BEFORE THE
OIL CONSERVATION COMMISSION
HOBBS, NEW MEXICO
JULY 25, 1956

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IN THE MATTER OF:

CASE NO. 1116: Application of Continental Oil Company for an order approving a dual completion in the Terry Blinebry Oil Pool and the Tubb Gas Pool under Rule 112 (a) of the New Mexico Oil Conservation Commission Statewide rules and Regulations. Applicant, in the above-styled cause, seeks an order granting permission to dually complete, by the use of a cross-over assembly whereby the Tubb Gas zone will be produced at the surface through the casing-tubing annulus and the Terry Blinebry Oil zone will be produced at the surface through the tubing, their Lockhart "B-14" "A" Well No. 2-A located 660 feet from the South and East lines of Section 14, Township 21 South, Range 37 East, Lea County, New Mexico.

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BEFORE:
Mr. Daniel S. Nutter, Examiner.

P R O C E E D I N G S

MR. NUTTER: The next case on the docket is Case 1116.

MR. GURLEY: Application of Continental Oil Company for an order approving a dual completion in the Terry Blinebry Oil Pool and the Tubb Gas Pool under Rule 112 (a) of the New Mexico Oil Conservation Commission Statewide Rules and Regulations.

MR. KELLAHIN: If the Examiner please, Jason Kellahin, representing Continental Oil Company. We have one witness.

(Witness sworn.)

RICHARD C. LANNEN

a witness, called on behalf of the applicant, having been first duly

sworn on oath, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q State your name, please. A Richard C. Lannen.

Q By whom are you employed?

A Continental Oil Company.

Q What position? A District Engineer.

Q How long have you been District Engineer?

A One year.

Q What District? A Eunice District.

Q Mr. Lannen, have you previously testified before the New Mexico Oil Conservation Commission as an expert and had your qualifications accepted by the Commission? A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. NUTTER: They are.

Q Mr. Lannen, are you familiar with the application filed in behalf of Continental Oil Company in Case No. 1116?

A Yes, sir.

Q What is proposed to be done under that application?

A It is proposed to squeeze off the present producing zone in the Lockhart "B-14" "A" No. 2-A and recomplete in the Tubb and dual complete in the Terry Blinebry.

Q In connection with that case, have you prepared an exhibit showing the location of the well and the ownership of the unit and offsetting acreage? A Yes, sir.

Q Is that marked as Exhibit No. 1 in Case 1116?

A Yes, sir, Exhibit 1, location and ownership plat.

Q What does that show?

A It shows the Lockhart "B-14" "A" No. 4-A, location of Well and Lease, Lockhart B-14 Lease, that is cross-hatched in yellow, the well is encircled in red, and the ownership of all offsetting properties is also indicated on the map.

Q And what is the location of the well involved, Mr. Lannen?

A The location of the Lockhart "B-14" "A" No. 2-A is 660 feet from the South and East lines, Section 14, Township 21 South, Range 37 East, Lea County, New Mexico.

Q Could you give the Examiner a brief history of this well?

A Yes, sir. The Lockhart "B-14" "A" Well No. 2-A was completed in January, 1954, at a total depth of 7,446 feet through perforations in the Abo Formation, once Abo Pool. Soon after completion the well ceased to flow and pumping equipment was installed and after producing a total of 16,356 barrels of oil, the well is now producing uneconomically, pumping three barrels of oil and three barrels of water per day.

Q Have you prepared an exhibit showing the contours of the sub-formation? A Yes, sir.

Q Is that marked as Exhibit No. 2 in this case?

A Yes, sir.

Q What does that show, Mr. Lannen?

A Exhibit 2 is a sub-contour plat on ten foot intervals, showing

the Lockhart "B-14" "A" lease and the Lockhart "B-14" "A" Well No. 2-A, showing a structural position in relation to offset wells and known Tubb production.

Q Would you refer to particular offset wells to which you have reference there?

