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. 12,000
APPLICATION OF MARBOB ENERGY CORPORATION FOR POOL CONTRACTION, POOL CREATION, SPECIAL POOL RULES AND A NONSTANDARD SPACING AND PRORATION UNIT, LEA COUNTY, NEW MEXICO	

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: MICHAEL E. STOGNER, Hearing Examiner

July 9th, 1998

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, MICHAEL E. STOGNER, Hearing Examiner, on Thursday, July 9th, 1998, 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

July 8th, 1998
Examiner Hearing
CASE NO. 12,000

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E X H I B I T S

Applicant's	Identified	Admitted
Exhibit 1	7	18
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A P P E A R A N C E S

FOR THE DIVISION:

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Legal Counsel to the Division
2040 South Pacheco
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FOR THE APPLICANT:

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

ALSO PRESENT:

MARK W. ASHLEY
NMOCD Environmental Geologist
2040 South Pacheco
Santa Fe, New Mexico 87505

* * *

WHEREUPON, the following proceedings were had at 8:16 a.m.:

EXAMINER STOGNER: At this time I'll call Case Number 12,000.

MR. CARROLL: Application of Marbob Energy Corporation for pool contraction, pool creation, special pool rules, and a nonstandard spacing and proration unit, Lea County, New Mexico.

EXAMINER STOGNER: Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan. We represent Marbob Energy Corporation in this matter, and I have one witness.

EXAMINER STOGNER: Any other appearances?

Will the witness please stand to be sworn at this time?

(Thereupon, the witness was sworn.)

EXAMINER STOGNER: Mr. Carr?

MICHAEL G. HANAGAN,

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. Michael G. Hanagan.

Q. Mr. Hanagan, where do you reside?
A. Roswell.
Q. By whom are you employed?
A. Marbob Energy Corporation.
Q. And what is your position or relationship with Marbob Energy Corporation?
A. I oversee most of their exploration, drilling and production activities in wildcat areas and deeper horizons in Eddy, Chaves and Lea County.
Q. Have you previously testified before this Division?
A. Yes, I have.
Q. At the time of that testimony, were your credentials as an expert in petroleum geology 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 Marbob Energy Corporation?
A. Yes, I am.
Q. Have you made a technical study of the area which is the subject of the Application?
A. Uh-huh.
Q. And are you prepared to share the results of that study with Mr. Stogner?
A. Yes, I am.

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

EXAMINER STOGNER: They are.

Q. (By Mr. Carr) First, Mr. Hanagan, would you briefly state what Marbob seeks in this case?

A. We seek creation of a new pool for the production of hydrocarbons from the Devonian formation, promulgation of special rules and regulations, to include 160-acre spacing and proration units and designated well locations, and the approval of a nonstandard spacing and proration unit for the Lewis Fee Number 1. That would be the west half of the southeast quarter, the east half of the southwest quarter of Section 31, Township 9 South, 37 East.

Q. Mr. Hanagan, this acreage is not within the boundaries of an existing Devonian pool, is it?

A. No, sir.

MR. CARR: Mr. Stogner, we -- The portion of the Application that relates to the pool contraction is not needed, and therefore we would request that that portion of the Application be dismissed. This is not within the boundaries of the Devonian Pool, so no pool contraction is necessary.

EXAMINER STOGNER: Thank you, sir.

Q. (By Mr. Carr) Mr. Hanagan, could you please provide the details on the discovery well?

A. The discovery well is the Lewis -- Marbob Energy Lewis Fee Number 1 well. It's located at an unorthodox location of 1130 feet from the south line, 2544 feet from the west line of Section 31, Township 9 South, 37 East.

It was drilled to a depth of 12,505 feet. It was drilled under a previously approved Division Order, NSL-3891, which approved the unorthodox location.

Q. And that was received in November of last year?

A. Yeah, November 3rd of 1997.

Q. What rules currently govern the development of the Devonian in this area?

A. Statewide -- Standard statewide oil rules for 40-acre spacing units and 330-foot setbacks.

Q. Have you prepared exhibits for presentation here today?

A. Yes, sir, I have.

Q. Could you refer to what has been marked for identification as Marbob Exhibit Number 1 and review this for Mr. Stogner?

A. Yes, Exhibit 1 shows the radius of about four miles. The larger circle is a two-mile radius, showing all wells within the two-mile radius, and the inner circle is the one-mile area of review.

The larger hexagonal-shaped symbols are Devonian penetrations, dry holes and producers, and the smaller

symbols are San Andres producers.

The green line going through there, through the exhibit, is a cross-section, which is Exhibit 4 of the hearing.

Within the one-mile area of review I've showed the lessee, the mineral owner, the expiration date and lease number.

