

NEW MEXICO OIL CONSERVATION COMMISSION

**EXAMINER HEARING**

SANTA FE, NEW MEXICO

Hearing Date APRIL 17, 1997 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION
William F. Orr	Campbell, Orr, Orr & Associates	Santa Fe
Shane Lough	Maralo Inc	Midland
Richard Hill	" "	"
David Shatzer	KCS Medallion Resources	Midland
James Bruce	James Bruce	SF
Michael Orr	Weston	SANTA FE

STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY )  
THE OIL CONSERVATION DIVISION FOR THE )  
PURPOSE OF CONSIDERING: )

CASE NO. 11,409

IN THE MATTER OF CASE NO. 11,409 BEING )  
REOPENED PURSUANT TO THE PROVISIONS OF )  
DIVISION ORDER NO. R-10,504, WHICH ORDER )  
PROMULGATED TEMPORARY SPECIAL RULES AND )  
REGULATIONS FOR THE SOUTHWEST BRONCO- )  
WOLFCAMP POOL IN LEA COUNTY, NEW MEXICO, )  
INCLUDING PROVISIONS FOR 80-ACRE WELL )  
SPACING AND DESIGNATED WELL LOCATIONS )

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH Hearing Examiner

April 17th, 1997

2 1997

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, April 17th, 1997, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

\* \* \*

## I N D E X

April 17th, 1997  
 Examiner Hearing  
 CASE NO. 11,409

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\* \* \*

## A P P E A R A N C E S

FOR THE DIVISION:

RAND L. CARROLL  
Attorney at Law  
Legal Counsel to the Division  
2040 South Pacheco  
Santa Fe, New Mexico 87505

FOR MARALO, INC.:

CAMPBELL, CARR, BERGE and SHERIDAN, P.A.  
Suite 1 - 110 N. Guadalupe  
P.O. Box 2208  
Santa Fe, New Mexico 87504-2208  
By: WILLIAM F. CARR

\* \* \*

1                   WHEREUPON, the following proceedings were had at

2                   8:20 a.m.:

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8                   EXAMINER CATANACH: First case, 11,409.

9                   MR. CARROLL: In the matter of Case Number 11,409  
10 being reopened pursuant to the provisions of Division Order  
11 R-10,504, which order promulgated temporary special rules  
12 and regulations for the Southwest Bronco-Wolfcamp Pool in  
13 Lea County, New Mexico.

14                   EXAMINER CATANACH: Call for appearances.

15                   MR. CARR: May it please the Examiner, my name is  
16 William F. Carr with the Santa Fe law firm Campbell, Carr,  
17 Berge and Sheridan. We represent Maralo, Inc. in this  
18 matter, the original Applicant in this case, and I have two  
19 witnesses.

20                   EXAMINER CATANACH: Any additional appearances?

21                   Will the two witnesses please stand to be sworn  
22 in at this time?

23                   (Thereupon, the witnesses were sworn.)

24                   MR. CARR: May it please the Examiner, at this  
25 time we'd call Shane Lough.

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SHANE LOUGH,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. Shane Lough.

Q. Where do you reside?

A. Odessa, Texas.

Q. By whom are you employed?

A. Maralo.

Q. And what is your current position with Maralo?

A. Geologist.

Q. Have you previously testified before this Division?

A. I have.

Q. At the time of that testimony, were your credentials as petroleum geologist accepted and made a matter of record?

A. They were.

Q. Are you familiar with the status of the temporary pool rules for the Southwest Bronco-Wolfcamp Pool?

A. Yes.

Q. Have you made a geological study of the area which is the subject of this Application?

1 A. I have.

2 Q. Are you prepared to share the results of that  
3 study with the Examiner?

4 A. Yes.

5 MR. CARR: Are the witness's qualifications  
6 acceptable?

7 EXAMINER CATANACH:

8 Q. (By Mr. Carr) Mr. Lough, would you briefly state  
9 what Maralo seeks in this hearing?

10 A. Promulgation of permanent special rules and  
11 regulations for this pool, including 80-acre spacing and  
12 designated well locations.

