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. 10,280

In the matter of Case No. 10,280 being reopened pursuant to the provisions of Division Order No. R-9594, which order promulgated temporary special rules and regulations for the Milnesand-Abo Pool in Lea and Roosevelt Counties, New Mexico, including a provision for 80-acre spacing.

ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: Michael E. Stogner, Hearing Examiner

October 21, 1993

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on Thursday, October 21, 1991, at Morgan Hall, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

October 21, 1993
Examiner Hearing
CASE NO. 10,280

* * *

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A P P E A R A N C E S

FOR THE APPLICANT:

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* * *

WHEREUPON, the following proceedings were had at 8:19 a.m.:

EXAMINER STOGNER: Today's hearing will come to order for Docket Number 31-93. Note today's date, October 21st, 1993.

I'm Michael Stogner, appointed Hearing Examiner for today's cases.

At this time I'll call Case Number 10,280, which is In the matter of said case being reopened pursuant to the provisions of Division Order Number R-9594, which Order promulgated temporary special rules and regulations for the Milnesand-Abo Pool in Lea and Roosevelt Counties, New Mexico.

At this time I'll call for any 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 Petroleum Production Management, Inc., in this matter, and I have one witness.

EXAMINER STOGNER: Are there any other appearances?

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

(Thereupon, the witness was sworn.)

EXAMINER STOGNER: Thank you, sir.

Mr. Carr?

GLEN C. LUFF,

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 Glen C. Luff. I live in Midland, Texas.

Q. And by whom are you employed?

A. Currently I'm self-employed as a consulting geologist but, as concerns this case by Petroleum Production Management, Incorporated.

Q. And in what discipline are you a consultant? Petroleum geology?

A. Petroleum geology, yes, sir.

Q. Have you previously testified before the Oil Conservation Division?

A. No.

Q. Could you summarize your educational background and then briefly review your work experience for Mr. Stogner?

A. I attended the University of Oklahoma, received a bachelor of science and a master of science degree in geology in 1951 and 1957.

I worked for Atlantic Richfield Company for 22 years, principally in Roswell and Midland, Texas; AGL, an independent oil producer; Ammon Oil Company; and Coastal Oil and Gas.

Since 1988 I've been self-employed, and I have around 37 years experience in the petroleum industry.

The last 33 years were primarily in the Permian Basin. And of that, around 30 years working the geology in southeast New Mexico.

Q. In all these various roles you have been employed as a geologist?

A. Yes, sir.

Q. Are you familiar with the Application that was originally filed in this case?

A. Yes, I am.

Q. And have you made a geological study of the area surrounding the Milnesand-Abo Pool?

A. Yes, I've studied the area. In fact, I've done the geological work for Petroleum Production Management and also watched the two wells that they have in this pool during their drilling.

MR. CARR: Mr. Stogner, we would tender Mr. Luff as an expert witness in petroleum geology.

EXAMINER STOGNER: Mr. Luff is so qualified.

Q. (By Mr. Carr) Mr. Luff, would you briefly state

what Petroleum Production Management, Inc., seeks in this case?

A. We ask for adoption of the permanent special rules for the Milnesand-Abo Pool that provide for 80-acre spacing in the proration units.

Q. In the original case, Petroleum Production Management, Inc., was not the Applicant, were they?

A. No, sir.

Q. The Applicant was Knox Industries?

A. Knox Industries.

Q. Have you prepared certain exhibits for presentation in this hearing?

A. Yes, I have.

Q. Could you identify for Mr. Stogner what has been marked as Petroleum Management Exhibit Number 1 and then review the information on this exhibit for him?

A. Exhibit 1 is a plat outlining the OCD pool boundary as defined by the temporary rules two years ago. This plat has been updated to show the current producing wells in the field and also to correct some errors in the posting of wells.

On this plat, all of the wells shown, with the exception of one in the northwest of the southeast of Section 34, Township 8 South, 35 East, have penetrated the Abo formation.

The information shown on this plat today is correct as it exists.

It's interesting to note that the pool outline crosses the county line between Lea and Roosevelt County. Part of the acreage is in Township 8 South, Range 35 East, in Roosevelt County, and part in Township 9 South, Range 35 East, of Lea County.

