BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico

APRIL 29, 1964

EXAMINER HEARING

IN THE MATTER OF: Application of Shell Oil Company for a waterflood project, Lea County, New Mexico

Case No. 3034

BEFORE: Elvis A. Utz, Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The Hearing will come to order. We will call Case Number 3034.

MR. MORRIS: I would like to have these Exhibits marked for identification as Applicant's Exhibits Numbers One through Nine.

(Whereupon, Applicant's Exhibits one through nine marked for identification.)

MR. MORRIS: If the Examiner please, I am Richard Morris, Avenue 15, Santa Fe, New Mexico, appearing on behalf of the Applicant, Shell Oil Company. I have one witness in this case. He is Mr. Don McCourt.

MR. UTZ: The Witness will be sworn in.

(Witness sworn.)

MR. UTZ: You may proceed. Are there other appearances in this case?

DIRECT EXAMINATION

BY MR. MORRIS:

Q Please state your name and position?

A My name is Donald B. McCourt. I am an Exploitation Engineer with Shell Oil Company.

MR. UTZ: That's M-c-C-o-r-t?

A M-c-C-o-u-r-t.

Q (By Mr. Morris) Where are you employed, Mr. McCourt?

A Roswell, New Mexico.

Q Have you previously testified before the Commission or one of its Examiners?

A No, sir.

Q Then would you briefly outline your education and experience in the oil business?

A I am a graduate of Oklahoma University with a Bachelor of Science Degree in Petroleum Engineering, and I have had five

years of experience with Shell Oil Company in West Texas and New Mexico.

Q Are you familiar with the Application of Shell Oil Company in this case?

A Yes, I am.

Q What is it that Shell seeks in this case?

A We seek approval to conduct a waterflood in the Langlie-Mattix Field on Shell acreage in Section 14 and 23, Township 24 South, Range 37 East, Lea County, New Mexico.

Q Referring now, Mr. McCourt, to what has been marked Exhibit Number One in this case, would you state what that is and what it shows?

A Exhibit One is a Plat of the area and on Exhibit One the area outlined in red is the 840 acres which we seek to waterflood. This acreage is 100 percent Shell acreage. The injection wells are connected by pencil lines showing a standard eighty eight and five spot pattern. The green lines are traces of cross sections which will be presented later in the testimony. The surrounding wells are identified as to producing formations. The leases in the area are also identified.

Q In the area outlined in red, what is the ownership of the working interest?

A One hundred percent Shell working interest.

Q Do you have a structure map of this area, Mr. McCourt,

showing the sub-structure face geology of the area?

A Yes, I have. Exhibit Two of the structure map contoured onthe top of the Queen from the available well control in the area. It shows the steeply, dipping east flank of the Langlie-Mattix Pool, and up structure the oil accumulation is limited by lack of sand deposition or gascap, down structure of the accumulation is limited by porosity and permeability pinch out.

Q Referring, now, to what has been marked as Exhibit Three and Four, which are your cross sections, would you please explain what they show.

A Exhibits Three and Four are north south and east west cross sections through the area. Shown on the cross sections are the two hundred and sixty feet, and one hundred and fifty to one hundred sixty foot Penrose interval which we believe is the oil zone.

On the left hand margin of the cross section is marked the Commission's vertical limits of the Langlie-Mattix Pool, defined as one hundred feet above the base of the Seven Rivers to the base of the Queen. All the wells on the subject acreage produce from the Langlie-Mattix Pool. I would further like to point out on these sections that most of these logs were run subsequent to the completion of the wells and that the neutron portion of the log is probably reflecting the hole size.

Which was increased be nitroglycerin being shot off in the

hole, rather than reflecting porosity.

Q Go ahead.

A I was going to mention that lithology. The pay area is in thin beds of quartz sand separated by dolomite stringers and that the completion is solution gas and with probably, some additional help from gascap expansion. Gravity of the crude is 37 degrees API. The last measured static, bottom hole pressure was two hundred and seventy three PSI measured in Shell-Gulf Langlie Number Two in October of '62.

Q Mr. McCourt, would you outline for us the development of this pool and give us what you have in the way of production, history on these properties?

A The large development over these properties was done between 1941 and 1947 by various independent oil operators using cable tool drilling rigs. The standard technique was to drill to the top of the Queen and into it aways and set pipe. Drill out to the top of the Grayburg and complete the interval in the open hole with nitroglycerin.

Q What do you have in the way of production history?

A It's cummulative oil production from the 18 wells on the production is six hundred and forty three thousand barrels per well. The wells are in the advance stripper stage, the average production being only about two barrels per day.

