STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

18 November 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Petrus Operating Company, Inc. for pool creation and an unorthodox gas well location, Eddy County, New Mexico. CASE 9241

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant:

MR. CATANACH: Call next Case Number 9241.

MR. TAYLOR: The application of Petrus Operating Company, Incorporated, for pool creation and an unorthodox gas well location, Eddy County, New Mexico.

MR. CATANACH: This case was originally heard October 21st and subsequently had to be readvertised and continued to allow the applicant time to notify some offset operators and some people within the pool.

Let the record show that we have received verification of notice from the applicant and is there anything further in this case at this time?

If not, it will be taken under advisement.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9211, heard by me on November 18 1987.

David R. Catanach, Examiner
Oil Conservation Division

STATE OF NEW MEXICO
ENERGY, MINERALS, AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BLDG.
SANTA FE, NEW MEXICO

21 October 1987

EXAMINER HEARING

IN THE MATTER OF:

Application of Petrus Operating Company, Inc., for pool creation and an unorthodox gas well location, Eddy County, New Mexico. CASE 9241

BEFORE: David R. Catanach, Examiner

TRANSCRIPT OF HEARING

A P P E A R A N C E S

For the Division: Jeff Taylor
Attorney at Law
Legal Counsel to the Division
State Land Office Bldg.
Santa Fe, New Mexico 87501

For the Applicant: Scott Hall
Attorney at Law
CAMPBELL & BLACK P. A.
P. O. Box 2208
Santa Fe, New Mexico 87501

I N D E X

E X H I B I T S

MR. CATANACH: Call next Case 9241.

MR. TAYLOR: Application of Petrus Operating Company, Incorporated, for pool creation and an unorthodox gas well location, Eddy County, New Mexico.

MR. CATANACH: Are there appearances in this case?

MR. HALL: Mr. Examiner, Scott Hall from Campbell & Black of Santa Fe on behalf of the applicant.

I have two witnesses to be sworn this morning.

MR. CATANACH: Are there any other appearances in this case?

Will the two witnesses please stand and be sworn in?

(Witnesses sworn.)

RICHARD L. STAMETS,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HALL:

Q Will you for the record tell me your name, where you live, and how you're employed?

A My name is Richard L. Stamets. I am a consultant in matters related to conservation of oil and gas in the state, and I live at 201 West San Mateo, in Santa Fe, New Mexico.

Q And you've previously been sworn and given testimony before the Division?

A Yes, I have.

Q Are you familiar with the subject application and the subject well?

A I am.

Q Could you explain to the Examiner what it is that Petrus seeks today?

A Yes. Petrus is seeking the creation of a new gas pool for Lower Pennsylvanian production, that would be the Atoka-Morrow interval, for a well to be -- which probably could be designated the Henshaw Lower Pennsylvanian Gas Pool. It would be the west half of Secton 14, Township 16 South, Range 30 East.

They're also seeking a nonstandard location for the discovery well for this new pool.

The gas pool request is a little bit un-

usual due to the relatively low gas/liquid ratio but evidence that will be presented later in this case should demonstrate that that is a retrograde condensate gas reservoir.

Also, the low gas/liquid ratio is not uncommon for a gas pool in this particular area.

Q Have you prepared certain exhibits in conjunction with your case?

A Yes, I have.

Q Well, let's look at those.

A Okay, the first one is Exhibit One, which is this small map, area map.

What I did is I took a look at the nine township area surrounding and including Township 16 South, Range 30 east, and I looked at all the deeper horizons in there to see what was producing, the Wolfcamp and deeper.

On this map I've only plotted the gas pools but as far as oil pools are concerned, there are only a couple of those in Township 16 South, Range 30 East.

There's the Henshaw Wolfcamp Pool, which covers roughly the area of Section 12, 13, 14, on down through 25 and 26, and then the Henshaw, West Henshaw Wolfcamp Oil, which is south and west of that location. There are no Pennsylvanian pools of any kind in this township.

