

BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
January 4, 1962

EXAMINER HEARING

IN THE MATTER OF:

Application of Shell Oil Company for a triple completion, Lea County, New Mexico. Applicant, in the above-styled cause, seeks permission to complete its Livingston Well No. 11, located 3300 feet from the South line and 660 feet from the West line of Section 3, Township 21 South, Range 37 East, Lea County, New Mexico, as a triple completion (tubingless) in the Drinkard Oil, Tubb Gas and Blinbry Oil Pools, with the production of oil from the Drinkard and Blinbry zones and the production of gas from the Tubb zone to be through parallel strings of 2 7/8-inch casing cemented in a common well bore.

CASE NO.
2468

BEFORE:

Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING

MR. NUTTER: Case 2467.

MR. WHITFIELD: Would the examiner have any objection to hearing 2468 before 67?

MR. NUTTER: No, sir. We will call 2468.

MR. WHITFIELD: Application of Shell Oil Company for a triple completion, Lea County, New Mexico.

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MR. SETH: Oliver Seth, Seth and Montgomery, representing the applicant. We have one witness.

(Witness sworn.)

JOSEPH G. YOPE,

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

DIRECT EXAMINATION

BY MR. SETH:

Q Would you state your name, please?

A Joseph G. Yope.

Q By whom are you employed, Mr. Yope, and in what capacity?

A I'm a mechanical engineer for Shell Oil Company.

Q Where are you located?

A In Roswell.

Q Are you familiar with the subject of this hearing?

A Yes, sir, I am.

Q Would you state to the examiner, please, briefly what is requested by Shell in this hearing?

A Shell is proposing a triple completion utilizing three parallel strings of 2 7/8-inch casing cemented in a common well bore to produce the Drinkard Oil, Blinebry Oil, and the Tubb gas zones through each string individually.

Q Do you have a plat showing the location of the well?
I have forgotten the qualifications of the witness. You have testified before, have you not, Mr. Yope?



A Yes, I have.

MR. SETH: May he testify?

MR. NUTTER: Yes.

Q (By Mr. Seth) Do you have an exhibit showing the subject well?

A Yes, I have Exhibit No. 1.

(Whereupon, Applicant's Exhibit No. 1 marked for identification.)

Q I hand you what has been marked Exhibit No. 1, and would you tell the Examiner what this shows, please?

A Exhibit 1 indicates the Livingston lease outlined in red located in Section 3 and Section 4 of Township 21 South, Range 37 East, and it also denotes Well No. 11 in red which is the proposed triple completion, it shows the offset operators and wells in the surrounding area.

Q Is the ownership common throughout these three zones in this well?

A Yes, it is common ownership for all zones.

Q Do you have a diagrammatic sketch of the completion?

A Exhibit No. 2.

(Whereupon, Applicant's Exhibit No. 2 marked for identification.)

Q State briefly what this shows, please?

A Exhibit No. 2 is a diagrammatic sketch of the actual installation in Livingston No. 11.



Q This installation has been made, is that correct?

A That is correct. The well is in the process of being completed at this time.

Q Tell us a little bit generally about the overall completion?

A This exhibit shows total depth of the well of 6730 feet, at which point we ran three strings of 2 7/8-inch O.D. casing and cemented them at approximately 6724 feet, plus or minus, these strings were cemented with 325 sacks of Class C cement mixed with 40 per cent Diacel, 4 per cent calcium chloride, and one quarter cubic feet per sack of Strata Crete 6, then followed or tailed in by 310 sacks of Class C cement mixed with four per cent gel, and one-eighth foot of Strata Crete 6 per sack of cement.

Q Did you mention that the strings were all run to the same depth?

A Yes, sir. Looking at each string individually here, we have the one on the right as our Drinkard string.

Q You are referring to Exhibit 2 now?

A On Exhibit 2, yes, sir.

Q Okay.

