BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
July 28, 1959

EXAMINER HEARING

IN THE MATTER OF:

Case 1725

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IN THE MATTER OF:

Application of Amerada Petroleum Corporation for an oil-oil dual completion and for permission to commingle the production from two separate pools. Applicant, in the above-styled cause, seeks an order authorizing the dual completion of its State "Q" Well No. 1, located in the NW/4 SE/4 of Section 16, Township 20 South, Range 37 East, Lea County, New Mexico, in such a manner as to permit the production of oil from the Eunice-Monument Pool and the production of oil from an undesignated Tubb pool, through parallel strings of tubing. Applicant further seeks permission to commingle the production from said pools produced from the said State "Q" Well No. 1.

Case 1725

BEFORE:

Mr. Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The next case will be Case 1725.

MR. PAYNE: Case 1725. "Application of Amerada Petroleum Corporation for an oil-oil dual completion and for permission to commingle the production from two separate pools."

MR. KELLAHIN: Jason Kellahin of Kellahin and Fox, Santa Fe, New Mexico, appearing for the applicant. We will have one witness, Mr. McBryde.

(Witness sworn.)

MR. UTZ: Are there appearances to be made in this case? If not, you may proceed, Mr. Kellahin.

O. C. Mc BRYDE, JR.

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Will you state your name, please?

A O. C. McBryde, Jr.

Q By whom are you employed, Mr. McBryde, and in what position?

A I am a petroleum engineer with Amerada Petroleum Corporation, located in Midland, Texas.

Q Have you previously testified before this Commission as an expert witness and had your qualifications accepted?

A Yes, sir, I have.

MR. KELLAHIN: Are the witness's qualifications acceptable?

MR. UTZ: Yes, sir, they are.

Q Mr. McBryde, are you familiar with the application in Case 1725?

A Yes, sir.

Q Briefly state what is proposed in this application.

A We are seeking permission to dually complete our State "Q" No. 1 in the Monument-Grayburg Pool, and in an undesignated Tubb Pool, and further we are seeking permission to commingle the oil from the two pools.

Q Now, referring to what has been marked as Exhibit No. 1, would you state what that shows?

A Exhibit No. 1 is a plat of the area showing the ownership of all wells. We have outlined the Amerada State "Q" lease in red, and further have circled the subject well in red, and if you will notice in Section 15 to the east of this well there is Continental Bright No. 9 which is the nearest Tubb production to this well.

Q Does the exhibit show all the lease ownership offsetting ownership?

A Yes, sir, it shows all of that, lease ownership of all the wells offsetting this well.

Q Do you have a log of the subject well?

A Yes, Exhibit No. 2 is a gamma ray neutron log of the subject well.

Q What information is shown on that log?

A We have shown the perforations opposite the Grayburg zone from 3750 to 3770 marked in red on the log, and shown the location of the permanent type packer at 6420, and below that the perforations in the Tubb zone from 6455 to 6508.

Q Now, do you have a diagrammatic sketch of the proposed dual completion?

A Yes, sir, Exhibit No. 3 is a diagrammatic sketch of the proposed dual. On this exhibit we show the casing program of the well, the 12½ inch surface casing set at 172 feet, the 8 5/8ths inch intermediate casing at 2444 feet, the 6 5/8ths inch casing set through the Grayburg at 3776 feet, the Grayburg perforations and top of the cement behind the 6 5/8ths inch casing, shows the 4½ inch liner which we have hung in this well after it was deepened down through the Tubb zone, shows the location of the permanent type packer, the perforations in the Tubb zone plug back depth, total depth of the well and also the two parallel strings of 2 3/8ths inch tubing.

Q Now, referring to the exhibit, would you discuss how you propose to make the completion?

A We propose to set this permanent type packer at 6420 with one string of 2 3/8ths inch tubing set in that, and through this string to produce the Tubb zone. Set the other string of 2 3/8ths inch O. D. tubing at 3757 and through this to produce the Grayburg zone.

Q Is this a type of completion which has heretofore been approved by this Commission?

A Yes, sir, this is routine in almost every respect.

Q Is it the type of completion which will insure adequate

separation between the two producing horizons and prevent commingling of production?

A Yes, sir.

Q In the well bore? A Yes, sir.

Q Will it enable you to do any necessary, or reasonably anticipate any work that might be required on the well to perform the test required by the Commission?

A Yes, sir.

Q Can you make the packer leakage test prescribed by the Commission?

A Yes, sir.

