DEARNLEY-MEIER REPORTING SERVICE, Inc.
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BEFORE THE
OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
June 28, 1962

EXAMINER HEARING

IN THE MATTER OF:

Application of Hill and Meeker for special rules and regulations for the South Crossroads-Devonian Pool, Lea County, New Mexico. Applicant, in the above-styled cause, seeks the promulgation of special rules and regulations for the South Crossroads-Devonian Pool, Lea County, New Mexico, to include provisions for 80-acre oil proration units therein. CASE 2594

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF PROCEEDINGS

MR. UTZ: Case 2594.

MR. MORRIS: Application of Hill and Meeker for special rules and regulations for the South Crossroads-Devonian Pool.

MR. KELLAHIN: Jason Kellahin, Kellahin and Fox, representing the Applicant. We have one witness, Mr. Ralph Gray.

(Witness sworn.)

(Whereupon, Applicant's Exhibits Nos. 1 through 6 marked for identification.)

RALPH L. GRAY

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

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DIRECT EXAMINATION

BY MR. KELLAHIN:

Q Would you state your name, please?

A Ralph L. Gray.

Q What business are you engaged in, Mr. Gray?

A Consulting engineer.

Q In your capacity as a consulting engineer, have you testified before this Commission and had your qualifications made a matter of record?

A Yes, sir.

MR. KELLAHIN: Are the witness' qualifications acceptable?

MR. UTZ: Yes, sir, they are.

Q (By Mr. Kellahin) In your capacity as a consulting engineer, have you had occasion to become familiar with the application of Hill and Meeker now before this Examiner?

A Yes, sir.

Q Would you state briefly what is proposed in this application?

A The Applicant proposes that an 80-acre proration plan be adopted for the South Crossroads-Devonian Pool.

Q Now referring to what has been marked as Exhibit No. 1, would you identify that exhibit and discuss the information shown thereon?

A Exhibit No. 1 is a structural map showing the Crossroads-

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Devonian Pool, and also the South Crossroads-Devonian Pool. This map shows contours on top of the Devonian formation, and it indicates the acreage held by the Applicant. This acreage is in Section 22 of Township 10 South, Range 36 East, and comprises two leases, the Hill and Meeker "TP" State 22 lease comprises the North Half of the Northwest Quarter of Section 22, and this lease has one well completed. The other lease is the Hill and Meeker Santa Fe No. 22, and is the Northeast Quarter of Section 22. This lease also has one well completed. This map shows the original oil-water contact of the South Crossroads-Devonian Pool, and it's indicated at a minus 8290 feet.

Q Your exhibit also shows the Crossroads-Devonian Pool, does it not?

A Yes.

Q For what reason did you include that on the exhibit, Mr. Gray?

A These two pools are in the same general area and both produce from the Devonian formation and have somewhat similar characteristics. The Crossroads-Devonian Pool is an older pool and, as the map shows, it has been developed on an 80-acre pattern.

Q Is that a voluntary development pattern used by the operators?

A Yes, sir.

Q Do you consider it sound engineering to develop that pool on 80 acres?

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A Yes, I do.

Q What type of structure is involved in the South Crossroads-Devonian Pool?

A The structure is an anticlinal feature and there are, perhaps, several of these small anticlinal features which are located in a north-south trend, but it's thought at this time that the size of the structure is comparatively small feature.

Q Now referring to what has been marked as Exhibit No. 2, would you identify that exhibit and discuss the information shown thereon?

A Exhibit No. 2 is a history showing bottom hole pressure data for the Texas Pacific Coal and Oil Company State "O" No. 1 Well, which is located in Unit J, Section 15. Pressures from 1954 through 1958 are shown, and as this exhibit indicates, there has been very little decline in bottom hole pressures over this period of time. Also as of April 1st, 1958, this well had produced 208,202 barrels of oil with very little decline in pressure, so what this table shows, essentially, is that the South Crossroads-Devonian Pool has an effective water drive in existence.

Q Do you have any information on the Hill and Meeker wells involved here?

