

dearnley-meier reporting service, inc.

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

209 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO

BEFORE THE  
NEW MEXICO OIL CONSERVATION COMMISSION  
Santa Fe, New Mexico  
August 29, 1970

EXAMINER HEARING

-----  
IN THE MATTER OF: )

Application of Continental )  
Oil Company for a pressure )  
maintenance project, Lea County, )  
New Mexico. )

Case No. 4412

-----  
BEFORE: Daniel S. Nutter, Examiner

TRANSCRIPT OF HEARING



MR. NUTTER: Case 4412.

MR. HATCH: Application of Continental Oil Company for a pressure maintenance project, Lea County, New Mexico.

MR. KELLAHIN: Same appearance on behalf of Continental and please reflect the witness has been sworn and qualified.

MR. NUTTER: The record will so show.

VICTOR T. LYON,

a witness, being first duly sworn according to law, upon his oath, testified as follows:

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q You are the same Mr. Lyon who testified in the previous case?

A Yes, sir.

Q Mr. Lyon, are you familiar with the application of Continental Oil Company in Case 4412?

A Yes, I am.

Q What is proposed by the Applicant in this case?

A Case 4412 is the application of Continental Oil Company for authority to inject produced water into the McCallister "A" Well No. 2 or the McCallister "A" No. 3 or both wells which are located in Section 24, Township 26 South, Range 36 East. This, in effect, an extension of an existing

pressure maintenance project in the Scarborough Pool.

Q That existing pressure maintenance project has been approved by the Oil Conservation Commission?

A Yes, sir.

MR. KELLAHIN: I would like to ask that the record in Case 4198 and before this Commission be incorporated into the record in this case.

MR. NUTTER: By reference, the record in Case 4198 will be incorporated into the record of Case No. 4412.

Q (By Mr. Kellahin) Referring to what has been marked Exhibit No. 1, would you identify that exhibit, please?

A Yes, sir, Exhibit No. 1 is a location and ownership plat showing the McCallister "A" lease outlined in red and the Eaves "A" and "B" leases which are the Eaves pressure maintenance project outlined in blue. The proposed injection wells are inscribed, circumscribed with a red triangle and the existing injection well in the Eaves project is shown by a blue triangle. Well No. 2 located in Unit A of Section 24 is located 330 feet from the north line and 990 feet from the east line of Section 24. Well No. 3 is located 660 feet from the south line and 660 feet from the east line of that section. The producing wells in the Scarborough Pool are shown and designated as well as the ownership of the leases in this

project and in the surrounding area.

Q Now, referring to what is marked as Exhibit No. 2, would you identify that exhibit?

A Yes, sir, Exhibit 2 is a copy of form C-108, showing pertinent data for injection projects. It shows the location of the well as I have previously described. The casing, setting depth, the amount of cement, the type of cement, the injection interval, which is the Yates formation, the top and bottom perforations, open-hole interval, estimated volume, and pressures to be used and the setting depth, tubing, type of packer to be used, this sort of thing.

Q This is a producing well that is being converted to injection?

A This has been a producing well that has been shut in since 1966, I believe.

Q Referring to what has been marked as Exhibit No. 3, would you identify that exhibit?

A Exhibit 3 is a diagram showing schematically the construction of the well as was described on Exhibit No. 2.

Q You will be injecting through tubing under a packer?

A Yes, sir.

Q Will you fill the casing tubing annulus with a fluid?

A Yes, we will.

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

Q A pressure gauge at the surface?

A Yes, or we will leave the pressure connection open.

Q To detect the possibility of a leak?

A Yes, sir.

Q Exhibit No. 4, would you identify that?

A Yes, sir, Exhibit No. 4 is a copy of a portion of the radio activity run on McCallister "A" No. 2. It shows the top of the Yates formation at twenty-nine seventy-five, the perforations in the overall interval from 3,045 to 3,063. The open-hole interval from the bottom of the seven inch casing at approximately three thousand and eighty-four feet to total of depth of thirty-two seventeen.