Also, if you look at the map you can see that the closest Atoka gas pool is what's identified as the Loco Hills Atoka, which is some seven miles to the south; however, if you'll look up to the north, what's designated as the Little Lucky Lake Morrow Pool, it will be demonstrated in the cross sections later that this appears to be the same producing horizon that's the producing horizon in the proposed pool.

Also in 16, 30, you have the henshaw Devonian gas, which was an abandoned -- it is an abandoned pool and it produced just a minimum amount of production.

So basically what you're looking at is a township which is a wildcat township.

Q All right. Let's look at Exhibit Two. What does it intend to look like?

A I took the gas pools that I have identified on Exhibit One and looked at the historic production, the production for the last year in the 1986 Annual Statistical Report that is put out by the Oil Conservation Division, and I found these 1, 2, 3, 4, 5, 6, 7, 8, 9 gas pools in the area, which produce with relatively low gas/liquid ratios.

If you'll look at those, especially in the cum column, you see that they're pools which have produced with GLR's less than 5000 to up to, oh, about 56,000

as opposed to the usual gas pool designation of 100,000-to-1 or more.

So it's not uncommon. Also, you remember I mentioned the Little Lucky Lake Morrow Pool, which we believe is producing from the same horizon, and its GLR was a little over 10,000-to-1 in 1986 and its cumed GLR is just a little over 11,000-to-1, but it seems to be consistent with what has been found in this -- in this new pool.

Q Can you clarify exactly why this nonstandard location application resulted? What were the events leading up to that?

A Well, Exhibit Three is the Application to Drill for the discovery well and the plat and as the applicant wishes to dedicate the west half, you can readily see that this would be an unorthodox location based upon the standard gas spacing rules.

The well, of course, was drilled as an oil well and as I understand it, the location was pushed further south than was desired because of Federal archaeological considerations.

So what we have here is a legitimate oil test which turned out to be gas in a wildcat area, a situation which is not uncommon, and that's happened quite often over the years.

The only concern with this is that there

is, it's been said that there is an OCD policy related to penalties for unorthodox gas well locations and even though that's been stated, it's not really been made very clear whether it's to apply to every single location. In the past it's not applied to this type of location unless there's been an objection.

So we're concerned about that. I don't believe that a penalty is -- is appropriate in this case because, again, as I said, this was a legitimate oil test and we're dealing with basically an oil producing area. The location is further south than desired because of archaeological considerations.

You have the same owners immediately to the south. The same owners are in the north half of the northwest quarter of Section 23. So they're the ones who would be most affected by the unorthodox location.

The applicant could consider a laydown 320 in here but as they do not own the east half of the section, this would dilute their interest in the well and hurt their economics.

The east half owners can drill their own well and protect their own correlative rights, so correlative rights is not a problem there.

They could consider a nonstandard proration unit, which would include the southwest of 14 and the

northwest of 23, but this would simply cause the next well to have to be drilled on another nonstandard proration unit throughout the pool which would make a lot of unnecessary administrative work for the applicants and the Division.

Also, the next well at this time is planned for the north half of Section 23 at a location 1980 feet from the north line, which would give quite good spacing away from the original well and good drainage. So it's our feeling that based upon the legitimacy of the well, the ownership conditions, that there is no need at this time for any penalty to be applied on the productivity of the well.

Q Is there anything further you wish to add?

A No.

MR. HALL: Mr. Examiner, is the witness deemed qualified to render an expert opinion?

MR. CATANACH: He is considered qualified.

Q And, Mr. Stamets, were Exhibits One through Three prepared by you or at your direction?

A They were prepared by me or they're copies of official records.

Q All right.

MR. HALL: We'd move the admission of Exhibits One, Two, and Three.

That concludes our direct of this witness.

MR. CATANACH: Exhibits One, Two, and Three will be admitted into evidence.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Stamets, do you have a map which shows offset -- ownership of offset acreage?

