BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 1, 1960

EXAMINER HEARING

IN THE MATTER OF:

Application of Gulf Oil Corporation for approval of a gas-oil dual completion. Applicant, in the above-styled cause, seeks permission to dually complete its Lea-State "AQ" Well No. 8, located in Unit E of Section 32, Township 19 South, Range 35 East, Lea County, New Mexico, in such a manner as to permit the production of gas from the East Pearl-Seven Rivers Gas Pool and the production of oil from the Pearl Queen Pool through the casing-tubing annulus and 2-3/8 inch tubing respectively, utilizing a retrievable type packer to separate the two producing horizons.

Case 1970

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: Case 1970.

MR. PAYNE: Application of Gulf Oil Corporation for approval of a gas-oil dual completion.

MR. KASTLER: I'm Bill Kastler from Roswell, New Mexico representing Gulf Oil Corporation, and our witness this morning will be John H. Hoover.

(Witness sworn.)

JOHN H. HOOVER

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

DIRECT EXAMINATION

BY MR. KASTLER:

Q Mr. Hoover, would you please state your name and your position with Gulf Oil Corporation?

A John Hoover, Drilling Engineer with Gulf Oil Corporation in Roswell, New Mexico.

Q Have you previously appeared before the New Mexico Oil Conservation Commission and qualified as an expert production engineer witness?

A Yes, sir, I have.

Q Are you familiar with Gulf's application in Case 1970?

A Yes, I am.

Q Would you briefly outline what Gulf is seeking this morning and why a hearing is necessary?

A We are asking for approval to dually complete our Lea-State "AQ" Well No. 8 in the Pearl Queen Oil Pool in the East Pearl-Seven Rivers Gas Pool. The reason that a hearing is required is it is the first dual completion with these two zones open in the same well bore.

Q Will it be a gas over oil dual completion if allowed?

A Yes, gas will be the top pay.

Q Have you prepared for introduction here a Lea-State "AQ" Lease Plat showing the location of the lease, the location of the dually completed well and so forth?

A Yes, this is marked Exhibit No. 1 and it shows the Lea-State "AQ" Lease outlined in red and also the Lea-State "AQ" Well No. 8 circled in red and being located 1980 feet from the North line, 660 feet from the West line of Section 32, Township 19 South, Range 35 East, Lea County, New Mexico.

Q Are there eight Pearl Queen oil wells completed on the Lea-State "AQ" Lease at this time?

A Yes, there are.

Q Where is the nearest offset Seven Rivers gas well?

A It's the Cactus Drilling Company, Phillips State C No. 2, which is the South offset to our Well No. 8.

Q Does your plat also show the names of the offset operators?

A Yes, sir, it does.

Q And have all these operators been given notice of this application?

A Yes, sir, they have.

Q Is this a State, Federal or fee lease?

A This is a State lease.

Q And beneficiary is common schools?

A Common schools, yes, sir.

Q I now call your attention to your proposed Exhibit No. 2. Would you state what this is and what is shown on here and explain Exhibit No. 2?

A Exhibit 2 is a log of our, in our Lea-State "AQ" No. 8. We have marked the top of the formations, the Yates, the Seven Rivers, which show at 4,030 feet, we show the proposed perforations in the Seven Rivers; these are proposed since we have not perforated the well as yet.

Q At what depth will you perforate?

A We will perforate in the interval 4,048 feet to 4,038 feet. Also shown on the log is the top of the Queen.

Q What intervals are you now perforated in the Queen?

A 4795 feet to 4752 feet.

Q Is the Pearl Queen oil a top allowable oil well?

A Yes, it is.

Q Is it pumping or flowing?

A It's a pumping well.

Q I now wish to call your attention to the Exhibit No. 3, a schematic diagram of your installation, is that correct?

A Yes, it is.

Q Would you please outline the nature of the completion of your well and the proposed nature of the dual completion?

A On our proposed mechanical installation we indicate that the well has 8-5/8" O.D. casing set at 140 feet, cemented with

100 sacks and the cement was circulated. We have 4-½" casing set at 4970 feet, it was cemented with 200 sacks and the estimated top of the cement is at 3300 feet. The well was originally drilled to a total depth of 4947 feet, plugged back to 4964 feet.

