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:

APPLICATION OF MARALO, INC., FOR POOL CREATION, SPECIAL POOL RULES AND A DISCOVERY ALLOWABLE, LEA COUNTY, NEW MEXICO

CASE NO. 11,409

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

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Oil Conservation Division

October 19th, 1995

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, October 19th, 1995, 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.

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I N D E X

October 19th, 1995
Examiner Hearing
CASE NO. 11,409

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E X H I B I T S

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* * *

A P P E A R A N C E S

FOR THE APPLICANT:

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

* * *

WHEREUPON, the following proceedings were had at 10:27 a.m.:

EXAMINER CATANACH: Okay, at this time we'll call Case 11,409, Application of Maralo, Inc., for pool creation, special pool rules and a discovery allowable, Lea County, New Mexico.

Are there appearances in this case?

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr and Berge.

We represent Maralo, Inc., in this matter, and I have two witnesses.

EXAMINER CATANACH: Any additional appearances?

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

(Thereupon, the witnesses were sworn.)

MR. CARR: Mr. Examiner, initially I would like to note that Maralo no longer believes that a discovery allowable is necessary, and we would request that that portion of this case be dismissed.

EXAMINER CATANACH: Okay.

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. Will 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, Incorporated.

Q. And what is your current position with Maralo?

A. Petroleum geologist.

Q. Have you previously testified before this Division and had your credentials as a petroleum geologist accepted and made a matter of record?

A. I have.

Q. Are you familiar with the Application filed in this case on behalf of Maralo, Inc.?

A. Yes.

Q. And are you familiar with the Maralo Lowe "20" Well Number 1 recently completed in the Wolfcamp formation in the area which is the subject of this Application?

A. I am.

MR. CARR: Are the witness's qualifications

acceptable?

EXAMINER CATANACH: They are.

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

A. Yes, Maralo seeks the creation of a new pool in the Wolfcamp formation, as a result of discovery of commercial hydrocarbons in the Wolfcamp formation in the Lowe "20" Well Number 1. The well is located 350 feet from the north line and 1550 feet from the east line of Section 20, Township 13 South, Range 38 East.

Q. Is Maralo also seeking the adoption of temporary rules that provide for 80-acre spacing and proration units in this pool?

A. Yes.

Q. Have you prepared certain exhibits for presentation here today?

A. Yes.

Q. Mr. Lough, before we go into those exhibits, could you advise Mr. Catanach as to the current status of the Lowe "20" Number 1 well?

A. Yes, the well was originally drilled as a 12,600-foot Devonian test, and in drilling we drill stem tested the Wolfcamp. The well was unsuccessful in the Devonian, and it's subsequently been plugged back to the Wolfcamp for completion.

Q. All right. Let's go to what has been marked for identification as Maralo Exhibit Number 1, and I would ask you to first identify that and then review the information in the exhibit for the Examiner.

A. Okay, Exhibit Number 1 is our general orientation plat showing other Wolfcamp fields in the area. It shows the dry holes and plugged wells which are indicating separation of our proposed pool from existing pools. It shows the leases surrounding the proposed pool, and it indicates that we have no other offset operators.

Q. There are, in fact, no other Wolfcamp wells within a mile of the proposed pool; is that right?

A. That's correct.

Q. And Maralo is, in fact, the offsetting operator in all directions from the proposed pool boundary?

A. That's correct.

Q. If we look at this map, we can look and see separation just -- because of the existence of dry holes between our proposed pool and any of the other existing Wolfcamp pools in the area?

A. That's right.

Q. Let's go to Exhibit Number 2. Could you identify and review that, please?

A. Exhibit Number 2 is a land plat showing the northeast quarter of Section 20 of 13 South, 38 East. It

shows our -- the subject well, located in the north half of the northeast quarter. It also shows our proposed development location of a well to be drilled in the future, located in the south half of the northeast quarter. It also shows with the red outline our proposed 80-acre proration unit.

Q. The original well, the Lowe "20" Number 1, that was the subject of a previous Oil Conservation Division hearing, was it not?

A. That's correct.

Q. And that's when the acreage was pooled in the location for --

A. That's correct.

Q. All right. Let's go to Exhibit Number 3. Would you identify that and would you review it for Mr. Catanach?

A. Exhibit Number 3 is a structure map on the Wolfcamp Double X marker, prepared by me, using both subsurface data and 3-D seismic data.

It shows the productive area of the proposed new field. It shows all development in the area, both with the completion -- the completed well we've drilled and the offset dry holes. And it shows a trace for a cross-section C-C'. It shows the proposed pool boundary, being the north half of the northeast quarter.

Q. If in fact this Application is approved, how many

additional wells do you estimate it will take to fully develop this Wolfcamp reservoir?