A Yes, sir. The proposed dual is offset in the Tubb to the south by Magnolia Williamson Well No. 1, which is a Tubb-Blinebry gas-gas dual.

Q And on the basis of the Tubb contours, how do the two wells compare structurally as to position?

A The proposed well, Lockhart "B-14" "A" Well No. 2-A, is structurally comparable, slightly higher, maybe ten feet higher, than the Magnolia Williamson No. 1.

Q Is there any other well which you can compare with this one in the Tubb?

A The Morano Wynn No. 1, a Tubb, dual completion.

Q Where is that located?

A In the W/2 of the NW/4, Section 14, approximately a mile to the northwest of the proposed well, and it is structurally comparable or slightly lower.

Q On that basis, Mr. Lannen, is it reasonable to assume that the Lockhart Well involved here will be productive of gas?

A Be productive of gas in the Tubb, yes, sir.

Q Now, have you prepared an exhibit showing the Blinebry contours?

A Yes, sir, I have.

Q Is that marked as Exhibit No. 3? A Yes, sir.

Q Now, referring to that, what does that show?

A It is a Blinebry contour plat, contoured on 25 foot intervals, it has all Terry Blinebry oil wells encircled in brown, all Blinebry gas wells encircled in green, and the proposed well encircled in red with the Lockhart "B-14" "A" Lease hatched in yellow; this exhibit is entered, or rather presented, to show that the well will be oil productive in the Terry Blinebry.

Q Is this well located within the horizontal limits of the Tubb Gas Pool? A Yes, sir.

Q Is it located within the horizontal limits of the Terry Blinebry Oil Pool? A Yes, sir.

Q Now, referring to Exhibit No. 3, Mr. Lannen, can you make the same comparisons you did in regard to Exhibit No. 2?

A Yes, sir.

Q With reference to the Blinebry Formation?

A The Lockhart "B-14" "A" Well No. 2-A is again offset to the south by the Magnolia Williamson Well No. 1, and it is classified as the Blinebry Gas Well; it is noted here that it is structurally higher--lower than this proposed Terry Blinebry Oil Well, but the Continental Lockhart "B-11" No. 8, located in Section 11, in the SW/4 of the SE/4, and structurally comparable to the Lockhart "B-14" "A" No. 2-A is a Terry Blinebry Oil Well, and it is anticipated that this location, Lockhart "B-14" "A" 2-A will be productive in the Terry Blinebry by selective perforating and treating producing zones.



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Q Then it is your opinion that the Lockhart 2-A Well would be productive of oil in the Terry Blinebry Pool?

A Yes, sir. The Magnolia Williamson No. 1, even though classified as a Blinebry Gas Well produces, shall we say, large volumes of fluid from the Blinebry zone.

Q Then it would be a matter of method of completion as to what results it would obtain? A Yes, sir.

Q Now, have you prepared an exhibit showing the diagram of the present well and proposed dual completion?

A Yes, sir.

Q Is that marked as Exhibit No. 4? A Yes, sir.

Q Referring to Exhibit No. 4, what does that show?

A Exhibit 4 has the present condition of the well and the proposed dual completion of the well and simplified schematic showing -- it shows the casing seat, casing size, present tubing in the well at the present time, the cement tops and the producing intervals now and the proposed producing intervals. It also is a simplified schematic of down-hole equipment in the proposed dual.

Q Now, does that exhibit show the cement tops?

A Yes, sir.

Q Where are they?

A The top cement on the surface, ten and three-quarter surface pipe, circulating top of the cement on the seven and five-eights intermediate set at 3149 - 1440 feet, and the top of the cement on the five and a half inch production casing is 3,085 feet.

Q Now, as I understand it, this well was completed in 1954?

A Yes, sir.

Q And completed with five and a half inch casing then?

A Yes, sir.

Q On that basis, would it be practical to make a dual completion using a dual string of tubing?

A No, sir, we are limited by casing size.

