

STATE OF NEW MEXICO
ENERGY AND MINERALS DEPARTMENT
OIL CONSERVATION COMMISSION
State Land Office Building
Santa Fe, New Mexico
11 September 1978

COMMISSION HEARING

IN THE MATTER OF:

Application of Maralo, Inc., for
statutory unitization, Lea
County, New Mexico.

and

Application of Maralo, Inc., for a)
waterflood project, Lea County,)
New Mexico.)

CASE
6328

CASE
6313

BEFORE: Commissioner Joe Ramey
Commissioner Emery Arnold

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Oil Conservation Commission: Lynn Teschendorf, Esq.
Legal Counsel for the Commission
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Santa Fe, New Mexico 87501

For Maralo, Inc.: Conrad Coffield, Esq.
HINKLE, COX, EATON, COFFIELD &
HENSLEY
Midland, Texas

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CHARLES LOVE

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1 MR. RAMEY: Okay, the hearing will come to
2 order.

3 Ask for appearances.

4 MR. COFFIELD: Conrad Coffield with the law
5 firm of Hinkle, Cox, Eaton, Coffield and Hensley, ap-
6 pearing on behalf of Maralo, Inc.

7 I will have two witnesses but I'd like to
8 have three people sworn in case there are some questions.

9 MR. RAMEY: Will you please stand and be
10 sworn.

11 (Witnesses sworn.)
12

13 CHARLES LOVE

14 being called as a witness and having been duly sworn upon
15 his oath, testified as follows, to-wit:
16

17 DIRECT EXAMINATION

18 BY MR. COFFIELD:

19 Q State your name, your residence, and occupa-
20 tion, and what is your position relative to Maralo, Inc.?

21 A My name is Charles Love. I live in Midland,
22 Texas, and I am a consultant petroleum engineer, and I
23 have been retained by Maralo, Inc. to analyze and prepare
24 certain data for presentation before the OCD.

25 Q Have you previously testified as a petroleum

1 engineer before the Oil Conservation Division?

2 A. Yes, sir, I have.

3 Q. And are you familiar with Maralo's application
4 in these cases?

5 A. Yes, sir, I am.

6 Q. Further, are you familiar with the area in-
7 volved in these applications and with the Jalmat pool?

8 A. Yes, sir.

9 MR. COFFIELD: Are the witness' qualifications
10 acceptable?

11 MR. RAMEY: The Commission is acquainted with
12 Mr. Love and consider him qualified.

13 Q. (Mr. Coffield continuing.) Mr. Love, what
14 is Maralo seeking to accomplish in these cases?

15 A. Maralo is seeking statutory unitization for
16 an additional recovery project in a portion of the Jalmat
17 Field by the injection of water into various wells that
18 are located in Township 25 South, Range 36 East, and 37
19 East.

20 Q. Do you have certain exhibits?

21 A. Yes, sir, I have prepared exhibits for pre-
22 sentation.

23 Q. Please refer to what has been marked as Ex-
24 hibit One and I ask you to explain what this represents.

25 A. All right. Exhibit One is an area plat or

1 map that shows the location of the proposed unit, plus
2 the location of the injection well, and all other wells
3 that are located within a two-mile radius of the proposed
4 unit.

5 Q Are all of the lands involved in these ap-
6 plications privately owned or fee lands?

7 A Yes, sir.

8 Q From what horizons have the various wells
9 within this two-mile radius produced?

10 A Most of the wells are producing from the
11 Yates, Seven Rivers, and Queen, and this portion is in the
12 Jalmat Pool. There are some that are classified in the
13 Langlie-Mattix Pool, but most are producing from the Yates,
14 Seven Rivers, and Queen Formations.

15 Q Mr. Love, describe the location of our pro-
16 posed waterflood project, give the total number of wells,
17 and the total acreage involved.

18 A There are fourteen wells located within the
19 proposed unit area; thirteen oil wells and one gas well.
20 The proposed unit area includes the southeast quarter of
21 Section 12, the northeast quarter of Section 13, all of
22 these located in Township 25 South, Range 36 East; then
23 the northeast quarter of Section 18 and the north half of
24 the southwest quarter of Section 18, located in Township
25 25 South, Range 37 East. There are 560 acres in the pro-

1 posed unit.

2 Q Mr. Love, are there any other water projects
3 in this general area?

4 A Yes, Reserve operates a unit immediately to
5 the east of this area. It is their South Langlie Jal Unit.
6 And Union of Texas operates the Langlie Jal Unit, and it
7 is located approximately a half a mile to the north and
8 east of our proposed unit area.

9 Q Mr. Love, have there been any border or line
10 agreements negotiated and entered into as to these other
11 operations in the area?

12 A No, sir. Initially we are asking for approval
13 to drill seven injection wells that are shown on our Ex-
14 hibit One, and they are color coded red. These wells are
15 located within the proposed unit area.

16 However, there are plans to begin negotiations
17 with offset operators around this proposed unit area and
18 if the negotiations are successful, then we propose to
19 ask for approval to drill ten additional wells, which are
20 color coded in green; however, we're planning initially,
21 and asking initially just for the seven injection wells
22 as shown in the wells in red on our Exhibit One.

23 Q Mr. Love, please refer to what has been marked
24 as Exhibit Two and identify this exhibit and explain what
25 it represents.

1 A. All right. Exhibit Two is a portion of a well
2 log of the Humble Winters "A" No. 2, that is located with-
3 in the unit area, and it is a typical log of a well in
4 the unit area, and on this we have shown what our proposed
5 unitized interval is.

6 Q. With reference to this exhibit, Two, go ahead
7 and give some more details with respect to the reservoir
8 to which the water will be injected.

