

dearnley, meier & mc cormick

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BEFORE THE
NEW MEXICO OIL CONSERVATION COMMISSION
OIL CONSERVATION COMMISSION CONFERENCE ROOM,
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO
Tuesday, November 14, 1972

EXAMINER HEARING

IN THE MATTER OF:

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

Case No. 4856

BEFORE: Daniel S. Nutter,
Examiner

TRANSCRIPT OF HEARING

1 MR. NUTTER: Call Case 4856, application of Gulf
2 Oil Corporation for a waterflood project, Eddy County, New
3 Mexico.

4 MR. KASTLER: If the Examiner please, I'm Bill
5 Kastler appearing on behalf of Gulf and Mr. Kalteyer, who was
6 sworn in the previous case, will be our only witness in this
7 case.

8 MR. NUTTER: Mr. Kalteyer is still under oath.

9 MR. KASTLER: Are Mr. Kalteyer's qualifications
10 acceptable, without further questions?

11 MR. NUTTER: Yes, they are. Please proceed.

12 CHARLES KALTEYER,
13 a witness, having been previously duly sworn according to law,
14 upon his oath, testified further as follows:

15 DIRECT EXAMINATION

16 BY MR. KASTLER:

17 Q Mr. Kalteyer, are you familiar with Gulf's application in
18 Case No. 4856?

19 A Yes, sir, I am.

20 Q Please explain what Gulf is seeking in this application?

21 A We are asking for authority to initiate a waterflood
22 project on the east half of our Littlefield "AB" Federal
23 Lease in the Shugart, Yates, Seven Rivers, Queen, and
24 Grayburg Pools. Injection is proposed into the Queen
25 member, which is the only producing interval in this

1 portion of the lease.

2 Q Do you have a plat showing the Littlefield "AB" Federal
3 Lease?

4 A Yes, sir, it's marked Exhibit 1. The Littlefield "AB"
5 Federal Lease comprises all of Section 22. The project
6 area is outlined in red and the seven wells within the
7 project area are color coded to identify the three
8 injectors and four producers.

9 Q What else is shown on Exhibit 1?

10 A The Shugart Pool completions within a two-mile radius of
11 the project area are shown. The injection wells are
12 colored yellow, the diagonal line symbol through the
13 well location indicates a well has been temporarily
14 abandoned.

15 Well locations with no colored circles are current
16 producers. The completions, injectors, and producers,
17 are not identified as to separate members of the Shugart
18 Pools. The Commission includes four members, the Yates,
19 Seven Rivers, Queen, and Grayburg in the Shugart Pool.

20 The plat also shows other waterflood projects in the
21 pool.

22 Q In connection with that, is there a waterflood project on
23 a line directly offsetting this area?

24 A Yes, sir, the Atlantic Richfield Panco Federal.

25 Q All right. Is Exhibit 2 a structure map of the Unit Area?

- 1 A Yes, sir. The structure map is contoured on top of the
2 Queen member, using a contour interval of 25 feet. The
3 structure is a gentle 80-foot per mile dip in the
4 southeast, across our lease. The trapping mechanism for
5 the reservoir is a permeability pinch-out updip to the
6 west.
- 7 Q What are the geological characteristics of the reservoir
8 to be waterflooded?
- 9 A The Queen pay is a gray fine-grain sandstone with varying
10 amounts of Dolomite matrix.
- 11 Q Will you now please refer to Exhibit Number 3 and say
12 what is shown on that?
- 13 A Exhibit 3 is an east-west cross section of four wells
14 indicated as A-A' on Exhibit 2, the structure map.
- 15 Q Exhibit 2 and 3 are, in that effect, coordinated?
- 16 A Yes.
- 17 Q Do you have a well location showing the proposed
18 injection interval?
- 19 A Yes, sir. They are designated as Exhibit 4, which the
20 Examiner has, which is a Gamma Ray Neutron Log of the
21 Littlefield Federal "AB" Well No. 9 located in Unit H
22 of Section 22, Township 21, Range 37. The top of the
23 Queen and the proposed injection interval are shown.
- 24 Q Mr. Kalteyer, have you prepared an exhibit showing the
25 production history and present status of the wells in this

1 proposed unit?