And within the one-mile area of review you can see there's no other Devonian penetrations. There's just two San Andres producers.

Q. How close is the nearest Devonian production?

A. It's located about a mile and three-quarters north, up in the north part of Section 30, at the north end of the green line.

Q. Let's go to Marbob Exhibit Number 2. Would you identify and review this?

A. Exhibit 2 is just a blowup of the immediate area around the Lewis well, which is shown as the double circle right in the middle.

The area outlined in red is the existing 40-acre unit. The blue dashed line is the proposed proration and spacing unit. The little thin squares are all 40-acre, the adjacent 40-acre units.

Within the -- Marbob Energy has the entire Section 31, and Yates Petroleum has the south -- directly

south offset 40-acre tracts.

Q. All right. Let's go to the -- your Exhibit Number 3.

A. Okay.

Q. Would you identify and review this, please?

A. Exhibit Number 3 is a two-way travel-time map to the top of the Devonian formation based on 3-D seismic, and this area pretty much equates -- directly equates to a structure map at the top of the Devonian formation.

The green line or -- I think on some of the exhibits doesn't look real green, but that line is the trace of the cross-section coming -- which will be Exhibit 4.

The blue line that's surrounding identifies the area under closure. Basically what this shows is a relatively small, low-relief structure, having only about 75 feet of relief and an area under closure of about 110 acres, with the blue line showing the maximum extent of the area under closure.

Closure is the single most important factor in determining hydrocarbon accumulations up in this area. Every structure that has closure has produced some hydrocarbons, and these structures seem to be filled to a spill point. As you can see, the well is located right in the middle of the structure at the highest point, which

also coincides with -- It's nearly in the center of the proration unit, of the proposed proration unit.

Q. All right, let's go to Exhibit 3A, and I'd ask you to review your estimated recoverable reserves for the proposed well -- or for the well in the proposed --

A. Okay, 3A was derived off of -- in combination with Exhibit 3. And then using planimeter work, we derived acre feet.

The area in blue, the total recovery -- or total estimated recoverable reserves is 543,000 barrels for the entire feature. Within the proration unit that equates to 455,000 barrels or almost 85 percent of the field total would be in the proration unit.

I've also broke down within the individual 40-acre tracts estimated recoverable reserves from the 40-acre tracts. And as you can see, the southwest quarter, which the well is located in, is 188,400 barrels. The other tracts are -- vary from 60,000 to 123,000 barrels within the 40 acres, and most likely those are very marginal. If we had to drill wells on each of those 40s, it would be very marginal economics.

Q. The productive area in the reservoir is limited to that central area indicated on Exhibit Number 3 --

A. Yes, sir.

Q. -- shaded, I think, in yellow?

A. Yeah, if -- In fact, planimeter work of the area in yellow would actually decrease the recoverable reserves down to about 188,000 barrels. So if for some reason the closed area was actually smaller, it dramatically reduces our recoverable reserves.

EXAMINER STOGNER: Let me stop you right there. When you -- I don't see much yellow on that. I want to make sure that I'm following. Is that the second contour --

THE WITNESS: Yeah, my color --

EXAMINER STOGNER: -- out from the well?

THE WITNESS: My colors when they were --

EXAMINER STOGNER: It would be the second contour --

THE WITNESS: Yes.

EXAMINER STOGNER: -- out from the well, is that --

THE WITNESS: Yeah --

EXAMINER STOGNER: -- correct?

THE WITNESS: -- this one here.

EXAMINER STOGNER: Okay, when you say "this one here", you're talking --

THE WITNESS: The one --

EXAMINER STOGNER: You'll need to describe it for the record.

THE WITNESS: -- inside the -- the next one inside the blue.

EXAMINER STOGNER: Inside the blue, okay.

Now, over in the southwestern corner you have that contour line crossing each other. What's the deal there?

THE WITNESS: Down at -- When it gets outside of the proposed unit?

EXAMINER STOGNER: Well, yeah, that's outside the proposed unit, but it appears to cross. Is --

THE WITNESS: Yeah, it's --

EXAMINER STOGNER: It's the anomaly of a computer?

THE WITNESS: Yeah, it's the computer. This was derived straight off the computer.

EXAMINER STOGNER: Okay, so you're not telling me that --

THE WITNESS: -- that -- hopefully, they don't cross.

EXAMINER STOGNER: -- the contour line crosses each other, do you?

THE WITNESS: Yes, sir.

EXAMINER STOGNER: Okay.