9 A. All right. We propose to unitize the inter-
10 val from the top of the Yates, and on this log it's at
11 2848 feet, to 100 feet below the base of the Queen. Now,
12 the base of the Queen is estimated at -- to come in at
13 3680 feet. This well, the total depth of this well is
14 only 3400 feet. This base of the Queen was determined
15 from preparation of a cross section with other wells in
16 the area.

17 However, we are asking initially, or our
18 injection will be initially into the Yates Formation and
19 production in the Yates Formation is found in four sand-
20 stone intervals separated by an anhydritic dolomite sec-
21 tion, and from looking at logs in the area, or in this
22 unit, the productive interval appears to be continuous
23 across the proposed unit area.

24 Q. Okay, Mr. Love, go on to Exhibit 3-a and 3-b
25 and please identify these exhibits.

1 A. Exhibit 3-a is a secondary recovery study,
2 dated December the 9th of 1976, that was prepared by the
3 firm of T. Scott Hickman.

4 Exhibit 3-b is a supplemental study, or a
5 supplement to the secondary study, and it is dated June
6 13th, 1977. It is also prepared by T. Scott Hickman.

7 Both of these relate to the area covered by
8 the application involved in these cases and show the
9 feasibility of the proposed project.

10 Q. Okay, Mr. Love, there are some slight dif-
11 ferences in the area covered by this study in Exhibits
12 3-a and 3-b. Would you please explain just what this
13 difference is?

14 A. Yes. The study, if you'll look at the maps
15 and figures in the report, the study area included more
16 acreage than what we're proposing to unitize. The study
17 area included the southeast of the northeast of Section 12,
18 one well, 40 acres, and the study area included the south
19 half of the southwest quarter of Section 18, and there's
20 one well there and 80 acres.

21 Q. Do you feel there's any difference here of
22 any consequence with respect to the conclusions which may be
23 drawn from this particular study?

24 A. No, sir, I do not. I do not think that it
25 will make any difference.

1 Q Okay, as covered by this report shown in
2 these exhibits, 3-a and 3-b, please explain briefly the
3 general procedures or plan of operation which Maralo pro-
4 poses and point out any differences in the procedures
5 which Maralo proposes which may be different from those
6 contemplated in the Hickman study.

7 A Well, actually, the secondary recovery study
8 offered two proposals, a conversion proposal or a drill
9 proposal. Maralo has decided to go with the drilled wells
10 and the study, the report, recommended that this well
11 located in the southeast of the northeast of Section 12
12 would be converted to an injection well, but it would be
13 totally as a back-up well, and I don't think that it would
14 make any difference.

15 Q What -- what reasons do you feel the drilled
16 approach is better than the -- for what reasons do you
17 feel the drilled well approach is better than the con-
18 version well approach, Mr. Love?

19 A Well, I think the study points out that the
20 economics are favorable by the drill plan, even though the
21 investment initially is greater, but there is a better
22 cash flow resulting from it due to the lessening of the
23 life of the project.

24 And also I think that you will have better
25 control over the injection fluid by having cased completions,

new wells, new cement, than you would if you would convert some older wells. I think you would be able to have better control over the injection and sweep efficiency in the waterflood.

Q All right, Mr. Love, with respect to the general situation relative to production here in this area and the matters which are reflected in the unit agreement and unit operating agreement, copies of which have been submitted, the unit agreement and unit operating agreement for the proposed unit is stated in a two-page formula with Phase One to go into effect from the effective date of the unit until 7:00 a. m. on the first day of the month after the cumulative production of oil following 7:00 a. m., October 1, 1976 totals 39,000 barrels, and thereafter Phase Two is to apply.

Would you please tell us now where we are relative to the application of Phase One and Phase Two?

A We would be unitizing. The formula -- the Phase Two formula would be in effect from 10-1-76 to 1-1-78, the first of this year there were 39,196 barrels of oil produced, so we would be in Phase Two.

Q All right. What information do you have, Mr. Love, with respect to porosity, permeability, and so forth, within the unit area?

A As pointed out in the study the cores were

1 available from two wells within the study area. They
2 indicate an average porosity of 15-1/2 percent and an aver-
3 age permeability of 24 milledarses.

4 A gas/oil contact was picked at 300 feet above
5 sea level. There are no oil/water contact which has been
6 established in the area, and the initial bottom hole pres-
7 sure was 1400 psi.

8 Q Mr. Love, please briefly review the primary
9 performance for these wells within this proposed unit area.

10 A Well, as I said earlier, on our Exhibit One
11 there are fourteen wells currently within the unit. There
12 are twelve active oil wells, one well temporarily abandoned,
13 and there is one gas well.

14 The twelve active oil wells produced 31,129
15 barrels of oil during the year of 1977, and 89,014 Mcf of
16 gas. This represents an average production rate of the
17 wells within the unit of 7 barrels a day and an average GOR
18 of 2859 cubic feet per barrel.

19 The cumulated oil production to January 1, 1978
20 was 1,274,890 barrels, or that gives an average per well
21 recovery of 98,000 barrels.

22 The Yates gas well in the unit produced 9,558
23 Mcf during 1977 for an average daily rate of 26 Mcf.

24 The cumulative production to January 1, 1978
25 has been 1,458,904 Mcf.

1 You can refer to our Exhibit 3-a, I think it's
2 interesting to note, beginning with -- that is our secondary
3 recovery report -- and beginning with the figure five in
4 the unit is the decline curves for the leases within the
5 unit, and I think that the decline curves show a typical
6 decline for all leases except the Winters "c", which if you
7 will turn to figure eight, there is the decline curve for
8 the Winters "C". You will note that its normal decline
9 was interrupted by a steep production increase in January,
10 1975. It reached 2,521 barrels per month in September of
11 1975 and in March, 1978 it produced 2,750 barrels for the
12 month, and in JULY of 1978 the production was 2,461 barrels.

