

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

November 10, 1971  
Examiner Hearing

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IN THE MATTER OF: )

Application of Tenneco Oil )  
Company for a unit agreement, )  
Lea County, New Mexico. )

Case No. 4617

and )

Application of Tenneco Oil )  
Company for a waterflood )  
project, Lea County, New )  
Mexico. )

Case No. 4618

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BEFORE: DANIEL S. NUTTER, EXAMINER

TRANSCRIPT OF HEARING

1 MR. NUTTER: The hearing will come to order please.  
2 The first case this morning will be Case No. 4617.

3 MR. HATCH: Case 4617. Application of Tenneco Oil  
4 Company for a unit agreement, Lea County, New Mexico.

5 I believe the Applicant has asked to consolidate the  
6 two for purposes of testimony.

7 MR. NUTTER: We will call also Case 4618.

8 MR. HATCH: Case 4618. Application of Tenneco Oil  
9 Company for a waterflood project, Lea County, New Mexico.

10 MR. KELLY: Booker Kelly of White, Gilbert, Koch,  
11 Kelly and McCarthy on behalf of the applicant. I have one  
12 witness and ask that he be sworn.

(Witness sworn)

14 MR. KELLY: Mr. Nutter, I have furnished a book which  
15 has all of the exhibits. The only addition is the log and the  
16 unit agreement.

17 MR. NUTTER: Okay. Fine.

WALTER PALMER

19 having been first duly sworn, according to law, upon his oath  
20 testified as follows:

DIRECT EXAMINATION

22 BY MR. KELLY:

23 Q Mr. Palmer, would you state your full name, your address  
24 and employer?

25 A Walter Palmer, Box 1031, Midland, Texas. I am employed by

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- 1       Tenneco Oil Company.
- 2   Q     And in what capacity?
- 3   A     Petroleum engineer.
- 4   Q     Have you previously qualified as an expert witness in the
- 5       field of petroleum engineering before this Commission?
- 6   A     I have.
- 7       MR. KELLY: Are the witness' qualifications a matter
- 8   of record?
- 9       MR. NUTTER: Yes, they are.
- 10  Q     What does Tenneco seek by these two applications?
- 11  A     Tenneco desires to unitize the Lusk-Seven Rivers field for
- 12       purposes of secondary recovery by waterflood.
- 13  Q     Now, addressing ourselves initially to the application for
- 14       unit agreement, and referring to the plat which has been
- 15       marked Exhibit No. 1, would you define the proposed unit
- 16       and recovery project?
- 17  A     The proposed unit is located in Lea County, New Mexico.
- 18       Its name is the Lusk-Seven Rivers field, and we propose to
- 19       unitize that portion of Section 3 specifically described
- 20       in the unit agreement on page 2 as the west half, southeast
- 21       quarter and the southwest quarter of the northeast quarter
- 22       of Section 3, Township 19 South, Range 32 East.
- 23  Q     Now, what has been marked as Exhibit 2 is the final copy
- 24       of the unit agreement; is that correct?
- 25  A     That's correct.

1 Q And in the application in the description of the overriding  
2 royalty interest there was an error. Could you explain  
3 that to the Commission?

4 A It was a typographical error. We have two tracts, the  
5 U.S.G.S. asked us to change the tract numbers, and in doing  
6 so we neglected to reverse the overriding royalty owners,  
7 so the overriding royalty ownership shown on the previously  
8 submitted unit agreement will be reversed.