Q Exhibit No. 5?

A Exhibit No. 5 is a form C-108 for McCallister No. 3 which is another well proposed for injection and the information shown on this is the same information that relative to this well as was shown for Well No. 2.

Q And as with Well No. 2, you will fill the casing tubing annulus?

A Yes, sir.

Q And leave the pressure or leave the annulus open at the surface?

A Yes.

Q Exhibit No. 6?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

- A Exhibit 6 is a diagram showing schematically the construction of the well as described in Exhibit No. 5.
- Q In each case, you are using plastic-lined tubing?
- A Yes, sir.
- Q Now, Exhibit No. 7?
- A Exhibit No. 7 is a copy of the radio activity log running in McCallister "A" No. 3 showing perforations, and open-hole intervals, total depth, the casing set at the top of the Yates of twenty-nine eighty-three.
- Q Now, referring to Exhibit No. 8, would you identify that exhibit?
- A No. 8 is a copy of a water analysis run on a sample collected from McCallister "A" No. 5 which is to the south of Well No. 3 of our most recent completions. I also have an analysis on No. 6. This is a very recent completion and I am not certain that all of the lode water has been purged from the well. I think the analysis on No. 5 is probably more representative.
- Q Is this water you will be injecting into these wells?
- A Yes, sir.
- Q What is the water source, Yates, Seven Rivers?
- A In this particular area, I believe our production is solely from the Yates formation. The water will be that which is produced on the McCallister "A" lease.

- Q But not necessarily from the McCallister "A" No. 5 Well.
- A Right.
- Q From all the wells on the lease?
- A Yes. At the time we filed this application, we were not certain which of the two wells we would inject into first. Due to the results of the drilling of McCallister "A" No. 5 and No. 6 which are recent wells we had cause to believe that there may be recoverable oil in No. 3 so at about the time we filed this application, we performed some remedial work to test these intervals in No. 3 and they were found to be oil productive. We are producing oil from No. 3 and at this time we plan to inject only into Well No. 2 and will continue to do so as long as No. 3 is commercially oil productive.
- Q You testified in Case No. 4198, did you not?
- A Yes, sir.
- Q At that time did you testify that the Seven Rivers formation, at least in this area, has some intervals with an active water drive?
- A Yes, sir, in that case and rather than going into all the details again, I would like to briefly review that. There are two areas in this particular province, one which we designate the Four Reef, which is west of the crest of the reef and the back reef which is east of the crest. In

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

some areas, both of these provinces indicate some water drive, particularly in the Seven Rivers. In the other case we were injecting into the Eaves Eight No. 10, which is a back-reef well and is open both in the Yates and Seven Rivers. These two wells are located in Four Reef Section and completed in Yates only, which we believe is going to be susceptible to pressure maintenance and/or waterflooding operations.

Q So you are injecting into the same interval in which you are producing?

A Yes, sir.

Q Do you desire that the Commission permit you to inject in both the Yates and Seven Rivers formations?

A Yes, sir, we are still studying this area at the present time under the provision of Order No. R-3221. It is necessary for us to inject water underground and in the event, we think it is unlikely at this time, but in the event the present intervals are not capable of accepting the water which we inject, we would like to have authority to inject into the Seven Rivers also. Also, we keep finding things we have been producing in this pool for forty-two years but we are still learning things about it. I wouldn't rule out the possibility that there is recoverable oil in the Seven Rivers, in the

Four Reef Section. We would like to have flexibility in the Order. If the Commission prefers to restrict us to a definite interval, we would like to have administrative procedures in the Order whereby we can change this. Actually, we would prefer that the Order grant permission to drill into Yates and Seven Rivers.

Q What volume of water do you anticipate you will inject into each of the wells?

A I believe that the Exhibit 2 shows the present producing volume in there at approximately 100 barrels per day and we do not expect more than about fifteen hundred barrels per day.

Q And what pressure will it take to inject it, do you anticipate?

