

BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
Santa Fe, New Mexico
September 4, 1968

EXAMINER HEARING

IN THE MATTER OF:

Application of Penroc Oil Corporation
for a waterflood project, Eddy County,
New Mexico.

Case 3849

BEFORE: Elvis A. Utz
Examiner

TRANSCRIPT OF HEARING

MR. UTZ: The hearing will come to order, please.
Case 3849.

MR. HATCH: Case 3849. Application of Penroc Oil Corporation for a waterflood project, Eddy County, New Mexico.

MR. CONNELLY: Mr. Examiner, I'm Harry S. Connelly, Jr., with Stephenson, Campbell and Olmsted, entering an appearance for Penroc as New Mexico counsel. We have one witness, Mr. William LeMay, and Mr. Don Stevens of the Texas Bar will handle the questioning of Mr. LeMay.

(Witness sworn.)

MR. UTZ: Are there other appearances in this case?
You have some exhibits to be marked?

MR. STEVENS: Yes. George, do you have those exhibits for this hearing? Would they be here in the file?

(Whereupon, Applicant's Exhibits
Numbers 1 through 4, inclusive,
were marked for identification.)

MR. UTZ: You may proceed.

WILLIAM J. LeMAY

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

DIRECT EXAMINATION

BY MR. STEVENS:

Q Mr. LeMay, would you state your name, occupation and

place of residence?

A William J. LeMay, Consulting Geologist from Santa Fe, New Mexico.

Q And are your qualifications as an expert geological witness made a matter of record with this Commission?

A Yes, they have.

Q Would you state for the Examiner, briefly, what Penroc Oil Corporation seeks by this application.

Q Penroc seeks to institute a waterflood operation in its MG Phillips Lease which is located on Exhibit 1, being the South Half of the Northeast Quarter, the North Half of the Southeast Quarter, and the Southeast Quarter of the Southeast Quarter, Section 27, Township 17 South, Range 28 East, Eddy County, New Mexico, by conversion of one well; the Castle and Wigzell, which is now changed to Penroc; Phillips State Number 4, located 1650 feet from the south line and 330 feet from the east line of Section 27, 17 South, Range 28 East and use this as an injection well in their flood.

Q Would you locate on the plat marked Exhibit 1 the wells in the area?

A Yes. The Exhibit Number 1, the area that I just identified should be colored yellow and the injection well, the proposed injection well, has a diagonal symbol colored red

on it. The other wells in the area are Empire-Abo wells which are circled with the exception of two wells in the Southeast Quarter of the Northeast Quarter which are both Grayburg wells and are producing one allowable.

In the injection 40 itself, there are three wells being the injection well, a shallow well drilled and producing from the Seven Rivers Formation and a deep Empire-Abo well.

Q And all the other wells in the project area, could you tell us what they're producing from?

A Yes. They're producing from the Premier Sand, the field is the Red Lake Field, and they are all of marginal status; the east Empire, which has Seven Rivers Pay and Grayburg Pay.

Q Is this project in conjunction with existing waterflood projects?

A Pardon?

Q Is this project, that the Applicant seeks today, in conjunction with an existing waterflood project previously approved by the Commission?

A Yes, it is. It borders the waterflood, Depco waterflood, which lies directly east of Penroc's proposed flood area.

Q To your knowledge, does the operator have an agreement with Depco by this flood?

A Yes. There's a line agreement with Penroc; Depco and Penroc have a line agreement concerning the flooding of the Premier Sand.

Q Could you give us the source of the water that is proposed to be injected?

A Yes. The source is the same as that which Depco -- and that is, Penroc proposed to get their water from the Double Eagle Water Company which will be pressurized fresh water.

Q What is the original source, geologically, of that water?

A It's fresh water on top of the Caprock.

Q Would you give us the pressures proposed to be used and the procedure of operation and how it compares with the Depco waterflood project?

A Yes. Penroc proposes to inject into the Phillips State Number 4, 300 barrels of water per day with an injection pressure of 1200 pounds. This is less than what was approved in the Penroc area.

Q How many barrels of water per day are proposed to be injected?

A 300 barrels of water per day.

MR. STEVENS: At this point, I'd like to ask the Examiner to take administrative notice of Order Number R-3311

which is the order which created the Depco Artesia waterflood.

MR. UTZ: Will do.

Q Mr. LeMay, referring to Exhibit Number 2, would you explain that Exhibit 2 to the Commission?

A Yes. Exhibit Number 2 is the proposed injection well, the Penroc Phillips State Number 4, the operator was changed from Castle and Wigzell to Penroc. It has listed the tops and also the casing that was set in the hole: eight and five-eighths inch surface casing was set at 567 feet, cemented with 50 sacks and a calculated top of the cement was 100 feet.