Q. How many wells have been drilled since the original hearing?

A. There's one well, the BTA Willo Number 1, which is in the southeast, southeast of Section 33.

Q. Now, this is basically the same exhibit that was presented in the original hearing for special pool rules; is that correct?

A. That's true.

Q. And what you have done is taken this and corrected it so that it accurately reflects the development in the pool as it stands today?

A. That's true.

Q. All right, let's move to the next exhibit. But before we do, could you briefly provide Mr. Stogner with a general history of this pool?

A. The pool was originally discovered by the Williamson Number 2 Mobile Federal in the northeast, northeast of Section 33. This well was drilled in 1963 but

plugged back in 1965 to complete in the Abo formation. It produced around 5600 barrels of oil and was P-and-A'd in 1967.

PPMI rediscovered the Abo with the completion of the well number 3 in August of 1990. That well is located in the southeast of the southwest of Section 34.

Knox, in parentheses, Purvis, completed the 3C Federal well, which is located in the northeast of the northwest of Section 3 in October of 1990.

And then PPMI drilled the Number 4 well in November of 1990, and that well is located in the northwest of the southeast of Section 34.

The temporary field rules with Order Number R-9594 were established in October of 1991, set up 80-acre spacing.

And with the exception of the production history, very little additional information has been obtained since the temporary rules were adopted.

Q. BTA has drilled their Willo Number 1, they did that in 1992, did they not?

A. In March of 1993.

Q. And that's the only additional well that's been drilled?

A. That's true.

Q. This exhibit also contains a trace for a

subsequent cross-section that you will be presenting; is that correct?

A. Exhibit 2 does, yes.

Q. Yes. Let's go now to Exhibit Number 2, and let's review that.

A. Exhibit 2 is similar to the exhibit that was presented in September of 1991. It is a combination isopach/structure map of the lower Abo porosity.

The structure, as shown, is basically a monoclinal dip to the southeast with a very low relief flattening in the area of Section 34.

The isopach shows the isopach of Abo porosity with approximately a 10-percent cutoff. And you can see that there's a thickening centered around the Knox well and the PPMI Well Number 3 well.

The trace for the cross-section which will be shown later is marked as line B-B'.

EXAMINER STOGNER: Excuse me just a second.

(Off the record)

EXAMINER STOGNER: All right, thank you.

Q. (By Mr. Carr) All right, Mr. Luff, let's go to Exhibit Number 3. Could you just identify this exhibit?

A. Exhibit Number 3 is an ownership plat of the area. The OCD boundary outline is marked in yellow.

It shows the principal operators or owners of

acreage in this area, which are PPMI, BTA, Knox and Purvis, which are considered one entity in here. And Yates -- Some of the acreage that is listed as M.L.Brown is under PPMI.

Q. All right. Let's move to Exhibit Number 4. This is your cross-section. Could you first identify this exhibit and then review it for the Examiner?

A. The cross-section is a new exhibit which I've constructed using the new logs on the four wells that are currently producing in the Milnesand-Abo field, and it depicts the producing zone, and you can see that it's made up of thin-bedded porous streaks within that interval. The main zones appear to be continuous throughout all four wells.

The original exhibit was made up of old logs on wells that were drilled in 19- -- late 1950s to 1960s. And the logs at that time were not the quality that we have today.

Q. Could you generally describe the nature of this formation for the Examiner?

A. This is -- Unlike the Abo in other parts of southeast New Mexico, it's a thin-bedded detrital zone that rests on top of the Wolfcamp formation. The Abo in other parts of the state are the sands at the Pecos slope and the Abo reef trend, but this is a different formation.

Q. All right, let's go to Exhibit Number 5. Would

you identify that, please, and then review it?

A. Exhibit 5 is a listing of the production of the four wells that are currently producing in the field, month by month from the date of inception through August of this year.

I've listed also the initial potential and some of the data that was reported at the time they were completed and the dates of completion.

As you can see, the BTA well is -- I have data only for six months.

The Knox well listed underneath that was completed in October and has, as you can see, has declined quite steadily through August of this year.

The best well in the field is the PPMI Well Number 3, which was completed in August of 1990 and still held up reasonably well through this year.

