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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
September 5, 1973

EXAMINER HEARING

IN THE MATTER OF:) Case No. 5060
)
The Application of Continental Oil)
Company for a unit agreement and)
for a waterflood expansion, Lea)
County, New Mexico)
)
)

BEFORE: ELVIS A. UTZ, Examiner

TRANSCRIPT OF HEARING

1 MR. UTZ: Call Case No. 5060.

2 MR. CARR: Case 5060, Application of Continental
3 Oil Company for a unit agreement and for a waterflood
4 expansion, Lea County, New Mexico.

5 MR. UTZ: If the Examiner please, I'm Tom Kellahin,
6 Kellahin & Fox, Santa Fe, New Mexico, appearing for the
7 applicant, Continental Oil Company, and I have one witness to
8 be sworn.

9 VICTOR T. LYON,
10 was called as a witness and after being duly sworn, testified
11 as follows:

12 DIRECT EXAMINATION

13 BY MR. KELLAHIN:

14 Q Will you state your name, by whom you are employed, and
15 in what capacity?

16 A My name is Victor T. Lyon, L-y-o-n. I am employed by
17 Continental Oil Company as conservation coordinator in
18 the Hobbs Division Office, located in Hobbs, New Mexico.

19 Q Have you previously testified before this Commission?

20 A Yes, sir, I have.

21 MR. KELLAHIN: Mr. Examiner, are the witness's
22 qualifications as an expert acceptable?

23 MR. UTZ: Yes, they are.

24 Q (By Mr. Kellahin) Mr. Lyon, would you please state
25 briefly what Continental is seeking by its Application

1 in Case No. 5060?

2 A Case No. 5060 is the Application of Continental Oil
3 for the approval of the North El Mar Unit Agreement and
4 for authority to expand the existing waterflood project
5 in the New Mexico portion of the El Mar Pool, which lies
6 in Township 26 South, Ranges 32 and 33 East, Lea County,
7 New Mexico.

8 Q Will you please describe what has been marked as Exhibit
9 1, identify it, and explain what information it contains?

10 A Exhibit 1 is a copy of the unit agreement for the
11 proposed North El Mar Unit.

12 Q Where did you obtain your form?

13 A This is a modified Federal form based on the latest
14 approved Federal unit which we have. The agreement
15 has attached to it at the back three exhibits which
16 are Exhibits A, B, and C.

17 Q What is Exhibit A?

18 A Exhibit A is a plat showing the unit area, the designation
19 of the various tracts by number, their ownership, and
20 the location of the wells and the present numbers.

21 Q What is Exhibit B?

22 A Exhibit B is a tabulation of the tracts with the same
23 tract numbers as shown on Exhibit A, showing the acreage,
24 the serial number, the ownership as to royalty working
25 interest, overriding royalty, et cetera.

- 1 Q And what is Exhibit C?
- 2 A Exhibit C is a list of the same tracts and the
3 participation which each of those tracts receives under
4 Phases 1 and 2 of the unit.
- 5 Q Will you please identify for us the unit area?
- 6 A Do you want me to describe the whole thing?
- 7 Q No, just tell us how much acreage is involved.
- 8 A The unit contains 2361.13 acres, more or less, lying
9 in Sections 24, 25, 26, 27, 34, 35, and 36 of Township
10 26 South, Range 32 East, and Sections 19, 30, and 31 in
11 Township 26 South, Range 33 East.
- 12 Q What is the unitized formation, Mr. Lyon?
- 13 A The unitized formation is the Delaware sands as found
14 in Continental Oil Company's Payne No. 11 well located
15 1650 feet from the west line and 1650 feet from the south
16 line of Section 30, Township 26 South, Range 33 East,
17 and shown on the gamma ray sonic log which was run on
18 that well.
- 19 Q Now, this Continental Payne No. 11 well, is this one of
20 the original wells described in the previous waterflood
21 project?
- 22 A It is currently an injection well which was authorized
23 by Order No. R-3540.
- 24 Q What is the other injection well authorized by the
25 previous order of the Commission?

1 A The other injection well is No. 12, which is located
2 in Lot 3 of Section 31, 26, 33.

3 Q Who is designated operator by the unit agreement?

4 A Continental Oil Company is designated as the operator,
5 I believe, in Section 60, Page 7.

6 Q Section 12 of the unit agreement provides for a basis
7 of tract participation. Describe for us briefly the
8 participation.

9 A As I previously stated, the participation is in two
10 phases. Phase 1 is to extend from the date of
11 unitization until the first day of the month following
12 the production of 609,560 barrels from and after January
13 1, 1972, and tract participation during Phase 1 is based
14 on a formula 50 percent remaining primary reserves as
15 of January 1, 1972, and 50 percent current oil-producing
16 rate using the second half of 1971 as the current period.