Q. (By Mr. Carr) Mr. Hanagan, let's go to the cross-section --

A. Okay.

Q. -- your Exhibit Number 4, and would you review this for Mr. Stogner, please?

A. Exhibit Number 4 is a structural cross-section running from the Crossroads East field to the north, on your left, to -- which is the Lone Star Number 2 well. Then it goes downthrown to the Lone Star Number 3 well, which is a dry hole, which is about a mile and a half north of the Marbob Energy -- of the Lewis Fee well. And then the Lewis Fee well would go about another mile south to the Jake Hamon well.

So what we're primarily trying to show on this cross-section is that the Lewis is indeed producing out of a similar stratigraphic equivalent as these Crossroads produces from, but that it's a separate feature, separated by over a mile. In fact, it's indeed a separate type of feature, and that it's a fairly low-relief structure that -- only having a hundred feet of closure to it.

Q. Are you ready now to move to Exhibit Number 5?

A. I guess so.

Q. Would you review that for Mr. Stogner, please?

A. Exhibit 5 shows the -- It's a neutron density log of the Lewis Fee, of the lower -- the Mississippian-Devonian sections, with a little description of the Devonian DSTs down below.

Also attached to the right of it is a mud log. We couldn't get logs down past the Woodford top, so the neutron density doesn't penetrate into the pay zone.

When we drilled the well, DST Number 4 tested the upper 60 feet, I believe of the formation, and it DST'd tight. And DST Number 5 was another additional 18 feet drilled, and that DST tested porosity and permeability. The well flowed 151 barrels of oil to surface in one hour.

The fact that we have the tight reservoir in the upper part of the section could also negatively impact our recoverable reserves, if it indeed reduces our oil -- or our relief, productive relief, under closure.

Q. Would you now refer to what has been marked as Marbob Exhibit Number 6 and review the reservoir parameters set forth on that exhibit?

A. Yes, sir, Exhibit Number 6 is a Horner analysis off of DST Number 5. It was -- Let's see. It's a mathematical derivation that we're attempting to identify the area being radius of investigation of the DST and therefore the drainage area for the wellbore.

The parameters used in it for formation thickness, we used the entire area under closure of 75 feet.

The flow rate of 3367 barrels a day was taken straight from the DST on a flow period of 1.08 hours.

Porosity of five percent is assumed. That's not a measured quantity, but that's typically low matrix porosity, high fracture permeability.

Viscosity of .8 centipoise was measured from a nearby well.

Compressibility is 2.67^{-6}.

Horner slope was derived -- 28.05 was derived straight from the DST Number 5, which will be shown on Charts 7 and 8.

Extrapolated pressure of 4628 pounds was derived off the -- shown on Exhibit 7 from the DST Number 5.

A low formation volume factor, 1.15, was used in this calculation due to low GOR and depth.

From that we derived a permeability of 239 millidarcies and then backed out radius of investigation of 1624 feet, which results in a drainage area of 146 acres.

Q. All right, let's go to Exhibit 7 and 7A, the Horner plot and attached information, and I'd ask you to review that for Mr. Stogner.

A. Seven and 7A are attached just for your information to support the Horner analysis. The slope is derived and P* is derived on Exhibit 7A, off the Horner plot.

And Exhibit 7 is the -- a blowup of the DST chart with pressures during the initial flow periods, the shut-in

periods shown on there, but they're attached for your information.

Q. Let's go now to the economic comparison, Exhibit 8. Will you review that?

A. Exhibit 8 is a comparison showing that if we had to drill four wells on 40-acre spacing, versus the 160-acre spacing -- all the factors were kept the same, using an oil price of $14, well costs of $975,000, operating costs of $4000 per well per month, and a 75-percent net revenue interest.

I used a higher decline rate on the four-well package, since there's, you know, several wells producing from the same reservoir.

And I used an initial production rate of 300 barrels a day, total, from the four wells, and 200 barrels a day from the one well, which is what we're presently producing it at.

You can see on 40-acre spacing, the project produces close to 500,000 barrels but never actually pays out. It never actually even reaches payout in ten years, resulting in a loss of about $600,000.

Using one well and only drilling one well, we come up with recovering about 390,000 barrels but show a profit on the project of about $2.5 million.

Q. Do you anticipate that the Lewis Fee Number 1

well will effectively drain this reservoir?

A. Yes, sir, I do. With the very strong bottom water drives that are found in the Devonian reservoirs in this area and the relatively small size of this feature, it should be able to drain this reservoir with little trouble.

Q. Does Marbob anticipate there would be any additional development of this pool?

A. No, sir, we don't.

Q. Are you requesting that permanent pool rules be adopted?

A. Yes, sir.

Q. Is Exhibit Number 9 an affidavit confirming that notice of this Application has been provided in accordance with Oil Conservation Division rules?