A I don't have that. I believe the next witness will be presenting a map on that.

Q But to your knowledge the applicant does own the operating rights in that -- in the section immediately to the south of this?

A It's a little -- a little confusing. The -- Petrus is the operator of the Henshaw Deep Unit, but as in numbers of units over the years, some of the owners retain 100 percent rights in portions of the units.

Petrus and their two partners have the north half of the northwest quarter of 23 and their proportional ownership is the same as it is in the west half of Section 14.

Texaco is a 100 percent owner in the west

half of the northeast quarter of Section 23.

Beyond that, Petrus and their partners are approximately 2/3rds owners in the Henshaw Deep Unit and there are a number of other interest owners in there who are different from the owners in the west half of 14.

Q Okay, the Henshaw Deep Unit, that is unitized in the proposed -- in the formations in question.

A It's my understanding that the Henshaw Deep Unit would include those horizons but they have not been developed at this point.

Q Is it my understanding that the well has been drilled, is that correct?

A It was drilled and completed.

Q It was originally drilled to the Devonian?

A It was and Mr. Erwin will have evidence on that.

Q The gas pools that you've shown on Exhibit Two, are those -- are all of those spaced on 320 acres?

A I meant to look that up this morning. I suspect that they are not because some of those are older pools. For example, on the far right you've got the Fren Pennsylvanian Pool and the southwest quarter of Section, oh, it looks like Section 15 is in the pool instead of the whole half section, so I suspect that that one is probably on

160's.

The Henshaw Devonian obviously was a 160. I suspect the West Anderson Ranch Pennsylvanian is 160 and the Little Lucky Lake Morrow may be 160's as well, because I see the southeast quarter of Section 30 in there. That would be fairly easy to check. I believe these are shown in the front of the Annual Statistical Report as to what the spacing is.

Up until, oh, I think the early seventies 160 was standard spacing for all gas pools regardless of depth.

Q Do you -- do you know how the gas/liquid ratio has -- has fluctuated or changed in these pools over the years or have you just looked up the information?

A I just looked at the -- the current information. I think it's interesting to look at the four that we do have. Most of them are relatively close.

Little Lucky Lake, the last year is basically the same as the cum, so there should not have been too much variation over the years.

The Grayburg Strawn, again, the last two, the last year and the cum are very close.

I'd even say the West Cedar Point Wolfcamp is relatively close.

The one with the greatest differential

seems to be the Cedar Lake Morrow Gas and that just simply may be in the later stages of development, if that is indeed a retrograde condensate reservoir where the liquids are finally dropping off relative to gas volumes.

MR. HALL: Mr. Examiner, I think the next witness will be able to explain in greater detail on that.

MR. CATANACH: Okay. I have no other questions of the witness.

He may be excused.

MICHAEL DEAN ERWIN,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. HALL:

Q For the record, state your name and tell me where you live and how you're employed.

A My name is Michael Dean Erwin and I live at 2601 Fountainhead Drive in Plano, Texas, and I'm employed as a production engineer with Petrus Oil Company, LP, in Dallas.

Q All right, have you previously testified before the Division?

A No, I have not.

Q Why don't you give the Examiner a brief summary of your educational background and work experience?

A I graduated in 1977 from Louisiana State University with a degree in civil engineering and spent the next five years employed with Exxon in two locations, both Corpus Christi and Lafayette, Louisiana, as a production engineer and the workover activities.

After that I spent two years employed by Superior Oil in Lafayette, Louisiana, in their workover and facility group and have been employed now for the last three and almost a half years with Petrus as a production engineer.

Q Does your area of responsibility now include west Texas and eastern New Mexico?

A Yes, it does. We are split among our duties regionally and I am responsible for the drilling, reservoir, and production activities in the west Texas and New Mexico area.

Q And are you familiar with the subject well and the application before the Examiner today?