17 Then, after the end of Phase 1, Phase 2 comes into
18 play, which is based on a formula 75 percent estimated
19 ultimate primary production, 25 percent tract oil
20 in-place. All of these factors are contained in a
21 tabulation of parameters which were determined by the
22 engineering subcommittee for the North El Mar unit.

23 Q Would you please identify what has been marked as
24 Exhibit 1-A?

25 A Exhibit 1-A is a schedule showing the parameters for

- 1 each of the tracts, the percentage that each tract
2 has of that particular parameter, and then the weight
3 given under the formulas I have just described; and the
4 first page shows the tract participation in the right-
5 hand column under Phase 1; and the second page shows
6 the tract participation under Phase 2.
- 7 Q What percentage of the unit area consists of Federal
8 or State or fee land?
- 9 A The tract or the unit area contains 89.00 percent Federal
10 acres, or 2101.37 acres, and State land consists of
11 11.00 percent, and contains 259.79 acres.
- 12 Q Is there any fee land in this unit?
- 13 A There is no fee land.
- 14 Q Has this agreement received preliminary approval of the
15 Director of the United States Geological Survey?
- 16 A Yes, it has by a letter dated May 1, 1973.
- 17 Q Have you received approval from the Commissioner of
18 Public Lands?
- 19 A Yes, by letter dated May 8, 1973.
- 20 Q And at the present time, Mr. Lyon, what percentage of the
21 agreement has been ratified by the working-interest
22 owners?
- 23 A Eight of the seventeen working-interest owners,
24 representing 65.8713 percent, have ratified the unit
25 agreement. Nine of the thirteen royalty or overriding

1 royalty owners, representing 69 percent of all such
2 owners, have also ratified.

3 Q Would you please describe briefly what was contained
4 in Commission Order R-3540?

5 A The Order authorized a pilot waterflood project whereby
6 Continental was authorized to use Payne Wells Nos. 11 and
7 12, located in Unit N of Section 30 and Unit F of
8 Section 31, respectively, both in 26 South, 33 East,
9 as water injection wells. We now propose to expand this
10 project by adding 27 additional wells to water injection
11 on an 80-acre five-spot injection pattern.

12 Q Please refer to what has been marked as Applicant's
13 Exhibit No. 2 and identify it.

14 A Exhibit No. 2 is a plat showing the unit area inside the
15 dashed line and the tracts within it, the location of
16 the wells, and we have shown by the red triangle
17 circumscribed around the wells those wells which we
18 intend to convert for water injection.

19 Q Please describe what is contained in Exhibit 3.

20 A Exhibit 3 is a list of those same wells, giving the
21 operator of the lease, well number, footage location,
22 and the unit letter. I see we have left off the sections.

23 Q Will you please describe what information is contained
24 by Exhibit 4 and all its parts?

25 A Exhibit 4 is a multiple exhibit. Exhibit 4 is a

1 schematic diagram showing the manner in which Bradley
2 No. 2 will be equipped for the injection. The exhibit
3 shows the size and setting depth and the amount of
4 cement used in setting the casing strings, shows the
5 location of the packer, and the setting depth of the
6 packer and tubing. Tubing will be cement-lined and the
7 annular space above the packer between tubing and casing
8 will be filled with an inert fluid and the casing or
9 the surface connections will be arranged where any
10 unusual pressure will be readily detectable.

11 Q Without going through each of your schematics, Mr. Lyon,
12 are all of them basically the same type of completion
13 or conversion to injection?

14 A Yes, they are all essentially the same and the wells
15 are equipped almost identically because they were drilled
16 one after another in a period of about two years.

17 Q In your opinion, Mr. Lyon, is the manner of completion
18 or preparation of these wells for injection consistent
19 with sound engineering practices?

20 A Yes, they are.

21 Q I don't see on your schematic the location of any kind
22 of pressure gauges either at the surface or at the
23 annulus, are there pressure gauges to be located?

24 A I don't think that we will locate pressure gauges on
25 there. We will use, I believe, either a bursting disk

1 or we will have a needle valve located there so that
2 a pressure gauge can be inserted, a needle valve opened,
3 and the pressure checked periodically.

4 Q Mr. Lyon, will you please give us some history, now,
5 of the production data and the production history of
6 this area?

7 A Through May of 1973, the New Mexico portion of this
8 reservoir has produced 4,835,527 barrels of oil. Produc-
9 tion from the unit area from January 1, 1972, through
10 May of 1973, totaled 150,193 barrels. I give this
11 figure to give some indication as to where the unit
12 stands in regard to the length of Phase 1. Phase 1
13 is based on 609,560 barrels after January 1, 1972; and
14 production through May, since that date, is 150,193
15 barrels.

16 The per well average daily production for the
17 43 producing wells in the unit area during May was
18 7.3 barrels oil, 5.7 barrels water, 26.3 mcf gas.

19 Q In your opinion, has production declined to such a point
20 that you would recommend instituting secondary recovery
21 by waterflooding?

