EXAMINER HEARING
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
April 10, 1958

IN THE MATTER OF: Case No. 1417

TRANSCRIPT OF PROCEEDINGS

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ALBUQUERQUE, NEW MEXICO
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EXAMINER HEARING
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IN THE MATTER OF:

Application of Sinclair Oil and Gas Company for an oil-oil dual completion. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its A. M. York "B" Well No. 2, located in the NE/4 NE/4 Section 20, Township 21 South, Range 37 East, Lea County, New Mexico, to produce oil from the Tubb Gas Pool and from the Drinkard Oil Pool through parallel strings of tubing.) Case 1417

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF PROCEEDINGS

MR. UTZ: The next case on the docket will be Case 1417.

MR. PAYNE: Case 1417: Application of Sinclair Oil and Gas Company for an oil-oil dual completion.

MR. BURTON: I'm Horace Burton, attorney for Sinclair Oil and Gas Company, Midland, Texas. Mr. Anderson will be our only witness.

(Witness sworn.)

R. M. ANDERSON

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

DIRECT EXAMINATION

By MR. BURTON:

Q State your name and position.

A R. M. Anderson, senior petroleum engineer, Sinclair Oil and Gas Company, Division Office in Midland, Texas.

Q Does your office have direction and supervision of your operations in Lea County?

A Yes.

Q Have you made a study of the data pertinent to this application?

A I have.

Q Have you previously qualified to give testimony as a petroleum engineer before the Oil Conservation Commission?

A I have.

Q The records of the Commission will show, will they not, that on December 21, 1957, by its Order No. DC-541, administrative approval was given to the dual completion of the A. M. York "B" well as a Drinkard oil well and Tubb gas well, is that correct?

A That is correct. I believe the date of the order is December 31, 1957. I believe you said December 21st.

Q Our application states December 21st.

MR. UTZ: That's what the application says, yes.

A The date should be December 31st.

MR. UTZ: That's the actual date on the order?

A Yes.

Q Following that order, did you attempt to perforate the Tubb zone?

A Yes, we did.

Q Will you state what operation you conducted and whether you encountered oil or gas?

A Pursuant to that order, on February 3rd we perforated the Tubb zone in this well, in the interval 6204 to 6250 feet, and 6270 to 6300 feet.

MR. UTZ: Do you have a diagram of your dual completion?

A Yes, sir, I do. The following day, on February 4th, we sand and oil fracked the well with 20,000 gallons of oil and 20,000 pounds of sand. For the next 18 days we swabbed and flowed the Tubb zone through tubing and measured various amounts of oil per day, ranging from 312 barrels of oil per day to as high as 360 barrels of oil per day, with a gas-oil ratio estimated between 400 to 500 to 1.

Q The well had previously been completed as a Drinkard oil well prior to this time?

A Yes, sir, July 16, 1947, the well was originally drilled and completed as a Drinkard oil well.

Q Will you please narrate the remainder of your testimony and produce such exhibits as you have prepared or caused to be prepared, and explain them?

A Yes, I have prepared an area map which I would like to introduce as Exhibit No. 1. On that area map I have outlined the 80 acres that was established as a non-standard gas proration unit in the Tubb Gas Pool to be assigned this well, or A. M. York "B" No. 2 well, in the event that it was a gas well as it was anticipated.

Of course, that 80 acres occupies the East Half of the Northeast Quarter of Section 20, 21 South, 37 East; of course, now that the well is an oil well only, the north 40 acres of that acreage will be dedicated to the Tubb well.

I have circled in red the subject well. I have circled in yellow all of the Tubb Gas Pool wells that are immediately offsetting our lease. I have indicated the western limit of the Tubb Gas Pool, a portion of that limit, to show that the lease is inside of the horizontal limits of the Tubb Gas Pool.

I have also prepared a diagramatic sketch of the proposed dual completion installation which I would like to enter as Exhibit 2. This sketch, the Drinkard Oil is colored in green on this sketch and the Tubb Oil is colored in red. The sketch indicates the surface casing where it is set, the intermediate casing where it is set; indicates the top of the cement behind the 7-inch oil string, as determined by the temperature survey that occurred at 3,172 feet. It indicates that we propose to install a parallel tubing string. The long string to produce the Drinkard zone will be standard 2-inch EUE tubing, the short string will be 2-inch Hydril CS tubing. We have installed in the well at the present time a Baker Model "D" production packer at 6500 feet. Both the Tubb and Drinkard perforations are indicated on this sketch, as is the fact that the 7-inch casing is set on bottom. There is no open hole. I might state that this 2-inch EUE tubing, that is nominal, that is 2-3/8 inch OD tubing, and the 2-inch Hydril is

nominal size. That is approximately the ID of the Hydril, both strings have the same ID, which is slightly under 2-inch, it's standard.