A. Yes, sir.

Q. To whom was notice given?

A. We noticed all offsetting operators of leases adjoining the proposed new pool.

Q. As to the nonstandard unit, Marbob owns everything that is --

A. Yes, sir.

Q. -- in the acreage that could be excluded by virtue of the nonstandard unit?

A. Yes, sir.

Q. In your opinion, will approval of this

Application be in the best interests of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, sir.

Q. Were Exhibits 1 through 9 either prepared by you or compiled at your direction?

A. Yes, they were.

MR. CARR: At this time, Mr. Stogner, we would move the admission into evidence of Marbob Exhibits 1 through 9.

EXAMINER STOGNER: Exhibits 1 through 9 will be admitted into evidence.

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

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Hanagan, how -- I'm referring to Exhibit Number 6.

A. Okay.

Q. Your formation thickness was derived how?

A. We were assuming that the area under closure is the entire reservoir.

Q. Okay. And what is the actual completion of this well?

A. The well is completed open-hole interval, with

the upper 16 feet of the -- Well, it's actually more than 16 feet, but the 16 feet of permeability and porosity is what's open.

Q. So that would be 16 feet into the enclosure area?

A. Yes, sir.

Q. How come you didn't use that figure for your h value?

A. Well, the 16 feet results in a higher permeability number, which just results in -- Well, let's see. The 16 feet, when I use that in there, it results in a higher perm, which decreases the radius of investigation, but -- by 20 to 30 acres, but what I was trying to show is that we're draining the entire structure. So I used the entire reservoir interval.

Q. How about your completion? Was this well fractured or stimulated in any way?

A. Not in any way at all, just set a packer and swabbed it in.

Q. Section 31, do you want to tell me about that lease in a little more detail?

A. It's a --

Q. What kind of lease is it and how big of an area?

A. It's a fee lease covering 15,000 acres from Santa Fe Pacific Gold Corporation. It actually expires in October of this year, I believe, but it is now extended for

six months at a time by the drilling of -- This well extended it for another six months, which would be now set to expire in April of next year, I believe, April or May of next year.

That's to the lands that aren't within an existing proration unit.

The lease does provide for pooling.

Q. Does that lease also provide for -- Well, let's talk about the additional drilling that the lease provides for. What kind of an offset is required for this particular well, for 160-acre spacing, according to the lease?

A. The lease is just under -- Any well drilled within a six-month extends the entire lease for any period of time. It doesn't have to be an offset, just anywhere within the 15,000-acre block.

As far as -- there's no specific -- It's not limited to standard spacing, it is -- The lease allows for pooling approved by the OCD.

Q. Does Marbob have any plans to further develop this enclosure area?

A. We don't think so. We think this one well, of course, will monitor it and watch what it does, but at this time we don't really think that it's going to need another well on it.

Q. Okay. If another well is, say, needed to further develop that portion out toward the east or west, what would Marbob's intention be as far as the acreage dedication on either side?

A. Well, if we drilled another well it would definitely be to the east of it. It would be in the west half of the southeast quarter.

Q. How about an acreage dedication for that well?

A. As far as dedication, we would attempt to just keep it within this 160-acre proration unit and split the allowable among the wells.

Q. So you'd drill your second well within the proration unit, as opposed to trying to go out --

A. Yes, sir.

Q. -- to the east, the east side of that southeast quarter?

A. Yes, sir. We would drill in the northwest of the southeast quarter, would be my guess.

Q. So with the structure being small, you don't see much of a problem with the extension of an additional 160 acres coming off of either side where you have to start a domino effect and having to form all sorts of nonstandard proration units?

A. Yeah, I don't think -- you know -- well, there's really just -- With any realistic oil-price scenario, you

couldn't even drill outside of the existing 160-acre unit. You know, the reserves is 40-some-thousand barrels at 12,500 feet, so...

Q. Do you have a proposed name for this pool?

A. No, sir.

Q. Okay. I notice that Mr. Bryan Arnott, our geologist in the Artesia District Office is here today. I would appreciate it if you get with him and propose a pool name that both of you mutually agree on and get back with me, either through him, or you, and tell me the proposed name.

A. Okay.

EXAMINER STOGNER: Mr. Carr, do you have anything further?

MR. CARR: That concludes our presentation in this case.

EXAMINER STOGNER: Does anybody else have anything further in Case 12,000?

If not, then Case Number 12,000 will be taken under advisement, subsequent to getting back with me on a pool name.

THE WITNESS: Okay, thank you.

(Thereupon, these proceedings were concluded at 8:40 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 12000 heard by me on 2 July 1998.

, Examiner
Oil Conservation Division

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 July 11th, 1998.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998