A Yes, I am.

MR. HALL: Mr. Examiner, is the witness deemed qualified to render an opinion?

MR. CATANACH: He is so quali-

fied.

Q Mr. Erwin, if you would, would you please elaborate on what Petrus' original plans for the well were and tell the Examiner what your future plans for development of the pool are?

A Okay. This well was purchased, or this Henshaw Deep prospect as we referred to it for quite some time, was purchased with the sole intent of drilling a Devonlian test based on seismic that our Midland geologist had developed, and I'd like to refer to Exhibit, I believe this is Number Four, which is a structure map of the Henshaw area and is our current best interpretation of the top of the Mississippian structure, which should be a reflection of the Devonian, the Mississippian being immediately underlain -- or immediately on top of the Devonian.

Larry Seeright, our geologist in Midland, felt that there was a crest in the Devonian that occurred in -- off the northwest flank of the Henshaw Deep Field and proposed this Henshaw Federal prospect at the highest structural point that he could identify based on seismic.

There are no adequate control points as seen in other offset wells to really delineate the structure of the Devonian.

The only two control points available are in the Henshaw Deep Unit No. 5 and Henshaw Deep Unit No. 1,

and are both structurally lower than where we intended to encounter the Devonian in the Henshaw Federal No. 1.

At the time the well was permitted we felt it would be an oil well with the primary target being the Devonian and the secondary targets based on offset production in the Wolfcamp, as seen in the deep unit, and possibly in the Atoka Morrow series as really a third objective.

Our intent in drilling the well was to establish an 80-acre pattern in order to proceed to drill additional Devonian tests.

There were no other gas pool offsets immediately adjacent to us and no other deep tests available that proved the Atoka-Morrow gas interval to be productive in the area. I might add that this interval in the Atoka morrow does show up in the two offset deep wells in the Deep Unit No. 4 and it only develops 4-foot of interval, and based on log analysis was probably covered with mudcake and is possibly productive because of a microlog show in that 4-foot interval, but it has not ever been tested.

In the No. 1 Well, which is the furthest east of the two, we see 20 foot of sand developed but by log analysis it's clearly wet.

Our original location would have been targeted over closer in the corner of the section. The ori-

ginal intent was to get high on structure and placed us in the corner. We moved east in order to stay off of the lease lines and again develop this up on an 80-acre laydown, and ran into problems both with geography in that there are some low spots and swells in the area, and archaeological problems with artifact outcrops to the west and across the northeast corner of our location and instead of being able to drill 60 off the lease line, it forced us to go south. It's a compromise between the geologist and what the archaeologists have found.

We, let's see, okay, that's --

Q Why don't we look at Exhibit Five, if you would, please, and why don't you idenitfy that and explain to the Examiner what that's intended to show?

A Okay. Exhibit Five is Form C-105 of the Oil Conservation Division and is the well completion report as filed with the OCD. And in particular what I had wanted to refer to are the results of the drill stem tests that were performed in the well. We've tested every interval that we thought would be potentially productive because this was considered by our geologist to be a wildcat.

Drill stem test number one was in the top of the Wolfcamp at an interval from 7650 down to 7740 and we encountered nothing but essentially gas-cut mud with traces of oil and it was not considered productive.

The second test was in the top of the Cisco form 8780 to 8851 and there we recovered primarily sulphur water in addition to traces of oil and gas and this interval was again not considered productive.

Drill stem tests three and four were in the interval that we are now discussing, in the Atoka Morrow and both tests were unsuccessful due to problems with the packer. We did, however, recover gas to surface, which we considered conclusive test that although it was not an effective drill stem test, it was conclusive to us that the interval was productive.

Q Was the first indication that you had a gas well?

A That's correct.

Q Okay.

A Other than just drilling breaks in the process of drilling. We had not logged the interval at this time.