The Well Number 4 was not quite as good as the Number 3, but it has also declined and is quite similar to the Knox well, except that in the latter part of 1992, when the Abo production was declining, they perforated the Bough "C" and commingled that test.

Q. All right. Let's go to Exhibit Number 6. Could you identify this?

A. Exhibit 6 is a graphic presentation of the data from Exhibit 5, and it's showing a plot of the production

of those four wells.

The interesting thing is that they are showing a steady declining and are tending to flatten out from the data that we have.

The other important point on this graph is that the Well Number 3 well started out initially at a much higher rate than the other three wells did.

Q. All right. Let's go to Exhibit 18. What is this?

I'm sorry, Exhibit 7.

A. Exhibit 7 is the exhibit that was presented two years ago, wherein the calculations were made by volumetric and pressure to come up with the reserve calculations for the wells. And I have no doubt about these. I think these calculations are accurate.

Q. They would be appropriate for use in this hearing today?

A. Yes.

Q. And the ultimate recovery figures for the wells in this pool are, in your opinion, also correct and accurate and still applicable?

A. Yes. Some are in the range of 130,000 barrels per well.

Q. This exhibit was presented in the prior hearing?

A. That's true.

Q. Was Exhibit 8 also presented in the 1991 hearing?

A. Yes, Exhibit 8 is a projection, a plot of production of the Knox 3C and a projection on a steady decline, with an eight percent rate of decline to abandonment.

This curve appears to be an accurate portrayal of what will happen.

Q. And how does this curve compare with the curves that you have presented in your Exhibit Number 6?

A. The curves in Exhibit 6, we do not have a full range as we show on this Exhibit 8. But what we do have approximates the initial part of the curves as depicted on 8, and I feel very certain that with time these curves will exhibit the same form that we have on the -- as presented here on Exhibit 8.

Q. Okay, what is Exhibit Number 9?

A. Exhibit 9 is a remake of the exhibit that was turned in two years ago, except I have recalculated the profit-to-investment ratios based on more up-to-date costs per well.

At the bottom of the page are the costs that were given to me by the operators of the four wells that were drilled, and I have used in this case $650,000 as a cost for an Abo test to drill and complete, versus the $510,000 that was used two years ago.

There is a comparison here between 80-acre spacing, the economics of 80-acre spacing as to 40-acre spacing, and you can see that the profit-to-investment ratio on the 80-acre spacing is low at 1.27, which can still be made if the price of crude stays up.

However, on 40-acre spacing the profit-to-investment ratio is barely above zero.

Q. Based on this, is it fair to say that on 40-acre spacing it simply isn't economical to develop this reservoir?

A. No, I don't think it can be. I think it's very economical on the 80-acre spacing, depending upon the rate of production, and certainly would not be on 40 acres.

Q. Have the four wells in this pool reached pay-out?

A. The information from the operators say that only one well has reached payout, and the three others have not.

The PPMI well had very flush production in the first six months and paid out in seven months.

The PPMI Number 4 well, which was drilled in November of 1990, will not pay out for another seven to eight months, and that is with the commingled production of the Bough "C".

The Knox well, which was drilled in October of 1990, they say, will not pay out for about another six months, which will give you a total payout of around three

and a half years.

And the data that we have on the BTA well, they're saying that it may not ever pay out.

Q. All right. Let's go to Exhibit Number 10. Could you identify this and explain it to the Examiner?

A. Exhibit 10 is a plot of the monthly average crude oil price summary for New Mexico intermediate posting, and this is from June of 1990 through September of 1993.

And the point of this is that the PPMI well was at this peak where oil ranged from 25 to 34 barrels -- $34 per barrel, which was the Iraq crisis, and since then has dropped down. So their payout was due to unusual circumstances of high rate of production, plus a high price for crude.

Q. And that's the PPMI Number 3 well?

A. Number 3 well, yes.

Q. That's the only well that has paid out --

A. That's true.

Q. -- at this time.

So basically what we're looking at is a field in which we need the special pool rules for economic reasons?

A. That's true.

Q. Could you identify what has been marked as Exhibit Number 11?

A. Exhibit 11 is letters from the two other current

operators or producers in the area, one from Knox Industries supporting our testimony today, and the second is from the BTA to the same effect.