Q Now, the application also requests permission to commingle production from the two zones. Do you have a diagrammatic sketch showing the proposed completion in that regard?

A Exhibit 4 is a diagrammatic sketch of our proposed tank battery. You'll note on Exhibit 4 that the Grayburg oil will go through the facilities that were existing on the lease before it was deepened to the Tubb zone, goes through the separator and a free water knockout, a line heater, settling tubing and from there to the stock tanks. The Tubb oil goes through a treater and through a dump type meter, and is then commingled with the Grayburg oil.

Q Now, from the information contained in Exhibit No. 4, it would propose that you use only one meter in this hookup, is

that correct?

A That is right.

Q Now, how would you account for the production from the two separate zones under that setup?

A Well, of course, the total production from the Grayburg and the Tubb will be measured in the stock tanks, which is the normally accepted method of measuring production. The Tubb oil will be metered through the dump meter, which will be calibrated from time to time as necessary. The Grayburg oil then will be obtained by subtracting the Tubb oil from the total oil. Considering the problem that we have here of allocating the production between these two horizons for proration purposes, this hookup is entirely adequate to accomplish that job.

Q Now, are both the oil, oil from both zones sweet oil or sour oil or what?

A No, sir, the Grayburg oil is a sour crude, the Tubb oil is a sweet crude. However, there is no sweet line in the area, so the Tubb oil will have to be sold at a sour crude price and will go into a sour crude line.

Q Will that be the situation regardless of whether it is commingled or not?

A Yes, sir, it would.

Q Do you have any information on the fluid characteristics of the two zones?

A The gravity of the Grayburg oil is, averages about 32 while the gravity of the Tubb oil averages about 36. We, of course, with the two mixed, the gravity will be somewhere in between, but that will create no problems as far as metering and accounting for the actual amount of production from each zone.

Q Now, under the lease involved as shown by Exhibit No. 1, is the ownership of this area common?

A On the State "Q" lease the working and royalty ownership is the same in both Grayburg and Tubb zones.

Q Then the only purpose of measuring in your meter the production from your two zones would be to account for production for allowable purposes, is that correct?

A That is correct.

Q Will this setup enable you, in your opinion, to give an accurate measurement of the production from the two zones for that purpose?

A Yes, sir, it will enable us to account for the oil out of either zone just as accurately, if not more so, than if we had set separate stock tanks.

Q And will the interest of all parties, the correlative rights of all the parties involved be protected?

A Yes, sir.

Q Is this application, in your opinion, in the interest of the prevention of waste and the protection of correlative

rights both as to the dual completion and as to the commingling of production?

A I certainly feel that it is.

Q Were Exhibits 1 through 4 prepared by you or under your direction and supervision?

A Yes, sir, they were.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits 1 through 4, inclusive.

MR. UTZ: Without objection they will be accepted in the record.

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

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. McBryde, what is the DA-2 packer? I believe you said it was a permanent type packer?

A Yes, sir, I checked into that before I left, it is still a Baker Model D packer, but it has been modified somewhat because of the 4½ inch liner, and I think the length of it might be a little bit different, but as far as the mechanical aspects of it, it is still permanent and similar in all respects to the Baker Model D.

Q Is it a drillable packer? A Yes, sir.

Q The same as a Model D? A Yes, sir.

Q What kind of pressures do you have in the Grayburg and the Tubb zone?

A We have not run bottomhole pressures in either zone, I do not have that information.

Q Do you have any idea what the pressure would be across the packer?

A I'd say it would be on the order of 500 to 1,000 pounds, but that is strictly a guess. I have no information to back that up.

Q Is it --

A I might add that the Grayburg has been produced for a number of years, about twenty years, and the pressure in it would probably be rather low as the Tubb is a new discovery and would have a high pressure.

Q What pool is the Grayburg and Tubb in, if any?

A The Grayburg is in the Monument Pool. The Tubb is an undesignated pool at the present time.

MR. PAYNE: Is that the Eunice-Monument or Monument, Mr. McBryde?

A The Eunice-Monument Pool, this is the Eunice portion of the Eunice-Monument Pool.

MR. PAYNE: I see, thank you.

Q (By Mr. Utz) With regard to your tank battery system, do you propose to meter only the Tubb side?

A Yes, sir.

Q Then all your shrinkage due to settling in the tanks would come out of the Grayburg side. Your Tubb side would be metering new oil, would it not?

A Yes, sir.

Q Have very little shrinkage?