13 So it would indicate that this lease is re-
14 ceiving some benefit for some waterflood response, and we
15 feel like that it is coming from the two salt water disposal
16 wells located to the north and west of our proposed unit
17 area, the one on the Tenneco lease, their Wells No. 2, the
18 Arco Well No. 4, and these on our Exhibit One are noted as
19 SWD wells.

20 So I think that this is -- gives pretty good
21 evidence that this area is capable of a waterflood response.
22 And it is estimated as of the first of this year, 1-1-78,
23 that there are only 108,450 barrels of oil to be recovered
24 from existing operations.

25 Q. Mr. Love, please outline for the Commission the

1 plans to recover additional oil by waterflood in this pro-
2 ject.

3 A. If you'll refer back to our Exhibit One, our
4 map, initially injection will be into the seven wells that
5 are shown in red on the exhibit.

6 The wells, we're planning to drill those to
7 sufficient depth to penetrate the Empire Queen section;
8 however, initially injection will be confined into the
9 Yates interval.

10 We plan to set 8-5/8ths inch surface casing
11 at approximately 400 feet, with sufficient cement to cir-
12 culate to the surface; then 4-1/2 inch long string casing
13 will be set at the total depth and cemented with sufficient
14 cement to circulate back to the surface.

15 We plan to drill the additional injection
16 wells, those shown in green, upon successful negotiations
17 with our offset operators.

18 The study prepared by the Hickman firm indi-
19 cates that the area under consideration should yield an
20 additional 1,086,000 barrels of oil, and this would result
21 in a future net revenue of \$11,792,000.

22 Q. Over what period of time?

23 A. With this plan that we're using it would be
24 over a fifteen year life.

25 Q. Okay, Mr. Love, refer to what's been marked

1 as Exhibit Four, and I ask you to identify this and explain
2 what it represents.

3 A. Exhibit Four is a schematic diagram of a typi-
4 cal injection well that we plan to drill.

5 Q. Will these wells which will be drilled and
6 completed in accordance with the plans represented on this
7 schematic, confine the injected water to the producing
8 horizon?

9 A. Yes, sir.

10 Q. Will you be using plastic coating in the
11 injection wells?

12 A. Yes, sir. As I pointed out earlier, that we
13 intend to set our surface -- and these volumes that I have
14 on there are approximate, but I did talk with some cementing
15 people, but there will be sufficient cement on our surface,
16 we're estimating something around 200 sacks that will be
17 circulated. I've shown here the approximate depth that we
18 will want to drill these wells to penetrate the Queen and
19 the 4-1/2 inch string will be cemented with sufficient
20 cement to circulate, and I've shown where our initial
21 injection interval will be approximately from 2900 feet to
22 3050 feet, or in the Yates Zone.

23 MS. TESCHENDORF: May I interrupt you, Mr.
24 Love?

25 A. Yes, ma'am.

1 MS. TESCHENDORF: I missed the figure before
2 you were talking about additional barrels of oil to be re-
3 covered and just before that you said approximately how
4 many barrels could be obtained simply by the primary re-
5 covery method.

6 A. 108,450 barrels.

7 MS. TESCHENDORF: Thank you.

8 Q. (Mr. Coffield continuing.) Refer to what's
9 been marked as Exhibits 5-a and 5-b and identify these
10 exhibits and explain what they represent.

11 A. Exhibit 5-a is a plat showing the location of
12 all wells within the Jalmat Yates Unit, both proposed in-
13 jection wells and producing wells, with the wells numbered
14 with the new unit well numbers from 1 to 31; and Exhibit 5
15 is a list -- 5-b is a list of the unit wells and the loca-
16 tion of each, and we ask at this time that the Division
17 designate the unit wells in this fashion.

18 Q. Are these wells actually staked at these loca-
19 tions?

20 A. The seventeen wells are all staked and the
21 ones that we show to be drilled and give the footages, are
22 staked location footages, and have been surveyed.

23 Q. Okay. You may have already said this, but
24 how many producing wells are there proposed?

25 A. There will be fourteen producing wells in the

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1 unit.

2 Q. And how many injection?

3 A. Seventeen injection wells.

4 Q. But initially?

5 A. Initially there will be seven injection wells
6 to be drilled with the subsequent drilling of the ten addi-
7 tional wells. We at this time, too, would ask for authority
8 for the drilling of the initial seven wells and with the
9 entry of the order approving this unit, and we also request
10 authority for the drilling of the additional ten wells ad-
11 ministratively without a formal hearing at a later date.

12 Q. Mr. Love, referring -- excuse me.

13 A. If I may just add --

14 Q. Certainly.

15 A. -- one thing? Initially what we're asking to
16 drill will be Unit Well No. 4 -- what I'm referring to now
17 is my Exhibit 5-b, what we call as Unit Well No. 4, the
18 well to be drilled at 1575 from the south and 1050 feet
19 from the east line of Section 12; Unit Well No. 9, Unit
20 Well No. 15, Unit Well No. 19, Unit Well No. 20, Unit Well
21 No. 25, and Unit Well No. 31.