We propose to produce the Pearl Queen oil, pump the Pearl Queen oil through 2-3/8" tubing, which will be set through a Baker Model A tension type packer, which will be set at approximately 4150 feet. We will have a circulating valve above and below the packer.

Q What's the purpose of the circulating valve above the packer?

A The purpose of that is we can close the lower circulating valve and produce the upper zone through the tubing if necessary.

Q For tests and so forth?

A For tests or for kicking the well off after completion.

Q Do you propose to produce the Seven Rivers gas through the tubing casing annulus?

A Yes, we do.

Q Do you anticipate any liquid problems involved in that?

A No, we don't. Based on the offset well, they reported just a trace of liquid.

Q Why has Gulf proposed to use a Baker Model A tension type production packer?

A Due to the size of our casing, which being 4-½" that is

the only packer that we can use which will give full opening for 2-3/8" tubing. If we used a Baker Model D packer as we have in other duals, the maximum tubing that could be run would be a 1.315" O.D. or being one inch nominal tubing. The Baker Model F retainer production packer, it also would only handle one inch. This Baker Model A tension type packer is a full opening for 2-3/8" tubing.

Q Has the retrievable type packer been approved in principle by the New Mexico Oil Conservation Commission?

A I believe that the retrievable packers have been approved. I don't know if this particular type has been approved before or not.

Q Mr. Hoover, if granted, would Gulf Oil Corporation comply with all the necessary requirements of the New Mexico Oil Conservation Commission performing tests and submitting reports and so forth?

A Yes, sir, we would.

Q Is this installation in the interest of the prevention of waste?

A Yes, it is.

Q Would any correlative rights of any party be affected?

A No, they would not.

Q Would you testify as to the relative cost of the installation?

A If we had to drill another well to produce the Seven Rivers gas, it would cost us between forty and forty-five thousand dollars. We estimate the dual completion of this well can be accomplished for $12,000.

Q With the present type casing that is already in the hole, it would not be possible or practicable to involve any crossover assembly or packer of that type so the gas could be produced through tubing and the oil produced through the casing annulus?

A No, there's not enough room on any 2-3/8" tubing, the O.D. of the couplings are 3.063", your inside diameter on the 4-½" casing is just a little over 4", so we're speaking of approximately, well, we figure about .94 of an inch or roughly one inch clearance which would not allow one inch tubing to be run.

Q Isn't it further true that the fact that you are pumping the Pearl Queen oil, a further reason for making the installation that's proposed here?

A Yes. We have to have 2-3/8" tubing, or we would like to have 2-3/8" tubing to pump the Pearl-Queen oil.

Q Do you have anything further you would like to add on your direct testimony?

A I might add one thing in regard to pressures. Based on the Cactus well having a shutin pressure of 1253 pounds and --

Q You are speaking of the Seven Rivers gas well offsetting

this to the South?

A Yes, sir, the Seven Rivers gas. Correcting that to our packer setting, or proposed packer setting, at 4150 feet we would have approximately 1480 pounds on top of the packer based on the bottom hole pressure of an offset well in the Pearl Queen Oil Pool of 1335 pounds at approximately 4800 feet. Correcting that to our packer, we would have approximately 1100 pounds, so we would be speaking of a differential across our packer of something, oh, between three and four hundred pounds. And the manufacturer says that this packer will stand well in excess of that differential.

Q If there were any leakage in the packer, how would this be detected, Mr. Hoover?

A It would be readily detected because we have a pumping well on one side with a very low GOR in the neighborhood of 400, I believe. If we had leakage it would show up immediately on our Pearl Queen oil production.

Q Due to the pressure differential, you would not expect the Pearl Queen oil to migrate above the packer into the Seven Rivers perforated area?

A No, sir.

Q Were Exhibits 1, 2 and 3 prepared by you or at your direction or under your supervision?

A Yes, sir.

Q Is there anything else you want to add at this time?

A I believe that's all.