MR. UTZ: Isn't the 2-inch Hydril commonly called the 2-1/16 inch Hydril?

A No, that is inch and a half Hydril, nominal size. The Hydril we propose to use has an ID the same as 2-inch EUE tubing and that ID exactly is 1.995 inch.

MR. UTZ: Okay.

A I have marked a full-scale gamma ray-neutron log to illustrate the same thing that is shown on this diagramatic sketch. I would like to introduce that as Exhibit 3. On that log I have marked the top, I have marked the Tubb marker as defined by the Commission in their appropriate order, and I have indicated the vertical limits of the Tubb Gas Pool extending up from a point 100 feet above to a point 225 feet below that marker. I have indicated the perforated interval in the Tubb zone in red, showing that it falls within the vertical limits of the Tubb Gas Pool.

I have indicated the location of the Baker Model "D" packer at 6500 feet, and I have indicated in red the Drinkard perforations below the packer. I have summarized some of the pertinent data on this well on a statistical data sheet which I would like to introduce as Exhibit 4.

I have shown the original completion date and the producing interval in the Drinkard zone, and I might state that a recent

test on the Drinkard zone February 1st, 1958, the zone flowed after stimulation at a rate of 326 barrels of oil per day. The gas-oil ratio of 1840 cubic feet, 1860 cubic feet per barrel. The gravity of the oil was measured at 37 gravity. I have shown here the dual completion order number and the date of the dual completion I have shown as the date that we completed testing the Tubb zone and moved off the well. The dual completion has not actually been completed yet, in that we have the long string, the 2-inch EUE set in the packer and the Tubb zone is confined in the annulus and is shut in, and the Drinkard is being produced currently through the long string from below the packer. That is the present status of the well on completion.

On approval of this application, we intend to move back in and run the second string of Hydril, 2-inch Hydril tubing and complete the well in that manner.

I have shown the overall producing interval in the Tubb zone, and I have previously indicated the productivity of the Tubb during the testing period, around 312 to 360 barrels per day, it produced at those rates. The gravity varied from about 39.4 to 41.3 gravity in the Tubb zone during this testing. The gas-oil ratio, as I say, was not measured, but it was very low and it was estimated by field personnel to be between four and five hundred cubic feet per barrel.

I have put detailed casing records showing the 7-inch and the weights of the various 7-inch casing that is in the well, and

once again the setting depth of the Model "D" packer and the proposed tubing,where we propose to hang it; the well location as being summarized there.

I don't believe I have anything further.

Q In your opinion would this method of completion insure adequate separation of the two zones?

A Yes, I believe that our proposed installation would insure separation of the two zones?

Q What is your opinion as to whether or not it would be economically feasible to produce the Tubb except by the dual completion?

A I believe that it would be an economic waste to have to drill a twin well; as a matter of fact, I do not believe that my company would consider drilling a twin well to develop the Tubb zone under this 40-acre tract. Our geology and our examination of the area indicated to us that this 40-acre tract would be productive of gas, and we fully expected to get a gas well, and we were surprised to get this oil well. We have not been able to evaluate the reserves that might be under the oil well. We are sure that they could be considerable, and then the other well, the well could go to a high gas-oil ratio with very short production life.

Q Are there no other Tubb wells in the immediate area?

A No, sir.

Q Do you believe, then, that the granting of this application

will be in the interest of waste prevention?

A Yes, I believe it will prevent waste.

Q Will correlative rights be adversely affected?

A I don't believe that any correlative rights will be impaired by the granting of this application.

MR. BURTON: The Applicant offers the Exhibits 1 to 4 in evidence.

MR. UTZ: Without objection they will be received.

MR. BURTON: That's all.

MR. UTZ: Do you have a question, Mr. Nutter?

MR. NUTTER: Yes.

CROSS EXAMINATION

By MR. NUTTER:

Q Mr. Anderson, how long was the well produced from the Tubb formation?

A We produced it every day for about 18 days, starting on February 4th through February 22nd. Then we shut the well in for about 11 days and about March 5th, I believe, we produced the well for about the next 6 days running a packer leakage test.

Q Did you take GOR's periodically while you were producing the well?

A We did not take GOR's on the Tubb zone.

Q You don't know whether the GOR has changed materially as a result of production of the well?

A No, sir, except I know that the GOR for the last production

that came out of the well was still very low and was estimated in the vicinity of four to five hundred cubic feet per barrel.

Q How about the gravity? Did you measure the gravity of the oil periodically?

A It was measured periodically and it varied between 39.4 to 41.3 during the last days --

Q (Interrupting) Was that variation upward?