2 A Yes, sir, Exhibit 5 shows the performance of the seven
3 wells producing from the Queen pay of the Shugart Pool
4 of the Littlefield "AB" Federal. If you will note that
5 production began in February of '70 and reached a peak
6 in June of '70 of approximately 268 barrels of oil per
7 day; and as of September, '72, the oil rate has declined
8 to 75 barrels per day, and approximately 37 barrels of
9 water per day.

10 Q What's the average production per well?

11 A It's not shown. Currently, production is approximately
12 ten barrels.

13 Q All right. Have you a tabulation of the performance data
14 depicted in Exhibit 5?

15 A Yes, sir. Exhibit 6 is a tabulation of the monthly oil
16 and water of the seven producers. Cumulative production
17 from these wells is 132,702 barrels as of October 1, 1972.

18 Q Now, you have as your next exhibit, Exhibits 7-a, 7-b,
19 and 7-c. Would you go through each of these exhibits
20 separately and explain what they show that's pertinent
21 to this case?

22 A All right, sir. These exhibits, 7-a, b, and c, are
23 schematic diagrams of the proposed, or the three proposed
24 water-injection wells. They are the Littlefield Federal
25 Wells 9, 10, and 14.

1 Water will be injected into the perforated intervals
2 of the Queen Section through internally plastic-coated
3 2 3/8" tubing under a packer.

4 Referring to Exhibit 7-a, Well No. 9, 8 5/8"
5 casing was set at 738 feet with 350 sacks of cement
6 circulated. The total depth was reached of 3,499 and a
7 four and a half inch casing was set with 425 sacks of
8 cement. The perforated interval is 3,376 to 81 and
9 3,388 to 93, two 1/2" jet holes per foot. The 2 3/8"
10 tubing internally plastic-coated, as I mentioned before,
11 we set on a packer with the tubing, the casing-tubing
12 annulus loaded with inhibited water.

13 And, similarly, Well No. 10, we have 8 5/8" casing
14 set at 719 feet, cemented with 350 sacks of cement
15 circulated. The total depth of 3,445 with 5 1/2" casing
16 was reached, set with 300 sacks of cement. The top of
17 the cement is at 1,900 feet, and the Queen Section is
18 perforated from 3,336 to 40 and 3,364 to 70, with two
19 1/2" jet holes per foot. A 3 1/2" internally plastic-
20 coated tubing was set on the packer and the annulus is to
21 be loaded with inhibited water.

22 And also, with Well No. 14, 8 5/8" casing set at
23 744 feet, cemented with 350 sacks circulated. A total
24 depth of 3,435 with 4 1/2" casing cemented with 450
25 sacks of cement. The top of the cement is at 1,938 feet.

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1 The perforations are from 3,372 to 84 with two 1/2"
2 jet holes per foot. 2 5/8" plastic tubing is to be
3 set on the packer with the casing-tubing annulus loaded
4 with inhibited water.

5 Q All three wells will be constructed in the same manner,
6 then?

7 A Yes, sir.

8 Q And your injection interval will be substantially the
9 same depth, but definitely into the Queen member of this
10 formation?

11 A Yes, sir.

12 Q What will be the source of Gulf's injection water?

13 A Produced water from our Littlefield "AB" Federal Lease,
14 and Ogallala water from the Eagle water system. The
15 water currently produced on our lease amounts to 85
16 barrels per day.

17 Q What injection rates and surface pressure do you
18 anticipate?

19 A The intital injection rate is anticipated to be
20 approximately 500 barrels per day per well and a surface
21 pressure of approximately 1200 PSI.

22 Q What results are expected?

23 A We believe that the proposed waterflood will result in
24 additional oil recovery of some 57 per cent of ultimate
25 primary. In terms of barrels, this increased recovery

1 due to waterflooding should be on the order of 100,000
2 barrels.