The production string was set, which was five and a half inch casing at 2,081 feet, cemented with 365 sacks and a calculated top of the cement was arrived there at 401 feet. The tops and formations encountered in the well are marked on Exhibit 2-B; the Seven Rivers Formation encountered at 854 feet, the Penrose Formation at 1606 feet, the top of the Grayburg at 1778 feet, the top of the Premier Sandstone at 2,049 feet, the top of the San Andres at 2,078 feet, and you will note that the Premier Sand, the pay section in the well, was perforated from 2,056 feet to 2,064 feet with two shots per foot.

It was acidized with 100 gallons and sand fracked with 2200 gallons and 40,000 pounds of sand. The well was

completed in January of 1961.

Q Are these perforations the ones proposed for water injection?

A Yes, they are.

Q And is that the same pay formation which is under flood in the adjoining Depco waterflood field?

A Yes, it is.

Q Could you explain the plat marked Exhibit 3 to the Commission?

A Exhibit 3 is a diagrammatic sketch of the injection well, showing the hole size, the type and depth of casing set, the cement used and the tubing and Baker Packer used in this proposed -- in the hole. Going to the Exhibit of the eleven inch hole, eight and five-eighths inch casing, 24 pound J-55 was set at 567 feet with 50 sacks of cement, the hole size below that was eight inch from 567 to 2083 and five and a half inch production string was set inside of the eight inch hole. Type of casing used was 14 pound J-55 casing. It was set at 2,081 feet with 365 sacks of cement and the calculated top of the cement there was 401 feet.

The operator plans to use two inch plastic coated tubing which will be hung on a Baker tension packer set at 2,000 feet. The injection interval is 2,056, to 2,064, the

Premier Sand, which will be the sand that is to be water-flooded. The top of the San Andres, as mentioned previously, at 2,078, and the total depth of the hole is 2,083 feet.

Q In your opinion, would this set-up for an injection well be one that would protect any pay behind the pipe or any waters behind the pipe from casing leaks?

A Yes, it would, because the injection well would be monitored with casing pressure at the surface and it is not an open hole completion, which is the case in many of the older wells in the area. It is cased. There is good control on the formation because of the perforations. It's a relatively new well in comparison with the older wells in the field. In other words, the hole is in good shape. And there would be monitoring safeguards against contamination of surface waters or other formations

Q Could you explain your corrosion controls?

A Yes. As mentioned before, the two inch tubing will be plastic coated.

Q Would you refer to the plat marked Exhibit 4 and explain that to the Examiner, please?

A Exhibit 4 is a tabulation of both the present daily production of the lease and the total production to date. As you will notice, 148,806 barrels has been produced from the

operator's lease, and the current production is averaging a barrel and a half per day, which is the economic limit.

Q Could you make an estimate of the recovery you would expect from this waterflood project? Additional barrels of oil which might be produced as a result of the project.

A I would anticipate a one-to-one secondary to primary based on the success of comparable floods in the area and of the nature of the sand being a floodable sand, being a gas-solution reservoir. A one-to-one would be a reasonable estimate.

Q From your study of this waterflood project, do you have an opinion as to whether this waterflood would prevent waste and would it permit you to recover oil that might otherwise not be recovered?

A Yes, I think the granting of the request to waterflood this lease would protect correlative rights and would allow the operator to recover his just and equitable share of the production.

Q Would you make a recommendation to the Commission concerning this Applicant's request?

A I would recommend that the application be approved to inject water into the Phillips Number 4 with adequate monitoring safeguards to protect surface waters.

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

A Yes.

MR. STEVENS: Mr. Examiner, we'd like to request that Applicant's Exhibits 1 through 4 be admitted into evidence at this time.

MR. UTZ: Without objection, Exhibits 1 through 4 will be entered into the record in this case.

(Whereupon, Applicant's Exhibits Numbers 1 through 4, inclusive, were admitted in evidence.)

MR. STEVENS: And we have no further questions on direct.

CROSS EXAMINATION

BY MR. UTZ:

Q Mr. LeMay, did you mention how you were going to take care of the annulus?

A Yes. There would be a pressure gauge at the surface on the casing string which would tell us if we ran into trouble on leaks.

Q Will the annulus be filled with an inhibited fluid?

A Yes, it will. I forgot to mention that.

MR. UTZ: Are there any other questions of the witness? You may be excused. The case will be taken under advisement.

I N D E X

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E X H I B I T S

<u>Number</u>	<u>Marked for Identification</u>	<u>Received in Evidence</u>
Applicant's Exhibits 1 through 4	2	10

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

I, CHARLOTTE MACIAS, 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.

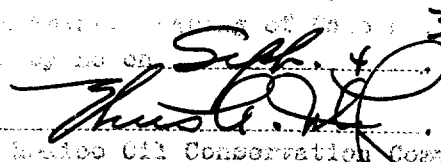
Witness my Hand and Seal this 2nd day of October, 1968.



 Notary Public

My Commission Expires:

February 10, 1971.

I do hereby certify that the foregoing is a true and correct copy of the proceedings before the New Mexico Oil Conservation Commission on September 4, 1968.
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 Notary Public