13 Q. Could you tell us when the Southwest Bronco-  
14 Wolfcamp Pool was discovered?

15 A. In 1995.

16 Q. And what was the discovery well?

17 A. The Maralo Lough 20 Number 1.

18 Q. And where is that located?

19 A. It's located 350 feet from the north line and  
20 1550 feet from the east line of Section 20, Township 13  
21 South, Range 38 East.

22 Q. There are temporary rules for this pool?

23 A. Yes.

24 Q. And when were they adopted?

25 A. In October of 1995.

1 Q. And that was Order Number R-10,504?

2 A. That's correct.

3 Q. What do these rules provide?

4 A. 80-acre spacing and the north half, south half  
5 and east half or west half of a single governmental quarter  
6 section, and wells to be located within 150 feet of the  
7 center of a quarter-quarter section.

8 Q. What is the history of the Lowe 20 Well Number 1,  
9 briefly?

10 A. The well was permitted and drilled as a Devonian  
11 test. It was unsuccessful in the Devonian and was plugged  
12 back to the Wolfcamp, where the completion was made.

13 Q. Have you prepared exhibits for presentation here  
14 today?

15 A. I have.

16 Q. Let's go to what has been marked Maralo, Inc.,  
17 Exhibit Number 1, and I'd ask you to identify that and  
18 review it for Mr. Catanach.

19 A. This is a general orientation map, showing the  
20 Bronco Southwest-Wolfcamp Pool roughly in the center with  
21 the proration units outlined. It shows other Wolfcamp  
22 production in the area.

23 It shows the pool boundaries, being the northeast  
24 quarter of Section 20, and the spacing units dedicated to  
25 the Lowe 20 Number 1 and Lowe 20 Number 2 outlined in red.

1           It shows ownership in the area, in which Maralo  
2 owns all the offsetting tracts, and it shows that Maralo  
3 operates all of the wells in the pool, being the two Lowe  
4 wells.

5           It shows other wells in the area, and it also  
6 illustrates that there are no other Wolfcamp wells within a  
7 mile of our production.

8           Q.    Are there plugged and abandoned wells in the  
9 area, or dry holes?

10          A.    Yes, there are.

11          Q.    And could you just identify the wells that  
12 immediately offset the subject pool?

13          A.    Yes, there's a dry hole in the southeast quarter,  
14 northwest quarter of Section 20. There's a -- which  
15 separates the pool.

16                There's a dry hole in the southeast quarter,  
17 southwest quarter of Section 17 and a dryhole in the  
18 southwest quarter, southwest quarter of Section 16, which  
19 separates this pool from other Wolfcamp production.

20          Q.    So in addition just to the distance to the other  
21 pools, you have wells that, in fact, confirm you have a  
22 separate Wolfcamp reservoir; is that right?

23          A.    Yeah, that's correct.

24          Q.    All right, let's go to Exhibit Number 2. Would  
25 you identify and review that?

1           A.     Exhibit Number 2 is a Wolfcamp structure map.  
2     It's a combination seismic and subsurface map. Both  
3     seismic data, 3-D seismic data, and subsurface information  
4     was used to construct this map.

5           Q.     And when we look at this map, does Maralo have  
6     any additional plans for development of the reservoir?

7           A.     We have plans to re-enter an existing dryhole  
8     offsetting our two producers, that being the well located  
9     in the southeast quarter of the northwest quarter, which is  
10    the Lone Star Brady Lowe Number 1A.

11          Q.     To what formation was that well originally  
12    drilled?

13          A.     That well was originally drilled to the Devonian  
14    and was plugged and abandoned.

15          Q.     And this exhibit basically shows, based on  
16    seismic, what you believe to be the limits of the  
17    productive reservoir?