3 Q Why are you proposing this project and what are your
4 recommendations?

5 A The Shugart Pool underlying Gulf's Federal "AB" Lease
6 produces by a solution gas-drive mechanism and, as a
7 result, a considerable quantity of oil will remain
8 unrecovered at the end of primary depletion unless some
9 type of secondary recovery project is initiated. To
10 increase the ultimate oil recovery, an engineering
11 study has been made which indicates the feasibility of
12 this waterflood project. Other waterflood projects have
13 been undertaken in this area and have indicated a
14 reasonable amount of success; and in view of the above,
15 Gulf Oil Corporation respectfully requests the Oil
16 Conservation Commission approve the installation of the
17 proposed waterflood facilities and grant such oil
18 allowables as are earned by the wells in the project area
19 as provided in Rule 701-E.

20 Q With this being a Federal Lease, did you contact the
21 Department of Interior concerning this proposed
22 waterflood project?

23 A Yes, sir, we did. Exhibit 8 is a copy of the letter of
24 the approval from that department.

25 Q Were other operators in the Shugart Pool notified of your

1 application?

2 A Yes, sir, they were. All operators within a two-mile
3 radius were notified by copy of our letter of October
4 16th to the Commission.

5 Q That was your letter of application?

6 A Yes, sir.

7 Q In your opinion, will the granting of this request aid
8 in prevention of waste?

9 A Yes, sir. This project should recover oil which would
10 otherwise be left in the reservoir unrecovered, except
11 by some means of secondary recovery.

12 Q Were Exhibits 1 through 7 prepared by you, or at your
13 direction and under your supervision?

14 A Yes, sir.

15 Q And is Exhibit 8 a true copy of a letter received by
16 Gulf from the U. S. Department of Interior?

17 A Yes, sir.

18 MR. KASTLER: At this time, I'd like to move that
19 Exhibits 1 through 8 be admitted into evidence and this
20 concludes my questions on Direct Examination.

21 MR. NUTTER: Gulf's Exhibits 1 through 8 will be
22 admitted in evidence.

23 CROSS EXAMINATION

24 BY MR. NUTTER:

25 Q Mr. Kalteyer, you estimate that you will recover

1 approximately 57 per cent of ultimate primary, or about
2 100,000 barrels. What is your estimated ultimate
3 primary?

4 A I'll have to back into that by calculation. I don't have
5 that figure readily available.

6 Q You have produced 132,000 barrels to date?

7 A Yes. This calculates approximately 175,000 barrels,
8 total recovery.

9 Q In other words, you would have about 40,000 left on
10 primary, then?

11 A Yes, sir.

12 Q And by instituting the secondary recovery, you will gain
13 100,000?

14 A Yes, sir.

15 Q Now, I note that the perforated interval in one well,
16 I believe it was the No. 9, with only a single zone and
17 the other two had two zones of perforations in them.
18 Will that well, being perforated in only one zone,
19 adequately flood the Queen Formation?

20 A Certain areas of the Queen --

21 Q I believe it was the 9. The No. 9 has only one zone
22 open.

23 A Yes, sir. The porosity varies from well to well and
24 there are certain wells that have more than one zone
25 that appears to be productive. And Well No. 9 has

1 indicated to have only one permeability zone, which was
2 completed there.

3 Q Well, now, on your Exhibit 1 you indicated that the
4 yellow wells to the north were injection wells by offset
5 operators; so, actually, your No. 9, your No. 8 is a
6 producer, and it will be in between three injection wells,
7 two of yours and one of an offset operator's?

8 A Yes, sir.

9 MR. NUTTER: Are there any other questions of Mr.
10 Kalteyer?

11 (No response.)

12 MR. NUTTER: He may be excused.

13 Do you have anything further, Mr. Kastler?

14 MR. KASTLER: Nothing further, thank you.

15 MR. NUTTER: Does anyone have anything they wish
16 to offer in Case Number 4856?

17 (No response.)

18 MR. NUTTER: We will take the case under
19 advisement and call the next case.

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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 me;
 7 and that the same is a true and correct record of the said
 8 proceedings to the best of my knowledge, skill and ability.
 9

10 
 11 COURT REPORTER

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