22 Q. Mr. Love, refer to what has been marked as
23 Exhibit Six and explain what this exhibit represents.

24 A. Exhibit Six is a reduced, and it's reduced
25 to one-half scale of our Exhibit One, what we're showing,

1 this is an old area and I'm showing the radius of one-half
2 mile around each of the proposed injection wells. The red
3 line outside of the unit encompasses an area of a radius
4 of one-half mile from our injection wells in red and the
5 green line encompasses the radius of one-half mile from
6 the wells that are color coded in green.

7 Q Mr. Love, refer to what has been marked as
8 Exhibit Seven, with pages lettered a through q. Please
9 identify this exhibit.

10 A These are schematics of all plugged and aban-
11 doned wells within a half mile radius of the unit, and it
12 shows the size and location of the plug to such extent as
13 the information was available to me.

14 Q Do you actually have more schematics as far
15 as wells are concerned than is strictly necessary under the
16 rules here?

17 A I -- when I prepared these -- these, there
18 are seventeen of these schematics, I took an area a half
19 a mile from the boundary of the unit. As I said, the red
20 line is the wells that are included in the half mile radius
21 of our initial injection well, would include our Exhibit
22 7-c, 7-d, 7-e, 7-f, 7-g, 7-i, 7-j, and 7-k.

23 Q Mr. Love, why are you submitting these for
24 the Division's consideration?

25 A Well --

1 Q Excuse me, are you through with this subject?

2 A Well, within the green outline, the half mile
3 of our wells that will be proposed to drill later, you have
4 to refer to schematics 7-h, 7-l, 7-n, and 7-o.

5 Q So the ones that you have just now given are
6 strictly the only ones that fall within the one-half mile
7 radius; anything in excess of that, is this correct --

8 A Right.

9 Q -- are simply extra?

10 A Right.

11 Q All right, Mr. Love, for what purpose are
12 these schematics being submitted?

13 A To show the Division the status of various
14 wells within the area so that possible problems can be
15 considered.

16 Q Okay, will you refer to what's been marked
17 Exhibits 8-a through 8-e, and of course I'm going to ask
18 you to identify these and explain what they represent.

19 A These are tabular summaries of all wells within
20 a half mile, again, radius of our proposed unit, showing
21 the casing strings, the setting depths, the sacks of cement,
22 cement tops, total depth, producing intervals, and well
23 identification and location.

24 These are given to you by sections. The first
25 would be in Section 12 and I've started in Section 12 and

1 again I'm going -- I went one-half mile from the unit
2 boundary. I started with the well that would be located
3 in production unit A and tabulated those wells through the
4 section and ending with the well that would be located in
5 production unit B.

6 Q. And the wells that are marked with asterisks
7 in the --

8 A. The wells that are marked with asterisks are
9 wells that are within the proposed unit area.

10 Q. Again, the purpose for the submission of these
11 is --

12 A. Again to advise the Division of the status of
13 all wells in the general area for your consideration of
14 any possible problems.

15 Q. Mr. Love, what quantities of water do you an-
16 ticipate to be injected for the purpose of this proposed
17 waterflood?

18 A. The -- it is anticipated that the water volume
19 will be between 300 and 500 barrels per day per injection
20 well.

21 Q. 300 to 500?

22 A. 300 to 500.

23 Q. Per day?

24 A. Per day per injection well.

25 Q. What do you anticipate will be the source of

1 the supply of the water to be injected?

2 A. We have not determined one source of supply.
3 There are three possible sources. There are produced water
4 taken from some Maralo leases that are in the area. There
5 is a possibility that we'll purchase water from the Getty
6 water system, or there's produced water from various leases
7 in the area that are operated by other companies.

8 Q. And you say there is one fourth possible, which
9 is --

10 A. There is a fourth possibility that they could--
11 we could develop the Santa Rosa as a water source.

12 Q. Mr. Love, please refer to what has been marked
13 as Exhibit Nine and I ask you to identify this exhibit and
14 state what it represents.

15 A. Well, Exhibit Nine is the water analysis
16 showing the analysis of the three sources of water. That
17 from the Maralo leases, these leases -- this Humble State
18 lease is about two miles south of this proposed unit area.
19 Then there's an analysis from the Getty Water System, and
20 also from produced water that was obtained from the Sid
21 Lanier lease, which is a lease in the unit area -- I mean
22 near the unit area under consideration.

23 Q. These three sources are actually available,
24 is that correct?

25 A. Yes.

1 Q Now what has been -- what's the conclusion
2 with respect to the water analysis here?

3 A I think the water -- we were unable to get a
4 water analysis from the produced wells within the area
5 because they're not making any water, but I think that from
6 other operations in the area that these three sources of
7 water will be compatible and that we won't have any prob-
8 lems.

9 Q Mr. Love, what injection pressure do you pro-
10 pose in this project?

11 A Initially -- the injection facilities will be
12 designed for 1500 pounds, psi.

13 Q Okay, Mr. Love, is Maralo aware of the pressure
14 limitations imposed by Rule 377, I believe it is?

15 A Yes, sir, that's the 2/10ths of a psi.

16 Q And would Maralo be willing to comply with that
17 requirement, at least initially?

18 A Initially we would like to ask that if we need
19 to exceed the -- that would be approximately -- for reser-
20 voirs of 3000 beet that would be approximately 600 psi.
21 We would like to be able to take step rate tests at a later
22 date to see if we could get a pressure above that 600 psi.

23 Q Mr. Love, what equipment does Maralo have or
24 propose to obtain for this project?

25 A Well, I haven't made any equipment design, but

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1 they will install all new equipment. Like I say, I don't
2 have any specific size or anything like that, other than,
3 probably a triplex pump, but it will be new equipment.