A My impression that a trend is not established by the variation. The two particular tests that I referred to, the gravity was not determined every day that the well was produced, but on the 6th at 41.3 gravity oil was produced, 60 barrels in four hours, and on the 7th it was 39.4 gravity, 75 barrels of oil in five hours; so they were consecutive days, the last two days, and they are the last two gravities that were measured.

Q The reason I was asking if a trend in the gravity had been established, Mr. Anderson, is that Commission Order R-586-B prescribed the manner in which a well will be determined to be a gas well or oil well in the Tubb Pool. The only criterion, if a well produces fluids with a gravity of 45 degrees API or less, it is classified as an oil well. Do you think that there is any indication that this well upon production will change into a gas well again? Has there been any indication to date, I should put it that way.

A No. We have tested it for quite a few days hoping that it would definitely firm up as to whether it was going to be oil

or gas. We are satisfied in our minds it is going to be an oil well for a while. It is fairly stabilized as an oil well at this time. I believe it is possible, and we anticipate that the gas-oil ratio may go up in the future, but not the immediate future. I don't anticipate an early change in this well's classification.

Q Now, DC Order 541 authorized the completion as a gas-oil dual, correct?

A Yes.

Q Did that authorize the dual completion for the production of the gas through the casing annulus?

A Through the casing annulus.

Q In the event the well changes and becomes a gas well, would you leave this string of tubing in here and produce it through the tubing, or would it be produced through the annulus?

A I would imagine that we would leave it in there until such a time as we had occasion to go in and work over the well. We would salvage surplus equipment then, if this original dual completion order were not cancelled, if the DC-541 were not cancelled, if it were still effective.

Q It is restrictive?

A Yes.

Q It authorizes the production of gas through the annulus?

A Yes.

Q I was wondering, if the possibility is that this well would become a gas well, perhaps this order that should enter from this

case today should be for oil or gas?

A I think that probably would be a good idea to have the order written in that manner. Of course, there will be both oil and gas produced through the Hydril string, even as an oil well.

MR. NUTTER: Off the record.

(Discussion off the record.)

MR. BURTON: Let the record show that Applicant amends the application for the oil-oil dual or oil-gas dual to permit the production of gas, if the well turns into a gas well.

MR. UTZ: From the Tubb zone?

MR. BURTON: Yes.

A Can we go off the record again a minute?

MR. UTZ: All right. Off the record.

(Discussion off the record.)

MR. UTZ: Let's go back on the record.

MR. BURTON: Mr. Examiner, I would like to ask if the record clearly shows what we desire in this order? If I understand it, we would like Order DC-541 to remain in effect so that the well could be produced from the Tubb through the annulus as a gas well, if it should go to gas; and that the order we are now requesting would permit the well to be produced either as an oil or gas well through the string of tubing. Is that what we want, Mr. Anderson?

A That's my understanding.

MR. UTZ: Without objection to counsel's amendment of the

application, it will be so amended. Is that all, Mr. Nutter?

MR. NUTTER: I have a few more questions.

Q (By Mr. Nutter) Will you briefly summarize the pressures on these two zones?

A The pressure history is rather limited in the Tubb zone, in that it's just been opened up. However, the bottom-hole pressure was measured in the Drinkard zone the first part of March at 1,090 pounds after 48-hour shut-in. At that time the surface pressure on the Drinkard zone, which was in the tubing, was 910 pounds.

Q Is that shut-in tubing pressure?

A That is the shut-in tubing pressure. The shut-in casing pressure, which reflects the Tubb zone at the same time, was 872 pounds; we had the tube in the annulus.

Q Do you have a bottom-hole pressure for the Tubb?

A No, sir.

Q Now, the comparative gravities of the fluids produced from the two zones?

A Upon completion of the stimulation of the Drinkard zone in January, we tested the Drinkard at a gravity of 37 gravity.

Q The Tubb gravity was in the range of --

A (Interrupting) 39.4 to 41.3, it's in that range.

Q How about the GOR's on the two zones?

A The Drinkard zone was measured at 1860 cubic feet per barrel; the Tubb zone was not measured, but was estimated at between four and five hundred cubic feet per barrel.

MR. NUTTER: Thank you.

MR. UTZ: Are there any other questions of the witness? Did you offer your exhibits?

MR. BURTON: Yes, I did.

MR. UTZ: That's right, they were accepted. The witness may be excused.

(Witness excused.)

MR. UTZ: Any statements to be made in this case? If there are none, the case will be taken under advisement, and the hearing is adjourned.

(Hearing adjourned.)

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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 24 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. 1417, heard by me on May 9, 1958.

..... Examiner
New Mexico Oil Conservation Commission