Q And at the time of completion of this well, do you know whether any dual completions, by use of a dual string of tubing, had been approved by this Commission?

A At that time they had not.

Q Now, have you prepared a detailed drawing of the proposed dual completion as it is contemplated making?

A Yes, sir, I have.

Q Is that Exhibit No. 5? A Yes, sir.

Q Referring to No. 5, what does that show?

A This is a detailed schematic drawing of the down-hole equipment to be installed in the proposed dual. It shows all the equipment to be in the hole which is all Baker equipment, and the methods or rather path of flow of both zones colored in red and green, the Terry Blinebry Oil in red, and the Tubb Gas in green.

Q Does that show what type of packer will be used?

A Yes, sir.

Q And what is it?

A There will be the Baker Model D, Series 40, Production Packer

used.

Q Are those the packers ordinarily used in Southeastern New Mexico on completions of this method? A Yes, sir.

Q And have been approved by this Commission?

A Yes, sir.

Q Now, Mr. Lannen, with use of that, would you be able to test and treat the formations after completion?

A Yes, sir, you would be able to. After completion, it will be possible to acidize each zone individually; it won't be possible to sand frac the zone, but previous to the dual completion or at the time of dual completion, it is proposed to perforate and treat all possible producing intervals in both zones, thereby preventing any possible -- or preventing any necessary remedial work in the future, and no remedial work will be anticipated.

Q With that type of equipment, can you select the manner in which the well will be produced, whether one formation or the other?

A Yes, sir. On this diagram there is two schematics, one with parallel flow and the other with cross flow. A parallel flow is shown on the left-hand side of the schematic, and the cross flow on the right-hand side. With parallel flow, the parallel flow is used for testing the lower zone and treating the lower zone through tubing and the cross flow will be the producing method. The method of flow is controlled by the type of selection of Otis Choke which will be installed. The remaining equipment is the same, other than the Otis Choke, when you wish to change the direction of the flow. I

will give a description of the flow. The Tubb gas enters the tubing below the bottom packer and flows up through the tubing to the packer dual zone flow tube, where, at this point, the Terry Blinebry oil enters the tubing string into the flow tube and both travel -- but are segregated -- upward to the Otis crossover choke, and, at this point, the gas enters the casing, the oil continues up the tubing to the surface.

Q Now, is that type of equipment effective in successfully maintaining segregation of producing horizons?

A Yes, sir. This packer and the Otis has been utilized elsewhere and has been accepted as extremely successful.

Q Is it possible to make adequate tests to insure that separation is being maintained from time to time?

A Yes, sir. It is possible by the use of two pan pressure recorders at the surface recording the pressure differential in the two zones.

Q In the event this application is approved, will Continental Oil Company be willing to make the proper tests as prescribed by the Commission in order to assure that separation has been achieved?

A Yes, sir.

Q Mr. Lannen, is there any appreciable difference in the pressures of the two formations involved here?

A At the present time there is approximately 100 pounds differential in pressure between the Tubb and Terry Blinebry.

Q Do you consider that an appreciable difference in a dual com-

pletion of this nature?

A It is enough to know, to test for communication, yes, sir.

Q But is it sufficient pressure to create any appreciable danger?

A No, sir. The difference is not enough to damage either formation if there is communication between the two.

Q Mr. Lannen, were Exhibits 1, 2, 3, 4, and 5 prepared by you or under your direction and supervision? A Yes, sir, they were.

MR. KELLAHIN: At this time we offer in evidence Exhibits 1 through 5, inclusive, in case 1113.

MR. NUTTER: Is there any objection to the introduction of Exhibits 1 through 5 in this case? If not, they will be received in evidence.

MR. KELLAHIN: That is all the questions we have, Mr. Nutter.

MR. NUTTER: Does anyone have any questions of the witness?

BY MR. REEDER:

Q Mr. Lannen, how were these cement tops which you have on Exhibit 4, I believe, determined? A Temperature survey.