18          A.     That's correct.

19          Q.     Let's go to Exhibit Number 3. Will you identify  
20    and review this, please?

21          A.     Exhibit Number 3 is actually two electric logs,  
22    one on each of the producing wells in the Bronco Southwest-  
23    Wolfcamp Pool.

24                 Each exhibit shows the productive interval of the  
25    Wolfcamp in each well.

1 Q. And these logs are on file with the Oil  
2 Conservation Division?

3 A. Yes, they are.

4 Q. Will Maralo call an engineering witness to review  
5 for Mr. Catanach the data that's recently been acquired on  
6 the reservoir and the data that supports permanent rules?

7 A. Yes.

8 Q. Were Exhibits 1 through 3 prepared by you?

9 A. They were.

10 MR. CARR: At this time, Mr. Catanach, we would  
11 move the admission into evidence of Maralo Exhibits 1  
12 through 3.

13 EXAMINER CATANACH: Exhibits 1 through 3 will be  
14 admitted as evidence.

15 MR. CARR: And that concludes my direct  
16 examination of Mr. Lough.

17 EXAMINATION

18 BY EXAMINER CATANACH:

19 Q. Mr. Lough, the Lone Star Brady well, was that  
20 ever tested in the Wolfcamp?

21 A. Yes, it was. There were two drill stem tests  
22 conducted in the Wolfcamp after they had -- They tested the  
23 Devonian and drill stem tested the Wolfcamp on the way to  
24 the Devonian. There were shows in the drill stem tests.

25 And additionally, the drill stem tests that were

1 taken in the Wolfcamp did not test every potential pay in  
2 the Wolfcamp. The Wolfcamp does have potential for  
3 multiple pay.

4 Q. Did that well produce at all?

5 A. No, it was never completed.

6 Q. Okay. What about the well in the northeast-  
7 northeast quarter of Section 20? Is that --

8 A. That well also was drilled to the Devonian. It  
9 was drill stem tested in the Devonian with shows but was  
10 never completed. It was plugged as a dry hole.

11 Q. Was that ever tested in the Wolfcamp?

12 A. I believe there was -- I'm going from memory, but  
13 I believe there was a drill stem test in the Wolfcamp, in  
14 that well.

15 Q. Do you guys have any plans to re-enter that well?

16 A. No, we don't. As a matter of fact, Maralo owns  
17 that wellbore, and we have converted it to a water disposal  
18 well in the Devonian.

19 Q. With your re-entry of the Brady-Lowe well, do you  
20 think that's going to pretty much define your activities in  
21 this pool?

22 A. I believe it will.

23 With the information we have in hand currently,  
24 we feel like that well has a reasonable chance of making a  
25 Wolfcamp completion.

1           If we're successful, we feel like that at that  
2 point we probably -- we will have done as much development  
3 on the pool as will be economically practical.

4           Q.    Are your two producing wells, are they producing  
5 out of the same interval?

6           A.    No, they're not, they're not in the same Wolfcamp  
7 interval.

8           Q.    Is it that some of the intervals are productive  
9 in one well and not productive in the other, or how --  
10 tested --

11          A.    Actually, what we've seen is, the Lowe 20 Number  
12 1 has multiple potential pay carbonate zones in it that  
13 were tested drilling to the Devonian, and we plugged it  
14 back and we tested a lower -- the lowermost Wolfcamp  
15 interval that we thought might be productive, which are the  
16 lower perforations on that exhibit.

17                   And that interval was wet, and we set a bridge  
18 plug and then perforated the five small intervals that are  
19 shown on the exhibit and were able to complete this well in  
20 that interval, which are dolomites.

21                   We -- Subsequent to that, we drilled the Lowe 20  
22 Number 2 as a development well, offsetting the 20 Number 1.  
23 And in drilling the Lowe 20 Number 2, we encountered more  
24 limestone and less dolomite in the Number 2, and the  
25 dolomite are the productive reservoirs.