A. Our plans for fully developing this reservoir are the drilling of the Lowe "20" Number 2 in the south half of the northeast quarter and re-entry and completion in the Wolfcamp of the Lone Star Brady Lowe, located in the southeast quarter of the northwest quarter, also located on the structural cross-section.

Q. Mr. Lough, let's now go to the cross-section, Exhibit Number 4, and I'd ask you to identify and review that.

A. This is a structural cross-section, C-C prime, that I put together. The datum for the cross-section is a minus 5600 feet. Two primary correlation points have been noted on the cross-section, both the Double X marker and the Three Brothers.

The cross-section has our subject well located on the right side, or the north location on the cross-section.

In the center of the cross-section is our proposed development location, being the Lowe "20" Number 2.

And on the left side of the cross-section, or south end, is the log on the proposed re-entry of the Lone Star Brady Lowe Number 1.

This cross-section also shows the existing

perforations in the wellbore.

Q. And basically this identifies the limits of this particular Wolfcamp pool?

A. It does.

Q. What geological conclusions have you been able to reach from the study of this area?

A. We believe that we've discovered a Wolfcamp reservoir that is separate from other producing Wolfcamp reservoirs in the area, that it is similar to the other producing Wolfcamp reservoirs, and that we have identified the producing area of this new field discovery well using both 3-D and subsurface well control.

Q. There were no other Wolfcamp operators in the area to whom notice needed to be given of this Application; is that correct?

A. That's correct.

Q. Will Maralo be calling an engineering witness in this case?

A. Yes.

Q. Were Exhibits 1 through 3 either prepared by you or compiled under your direction?

A. They were.

MR. CARR: At this time, Mr. Catanach, we move the admission into evidence of Maralo Exhibits 1 through 4.

EXAMINER CATANACH: Exhibits 1 through 4 will be

admitted as evidence.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Lough, was it your testimony that Maralo owns everything within one mile of the pool boundaries?

A. We -- Yes, we do, and other ownership located within that area are also owners within this proposed unit.

Q. There are other interest owners within a mile?

A. There are other leaseholds, yes, sir, other companies that have leasehold within a mile, and those companies also are working interest owners in this well.

Q. Does that include all of the interest owners?

A. Let me just double- -- Let me review this map. Yes, it does.

Q. Okay. So all the interests within a mile are aware of your proposal?

A. They are.

Q. Okay.

A. They're aware.

Q. What, in your estimation, are the productive limits of this pool?

A. In my estimation and the -- There's one drafting error on Exhibit Number 3: There should be an indication

of our estimated oil-water contact on this map, that wasn't drafted, at approximately minus 5615, which would -- which by inserting that estimated oil-water contact, practically outlines the estimated productive limits of the field

Q. That's a known oil-water contact?

A. No, it's not a known. It's an estimated oil-water contact. By our best estimation, that's a logical interpretation.

Q. Okay. So generally you're looking at just a portion of the north half of this section as being productive in this reservoir?

A. That's correct.

Q. And you think that three wells will adequately drain and develop this reservoir?

A. We do, yes, sir.

Q. Okay. Now, you said that there were some dry holes in between your proposed pool and other Wolfcamp pools in this area?

A. Yes, sir, that's correct.

Q. You've examined that and found that, in your opinion, this is not an extension of any of the other Wolfcamp pools in this area?

A. Yes, sir, we feel quite certain that it's not an extension, that we have structural separation from other existing fields.

Q. Do you have any reservoir pressure data to substantiate that?

A. We -- our -- Of course, we have our reservoir engineer here that will testify after me. We do feel like the indicated pressures in this well are virgin pressures and further substantiate our separation.

Q. I don't show testing information on the new well in the Wolfcamp formation. That well is producing?

A. The well is producing, and we did -- We took three drill stem tests, which are noted on the cross-section C-C', on the right-hand log, which is the subject well. They're noted as DST Number 1, 2 and 3.

Those are located above the horizon that we're -- the portion of the Wolfcamp that we're currently completed in. We did not drill stem test the Wolfcamp that we're currently perforated in and completed in.

Q. Have you talked at all to our geologist down in our Hobbs office about this pool creation?

A. No, we have not had a conversation with him.

Q. Okay. Do you know -- Of the Wolfcamp fields in this general area, do you know generally what the spacing is in those pools?

A. The current spacing of the Wolfcamp fields that are on this map, the general orientation map, are 40-acre, statewide 40-acre proration units.

Q. Okay. Is there any 80-acre pools that you know of in this area?

A. No, there are not.

EXAMINER CATANACH: Okay. I believe that's all I have of this witness.

MR. CARR: At this time we call Richard Gill.

RICHARD GILL,

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. My name is Richard Gill.