Q That is at the present time?

A That is at the present time.

Q Based on this data that you have presented Mr. McCourt, is it your opinion that the area is ripe for waterflooding?

A Yes.

Q What are your plans in that regard?

A As I mentioned earlier on Exhibit One, we show our plan eighty eight five spot pattern in which we will inject water into nine of the 18 total wells shown on the Plat. I will refer to Exhibit Five which is a diagramatic sketch of the typical injection well. We plan on injecting water into the open hole. Putting an injection volume of initially about 300 to 350 barrels per injection well per day, or about three thousand barrels per day total. We further estimate that about 400 barrels of water will be required for the property.

Q Has this proposal been taken up by the office of the State Engineer and have they given consideration to your proposed mechanical installations in your injection wells and various other matters concerned with the water sources --

A They have.

Q -- to be used?

A And they have no objections.

Q What is the source of water that you expect to use for this project?

A We plan on drilling water wells somewhere in the northwest

Quarter of Section 23, for about 1,150 feet, and produce water from the Russler information for a waterflood. If this supply is inadequate, we will probably test the Santa Rosa, which is about six hundred feet deep. Both these supplies are used in the immediate area. If you look at Exhibit One for a moment, George Buckles Company is using it one mile west to a waterflood, 160-acre lease that he has. And the Entrado Company is using the Santa Rosa water about a mile and a half Southwest, so that we know that both of these formations are potential water sources for our waterflood.

Q Getting back Mr. McCourt to the injection wells that we propose to the project and referring to Exhibit Six, what does that Exhibit show?

A Exhibit Six is a list of the injection wells and the pertinetn detail on each one being the location, the size of the casing, the depth to which the casing is set, the total depth of the well, plug back total back of the well and the estimated point at which the vertical limits of the Langlie-Mattix Pool intersects each of the wells.

Q We have outlined what your proposal is with respect to this waterflood project. What benefits do you anticipate from this project?

A We anticipate recovery of the additional water in paying quanities otherwise unrecoverable by natural deflection.

Q Expressed as a percentage of the amount of oil that has been produced on primary at this time and as far as you can see what do you expect to recover on secondary?

A We expect to recover approximately an equal amount of oil on secondary as was recovered on primary.

Q In your opinion, Mr. McCourt, will approval of this application and institution of this water flood project prevent waste and at the same time protect correlative rights?

A Yes.

MR. MORRIS: We offer Exhibits One through Six and that will complete the Direct Examination of Mr. McCourt.

MR. UTZ: Without objection, Exhibits One through Six will be entered in the record of this case.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. McCourt, this tubing you intend to use, it is entirely plastic coated; is it not?

A That's correct.

Q Now, in relation to the top of the cement, your estimated top of the cement on your 7-H, where do you intend to set the packer?

A We will set the packer very close to the bottom of the pipe.

Q So it will be set well below the top of the cement?

A That's correct.

Q And you will fill the casing, tubing. Will you put a gauge on the surface to detect any change in the position of the water?

A Yes, sir.

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

MR. MORRIS: I have one further question.

REDIRECT EXAMINATION

BY MR. MORRIS:

Q Do you have logs on any of the wells in this area, Mr. McCourt?

A We have logs on three of the injection wells which are offered as Exhibits Seven A, B, and C, I believe.

Q That's correct.

A And those are the only logged wells that we have, other than the wells that are on the cross sections. There are some wells on the cross sections which are not mer producing wells, and so I am not including extra copies of those. I have only furnished the logs on the injection wells that were available.

MR. MORRIS: We offer Exhibit Seven A, B, and C.

MR. UTZ: Without objection, the Exhibits Seven A, B, and C will be admitted into the record. Any other questions?

(Whereupon, Applicant's Exhibits Seven A, B, and C were admitted into evidence.)

MR. UTZ: The witness may be excused.

This case will be taken under advisement.

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

I, CHARLES FLOYD WALKER, Notary Public in and for the County of Bernalillo, State of New Mexico, do hereby certify that the foregoing and attached Transcript of Hearing before the New Mexico Oil Conservation Commission was reported by me, and that the same is a true and correct record of the said proceedings, to the best of my knowledge, skill, and ability.

WITNESS my Hand and Seal of Office, this 29th day of June, 1964.

NOTARY PUBLIC

My Commission Expires:

June 29, 1964.

3034

Jun. 29 64

Commission

I N D E X

E X H I B I T S

NUMBER	MARKED FOR IDENTIFICATION	OFFERED	ADMITTED
"1" through "6"	3	8	8