4 Q Are all of the producing wells within the
5 proposed Jalmat Yates Unit within the stripper category?

6 A Yes, sir.

7 Q Have you made an estimate of the additional
8 oil which is to be expected to be recovered by virtue of
9 this proposed waterflood?

10 A 1,086,000 barrels of oil.

11 Q Are you requesting a project allowable for
12 this waterflood?

13 A Yes, sir.

14 Q Have all of the offset owners been contacted
15 in connection with this proposed project?

16 A Yes, sir.

17 Q Insofar as you know has there been any ob-
18 jection by any of the offset owners to this proposed pro-
19 ject?

20 A No, not to my knowledge.

21 Q Mr. Love, were the Exhibits to which you have
22 referred and which we've discussed here either prepared
23 by you or under your supervision?

24 A Yes, all were prepared by me or under my super-
25 vision with the exception, now, of Exhibits 3-a and 3-b.

1 These were prepared by the firm of -- the Hickman firm,
2 but now I have reviewed these exhibits and I agree with them
3 fully in their matters and their conclusions and their
4 matters set out in their -- both their studies.

5 Q Mr. Love, in your opinion do you believe that
6 the approval of the applications in these cases will re-
7 sult in prevention of waste, protection of correlative
8 rights, and the promotion of conservation?

9 A Yes, sir, I do.

10 MR. COFFIELD: I move the admission of the
11 exhibits tendered to the Commission.

12 MR. RAMEY: Exhibits One through Nine will
13 be admitted.

14 MR. COFFIELD: I have no further questions at
15 this time of this witness.

16 CROSS EXAMINATION

17 BY MR. RAMEY:

18 Q Okay, Mr. Love, I have two questions.
19 You're asking for seven injection wells at
20 this time?
21

22 A Yes, sir.

23 Q And these are at nonstandard locations, I
24 assume, or --

25 A Well --

1 Q -- some of them are and some of them aren't?

2 A. Some of them are and some of them aren't.

3 Q These are all within the unit boundary?

4 A. They are all within the unit, though, right.

5 Q And not -- not close to the edge of the unit
6 boundary. They're all relatively inside the unit.

7 And then you would like, I assume, some ad-
8 ministrative procedure for approving additional injection
9 wells --

10 A. Yes, upon --

11 Q -- that would be on the outer edges?

12 A. Yes, sir.

13 Q The remainder of the wells would be on the
14 outer edges.

15 A. After successful negotiations with these --

16 Q Now, your average -- you show your average
17 production per well is around 7 barrels?

18 A. Yes, sir.

19 Q That includes the wells that have response
20 from injection up in the --

21 A. Yes, sir.

22 Q I guess that's the northwest portion of the
23 unit?

24 A. Right, it's on the Winters "C", is where we're
25 experiencing the response. The production from the unit

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1 area, well, it actually averages 7.5 barrels of oil per day.
2 Now you take out the Winters "C" lease production and the
3 remaining four leases in there, the average production is
4 1.6 barrels of oil per day.

5 Q Okay, so the production from the Winters "C"
6 actually raises your per well average to almost -- or almost
7 six barrels a day?

8 A That's right.

9 Q So the remainder of the wells, then, are in
10 extremely --

11 A Extreme.

12 Q -- marginal condition.

13 A Marginal, yes, sir.

14 Q Mr. Love, do you have any figure for cost of
15 development of this waterflood?

16 A Yes, sir.

17 Q How much you're going to have to spend to --

18 A \$1,830,000.

19 Q That's your development cost for --

20 A That includes funds for the drilling of the
21 seventeen injection wells, the development of a water supply,
22 installation of the injection plant, and injection lines,
23 centralization of the tank battery, and installation of
24 well test facilities, and also there's some money included
25 in this \$1,830,000 to clean out and possibly deepen some

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1 existing producing wells as we drill these wells with new
2 logs and things like that, and pick up additional informa-
3 tion, we may want to do some work on our existing wells
4 within the unit.

5 Q Did you allocate any money for perhaps re-
6 entering and plugging or replugging some of these wells
7 that are on the unit and offset the unit?

8 A This \$1,830,000 does not include any funds for
9 that.

10 Q I need a figure for -- for the total cost of
11 I guess operating and developing a waterflood over the life
12 of the project.

13 A All right. Our capital investment is \$1,830,000.
14 You need an operating expense.

15 MR. COFFIELD: Is it a summary, really, of the
16 economics that you're looking for?

17 MR. RAMEY: I want, yes, I want a summary --

18 MR. COFFIELD: Page two of the -- of 3-a.

19 MS. TESCHENDORF: We have to be sure that the
20 costs are going to be less than the extra revenues derived
21 from the oil recovery.

22 MR. COFFIELD: If I may, I think page two of
23 Exhibit 3-a, the December study.

24 A All right. The operating cost, including ad
25 valorem and taxes over the life of the project is \$2,630,000.

1 Actually, this is the computer printout of
2 Table Five, which is the drill plan in the 3-b.

3 It's not included in that Table Seven, the
4 operating costs, as such. They give you a future net after
5 expenses and taxes of \$13,622,000, taking away this
6 \$1,830,000 capital investment, then that would give you a
7 future undiscounted profit of \$11,792,000. The operating
8 expenses over the life of the project are \$2,630,000.

9 MS. TESCHENDORF: Does that include your
10 capital investment?

11 A. No, no, the capital investment -- that's just
12 operating expenses.

13 Q. (Mr. Ramey continuing.) But I notice on page
14 one of Exhibit 3-a they estimated an investment of \$910,000.
15 They missed that a little bit.