Q. Where do you reside?

A. In Midland, Texas.

Q. By whom are you employed?

A. By Maralo, Incorporated.

Q. And what is your current position with Maralo?

A. I'm a petroleum engineer.

Q. Mr. Gill, have you previously testified before this Division?

A. Yes, I have.

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

A. Yes, they were.

Q. Are you familiar with the Application filed in this case on behalf of Maralo?

A. Yes, I am.

Q. And have you made an engineering study of the Wolfcamp Pool and the area which is the subject of this Application?

A. Yes, I have.

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

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) Have you prepared exhibits for presentation here today?

A. Yes, I have.

Q. Let's go to what has been marked Maralo Exhibit Number 5, and I would ask you to identify the exhibit, review the parameters and relate this back to the cross-section, explain to Mr. Catanach the reason for the Application.

A. Okay. Exhibit 5 is a volumetric content calculation done on the Lowe "20" Number 1 in the Wolfcamp.

Based on our best log analysis we could come up with, we set up a series of parameters for the matrix porosity of 7.5 percent, average water saturation of 25 percent, a formation volume factor 1.8 reservoir barrels

per stock tank barrel, a net effective pay thickness of 21 feet. And assuming an 80-acre drainage area, we calculate that the original oil in place under that 80 acres would be a little over 407,000 barrels.

Applying a 17-percent recovery factor, which is pretty standard for a solution gas drive reservoir, we come up with recoverable oil in place of a little over 69,000 barrels.

I would note that this applies only to the matrix porosity. Based on our logs, not only the log on the cross-section on Exhibit 4, but also we ran formation micro scanner logs, which would show that there are fractures and vugs in this rock. But not being able to determine their extent, I left those out in the volumetric content calculation.

Q. So when you look at a matrix figure, you're looking at an extremely conservative figure?

A. That's right, that's right.

Q. Let's go to Exhibit Number 6. Could you identify and review that?

A. Okay, Exhibit 6 is simply a listing of the cumulative production on the Wolfcamp wells in this immediate area, around this proposed pool. At the very back, I averaged the cumulative production from all the wells on this list, and it came to almost 97,000 barrels

per well.

And I would also point out that going through the list you can see there's a number of wells that have produced in excess of 200,000, and some even over 300,000 barrels. And it's our -- We would assume, based on the initial response of our well, that -- we're hoping anyway, that it will produce a couple hundred thousand barrels.

Q. What is the average production or the recovery from the wells shown on Exhibit 3?

A. It's just almost 97,000 barrels.

Q. In putting this exhibit together, you did not include information from the Denton-Wolfcamp; is that right?

A. That is correct.

Q. And Mr. Gill, why did you exclude the Denton-Wolfcamp?

A. The Denton-Wolfcamp has some extremely good wells in it, and by including -- I looked at those wells, and including it, it raised the estimated recovery -- or the average recovery from all the Wolfcamp wells in the area up to about 220,000 barrels, and I felt that that skewed it a little bit too high.

Q. It was not, in fact, an accurate --

A. -- that's right.

Q. -- representation of what the wells would do?

A. Yeah.

Q. How much acreage do you anticipate can be drained at this time, based on what you know about the new pool by wells completed there?

A. Based on what we know and what we anticipate from the well, I feel certain that we'll drain up to 80 acres, if not more.

Q. If we look at the Lowe "20" Number 1 well, at what rate is it currently capable of producing?

A. The well was potentialed at 480 barrels of oil, and I believe it was 160 barrels of water and around 600 MCF of gas.

We've had the well shut in due to the gas production, not being able to flare it. We did turn it on one day later to get some gas analysis for the pipeline company. We're currently waiting on them to get a line to us. But on that 24-hour period, the well produced -- I believe it was 685 barrels of oil a day.

Q. So in fact the well could produce more than the depth bracket allowable --

A. Yes, it could.

Q. -- depth bracket allowable for the well?

A. That's right.

Q. It is your intention, however, to keep it producing at an allowable rate or below the allowable rate?

A. That's right, we don't plan on producing above that.

Q. Did you concur in the testimony of Mr. Lough that two additional wells in this reservoir should result in full development of the structural feature?

A. From what we know right now, I believe so. Of course, with the drilling of additional wells we should be able to gain some pressure data and...

Q. At this point in time, is it your opinion that 80-acre development is the prudent way to go forward with the development of this Wolfcamp pool?

A. Yes, it is.

Q. If you were now required to develop on 40-acre spacing, in your opinion, could that result in the drilling of unnecessary wells?

A. Very possibly.

Q. For what period of time do you recommend that temporary rules remain in place for this pool?

A. We'd like temporary rules for a period of 18 months to give us time to evaluate some production data.

Q. And at that time, if in fact you need to revert to 40, you could make that recommendation to the Division?

A. That's correct.

Q. In your opinion, will approval of this Application and the adoption of temporary rules for this

pool, providing for 80-acre spacing, be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, it will.