Q. Mr. Luff, in your opinion will additional wells be drilled in this pool if 80-acre spacing is adopted on a permanent basis?

A. Well, to go back to Exhibits 1 or 2, there is a location staked in the northeast of the southwest of Section 3 by Purvis, and Knox has an interest in that. This well is to be drilled, they say, by the end of the year.

PPMI and BTA have discussions going on as to drilling other wells in the area, in the range, probably three to four wells.

Q. In your opinion, would these wells be drilled if the spacing of the pool reverts to 40 acres?

A. In my opinion, no, I don't think so, because I think it -- They won't be able to get the return on their investment. And certainly the operators would go back and review their economics if you do have 40-acre spacing.

Q. Does Petroleum Production Management, Inc., request that rules be established for this pool, including 80-acre spacing on a permanent basis?

A. Yes, they do.

Q. In your opinion, if those rules are adopted will

it be in the best interest of conservation, the prevention of waste, and the protection of correlative rights?

A. Yes, I think it will.

Q. If the rules are adopted on a permanent basis, do you believe additional development will occur in the pool that otherwise would not take place?

A. Yes, sir.

Q. Were Exhibits 1 through 11 prepared by you or compiled under your supervision?

A. Yes, sir.

MR. CARR: At this time, Mr. Stogner, we move the introduction of Petroleum Production Management, Inc,'s Exhibits 1 through 11.

EXAMINER STOGNER: Exhibits 1 through 11 will be admitted into evidence.

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

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Luff, in looking at the original order -- I wasn't a hearing examiner then, but there was a finding in there that evidence available indicates that the Number 2 well was capable of draining an area in excess of 40 acres.

Let's talk about the capability of these wells draining more than 40 and up to 80 adequately, and I'm

assuming that's what your Exhibit Number 7 is trying to show me today?

A. Let me get the right exhibit.

Q. I'm not clear just where we're going with the drainage on this.

A. Yes. Well, I think if you go back to the cross-section -- And that was one of the purposes of the cross-section, which was Exhibit 6, was that in trying to identify the zones -- and they appear to be in all wells; they're certainly not the same thickness, but they appear to be continuous over the area that I have mapped -- it is difficult to map beyond what we have today because of the old logs that we have, and sometimes you really don't see this zone on there. In many cases the operators did not even log this interval.

To back up a little bit on the history, the wells in this area were drilled for the Bough "C", and they were drilled quite rapidly, and the operators did not look at the Abo zone. And since those wells have been plugged out, we're currently going back and looking for behind-pipe reserves, and that's how we got into this.

I do think, though, that the zone, as shown on Exhibit 2 of the map, does cover the area. Certainly it's not going to be the same quality in all wells.

And one of the problems we have is with the

permeability, which is, as you know, a hard factor to determine.

Certainly we must have had greater permeability in the Well Number 3 than we did in the other three wells. But they -- It flowed at a higher production rate than the other three wells did initially.

Q. Do you know, or have you seen any indication that any kind of -- I don't want to say breakthrough, but indication of the Knox Number 2 well and your Number 3 well, any indication of communications?

A. No, sir.

Q. The reason I say that, I mean, those are the two closest wells.

A. Yes.

Q. I'm still going back to the drainage. I just don't see that these wells are adequately draining 80-acres. That's -- as was founded in the original order.

Do you have anything to substantiate that today or help me out on that?

A. No, there were no pressures taken by any of the operators, you know, since -- initially or since then, so I have nothing to back up that there is any local limits to this thing or they would drain more or less than we have today.

And I think it's primarily going back to the cost

of drilling the wells, you know, on that -- 40-acre spacing, would be quite high for the return you get.

Q. Of these four wells out there, they do presently have 80-acres dedicated to them?

A. Yes, sir.

Q. Okay. What would happen at this particular time if these wells are producing and even planned on some additional wells, away from this general area? You said, down to the southwest quarter; is that correct? The proposed well?