A Initially, we don't expect to encounter any pressure. This well has produced rather large quantities of water and we believe it will receive large quantities of water without pressure. At the present time we expect it to operate on a gravity system.

Q Were Exhibits 1 through 8 prepared by you or under your supervision?

A Yes, they were.

MR. KELLAHIN: I would like to offer Exhibits 1 through 8, inclusive.

MR. NUTTER: Continental Exhibits 1 through 8 will be

admitted in evidence.

CROSS EXAMINATION

BY MR. NUTTER:

Q Mr. Lyon, on Exhibit No. 2 and Exhibit No. 5, you haven't asked for authority to inject into anything except the Yates, have you?

A I believe that's correct now that you mentioned it.

Q On Exhibit 2 you ask for Yates on perforated interval in 3045 to 3063, in the open-hole interval from 3076 to 3217?

A Right, these are the intervals which are presently open.

Q And that does not include any Seven Rivers, does it?

A No, it does not.

Q Pretty much the same thing on Exhibit No. 5?

A Yes, sir.

Q For the No. 3 Well?

A Yes, sir.

Q What did the Order in Case No., whatever it was, in 4198, what did the Order authorize for injection there in the Eaves No. 10?

A In the revision of the Order R-3487A it provided for injection into perforated and open-hole interval from approximately 3107 to 3410.

Q 3107 to 3410?

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

A Yes, sir.

Q And does that include some Seven Rivers?

A It extends pretty well into the Seven Rivers.

Q What did the original Order provide, Yates only?

A No, it was Yates and, I believe, the top two zones approximately seventy feet, I think, into the Seven Rivers. I think I have that Order here if you would like to see it.

Q What was the purpose of reopening the case, to amend the injection interval?

A In Case 4198?

Q Yes.

A We had found the well would not accept the volume of water we needed to inject, and consequently, we deepened the well beyond the intervals which had been.

Q To broaden the area of injection then?

A Yes, sir. Yes, sir, that original interval was 3208 to 3255.

Q All on the Yates?

A No, this was on the Seven Rivers.

Q So you not only came up the hole as well as going down the hole?

A Yes, sir. There were some perforated intervals in there which were isolated by a packer and we moved the packer from below these perforations to a point above to inject

dearnley-meier

into the Yates and Seven Rivers.

Q Can you give us any depth to include the Yates and Seven Rivers and we would have to have revisions of Exhibits 2 and 5, I think, to change to Yates and Seven Rivers. We need to know the perforated and open-hole intervals you propose. I think we are going to have some specific footage intervals defined. Maybe you can furnish those to us later?

A I would like to consult with my geologist and see if we can find the appropriate depth in there because the fact we are in the Four Reef Section and I do not believe we have any penetration that deep in this immediate area. I would like to furnish that later if I may.

Q If you will furnish that with some specific limitations, top and bottom, for the proposed intervals?

A Be glad to do that.

MR. NUTTER: Does anyone have any further questions of Mr. Lyon? You may be excused. Do you have anything further Mr. Kellahin?

MR. KELLAHIN: That is all.

MR. NUTTER: Does anyone have anything they care to offer in Case 4412? The case will be taken under advisement.

I N D E X

<u>WITNESS</u>	<u>PAGE</u>
VICTOR T. LYON	
Direct examination by Mr. Kellahin	2
Cross examination by Mr. Nutter	10

E X H I B I T S

	<u>OFFERED AND ADMITTED</u>
Applicant's Exhibits Nos. 1 through 8	9

dearnley-meier

SPECIALIZING IN: DEPOSITIONS, HEARINGS, STATEMENTS, EXPERT TESTIMONY, DAILY COPY, CONVENTIONS

1120 SIMMS BLDG. • P.O. BOX 1092 • PHONE 243-6691 • ALBUQUERQUE, NEW MEXICO 87101  
1400 FIRST NATIONAL BANK EAST • PHONE 256-1294 • ALBUQUERQUE, NEW MEXICO 87108