Q. Were Exhibits 5 and 6 prepared by you?

A. Yes, they were.

MR. CARR: At this time, Mr. Catanach, we move the admission into evidence of Maralo Exhibits 5 and 6.

EXAMINER CATANACH: Exhibits 5 and 6 will be admitted as evidence.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Gill, have you compared some of the reservoir parameters of your new Wolfcamp pool and some of the other Wolfcamp pools in the area and -- Like, have you compared porosity, permeability and that kind of thing?

A. A little bit, not a whole lot. I have looked at a well down in the King field, and they all produce differing -- You know, differing areas, there's not one particular main pay section. Some of the wells have better porosity than ours have, some of them don't, or aren't any better. I think they all produce quite a bit from fractures and vugs and whatnot.

Q. What leads you to believe that your pool would likely drain a larger area than some of these other Wolfcamp pools?

A. In my opinion, some of the other Wolfcamp pools probably drained 80 acres as well. I think there were some that were probably overdrilled. There's some evidence that, you know, in some of the fields there would be two or three really good wells and three or four wells that weren't very good. And in my opinion, some of that is going to be reservoir characteristic, some of it will be drainage.

But I do believe, due to the low matrix porosity -- A relatively small amount of oil has to be produced from the matrix to drain 80 acres, and if the well in fact does produce 200,000 barrels like we hope, then I would certainly believe that the matrix would give up 60,000, 70,000 barrels of that.

Q. So you think -- You don't think the matrix porosity is going to contribute to the draining of 80 acres; it's more the fractures?

A. No, I think the matrix porosity will as well. The fractures -- Of course, we don't have any idea how far they go or if they're connected to anything else or not. And time, of course, will help us evaluate that, depending on how long the production holds.

But like I say, there's not a whole 70,000 barrels of matrix porosity contribution. In my opinion, it's not very much. And I feel pretty comfortable that we should be able to get at least that much out of the matrix, which would, in fact, show a drainage of 80 acres.

Q. Do you -- Or have you examined reservoir pressure to satisfy yourself that this is -- that you've encountered virgin pressure?

A. Yes. I apologize, I don't remember exactly what the reservoir pressure was. I did use it to determine the formation volume factor, but I can't recall exactly what it was. But it was -- Well, actually, I guess I did. It is on Exhibit 4. Yeah, DSTs.

We had shut-in pressures up in the 3700-pound range, which would appear to be pretty virgin pressures at that point.

Plus we also point out the nearest Wolfcamp production in the area is all, of course, on pump, and this well is flowing at rates of over 600 barrels a day.

Q. Your Well Number 2 appears to be at an unorthodox location for the proposed new rules, and you're kind of crowding that north line.

A. That's right, yeah, we would intend to get an unorthodox location at the time we drill that well.

Q. Is that any indication that that well may not

drain 80 acres, that you're kind of crowding that north line there, kind of moving toward known production there?

A. No, I think it's more the elimination of risk by getting too far away. You know, the control down to the southeast, there's no well control so it's all seismic control at that point. And our seismic shows the further we can stay on the north end, the higher we'll be.

Q. You said the well is capable of producing 600 barrels a day?

A. That's right.

Q. What's top unit allowable for an 80-acre --

A. 80-acre is 355 barrels a day.

Q. Okay. Do you know if -- Is that all interest ownership within that -- Within the area where the three wells are going to be located, is that all commonly owned, do you know?

MR. LOUGH: I can tell you. In the northeast quarter of the section, where the first well and the second well are to be located, it is all common ownership.

The proposed re-entry of the Lone Star well is not the same ownership. So it's common throughout the northeast quarter. If we re-enter and complete in the northwest quarter, that ownership is somewhat different.

Q. (By Examiner Catanach) Okay. And do you concur at this point in time that that's a close estimation of

where the oil-water contact is in this reservoir?

A. (By the witness) Yes, it is.

Q. Have you examined some of the data to make that determination?

A. No, sir, I have not.

Q. That's -- Is it solely based on geology?

A. Yes, sir.

Q. When is that Lowe Number 2 going to be drilled?

A. Our plans are to drill it -- I think we had talked about later this year, but I think with budget requirements, we'll probably do it early next year. And if our plans hold true, our plans were to drill that well and then move right over and re-enter the other well.

So all -- Both of those wells could be on production within the next six to nine months.

EXAMINER CATANACH: Okay. I have nothing further of this witness, Mr. Carr.

MR. CARR: Mr. Catanach, that concludes our presentation in this case.

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

(Thereupon, these proceedings were concluded at 10:58 a.m.)

* * *

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 October 26th, 1995.

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 October 19 1995.

David R. Catanach, Examiner
Oil Conservation Division