16 A. Well, sir, what you have to look at their --
17 this Exhibit Three more as a feasibility study of that area
18 there. And that particular investment was they had not
19 considered drilling the seventeen wells, so at that time
20 they were looking more at conversion rather than the
21 drilling, and in our 3-b exhibit, Table Four, will include --
22 if you'll look in that computer printout you will see a
23 column capital cost, and that is their \$910,000, but that
24 is a conversion, looking at conversion -- converting some
25 of the old oil wells in the area. The economics are favor-

1 able, too, even though the investment is greater by having
2 to drill the wells, the discounted cash flow is greater
3 using this drill plan which we're proposing to use.

4 Q. Okay, so your total cost of equipping and
5 operating this flood would be the \$1,830,000 plus the
6 \$2,630,000.

7 A. Right.

8 Q. And then your total revenue will be the
9 \$11,792,000.

10 A. \$11,792,000: I rounded it off. The computer
11 shows \$373, but --

12 Q. So your net -- your net gain will be somewhere
13 in the area of \$7,300,000.

14 A. Yes, sir.

15 Q. All right.

16 MR. ARNOLD: Did you mention what the cumulative
17 prior production was on that area?

18 A. I believe I did. I don't -- \$1, -- now the
19 cumulative primary, \$1,380,000.

20 MR. ARNOLD: It's going to be a little better
21 than one to one, then.

22 A. No, sir, \$1,383,000. They figured 82 percent
23 of their primary recovery. See, we're only estimating
24 1,086,000 barrels. See, we happen to have almost 1.4 million
25 cumulative production. And it may approach 100 percent

1 of primary, I don't know.

2 Q And then you would like to have written in
3 the order permission to increase your injection pressure if
4 after step rate tests that you could --

5 A Yes.

6 Q -- show that you can --

7 A Well, if it's necessary. In visiting with
8 Reserve, they're putting 500 barrels a day on the average
9 in their unit over here at less than 600 pounds. This --
10 we may not need to, but if we do need to, we would like to
11 be able to run the step rate tests, then.

12 Q And then we could -- you would request the
13 Commission -- or the Division to increase the pressure --

14 A Yes, sir.

15 Q -- at some rate less than fracture pressure.

16 A Yes, sir.

17 MR. RAMEY: Any other questions of the witness?

18 The witness may be excused.

19

20

BILL SELTZER

21 being called as a witness and having been duly sworn upon
22 his oath, testified as follows. to-wit:

23

24

DIRECT EXAMINATION

25

BY MR. COFFIELD:

1 Q Please state your name, residence, and occupa-
2 tion, and what is your position relative to Maralo?

3 A Bill Seltzer. I'm a resident of Midland.
4 Texas. I'm an independent land man and I have been employed
5 by Maralo to prepare the unit agreement, unit operating
6 agreement, ratification, take care of the negotiations and
7 consummation of all the instruments for the proposed Maralo
8 Jalmat Yates Pool.

9 Q And are you familiar with the application of
10 Maralo for the approval of this unit?

11 A Yes.

12 Q Have you previously testified before the Oil
13 Conservation Division as a land man and were your qualifi-
14 cations made a matter of record and acceptable to the Divi-
15 sion?

16 A Yes.

17 MR. COFFIELD: Is the witness considered
18 qualified in this case?

19 MR. RAMEY: Yes, he is.

20 Q (Mr. Coffield continuing.) Are all the lands
21 involved in this unit either privately owned or fee lands?

22 A Yes, they're privately owned lands.

23 Q Is Maralo, Inc. designated as the operator
24 under the terms of this unit agreement?

25 A Yes.

1 Q All right, Mr. Seltzer, on Exhibit B to the
2 unit agreement there is a correction which needs to be made
3 on a well location. Would you please explain that to the
4 Commission?

5 A Under the unit agreement under Exhibit B right
6 below Tract Number Five, right there in the corner it shows
7 No. 4, it looks like a dry hole when in fact that is an
8 abandoned well; it was never drilled. An abandoned location,
9 it's just an error on preparing this tract.

10 MR. RAMEY: Now which tract?

11 A Tract Five, which is that Maggie Rose tract.
12 Right below that you'll see Number 4 there, which is an
13 abandoned location.

14 Q All right, Mr. Seltzer, what formation is
15 unitized under this?

16 A On page one of the unit agreement it is
17 provided that the unitized formation shall be all forma-
18 tions or zones extending from the top of the Yates formation
19 down to 100 feet below the base of the Queen formation un-
20 derlying the unitized land; said interval having heretofore
21 been found to occur in the Maralo, Inc. Humble Winters "A"
22 Lease Well No. 2, originally drilled by Humble Oil and
23 Refining Company as their E. C. Winters "C" Well No. 2,
24 located 660 from the north line and 1980 from the west
25 line of Section 18, Township 25 South, Range 37 East, Lea

1 County, New Mexico, at an indicated depth of 2,848 feet
2 to 100 feet below the base of the Queen formation, as indi-
3 cated on the hereinafter described log. The base of the
4 Queen formation is estimated to occur 280 feet below the
5 total drilled depth of 3,400 feet as recorded in the
6 Perforating Guns Atlas Corporation Simultaneous Radiation
7 Log, dated January 19, 1954, said log being measured from
8 one foot above a rotary table elevation of 3,137 feet above
9 sea level.

10 Q Mr. Seltzer, right here in reference to Exhibit
11 One, if you need to look at it, you will find reference
12 on Exhibit One to the Exxon Winters and the Exxon Winters
13 "A". Is this what we're talking about when we're saying
14 the Humble?

15 A Yes.

16 Q Okay. Does the unit agreement specifically
17 provide that the primary purpose of the unit is to conduct
18 secondary recovery project?