9 It is correct in the one that you submitted today,  
10 but the previous one that you submitted, it is incorrect.

11 Q Exhibit 2 is correct?

12 A Exhibit 2 as submitted today has been corrected.

13 Q All right. Now, what zone or zones will be unitized in  
14 this agreement?

15 A The Lusk-Seven Rivers zone, zoned at about 3850 feet.

16 Q And this is for secondary recovery?

17 A For secondary recovery.

18 Q Now, Tenneco is the operator, and are there any other  
19 working interest owners?

20 A One other working interest owner, Jack McClellan.

21 Q And, of course, he is a party to this agreement?

22 A That's right.

23 Q And this is all on federal land?

24 A It is all federal land.

25 Q And what is your status with the U.S.G.S.?

1 A The U.S.G.S. has given their preliminary approval for the  
2 unit agreement, and we are waiting to hear from Shell to  
3 receive -- which is one of the overriding royalty owners,  
4 and when we hear from them U.S.G.S. will give us final  
5 agreement.

6 Q Now, what is the status of your sign-up of your override?

7 A Everybody in Tract 2 has signed, and Tract 1. Shell has  
8 not signed, and the other two small overriding royalty  
9 owners, we were unable to locate.

10 Q Do you expect any problem with getting Shell to sign up?

11 A No, sir.

12 Q Now, is the Exhibit No. 2 your proposed unit agreement a  
13 standard A.P.I. unit with the normal changes that the  
14 U.S.G.S. requires?

15 A Yes, it is.

16 Q It is similar to other unit agreements that have been  
17 approved by this Commission?

18 A Yes.

19 Q Now, going on to the second phase of the application for  
20 the secondary recovery project, again, Exhibit 1 defines  
21 the outline of the secondary recovery project and shows  
22 all of the wells and all of the offset operators in the  
23 area; is that correct?

24 A That's correct.

25 Q And are you unitizing the whole Seven Rivers field?

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- 1 A Yes. Our six wells in that field, and they are all  
2 contained within the unit boundary.
- 3 Q So the proposed secondary recovery project will have your  
4 five producers and one injection well?
- 5 A That's correct.
- 6 Q Now, I understand that as a part of this application you  
7 are requesting that the order provide for expansion, either  
8 by additional injection wells or additional production  
9 wells prior to response; is that correct?
- 10 A That's correct, if required.
- 11 Q All right. Exhibit No. 3 is a structure map. Do you have  
12 anything you want to add to that?
- 13 A No. I believe that is self-explanatory.
- 14 Q Go on to Exhibit No. 4, your field data.
- 15 A I believe that is also self-explanatory, and it is a  
16 description of the reservoir mechanism, and the porosity  
17 and other reservoir data pertinent to the field.
- 18 Q Exhibit No. 5 is a three-page exhibit that shows the  
19 production history over the life of the field; is that  
20 correct?
- 21 A That's correct.
- 22 Q And you have put in the total production figures at page  
23 3 of that exhibit. What is your average daily production,  
24 now, on these five producers?
- 25 A Average daily production is about 50 barrels a day or 5

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1 barrels per well per day average.

2 Q Now, in your opinion are these wells close to their  
3 economic limit?

4 A Yes. The economic limit is around 2 barrels a day. They  
5 are presently at 5.

6 Q What does Tenneco expect as far as the recovery on  
7 secondary recovery?

8 A We are anticipating about a half a barrel of secondary  
9 oil per barrel.

10 Q Now, Exhibit No. 6 is a decline curve showing the rate of  
11 decline, tabulation, basically the same as Exhibit 5; is  
12 that correct?

13 A That's correct. That is a plot of the tabulated data.

14 Q And Exhibit No. 7 is your diagrammatic sketch of the  
15 proposed injection well. What is the present status of  
16 that well?

17 A That well is now a producer.

18 Q Would you explain the installation that you propose?

19 A We intend to install on two and three-eighths inch tubing  
20 a tension packer at approximately 3740 feet which is about  
21 100 feet or plus or minus above the existing perforations  
22 which are from 3840 to 3848, referring to the schematic  
23 diagram.