A. Yes.

Q. And that's that --

A. If we can go to Exhibit 3, I'll point out the 80-acre tracts that are dedicated to each well.

Q. Okay.

A. In Section 33, the BTA well is in a laydown 80-acres covering the south half of the southeast.

In Section 34 the Well Number 3 is a laydown 80 covering the south half of the southwest. And the Well Number 4 is a laydown 80 covering the north half of the southeast.

The Knox well in Section 3 is a standup covering the east half of the northwest. And I'm not sure how Purvis has dedicated his well in the southwest quarter of Section 3, but I would imagine it's going to be standup

also.

So this still leaves some, you know, spacing in between on undrilled 80s at this time. But some of this has been due to who owns the rights and how that's going to be determined between -- For instance, in Section 34, between PPMI and BTA.

Q. Are you referring to that Number 4 well?

A. Well, I'm referring to -- At this time, there is not a well on the north half of the southwest or on the south half of the southeast.

Q. Okay.

A. Which I think probably will be drilled, but it depends on negotiations and so on. That still is to be determined.

And as you can see, the Purvis lease in Section 3 is due to expire on December 1st of this year. So future development of that, I guess, will depend on the results of their test.

Q. If this well was to be developed from here on out on 40-acre spacing, what would happen to the present 80-acre proration units if they were to be cut in half? Would there be any -- How would you say? -- deletion of interest owners or of parties being -- that are now presently benefitting from production? Or are they all on one lease?

A. No, I don't think there would be any reduction in

that. However, I'm just not sure there'd ever be any more development on 40 acres as -- versus the 80 acres, because of the cost factor.

EXAMINER STOGNER: Mr. Carr, do you have any other questions?

MR. CARR: I don't believe so, Mr. Stogner.

EXAMINER STOGNER: Mr. Carr, help me out just a little bit here. I'm not asking you to be a witness or anything, but do you -- Can you recall any previous establishment of 80 acres on economics alone?

MR. CARR: No, and in the prior case there was some testimony about the number of acres or the volume that each of these wells might be able to drill. We simply don't have any data, Mr. Stogner, to bring this matter forward. We took this matter over from Knox just in the last few weeks.

The only thought that I have is that since there are several additional wells that we anticipate will be drilled, that it puts all of us, us as well as you, in an awkward position, trying to reach these ultimate findings on drainage without any pressure information or anything of that nature.

Operators are hoping to go forward with the additional development. It might be prudent to continue temporary rules for an additional one-year period of time

with the direction that this kind of pressure information be obtained.

Other than that, I mean, you're having, obviously, today, Mr. Stogner, the same problem we've been having with the case, trying to prepare it and bring it to you. There is a potential here to drill additional wells, but if the rules do go back to 40, the operators are frankly concerned that it isn't economic.

And that is -- I think it might be helpful to incorporate the record -- although I assume that it is since it's a re-opened case -- of the prior hearing, because in that case they did present the best information available on the limited data that exists on this pool.

EXAMINER STOGNER: Other than the question of purely economics or economics being the main factor, then you would suggest either a one- or two-year continuation of the temporary?

MR. CARR: Yes, sir, with the direction that as this additional development does go forward, that certain pressure information be obtained.

EXAMINER STOGNER: Okay. With that, I don't have any other questions of Mr. Luff. If there's nothing else further at this time --

MR. CARR: We have nothing further in this case.

EXAMINER STOGNER: -- then I will take the re-

opened Case 10,280 under advisement.

Mr. Carr, could you provide me a rough draft --

MR. CARR: Yes, sir, I will.

EXAMINER STOGNER: -- on this particular Order?

MR. CARR: My pleasure.

(Thereupon, these proceedings were concluded at 8:50 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 25, 1993.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1994

Received

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10280, heard by me on Nov 1993.

Examiner
Oil Conservation Division

NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date OCTOBER 21, 1993 Time: 8:15 A.M.

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Steve Brenner	Cumbre Court Reporting	SF
Bruce Gantner	PPMI	Midland
Ellen Ladd	PPMI	Midland
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NEW MEXICO OIL CONSERVATION COMMISSION

EXAMINER HEARING

SANTA FE, NEW MEXICO

Hearing Date OCTOBER 21, 1993 Time: 8:15 A.M.

NAME	REPRESENTING	LOCATION