A This string consisted of 2 7/8-inch O.D. 6.5 pound N-80, 8 round EUE tubing or casing as used here, hung at 6725 feet. It was equipped with a Baker solid pump of nose plug on bottom, one shoe joint, then a seating adaptor for a latch down plug, a D and B seating shoe at 6661 feet, a 6 foot sub with radioactive rings located at 6464 and 6470 feet. As this string



was run each joint of casing was pressure tested hydraulically to 8000 PSI above the slips. That was the first string we ran. The second string then was the Tubb which consists of 2 7/8-inch O.D., 6.5 pound J 55, EUE tubing. Again this string was equipped with a Baker solid pump of nose plug on bottom, one shoe joint seating adaptor at 6691 feet for our cementing plug, a D and B seating shoe or seating nipple at 6382 feet, and a 2 foot sub equipped with radioactive rings located at 6103 feet, 6105 feet. In this string each joint was hydraulically pressure tested to 6000 PSI above the slips as it was run into the hole. The third string on Exhibit 2 is the left string or Blinbry, consisted of 2 7/8-inch O.D. J 55, 6 1/2 pound 8 round EUE tubing hung at 6724 feet, again it had a solid pump of nose plug seating adaptor at 6691 feet, a D and B seating shoe at 6083 feet and a ten foot sub with radioactive collars at 5637 feet and 5647 feet. This string was also tested to 6000 PSI above the slips at it was run.

Q What was done to provide the turbulence on the cementing?

A We equipped each joint of tubing from this hanging point back to approximately 5000 feet with one turbulizer per joint, Baker rubber turbulizers. In the actual final condition these turbulizers ended up approximately 10 feet apart considering all three strings.

Q Did you use a separate cementing truck for each string?

A Yes, sir. To further insure a good cement job we had



a cement truck on each string and cemented simultaneously proportional amounts of cement in each string so the cement left the bottom of the strings at approximately the same time and the plugs were all bumped at approximately the same time. We estimated our cement fill to be back to 2200 to 2400 feet which was confirmed by temperature survey to be 2400 feet.

Q Were some of the zones or all the zones fractured during the process of completion?

A Yes, all three zones were fractured. However, I would like to discuss where they were perforated first.

Q All right.

Q We perforated the Tubb string first with 12 holes from 6133 feet to 6363 feet and while this zone was perforated 360 pounds surface pressure was held on one string and 800 PSI surface pressure was held on the other string and during the perforating operation no signs of pressure increases were observed or pressure losses were observed in the two strings. We followed the same procedure in perforating the Drinkard zone or the lower zone second. It again was perforated with 12 holes from 6519 feet to 6635 feet. This time we held 500 pounds on one string and 800 PSI on the other string with no observed pressure losses. When the Blinebry zone was perforated we maintained 500 PSI surface pressure on each of the other two strings and perforated with 12 holes selectively from 5719 feet to 5834 feet. Then during completion operations we fracture treated



each zone separately, utilizing pressures as high as 9400 PSI on the Drinkard string and in the order of 6400 PSI on the Blinebry and Tubb zones without noticing any pressure increases on the other two strings. From this completion process we are assured that there is no communication between the zones.

Q Was there treatment of the several zones?

A At the present time we are still swabbing the two zones or two of the three zones. The Drinkard is completed and it potentialized a rated potential of 163 barrels per day of 40.2 gravity oil with 2/10ths per cent B, S, and W, through a 12-64 inch choke. We have no test data on the Tubb or Blinebry as yet. We believe that this completion will adequately produce the three zones in the interest of conservation because first the Drinkard zone is primarily a depletion type reservoir with relatively high GOR's through its life.

Q How about water production in the Drinkard?

A We have very little record of water production in this field in our Drinkard wells so we anticipate that the Drinkard zone will flow to near completion at which time if artificial life is required we can produce it with a macaroni string of 1 1/2-inch tubing and either beam pump units or gas lift equipment.

Q Do you think that you can lift sufficient volumes to adequately produce the wells, though, in any event?

A Yes, sir, we believe we can.

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Q What about the Tubb zone?

A The Tubb zone is an expected gas zone. It may produce as high as 20 barrels per million of condensate, no artificial lift problems of course then would be required here. It would flow to depletion, with the life in the order of 15 years.

Q Is it particularly corrosive?