24 We will inject fresh water down the tubing and load  
25 the annulus with corrosion-inhibited fluid, monitor the

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- 1 surface tubing annulus with a pressure gauge.
- 2 Q Now, is there any other production zones up structure here?
- 3 A No, sir, there is not.
- 4 Q And do you feel that the casing program would prevent
- 5 migration of fluid to other zones, either fresh water
- 6 surface zones or any other zones?
- 7 A Yes. The surface casing is cemented to the surface at
- 8 325 feet.
- 9 Q Now, what will you be injecting in this well?
- 10 A Fresh water.
- 11 Q And you don't anticipate to have any corrosion problems?
- 12 A No. We don't usually have any corrosion problems with
- 13 fresh water in this area.
- 14 Q What do you think will be the life of this project if
- 15 successful?
- 16 A Oh, approximately five to seven years.
- 17 Q What is your expected injection pressures here?
- 18 A Oh, 500 pounds to 1000 pounds at the surface.
- 19 Q And the volumes of injection?
- 20 A Oh, we expect 800 to 1000 barrels a day.
- 21 Q That would be fairly constant as far as you know?
- 22 A I believe so.
- 23 Q And Exhibit 8 is the log of the well? Do you have anything
- 24 you want to point out on the log?
- 25 A No, I don't believe so. The existing perforations are



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1 shown opposite the Seven Rivers formation on the density  
2 log of that well.

3 Q In your opinion would the granting of these applications  
4 protect the correlative rights of all parties and prevent  
5 waste?

6 A Yes, it would.

7 Q Lead to the production of oil and gas that would otherwise  
8 be left in place?

9 A That's correct.

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

12 A They were.

13 MR. KELLY: We would at this time move the introduction  
14 of Exhibits 1 through 8 in both of these cases.

15 MR. NUTTER: Applicant's Exhibits 1 through 8 will be  
16 admitted in Cases 4617 and 18.

17 MR. KELLY: That's all we have on direct, Mr. Examiner.

18 CROSS-EXAMINATION

19 BY MR. NUTTER:

20 Q Mr. Palmer, apparently from Exhibit No. 5 here you have had  
21 a total accumulative production of about 200,000 barrels  
22 from these wells; is that correct?

23 A That's correct.

24 Q So you anticipate maybe another 100,000?

25 A Another 100,000. I hope we could do better.

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1 Q All right, sir. This does constitute the entire field --  
2 A Yes, sir.  
3 Q -- being flooded?  
4 A Yes, sir.  
5 Q Now, you mentioned that you would be injecting fresh water.  
6 I presume at the time that you start producing water from  
7 the wells that you recycle the produced water also; is  
8 this true?  
9 A Yes, sir.  
10 Q And the annulus of the well, of the injection well, then,  
11 would be loaded with corrosion-inhibited fluid and equipped  
12 with a gauge at the surface?  
13 A That's correct.  
14 MR. NUTTER: Are there any further questions of Mr.  
15 Palmer? He may be excused.  
16 (Witness excused)  
17 MR. NUTTER: Do you have anything further, Mr. Kelly?  
18 MR. KELLY: Nothing further.  
19 MR. NUTTER: Does anyone have anything to offer in  
20 Case 4617 or 4618?  
21 Take the case under advisement.  
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WITNESS

PAGE

WALTER PALMER

Direct Examination by Mr. Kelly

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Cross-Examination by Mr. Nutter

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E X H I B I T S

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Applicant's Exhibits 1 through 8

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STATE OF NEW MEXICO )  
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COUNTY OF BERNALILLO )

I, LINDA MALONE, Court Reporter, do hereby certify that  
the foregoing and attached Transcript of Hearing before the  
New Mexico Oil Conservation Commission was reported by me;  
that the same is a true and correct record of the said  
proceedings, to the best of my knowledge, skill and ability.

*Linda Malone*  
Court Reporter

I do hereby certify that the foregoing is  
a complete record of the proceedings in  
the Executive hearing of case no. 4617-4618  
heard by me on 11/10 1971  
*[Signature]* Secretary  
New Mexico Oil Conservation Commission