Q In all cases?

A In all cases, other than the surface, which was circulated.

Q Would you care to comment on the probable productivity of the oil from the Tubb Formation? Let me rephrase that. Isn't it quite possible, if not probable, that the Tubb Formation will be productive of oil?

A It is possible, but the south offset, the Magnolia Williamson No. 1, at the present time, produces very small values of fluid in

the Tubb zone, and this well is comparable to the proposed well, so, therefore, large volumes of distillate are not anticipated in the Tubb.

Q At all, or any near future date?

A In the near future.

MR. NUTTER: Anything further?

MR. KELLAHIN: I have another question.

BY MR. KELLAHIN:

Q Do you have a log available on the Lockhart "B-14" 2-A Well?

A Yes, sir.

Q Has the Commission been furnished with a copy of that log?

A I am not positive that there is a copy in their file, but there should be. It was recently completed, in 1954, and they were furnished.

Q Would you be willing to furnish the Examiner with a copy of the log? A Yes, sir.

MR. KELLAHIN: That is all.

BY MR. NUTTER:

Q Mr. Lannen, as I understand it now, your Lockhart No. 2-A is presently completed in the Abo? A Yes, sir.

Q And you wish to dual it in the Terry Blinebry oil and Tubb gas? A Yes, sir.

Q Could you tell me what pools the other wells in that Lockhart lease are completed in?

A Yes. The Lockhart B-14 "A" No. 1 is a Drinkard oil well, No.

3, Terry Blinebry Oil well.

Q And this proposed 160 acre unit would be dedicated to the gas well, only, is that right?

A At the present time, we feel that a request for a 160 acre unit is not in line with the application for the dual.

Q So you are not making any application at this time for a proration unit? A No, sir.

Q But the Terry Blinebry completion would be assigned only 40 acres? A Yes, sir.

Q Now, this well just to the south of your 2-A, Magnolia's Williamson No. 1, is completed in the Blinebry and Tubb?

A Yes, sir, gas-gas dual.

Q What is it making from the Blinebry?

A It is a 40 acre gas unit in the Blinebry and a 40 acre in the Tubb, and, in April of 1956, the well produced 10,700 MCF and 133 barrels of distillate; the production from the Tubb, for the month of April, was 2,873 MCF, with recorded 65 barrels of distillate.

Q Do you know the completion interval on those two zones on that well?

A You mean in the Blinebry?

Q Well, in both, Tubb and Blinebry.

A The entire Tubb is perforated, it is within the vertical limits of the Tubb Pool. I don't know the exact perforations, no, and in the Terry Blinebry, it is common knowledge that there are three zones that have been established in it, three producing zones, and

structure location of this well leads us to the conclusion that only the first and part of the second are perforated. In the Terry -- rather the Blinebry, this Magnolia Williamson No. 1 is now classified as a gas well. Strictly by a completion method it was completed as a gas; could have been completed as an oil.

Q By completing in that upper zone, it was completed as a gas?

A Yes. If the third were open, it could have possibly been an oil.

Q Are these perforation intervals pretty well established by the information you have on the well?

A Yes. We have extensive development in the Terry Blinebry in the area, and have completion methods and the intervals to be completed in; we have the method of completion and intervals to perforate simplified now so the method used -- we can complete it as an oil well.

Q Now, referring to your Exhibit No. 5, can this Otis Select Type "H" Crossover Landing Nipple be pulled by wire lining?

A The landing nipple is in assembly, the crossover choke can be.

Q That's what I mean. Now, how about bottom hole pressures, can you take them with this equipment in the hole?

A Yes, if bottom hole pressure is required in the lower zone, the Tubb zone, the parallel flow is used, and the Type "R" Parallel Choke is installed. This one is removed and an "R" installed which allows the lower zone to continue its production through the tubing

and bottom hole pressure available in the tubing.

Q How far down can you run a bomb, down to the first packer?