A Yes, sir. I might give a brief summary of the pool characteristics first. The Devonian formation in the South Crossroads Pool is a medium grain crystalline dolomite containing vugular and inter-crystalline porosity and indicated fracturing. Exhibit No. 3 has been prepared to show the individual well data for the two Hill and Meeker wells, including the date of completion,

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the elevation, the total depth, casing program, the top of pay, and initial potential of these two wells. Both wells were completed naturally, no treatment of any kind was necessary. Exhibit 3 also shows the initial bottom hole pressures and gas-oil ratios of each well.

Q Do you have electric logs on each of the wells, the Hill and Meeker wells?

A Yes. Exhibit No. 4 shows an electric log of the Hill and Meeker Santa Fe 22 Well No. 1. This log shows the top of the Devonian, which was encountered at 12,241 feet, and the top of pay, 12,244 feet, and the total depth, 12,260 feet. Also shows the location of the 5-1/2 inch casing.

Exhibit No. 5 is similar data for the Hill and Meeker "TP" State 22, Well No. 1. As you will see from the log, each well was completed with open hole and only a few feet penetration was made into the top of the Devonian.

Q What was the reason for that type of completion?

A Well, it was recognized that the Devonian would probably be an effective water drive, and in this type of Field, well, usually you get the most efficient operation by a short penetration and thus allowing the water to come in more slowly and have a more effective drive to it.

Q Now referring to what has been marked as Exhibit No. 6, Mr. Gray, would you identify that exhibit and discuss the information shown there?

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A Exhibit No. 6 shows information which was obtained on drillstem tests on both the Santa Fe 22 Well and the "TP" State 22 No. 1. Each of these wells had very little decline, if any, from the initial shut-in pressure to the final shut-in, which is an indication of good permeability. I would also like to comment in each case, after the final shut-in was made on each of these wells, the maximum shut-in pressure was reached almost instantaneously after the well was shut in. This is a very good indication of the extremely high permeability in each well.

Q Do you have any information which would indicate that one well will drain at least 80 acres in this pool?

A Yes. Of course, we know from pool histories and other Devonian Pools of a similar type having this vugular type of porosity and fracturing condition, we know that we can expect a large drainage radius in this type of pool; also we have checked it by calculating the amount of oil which would reasonably be expected to be produced from the Texas Pacific Coal and Oil State "O" Well, which is one of the older wells in the area, and according to our calculations, we might expect this well to produce something in the neighborhood of 176,000 barrels of oil in it with draining 40 acres. The records indicate that as of January 1st, 1962, this well had actually recovered 519,434 barrels of oil, at that time. So what this seems to indicate is that this well is actually draining in excess of 80 acres.

Q Is there any advantage to having a wider spacing unit

in an active water drive pool such as this one?

A Yes, for example, for an 80-acre tract within the pool, 460 barrels of oil per day would be the allowable for that tract under the present allowable and 40-acre spacing factors. For the same tract with 80-acre spacing, the allowable would be 264 barrels of oil per day, or almost half. It is our opinion that in this type of pool with the water drive being in existence, that the slower rate of withdrawal would have a much more efficient and effective behavior than the higher withdrawal, because in taking out more oil, there's a tendency to bypass some of the oil, and we feel that the slower withdrawals are more conducive to conservation and making the most effective recovery of the oil present.

Q Do you have any recommendation to make as to formation of the units, whether they be north-south, east-west units?

A No, it appears that this is a very small structure and we feel that with that type of pool that the operators should have quite a bit of flexibility in these 80-acre units, and we feel that they should be allowed to go in either direction.

Q In your opinion, is the productive limits of the pool substantially outlined at the present time?

A We think they are. Subsequent development could change the picture somewhat, but we think there's been enough wells drilled to indicate reasonably well the productive limits.

Q Now the flexibility in the formation of the units that you referred to, would you also recommend the flexibility as to well

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locations, whether they be in one 40 or the other?

A We think that the operator should have the option of drilling in either unit.

Q In your opinion, will approval of this application be in the interest of conservation and the prevention of waste?

A Yes, sir.

Q Would the correlative rights of the operators in the pool be protected?