1                   So we didn't have as many potential productive  
2 carbonate zones in the Lowe 20 Number 2, and we tested some  
3 lower zones that were actually not reservoir and were  
4 pretty close to the end of any potential tests that we  
5 could make or completion attempts that could make in the  
6 Lowe 20 Number 2 when we were finally to make a commercial  
7 completion.

8                   But the reservoirs are dolomite, and we were a  
9 bit surprised that the Lowe 20 Number 2 had as little  
10 dolomite development as it had when we -- after we drilled  
11 it and tested it.

12                 Q.    Is there potential in the Number 1 well for any  
13 further completions uphole?

14                 A.    Yes, there are.

15                   The reservoirs out here appear to be thin  
16 dolomite reservoirs, and we do have additional pay that we  
17 think we will be able to test in the 20 Number 1, that we  
18 drill stem tested as we were drilling. And based on shows  
19 on our drill stem tests, we think that we may have  
20 additional pay in the 20 Number 1.

21                   EXAMINER CATANACH: I have nothing further.

22                   MR. CARR: That concludes our examination of this  
23 witness.

24                   At this time, Mr. Catanach, we would call Richard  
25 Gill.

1                                    RICHARD GILL,

2    the witness herein, after having been first duly sworn upon  
3    his oath, was examined and testified as follows:

4                                    DIRECT EXAMINATION

5    BY MR. CARR:

6            Q.    Would you state your name for the record?

7            A.    My name is Richard Gill.

8            Q.    Where do you reside?

9            A.    I live in Midland, Texas.

10          Q.    By whom are you employed?

11          A.    Maralo, Incorporated.

12          Q.    And what is your current position with Maralo?

13          A.    I'm a petroleum engineer.

14          Q.    Have you previously testified before this  
15    Division?

16          A.    Yes, I have.

17          Q.    At the time of that testimony, were your  
18    credentials as an expert in petroleum engineering accepted  
19    and made a matter of record?

20          A.    Yes, they were.

21          Q.    Are you familiar with the Southwest Bronco-  
22    Wolfcamp Pool?

23          A.    Yes, I am.

24          Q.    And have you made an engineering study of the  
25    Wolfcamp formation in the area that is the subject of this

1 Application?

2 A. Yes, I have.

3 MR. CARR: Are the witness's qualifications  
4 acceptable?

5 EXAMINER CATANACH: Yes, they are.

6 Q. (By Mr. Carr) Mr. Gill, have you prepared  
7 exhibits for presentation here today?

8 A. Yes, I have.

9 Q. Let's go to what has been marked as Maralo  
10 Exhibit Number 4, and I'd ask you to first identify that  
11 exhibit and then review the calculations for the Examiner.

12 A. Exhibit 4 is our reserve estimate for the  
13 Southwest Bronco field.

14 To get into the explanation, we'll go talk a  
15 little bit about what the geologist was talking about.  
16 This reservoir is fractured vuggy dolomite, matrix porosity  
17 is extremely low.

18 Our pay has been determined off Schlumberger's  
19 formation microimager logs, which show fractures and vugs.  
20 And being that way, I think volumetrics are pretty tough to  
21 determine.

22 So in order to come up with some decent reserve  
23 estimates what I did was to look at other fractured  
24 carbonate reservoirs in this area, in the Tatum Basin, to  
25 determine a -- some sort of recovery factor that I could

1 apply to these wells.

2           And in doing so, I started with the Bronco West  
3 Devonian field. The Devonian is well known fractured  
4 dolomite out here. And if you look at Exhibit Number 1,  
5 you can see that field is just northwest of the subject  
6 field. It's probably the closest analog we could come up  
7 with.

8           But that field produced a little over 1.3 million  
9 barrels out of essentially about 140 acres of about 75 feet  
10 of net pay, and it calculates out 130 barrels per acre-foot  
11 recovery.

12           For some verification I took the Jenkins  
13 Northeast field, which is not on your map here -- the Tatum  
14 Basin is the closest field that we operate -- to look at  
15 the similarities there.