MR. KASTLER: We conclude this as our direct testimony, and I would like to move that Exhibits 1, 2 and 3 be incorporated into the record.

MR. UTZ: Without objection the Exhibits 1, 2 and 3 will be admitted in the record.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. Hoover, you haven't perforated the Seven Rivers in this well, have you?

A No, we haven't and we don't propose until the approval is given for the dual.

Q The closest offset to the Seven Rivers is the Cactus well to the South?

A Yes, sir, I believe that's the only gas well in the East Pearl-Seven Rivers gas at the present time.

Q Are there other oil wells in the Seven Rivers gas?

A No, sir, not to my knowledge.

Q This is, you feel, strictly a gas reservoir?

A Yes, sir.

Q I believe you said that the Cactus well only had a trace of liquids?

A That's what they advised us verbally.

Q So there wouldn't be any GOR available on that well?

A No, sir. I could not find one. There is a four point pressure test on that well on file with the Commission.

Q How about the gravity of the liquids, did you learn anything about that?

A Based on the --

Q Of the Seven Rivers liquids.

A No, sir, there was no report on that.

Q How about the gravity of the gas?

A The gravity of the gas was .685.

Q You are producing the Queen Zone?

A We were producing it at the present time.

Q What kind of GOR do you have on that?

A That well was completed in March of 1960, and it pumped 57 barrels of oil, 11 barrels of water. Let me correct that, it pumped 61 barrels of oil, 8 barrels of water, had 25 MCF of gas with GOR of 410.

Q What was the gravity of the oil?

A The corrected gravity on a test was 35.3.

Q Does your 4-½" come clear to the surface?

A Yes, sir.

Q The annular area would be equivalent to about what size tubing, considerably bigger than 2-3/8ths?

A Yes, sir. The area of 4" and subtracting, taking the area of 4" and subtracting the area of 2-3/8", we would come up

with a difference of about eight square inches, and that would fall in the range of about 3-1/4 to 3-1/16 inch tubing. It would be slightly less than that because I didn't figure the area of the couplings which would be greater than 2-3/8 and it would throw it less than that 3".

Q What kind of a gas well do you anticipate here?

A Well, we, our log indicates as good a porosity zone or better than the Cactus well and their well had a 3650 absolute open flow. On their test, on the four point test they produced 499 MCF at 1215 pounds, 1,062 MCF at 1,045 pounds, 1108 MCF at 990 pounds and 2256 MCF at 840 pounds. We think we'll get as good a well as that.

Q What's the name of this Seven Rivers pool?

A They call it the East Pearl-Seven Rivers gas. I believe that is set up as an oil pool now.

Q It is an oil pool?

A No, is a gas pool.

MR. PAYNE: No, it's a gas pool.

A It's set up by the Commission as a defined gas pool.

Q Your lower completion is in which pool?

A The Pearl Queen oil.

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

BY MR. PAYNE:

Q In the event the subject well started making considerable

amounts of liquid from the East Pearl-Seven Rivers Gas Pool, would you be willing to install tubing to produce that zone?

A I don't believe that we could.

Q You don't believe that the size of the casing would allow you to install tubing?

A No, sir, we probably would have to deplete the lower zone and then come back and deplete the upper zone.

Q What about one inch tubing, you wouldn't have room for that?

A Not with the 2-3/8".

Q Have you considered the possibility of using 2" to the Pearl Queen instead of 2-3/8ths?

A You mean 2" hydril or something like that?

Q Yes, sir.

A No, sir, but that would be a possibility except that we now have our string and tubing and it would entail an additional string of tubing expense.

MR. PAYNE: I see, thank you.

Q (By Mr. Payne) This well has been completed, has it?

A It has been completed in the Pearl Queen oil.

Q That zone is producing now?

A It is producing.

MR. UTZ: Are there any other questions of the witness? If not, the witness may be excused.

(Witness excused.)

MR. UTZ: Are there other statements in this case? If there are none, the case will be taken under advisement.

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 6th day of June, 1960.

Ada Dearnley
Notary Public-Court Reporter

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. 1920, heard by me on June 1, 1960.

New Mexico Oil Conservation Commission, Examiner