19 A Yes. Under Article 4.2, beginning at page
20 six of the unit agreement, indicates that secondary re-
21 covery operations shall be engaged in to the end that the
22 quantity of unitized substances ultimately recoverable
23 may be increased and waste prevented.

24 Q Do the unit agreement and unit operating agree-
25 ment provide for a participation formula?

1 A. Yes. Article 5, beginning at page seven of
2 the unit agreement provides that the respective tracts
3 shown on Exhibit A, attached to the unit agreement, are to
4 participate in accordance with the percentage set forth in
5 Exhibit A during Phase One and Phase Two of the project.

6 Ownership and allocation of interest as among
7 the various working interest owners in the various tracts
8 is reflected on Exhibit C to the unit operating agreement.

9 Q. Mr. Seltzer, have you contacted all of the
10 working interest owners within this unit area relative to
11 commitment of their interests to the unit agreement and the
12 unit operating agreement?

13 A. Yes, I have contacted all the working interest
14 owners and all have agreed to join in.

15 Q. Have you contacted all the royalty interest
16 owners with respect to commitment of their interests to
17 this unit agreement?

18 A. Yes, I have contacted all the royalty interest
19 owners and all have agreed to join in the unit except But-
20 tram Texhoma Company in Tract Number Five and the First
21 National Bank of Denver for the account of J. M. Richardson
22 Lyeth, Junior, and Munro Longyear Lyeth, jointly, in the
23 other four tracts. That's Tracts One through Four.

24 Q. Okay.

25 A. Those are the only two royalty owners who have

1 not joined the unit.

2 Q Mr. Seltzer, what conditions have the working
3 interest owners specified in the unit agreement and unit
4 operating agreement relative to the royalty to be com-
5 mitted to the unit?

6 A Under Article 9, commencing at page 12 of
7 the unit agreement, specified matters for the qualification of
8 tracts. It is specified in Article 9.1.1 that the unit
9 area is to be composed of tracts listed in Exhibit A of
10 the unit agreement which qualify by virtue of the working
11 interest owners owning 100 percent of the working interest
12 having become parties to the agreement and as to the
13 royalty owners owning 85 percent or more of the royalty
14 interest have become parties to this agreement.

15 MS. TESCHENDORF: Excuse me, Mr. Seltzer,
16 in connection with that, those two royalty interests you
17 said have not agreed --

18 A Yes.

19 MS. TESCHENDORF: -- then their interest is
20 fifteen percent of the royalty.

21 A Only one. Under Tract One, Two, Three, and
22 Four that particular party -- I'll come to it in an ex-
23 hibit in a minute.

24 MS. TESCHENDORF: Okay.

25 MR. COFFIELD: Do you have any more?

1 MS. TESCHENDORF: Not now, thank you.

2 Q (Mr. Coffield continuing.) Have all tracts
3 listed on Exhibit A voluntarily qualified in this fashion?

4 A No, all have not so qualified, except Tract
5 Five, and that tract, Tract Five, only 83.29 percent of
6 the royalty interest owners have become parties to the
7 agreement.

8 Q Have you obtained what is in effect a modi-
9 fication from the working interest owners to the unit
10 agreement relative to this eighty-five percent requirement
11 for Tract Five?

12 A Yes, I have obtained consent from all the
13 working interest owners under Tract Five to be included
14 in the -- let's see, all the working interest owners that
15 Tract Five be included in the unit, notwithstanding the
16 fact that they only have eighty-three point twenty-nine
17 percent of the royalty in this tract is committed. As to
18 the remainder of the royalty in Tract Five, and the re-
19 mainder of the royalty interests in Tract One through
20 Four, inclusive, we seek statutory unitization for these
21 interests.

22 Q Mr. Seltzer, I hand you what's been marked --
23 will you make reference here to what's been marked as
24 Exhibit 10-a through 10-f, and ask you to identify these
25 exhibits.

1 A. 10-a is a list of royalty owners who have
2 interests in Tract One. All the royalty interest owners
3 listed thereon have committed their interests to the unit,
4 except the First National Bank of Denver for the account
5 of J. M. Richardson Lyeth, Junior, and Munro Longyear
6 Lveth, jointly.

7 Exhibit b is -- 10-b, is a list of the royalty
8 interest owners in Tract Two, which with the same 40 as
9 Tract One not committed. All other interest owners are
10 committed in Tract Two.

11 10-c is a list of the royalty interest owners
12 in Tract Three. Again, all interest owners have committed
13 their royalty interests to the unit. except for the same
14 parties as listed in Tract One.

15 10-d is a list of the royalty owners -- in-
16 terest owners, for Tract Four, with again all the interest
17 owners having committed their interests to the unit, ex-
18 cept for the same party as listed in Tract One.

19 10-e is a list of the royalty interest owners
20 in Tract Five. All the royalty interest owners have com-
21 mitted their interests to the unit, except Buttram Texhoma
22 Company.

23 Q. Okay, we have one more exhibit, Mr. Seltzer,
24 that's 10-f. Would you explain that one?

25 A. 10-f is a list of the royalty interest owners

1 for a tract committed to the unit, showing that one Tract
2 Five, which you asked me about at an 83.29 percent. There
3 is only one royalty owner uncommitted as to each of the
4 above tracts.

5 A total of 92.93 percent of the royalty has
6 been committed to the entire unit by ratification agree-
7 ment.

8 Q Do you believe there's any possibility that
9 you will obtain a voluntary commitment --

10 A No.

11 Q -- of the remaining outstanding royalty in-
12 terest owners?

13 A No, the response which I have had indicate
14 there's no possibility of obtaining such ratification.

15 Q Were Exhibits 10-a to 10-f, inclusive, pre-
16 pared by you or under your supervision?

17 A Yes.

18 Q Is it your opinion that the statutory uniti-
19 zation sought by Maralo will be in the interests of con-
20 servation, prevention of waste, and protection of correla-
21 tive rights?