16           And we estimate -- That field is still currently  
17 producing, but we estimate about 975,000 barrels of total  
18 recovery, out of 288 acres, with about a 26 foot of net  
19 pay. And it comes out 130 barrels per acre-foot. So I  
20 felt that that number is probably a pretty good recovery  
21 factor for this kind of reservoir.

22           Part II of the exhibit is just our decline-curve  
23 analysis on the existing wells, which we -- a subsequent  
24 exhibit shows these numbers. But it shows that we estimate  
25 the Lowe 20 Number 1 will produce about 172,000 barrels,

1 the Lowe 20 Number 2 will produce about 127,000 barrels.

2 Taking these numbers and dividing it by the  
3 recovery factor and multiplying that by the net pay of  
4 these wells, we show that the -- we estimate that the Lowe  
5 20 Number 1 will drain approximately 70 acres, the Lowe 20  
6 Number 2 will drain approximately 75 acres.

7 Q. And Mr. Gill, Exhibit Number 5 is the economic  
8 calculation that you referred to when you reviewed Exhibit  
9 4; is that correct?

10 A. That's right, Exhibit 5 is just strictly the  
11 economics that I ran out to determine what the economic  
12 limit and the ultimate recovery of these wells were going  
13 to be.

14 Q. Would you identify Exhibit 6 for us?

15 A. And Exhibit 6 is just a decline curve on the two  
16 existing producers. And that also shows the projected  
17 decline rates that we estimated for use in our  
18 calculations.

19 Q. At what rates are the Lowe 1 and 2 currently  
20 producing?

21 A. The Lowe Number 1 is currently producing about 45  
22 barrels a day, and the Lowe 20 Number 2 is producing  
23 approximately 65 barrels a day.

24 Q. Mr. Lough mentioned that you were intending to  
25 re-enter the Brady-Lowe well in the northwest quarter of

1 Section 20. When, approximately, do you hope to do that?

2 A. It will be probably in the fall of this year.

3 Q. Does Maralo request that the temporary pool rules  
4 for this pool be adopted on a permanent basis?

5 A. Yes, we do.

6 Q. In your opinion, will approval of this  
7 Application be in the best interest of conservation, the  
8 prevention of waste and the protection of correlative  
9 rights?

10 A. Yes, it will.

11 Q. Were Exhibits 4 through 6 prepared by you?

12 A. Yes, they were.

13 MR. CARR: At this time, Mr. Catanach, we move  
14 the admission into evidence of Maralo Exhibits 4 through 6.

15 EXAMINER CATANACH: Exhibits 4 through 6 will be  
16 admitted as evidence.

17 MR. CARR: And that concludes my direct  
18 examination of Mr. Gill.

19 EXAMINATION

20 BY EXAMINER CATANACH:

21 Q. Mr. Gill, on the Lowe 20 Number 1, on your  
22 decline curve analysis, it looks like the front end part of  
23 that production has got a pretty steep decline on it.

24 A. Yes.

25 Q. And what you've projected is pretty flat. Is

1 that --

2 A. The first few months that well was flowing and  
3 came off pretty hard. Subsequently we put it on pump. We  
4 had a number of problems getting the pump right.

5 We had -- We drilled this to the Devonian, so as  
6 we were drilling through the Wolfcamp, the zone that we  
7 were actually producing from was losing circulation like  
8 crazy, so they were putting a lot of lost circulation  
9 material in there --

10 Q. Uh-huh.

11 A. -- and it kept plugging their pumps up. We were  
12 producing it back and plugging up pumps. So there was a  
13 considerable amount of down time going on during this  
14 period, which explains all the ups and downs of the  
15 production there.

16 Subsequently, we've got a -- we've got it back on  
17 pump. We're producing it pretty readily, and the rate has  
18 stabilized out pretty well at 45 barrels a day, and we feel  
19 pretty comfortable that that's going to be about where it  
20 goes.