22 A Yes, very definitely.

23 Q In your opinion, Mr. Lyon, can the unit area be
24 successfully and economically waterflooded?

25 A Yes, we believe that it can.

- 1 Q Turning your attention, now, to the matter of the
2 injection of fluids, where will you obtain your water?
- 3 A We expect to purchase water from a source in Texas
4 approximately seven miles southwest of the unit area
5 which produces from an alluvial sand deposit. The water
6 will be salinated until the brine content is at least
7 50,000 parts per million total salt.
- 8 Q Will you inject this under pressure?
- 9 A Yes.
- 10 Q During your peak injection rate, what's your anticipated
11 injection per day?
- 12 A Approximately 10,000 barrels per day, and we don't
13 expect to encounter initially, but we do anticipate
14 pressure as build-up is approached, and maximum pressures
15 of approximately 2000 per square inch.
- 16 Q Do you have any estimate on the amount of the oil to be
17 recovered by your waterflood project?
- 18 A We estimate that the waterflood will recover an additional
19 3,120,000 barrels of oil.
- 20 Q At the present time, do you have any figures with regard
21 to how much water had been injected in the two previously
22 approved injection wells?
- 23 A Yes, we have injected a total of 316,848 barrels through
24 May of 1973.
- 25 Q Is there any produced water from the unit area?

- 1 A Yes, there is water being produced.
- 2 Q And what are your intentions with regard to produced
3 water?
- 4 A Well, reinject it in our water injection program.
- 5 Q In your opinion, Mr. Lyon, will the approval of the
6 unit agreement and the approval of the expansion of
7 the waterflood project result in the recovery of oil
8 that otherwise would not be produced?
- 9 A Yes, it will.
- 10 Q Will the approval of the unit agreement or the expansion
11 of the waterflood project protect correlative rights
12 of others?
- 13 A Yes, sir.
- 14 Q Do you anticipate any need for administrative approval
15 for the expansion of the waterflood project including
16 both orthodox and unorthodox locations?
- 17 A Yes, I would like to call to the Examiner's attention
18 Exhibit 2, which is the plat showing the injection
19 pattern. If you will note, at the southern extremity
20 of the unit area we have a series of small lots in there
21 ranging approximately about 25 acres each. As a result
22 of these lots, the spacing of the wells is somewhat
23 irregular at the south end of the unit, and we have
24 present intentions of drilling two additional injection
25 wells, which will help to offset this, the gap in the

1 spacing between wells.

2 Q Do you have anything else you would like to add in
3 addition to your testimony?

4 A I don't believe so.

5 MR. KELLAHIN: Mr. Examiner, we move for the
6 introduction of Applicant's Exhibits 1 through 4.

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

9 CROSS-EXAMINATION

10 BY MR. UTZ:

11 Q Mr. Lyon, if I count correctly, there will be 27 additional
12 wells, 29 total, injection wells?

13 A Correct.

14 Q Have you received any response from Wells Nos. 11 and 12?

15 A Not to my knowledge.

16 Q Wouldn't you expect some response after 316,000 barrels,
17 or is that enough?

18 A Well, it has been at pretty slow rates. We have been,
19 in effect, injecting our produced water in these wells,
20 and if there have been any response, it has been nothing
21 of real note. It has told us that the formation will
22 receive water injection.

23 Q And you want administrative approval for the changes in
24 location or additional injection wells?

25 A Yes, sir.

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Q What about producing wells?

A So far as I know, we don't have any immediate plans for drilling additional producing wells, but certainly it wouldn't hurt to provide for it.

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

(No response.)

MR. UTZ: The witness may be excused. Are there statements in the case?

MR. KELLAHIN: No, sir.

MR. UTZ: The case will be taken under advisement.

-oOo-

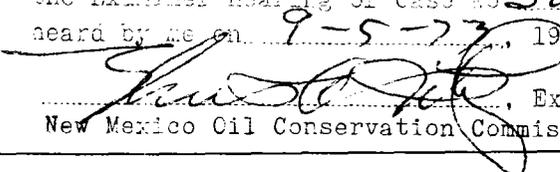
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1 STATE OF NEW MEXICO)
) SS
2 COUNTY OF BERNALILLO)

3 I, JOHN DE LA ROSA, a Court Reporter, in and for the
4 County of Bernalillo, State of New Mexico, do hereby certify
5 that the foregoing and attached Transcript of Hearing before
6 the New Mexico Oil Conservation Commission was reported by
7 me; and that the same is a true and correct record of the
8 said proceedings to the best of my knowledge, skill and
9 ability.

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11 
12 COURT REPORTER

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22 I do hereby certify that the foregoing is
23 a complete record of the proceedings in
the Examiner hearing of Case No. 5060,
24 heard by me on 9-5-77, 19.....

25 _____, Examiner
New Mexico Oil Conservation Commission