A No, sir, we have no record of hydrogen sulfide content or carbon dioxide content in our Tubb gas wells so we do not anticipate any corrosive action from this zone.

Q What about the Blinebry?

A The Blinebry zone is also a depletion type oil reservoir with an expected life of six to eight years and in reality we expect this zone to flow to depletion and actually go to gas. It has a secondary gas cap drive and if artificial lift is required, either beam pumping or gas lift should be adequate to handle it. The hydrosulfide and carbon dioxide content measured in the Blinebry gas are zero. We have no anticipated corrosion problems from that zone either, although we have no measured corrosion rates or anything on the Drinkard. We have many Drinkard wells in the area which have not created any corrosion problems to our knowledge so in reality all three zones we consider corrosion free.

Q Do you believe that the approval of the application would be in the interest of conservation and the prevention of waste?



A Yes, I do.

Q Do you have anything further about production from the zones or testing or anything like that that you would like to mention?

A Yes, sir, the production from each zone will be handled in a central tank battery and the Blinbry and Drinkard will be commingled in the central battery which is adequate facilities for testing the GOR and fluid content of the zones. Diagram of this battery if necessary is available from our application for administrative approval for that commingled battery. The order authorizing it was administrative order PC 47. We also have here a log, gamma ray neutron log. I only have one copy which I would like to enter as Exhibit 3.

(Whereupon, Applicant's Exhibit No. 3 marked for identification.)

Q What does this log show generally?

A The log denotes the tops and bottoms of the three horizons concerned in this well and it also shows by arrow points the actual position of the perforated intervals or the perforated shots.

Q Is there anything further?

A If the Commission desires, we have a copy here of the temperature survey on the cement top.

MR. NUTTER: That won't be necessary. You did determine that the top of the cement was 2400 feet, didn't you?

A Yes, sir.



Q Are there any further comments you want to make about the application?

A No, sir.

MR. SETH: We would like to offer our three exhibits.

MR. NUTTER: Shell's Exhibits 1 through 3 will be admitted in evidence.

(Whereupon, Applicant's Exhibits 1 through 3 admitted in evidence.)

MR. SETH: That's all the testimony.

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

CROSS EXAMINATION

BY MR. NUTTER:

Q Have you received approval for a non-standard unit for the Tubb gas?

A No, sir, we haven't. An application will be forthcoming for a non-standard gas unit there on successful completion of the Tubb zone.

Q Is there any Tubb Oil well on this lease?

A No, sir.

Q Is there any Blinebry gas well anywhere on this lease?

A No, sir, they have all been converted to oil wells.

Q So you'll have the 40 acres on which the well is located dedicated to the Blinebry oil completion?

A Yes.



Q And some acreage dedicated to the Tubb when you receive approval for that unit?

A Yes, it will probably be Lots 13 and 14 in Section 3, and 9 and 16 in Section 4 for another standard gas unit.

Q Now, I missed your potential on the Drinkard, how many barrels was that per day?

A We rated it at 163 barrels of oil per day.

Q What was the GOR on that?

A 1894.

Q And no completion data on the Blinebry or Tubb either one as yet?

A No, sir.

MR. NUTTER: Any further questions of Mr. Yope? He may be excused.

(Witness excused.)

MR. NUTTER: Do you have anything further, Mr. Seth?

MR. SETH: No, we have nothing further.

MR. NUTTER: Does anyone have anything they wish to offer in Case 2468? We will take the case under advisement.

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STATE OF NEW MEXICO)
) ss.
 COUNTY OF BERNALILLO)

I, ADA DEARNLEY, Court Reporter, do hereby certify that the foregoing and attached transcript of proceedings before the New Mexico Oil Conservation Commission, at Santa Fe, New Mexico, is a true and correct record to the best of my knowledge, skill, and ability.

IN WITNESS WHEREOF, I have affixed my hand and notarial seal this 4th day of January, 1962.

Ada Dearnley
 COURT REPORTER-NOTARY PUBLIC

My commission expires:

June 19, 1963

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 2068, heard by me on 1-4, 1962.

Asuntur, Examiner
 New Mexico Oil Conservation Commission

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