22 A Yes.

23 MR. COFFIELD: I move the admission of Exhibits
24 10-a through 10-f, inclusive.

25 MR. RAMEY: Exhibits 10-a through 10-f will

1 be admitted.

2 MR. COFFIELD: And I have no further questions
3 of Mr. Seltzer at this time.

4 MR. RAMEY: Did you desire to submit the unit
5 agreement and the unit operating agreement?

6 MR. COFFIELD: Yes, yes, sir.

7 A. We didn't put an exhibit on it.

8 MR. COFFIELD: We didn't mark them as exhibits.

9 MR. RAMEY: Do you want to call those Eleven
10 and Twelve?

11 MR. COFFIELD: I move the admission of Exhibits
12 Eleven and Twelve.

13 MR. RAMEY: The unit agreement is Eleven and
14 the operating agreement is Twelve.

15 MR. COFFIELD: Do you desire the ratifications
16 as well, a copy of all ratifications?

17 A. They're attached to the operating agreement.

18 MS. TESCHENDORF: If they're part of it, then
19 that's all right.

20 MR. RAMEY: Do you have some questions, Ms.
21 Teschendorf?

22 MS. TESCHENDORF: Yes.

23

24 CROSS EXAMINATION

25 BY MS. TESCHENDORF:

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1 Q. What efforts have you made to secure voluntary
2 commitment of these unleased royalties, uncommitted royalties?

3 A. I sent each royalty owner, by certified mail,
4 a copy of the unit agreement and requested -- with a resume
5 showing them what our proposed unit will be and what we
6 expect it to do under this secondary recovery. and requested
7 each one of them to voluntarily execute the ratifications
8 and joint agreement.

9 All did, except these two right here. Now.
10 I expect, possibly, that that one from the Denver bank
11 might come in, but it has been over a year.

12 Q. Have you had responses?

13 A. Yeah, and can't get any answer.

14 Q. They have not responded to your communications?

15 A. I have talked with their lawyer but I just
16 don't get any answer.

17 MR. COFFIELD: Just a minute, may I ask. Mr.
18 Seltzer, I think there was one of the royalty interest
19 owners, though, that indicated they wouldn't sign anything
20 at all --

21 A. Yeah.

22 MR. COFFIELD: -- is that correct?

23 A. That one, under Tract Five. the Buttram Tex-
24 homa, they indicated they wouldn't sign regardless.

25 MR. COFFIELD: So it's the other one that

1 you're saying is a possibility?

2 A. There's a possibility, but --

3 MR. COFFIELD: Of response.

4 A. There's a possibility, but we have those
5 tracts qualified, One through Four. And the Tract Five is
6 qualified by the inclusion of the -- all the working interest
7 owners in the unit and in that tract requesting that they
8 be included.

9 MR. COFFIELD: Mr. Seltzer, we've two kinds
10 of qualification here. We've got the qualification which
11 is necessary with respect to the terms of the unit agree-
12 ment and unit operating agreement, and otherwise we want
13 to force the interests in by virtue of this proceeding,
14 so --

15 A. That's correct.

16 MR. COFFIELD: -- they're not qualified in
17 that sense.

18 Q. (Ms. Teschendorf continuing.) My only other
19 question is kind of a large question. It has to do with
20 statute number 65-14-7, that I'm sure Mr. Coffield's
21 familiar with.

22 It has a number of provisions that should be
23 included in the unit agreement that the Commission has to
24 include in their order.

25 If you can point out to me where these provi-

1 sions are in the unit agreement, you know, --

2 MR. COFFIELD: That is a large question.

3 Q. -- the Commission can adopt the agreement, if
4 it so chooses. We need to know that some provision has
5 been made. Do you have a copy of the statute?

6 MR. COFFIELD: We have it here, 65-14 --

7 MS. TESCHENDORF: 7.

8 (There followed a discussion off
9 the record.)

10 MR. COFFIELD: You say we're all right on A,
11 B, and C?

12 MS. TESCHENDORF: I believe so, yes.

13 MR. COFFIELD: Okay. D would be under the
14 unit operating agreement Ten, Article Ten.

15 MS. TESCHENDORF: Okay.

16 MR. SELTZER: E, the unit agreement, Article
17 Eleven.

18 F, the unit operating agreement, Article
19 Eleven.

20 G, unit operating agreement, Six.

21 H, the unit operating agreement, Article Four.

22 I, under unit agreement, Article Seventeen.

23 J, under unit agreement, Article Four.

24 MS. TESCHENDORF: Thank you very much.

25 MR. RAMEY: Any other questions of the wit-

1 ness? He may be excused.

2 MR. RAMEY: Do you have anything further, Mr.
3 Coffield?

4 MR. COFFIELD: Nothing further.

5 MR. RAMEY: Then the Commission will take the
6 case under advisement.

7 (Hearing concluded.)

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REPORTER'S CERTIFICATE

I, SALLY WALTON BOYD, a Court Reporter, DO HEREBY
 CERTIFY that the foregoing and attached Transcript of
 Hearing before the Oil Conservation Commission was reported
 by me; that the said transcript is a full, true, and cor-
 rect record of the hearing. prepared by me to the best of
 my ability, knowledge, and skill, from my notes taken at
 the time of the hearing.

Sally W. Boyd CSR
 Sally W. Boyd, C.S.R.

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