A Yes, sir, I think so.

Q Were Exhibits 1 through 6 prepared by you or under your supervision?

A Yes, sir.

MR. KELLAHIN: At this time we would like to offer in evidence Exhibits 1 through 6.

MR. UTZ: Without objection, Exhibits 1 through 6 will be entered into the record of this case.

(Whereupon, Applicant's Exhibits Nos. 1 through 6 entered in evidence.)

Q (By Mr. Kellahin) Do you have anything to add, Mr. Gray?

A I may add just one more thing. I think that, in the case of an average well in this structure, that the drilling cost is approximately $200,000 per well, and if the pool were completely developed on 40-acre spacing, I think that in most cases the operators would be just essentially trading dollars, whereas if it's developed on an 80-acre spacing pattern, they can expect

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reasonable profit.

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

CROSS EXAMINATION

BY MR. UTZ:

Q Approximate depth of this pool is at the perforated interval; is that from the surface a little over 12,000 feet?

A Both of the Hill and Meeker wells are completed with open hole and the total depth on both of the wells was 12,260 feet. Actually, the wells are producing between the bottom of the casing and total depth. The bottom of the casing, in the case of the Santa Fe well, was 12,245, and in the case of the "TP" State well, it was 12,249, so they're producing between the bottom of the casing and total depth.

Q Can the water-oil contact be pretty accurately determined?

A Yes. There's been some wells drilled that were too low on the structure to produce oil, and we feel like the oil-water contact has been fairly well established.

Q Would you recommend that 80 acres be dedicated to a well which is below the water-oil contact?

A Well, I doubt if that would be very good practice, if it can definitely be established.

Q On the north end of this pool, would you say that you have pretty good control on the water-oil contact? Would you have

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any reason to believe it would be any different on the north end of the pool than it is on the south end?

A No, not according to the information we have. Now, there is a dry hole drilled in the North Half of Section 15, which I think would have made a well as far as the structural position is concerned. However, according to the information I have received, the well was very dense and the reason it was completed as a dry hole was because of this unusual barren streak that the well apparently encountered.

Q The only indication of good permeability that you have would be the rapidity in which the pressure builds up, is that correct?

A Well, not only the rapidity, but the fact that an effective water drive does exist is in itself an indication that the permeability is very good; otherwise, the water drive would not be effective. Also we know from the history of other Devonian pools in this general area that's the character of the Devonian, is the vugular type porosity and fracturing, both of which are conducive to high permeability.

MR. UTZ: Any other questions of the witness? The witness may be excused.

(Witness excused.)

MR. UTZ: Any other statements in this case?

MR. KELLAHIN: In connection with your question of the witness, Mr. Utz, as to other evidence of permeability, I call your

attention to his testimony about the reserves on the Texas Pacific well, too. In addition, we have a statement which was left with me by Jack Campbell to make in behalf of Texas Pacific Coal and Oil Company. They are in support of the application, but he also adds a request that the well locations be as in accordance with the Statewide rule or 330 foot locations.

MR. UTZ: Possibly this statement should be made a part of the record.

MR. KELLAHIN: Shall I read it?

MR. UTZ: Why don't you do that?

MR. KELLAHIN: "I am Jack M. Campbell of Campbell and Russell, Roswell, New Mexico, appearing on behalf of Texas Pacific Coal and Oil Company. We concur in the application of Hill and Meeker for an 80 acre spacing and proration pattern in the pool, including their request for a flexible pattern permitting drilling upon either of the 40 acre tracts in a proration unit; and we further suggest permission to drill within 330 feet of the exterior boundary of the unit."

MR. UTZ: Any other statements in the case? The case will be taken under advisement.

(Whereupon, the hearing was adjourned.)

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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; that the same is a true and correct record of said proceedings, to the best of my knowledge, skill and ability.

WITNESS my Hand and Seal this 3rd day of July, 1962, in the City of Albuquerque, County of Bernalillo, State of New Mexico.

Ada Dearnley
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. 2594, heard by me on June 28, 1962.

....., Examiner
New Mexico Oil Conservation Commission