the top of the Tubb and the top of the Drinkard which, too, define

define the vertical limits of the Warren-Tubb Pool; and also shown are the existing Drinkard perforations for Tubb gas. As shown thereon, the proposed packer setting depth is approximately 6700 feet.

Q In your opinion, is the approval of this application in the interest of conservation and the prevention of waste?

A Yes, sir.

Q Were Exhibits One, Two and Three prepared by you or under your direction and supervision?

A Yes, sir.

MR. KELLAHIN: At this time, we'd like to offer in evidence Exhibits One, Two and Three.

MR. NUTTER: Without objection, Continental Exhibits One through Three inclusive will be admitted in evidence.

Q (By Mr. Kellahin) Did you have anything else to add to that?

A No -- I might point out that in regard to possible producing of the Tubb gas zone through the casing, since it is essentially a gas reservoir with gas and distillate existing as one phase in the reservoir there would be no loss of reservoir energy that would result from producing the well through the casing.

Q Would it be possible to produce the Tubb to depletion by that method?

A I believe we could produce gas through the casing. Any

distillate that accumulated in the well bore as a result of condensation could be unloded through the one inch tubing.

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

MR. NUTTER: Any questions of Mr. Francis?

CROSS EXAMINATION

BY MR. FISCHER:

Q In your normal flow the Tubb gas will be through the tubing into the casing head, not through your one inch tubing?

A No, at the present time the normal flow of gas will be through the tubing. I recognize the fact that the question might be brought up as to whether this one inch tubing would be capable of producing to depletion. Since we are producing into a 600 pound pipe gathering line, it would restrict the capacity of the well in the later stages of depletion. That would be when pressures drop below a thousand pounds, in which event we would have to resort to producing through the casing.

Q You don't ever expect to have to work through that one inch tubing, do you?

A No.

Q Your one inch tubing will be swinging at about opposite those Tubb perforations?

A About mid way through.

Q You don't have to pump the Drinkard now, do you?

A No, we don't.

Q Well, in that bottom circulating valve, how will it be

sitting on the string? Would you have to jar down on that or up to open?

A I don't know the function of that valve.

Q If your shifting tool can't get through the seating hole --

Q Maybe I should have brought that out. In order to manipulate that lower valve, it will be necessary to ream this seating nipple out to I.D. 25/32, which is 1/32 over.

Q You propose to get down to that bottom sleeve and shift it?

A Yes.

Q And the two bottom sleeves will be open during all production of your Drinkard zone?

A No. Until such time as it is necessary to pump the well, we will keep that top valve closed. It's possible since it is under the packer there might be a small gas cap develop within the casing there. If we were to have this happen, why it might contribute to excessive GOR, which might be avoided by keeping it closed.

MR. FISCHER: Thank you.

EXAMINATION BY MR. NUTTER:

Q Mr. Francis, do you expect you will have corrosion problems in this dual completion?

A No. Of course, there will be a certain amount of corrosion; there will be nothing severe. We have never had any

severe corrosion problems in that area. Normally, producing equipment will last the life of the well.

Q Is the pool created for each of these zones?

A I believe the Warren-Tubb pool was created. It is defined as the southwest quarter of the Section 28, Township 13 South, Range 38 East as being the pool limits. The pool rules provided any wells developed within one mile of the pool boundaries would be governed by -- unless they fell within the limits of another Tubb pool -- would be governed by the rules of the Warren-Tubb Pool and that it could be included within the pool by administrative approval.

Q That's a 160 acre pool?

A Yes, sir.

Q You have a standard 160 acre unit?

A Yes, sir.

MR. NUTTER: Thank you.

A I might point out at the present time that the Warren-Drinkard acreage which was the other well in that area is a Blinebry-Tubb dual and is producing, as is Number 26, Blinebry-Tubb. It is 660 from the west line of 27. At the present time, we are in the process of plugging and dually completing what was the Warren-Drinkard 10 situated -- I'm not certain of that -- I believe 660 from the north and 2310 from the east line of Section 28. We have obtained successful Tubb completion or in the process of completing in the Blinebry.

Q You intend to make a Blinebry-Tubb dual out of that?

A Yes, sir, and it has been approved by the Commission.

MR. NUTTER: Any further questions of Mr. Francis? If not, he may be excused. (Witness excused.)

MR. NUTTER: Anyone have anything further in Case 1565? We will take the case under advisement.

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STATE OF NEW MEXICO)
) ss
COUNTY OF BERNALILLO)

I, JOHN CALVIN BEVELL, Notary Public 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 in stenotype and reduced to typewritten transcript by me; that the same is a true and correct record, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 18th day of December, 1958, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

John Calvin Bevell
NOTARY PUBLIC

My Commission Expires:

January 24, 1962

I do Hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1564, heard by me on 12-10, 1958.

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