A The bomb can be run to the landing nipple assembly; from that point on the bottom hole pressure has to be calculated.

Q Do you have any idea at what depth the first packer will be?

A Yes, sir. The first packer?

Q Yes, sir. A 5,450.

MR. NUTTER: Does anyone else have any questions of the witness?

THE WITNESS: As far as the proposed well plan, we have the proposed well installation and work plan already planned and written up to have it done.

BY MR. REEDER:

Q Mr. Lannen, is it not true that the Continental would be extremely reluctant to pull the operating devices to perform bottom hole pressures unless it was specifically required by specific order of the Commission?

A The Continental Oil Company has always expressed an attitude of cooperation on that, and I don't think it would be necessary to establish a direct order to obtain it, if it was required or necessary.

Q I probably phrased that badly, but due to the expense involved in removing and resetting these separation devices, there would be a certain degree of reluctancy on the part of the operator?

A There would be a certain degree of expense; if the information

obtained justified the expense, why, the work would be done.

Q But it is expensive and time consuming to reverse flow in this sort of completion?

A It is a matter of use of Otis equipment and the relative expense is not high, but the job costs several hundred dollars to do that.

MR. NUTTER: Do you have anything further?

MR. REEDER: No.

MR. NUTTER: Does anyone have any further questions of the witness?

MR. KELLAHIN: Yes, sir.

MR. NUTTER: Mr. Kellahin.

BY MR. KELLAHIN:

Q Mr. Lannen, under ordinary circumstances are calculated bottom hole pressures acceptable to the industry?

A They certainly are, yes, sir.

Q Have they been accepted by the Commission?

A Yes, they now accept them calculated in the Blinebry Pool; by circulating a bomb into the tubing several hundred feet of the formation would be much more accurate than a calculated bottom hole pressure.

Q Now, Mr. Nutter asked you some questions in regard to the Magnolia Williamson Well No. 1. Mr. Lannen, are you familiar with the Morano Wynn No. 1 Well in the NW/4 Section 14?

A How familiar do you mean?

Q Is that a dual completion in the Tubb and Blinebry?

A Oh. Oh, well, the legend presented on the Blinebry plat and Tubb plat in Exhibits 2 and 3 explains that. The Morano Wynn No. 2 is dually completed in the Blinebry gas and Drinkard oil.

Q And did you check the production history of that well in the Terry Blinebry? A It's a Terry Blinebry gas.

Q How about Continental's Knowland No. 1?

A It's a Tubb gas well.

Q Tubb?

A And a Drinkard oil well.

Q Are there -- it's a Drinkard oil?

A Yes.

Q Are there any other Terry Blinebry oil wells in that vicinity?

A Other than the Lockhart "B-11" No. 3, which is the highest Terry Blinebry well.

Q What is the production of that well, are you familiar with it?

A Yes, sir, very. It's now classified as an oil well; it was voluntarily reclassified as an oil well by the Continental because of the reduced gas-oil ratio in a recent test. It originally was completed as a Blinebry oil well; the gas-oil ratio became excessive, and it was classified as a gas well and in the first part of January, this year, reclassified as an oil well because of the increase of fluid production and decrease in gas-oil ratio. It is now a Terry Blinebry oil well with a gas-oil ratio fluctuating between 5500 and 6,000 cubic feet per barrel, producing top allowable for Terry

Blinebry oil.

MR. KELLAHIN: That is all I have.

MR. NUTTER: Does anyone else have any questions of the witness? If not, he may be excused.

(Witness excused.)

MR. NUTTER: Does anyone have any statements in this case? If not, we will take the case under advisement and the hearing is adjourned.

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STATE OF NEW MEXICO )
: ss
COUNTY OF BERNALILLO )

I, THURMAN J. MOODY, 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 by me and/or 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, the 8th day of August, 1956, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Thurman J. Moody
Notary Public

My Commission Expires:

April 3, 1960.