A In these dump type meters there is a certain amount of shrinkage, not to any great extent.

Q Well, most of the shrinkage would take place in the stock tanks, would it not?

A Yes, sir.

Q So then the Grayburg side would receive practically all the shrinkage?

A You mean before it was metered?

Q Yes. You take your Tubb oil which is fresh oil and you are subtracting it from your volume in the stock tanks, is that correct?

A Yes, sir. However, if, when we calibrate the meter, that shrinkage in the Tubb oil will be taken into consideration in our meter factor, which we use to arrive at the volume of Tubb oil that actually passes through the meter.

Q Then your meter volume will take into consideration evaporation from stock tanks?

A If we meter a certain volume of oil through the dump

meter with the Grayburg not producing into the stock tanks, and then measure this volume that we recorded in the meter in the stock tank, that oil that has gone through the meter and on to the stock tanks should shrink just like the Grayburg oil should when it goes into the stock tanks, so we, in effect, will be calibrating our meter to read in oil that has been shrunk after it goes into the tank, although it has not shrunk at the time it is going through the meter.

Q I do not quite understand how you are going to put a shrinkage factor into your meter factor, you use an open vessel to test your meter with?

A Well, the stock tanks will be as opened for the Tubb oil as they will be for the Grayburg oil.

Q Yes, I understand that, but won't the shrinkage probably be different between the two oils?

A I suspect that it would be slightly different.

Q And your subtraction of your meter volumewill take place after the shrinkage has taken place in the stock tanks, will it not?

A Maybe I do not quite follow your question. Even though the oil is metered, the Tubb oil is metered before it shrinks. The meter, since it is calibrated with the -- against an actual stock tank measurement, the meter will read the Tubb oil that has already experienced a shrinkage.

MR. PAYNE: It is not the Tubb we are worried about, Mr. McBryde, it is the Grayburg, when does your subtraction take place, before or after there would have been any shrinkage?

A Of course after the Tubb oil and the Grayburg oil are commingled in the tanks, both of them will shrink and we will record a total volume of production from the two zones which would be exactly the same way we would do it if there were only one zone there.

MR. PAYNE: But you arrive at the total Grayburg production by subtracting the Tubb production from the total, is that right?

A Yes, sir, and the Tubb oil has the meter, after we calibrate it will read in Tubb oil that has already experienced shrinkage since we calibrated against the stock tank measurement. Maybe I am not following your line of thinking, but I can't see any problem here.

Q (By Mr. Utz) Well, you might have answered the question just then. You will calibrate the meter after the Tubb oil has experienced shrinkage?

A Yes, sir.

Q And your meter factor will incorporate that shrinkage factor?

A Yes, sir.

MR. UTZ: Are there any other questions of the witness?

MR. PAYNE: Mr. McBryde, I would like to have the well location here by footage description.

A Mr. Payne, I do not believe I have that information with me. I will be glad to furnish it later. I have the quarter quarter section, but I do not have the footage.

MR. PAYNE: All right, sir, thank you.

MR. UTZ: Would our well files reflect that footage information?

A Well, the well was drilled in 1937, it might not, I'll check and give that to you later.

MR. UTZ: All right, sir. Are there any other questions?

MR. KELLAHIN: I would like to ask one, if I may.

RE-DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Mr. McBryde, in the event you cannot obtain accurate measurement of the two zones, or in the event you are required to do so by this Commission, would you be willing to install another meter for the other zone?

A Yes, sir, certainly. We feel that this is entirely adequate to perform the job that we have to do here. However, if we were required to, we certainly would be willing to set another meter.

MR. KELLAHIN: That's all I have.

RE-CROSS EXAMINATION

BY MR. UTZ:

Q What type of meter is this that you -- is it a dump type or --

A Yes, sir, it is a dump type.

Q And that would be on the sweet side of it?

A Yes, sir.

Q Now, if you were required to install a meter on the Grayburg, or sour crude side, would it be corrosion resistant?

A Yes, sir.

MR. UTZ: Are there any other questions? No further questions, the witness may be excused.

(Witness excused.)

Any other statements to be made in this case? If there is not, the case will be taken under advisement.

STATE OF NEW MEXICO )
:
COUNTY OF BERNALILLO )

I, Joseph A. Trujillo, 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 14 day of August, 1959.

Joseph A. Trujillo
Notary Public & Court Reporter

My Commission Expires:
Oct. 5, 1960

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 1725, heard by me on July 5, 1959.

Examiner
New Mexico Oil Conservation Commission