21 Q. When do you reach your economic limit on that  
22 well?

23 A. The economic limit on that well is about --  
24 calculates about 7 barrels a day.

25 Q. When does that occur?

1           A.    And it shows 22 years, is what it shows.

2           Q.    So that's what you used to calculate the ultimate  
3 recovery?

4           A.    Yes.  To date, the well has made about 43,000  
5 barrels, so...

6           Q.    And how long has it been on?

7           A.    Since right at the beginning of 1996.

8           Q.    Okay.  What's the Number 2 well made so far?

9           A.    The Number 2 has made almost -- just right at  
10 30,000 barrels.

11          Q.    And that's also been on since --

12          A.    Yeah, that looks like probably March of 1996.

13          Q.    Did you calculate a recovery factor in terms of a  
14 percentage of original oil in place?

15          A.    No, no, strictly on ultimate recovery versus the  
16 field size and thickness.

17          Q.    And you feel like your reservoir here is -- it  
18 shows similar characteristics to these ones you used?

19          A.    Yes.  Most of the Wolfcamp fields out here  
20 actually produce -- I was looking for some analogs there,  
21 but most of these are producing from matrix porosity.  Most  
22 of these have decent porosity buildups in them.

23                    Ours don't, so I had to go find something else  
24 that -- We know the Devonian to be fractured dolomite.

25                    I would like to point out something in the

1 calculations, which I didn't discuss, I meant to discuss  
2 earlier.

3 The net pay thickness on the two existing wells,  
4 if you look at the logs they're not going to match up  
5 right. The reason being, on the Number 1 they're pretty  
6 close to what you see as the actual perforations.

7 Again, the pay is determined off the FMI log, not  
8 off of this porosity log. So in some instances we will  
9 have perforated more than -- you know, a foot or two here  
10 and there more than what may actually be pay, and in some  
11 instances we might have perforated a little bit less.

12 So I think on the Number 1, the number -- they  
13 used 19 feet of pay, I think we have 21 feet of  
14 perforations or something like that. So it's not too far,  
15 pretty close.

16 On the Number 2, I used 13 feet of pay. That  
17 represents the top set of perforations.

18 The interval that that top set of perforations is  
19 in, while this well was flowing we ran a production log in  
20 it, which indicated that only -- the only production was  
21 coming from that top set of perforations.

22 And so I made the assumption that there's about a  
23 13-foot thick carbonate limestone right there, that -- I  
24 made the assumption that whole 13 foot is contributing to  
25 the production.

1           But the bottom two set of perforations in that  
2 exhibit, I did not account for those because their  
3 production log shows they weren't producing.

4           Q.    The other Wolfcamp fields in this area, Gladiola  
5 and Bronco, do you feel like they have different -- they  
6 have matrix porosity?

7           A.    That's right, yeah, they -- I think -- It seems  
8 like they get around 12-percent kind of porosity numbers.

9           Q.    So in terms of comparing these Wolfcamp  
10 reservoirs, you can't really compare these with these other  
11 ones?

12          A.    No, you can't.

13               EXAMINER CATANACH:  I think that's all I have of  
14 this witness, Mr. Carr.

15               MR. CARR:  That concludes Maralo's presentation  
16 in this case.

17               EXAMINER CATANACH:  Okay, there being nothing  
18 further in this case, Case 11,409 will be taken under  
19 advisement.

20               (Thereupon, these proceedings were concluded at  
21 8:48 a.m.)

22                               \* \* \*

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## CERTIFICATE OF REPORTER

STATE OF NEW MEXICO )  
 ) SS.  
 COUNTY OF SANTA FE )

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

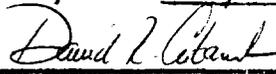
WITNESS MY HAND AND SEAL April 21st, 1997.



STEVEN T. BRENNER  
 CCR No. 7

My commission expires: October 14, 1998

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11409, heard by me on April 17, 1997.

  
 \_\_\_\_\_, Examiner  
 Oil Conservation Division