Our drill stem test number five was in the base of the Morrow from 10,540 to 10,3 -- I'm sorry, excuse me, 10,636 and we recovered small shows of gas with no oil or water and as a possible zone for test at a later date because of the pressure response.

I'd rather focus the attention to the drill stem test in the Devonian. As originally proposed we

expected to find the top of the Devonian at 11,250. In fact we encountered the top at 11,469, which is 219 feet low to the original target. It is still, though, at that depth up dip by 75 feet to the Henshaw Deep Unit No. 5, where we saw the 4-foot of pay that was possibly productive by log analysis, and also up dip to the No. 1 Well which was low and wet.

Neither of the two drill stem tests in the Devonian showed signs of commercial production. In both cases the interval was found to be extremely tight, as indicated by the low flowing pressures, and the poor recoveries, and we proceeded on the basis of those two tests to plug back above the Devonian.

Q Were you able to correlate the results from this test with what you knew about the Little Lucky Lake area?

A After examining the logs and taking another look at the structure, again our geologist in Midland feels there's a very strong correlation between our production and that of Little Lucky Lake in trying to find other intervals that correlate to what we found, and so I would enter Exhibits Five and Six as structure maps --

MR. HALL: For the record, they're Exhibits Six and Seven.

A Six and Seven. Yes, cross sections in

the three wells in the Henshaw Deep Unit and the three wells in the Little Lucky Lake Field.

According to Larry, we're looking at Atoka, Morrow, and then a hard lime streak that's a distinct marker at the base of the two intervals that is characteristic of both formations, and correlates the top producing interval as denoted in yellow on this example, to the production in our well. The interval shown in red and yellow is the base of what he is considering the Atoka but there's been considerable debate even within our own company whether it's Atoka or Morrow. Little Lucky Lake is classified as Morrow; geologically, though, Larry believes that our producing interval correlates exactly with what is considered or called Morrow in the Little Lucky Lake Field.

The comparison goes even further by looking at the production characteristics of the fluids in the Little Lucky Lake Field.

The gas/oil ratios exhibited by Little Lucky Lake are very similar to gas/oil ratios exhibited early on in the Henshaw Federal No. 1, and although I did not prepare it as an exhibit, I'd like to further answer your question, David, on the response of GOR's in the area. The one pattern that we saw the best fit with is Little Lucky Lake. This is the Perry No. 4, I believe, and is a PI report that we gleaned from PI and shows their cumulative gas and oil production by month and I have plotted the GOR.

It started in the 8000 range and has been gradually increasing and have increased through the life of the well. I think, even though I don't have evidence to support the fact that it is a retrograde condensate reservoir, I think the GOR's are indicating it.

I was able to do the same thing with the Little Lucky Lake No. 3 and it's showing some erratic behavior late in life but the trend is still that of a retrograde condensate reservoir.

The condensate gravity as originally reported on scout tickets was 63 degrees, and by examination of their fluids in the field with ours, we found that they exhibit the same very light yellow color and I believe they -- although it's not likely that this structure extends and is productive between us and Little Lucky Lake, I do think they are comparable pools.

Q All right, let's look at Exhibit Number Eight. Would you identify that package of materials and explain to the Examiner what it's intended to reflect?

A Okay. Exhibit Number Eight is a multipoint and back pressure test that was performed on the Henshaw Federal No. 1 after completion.

The well was originally perforated on the 13th of August and tested from the 13th until the 15th in order to clean it up.

A build-up test was run at that -- a pressure build-up test at that time was run between the 15th and the 17th in order to get build-up test data to calculate permeabilities and productive limits for the well and then the 4-point test was run on the 18th and the results of that test are reflected in this exhibit.

Q What is the gas/oil ratio shown by that exhibit?

A The gas/oil ratio for this test is 8332 standard cubic feet per barrel, which is lower than we've seen during actual production testing. I think it's a result of having been shut-in to perform the build-up test immediately prior to the 4-point test.

It is still consistent with the early gas/oil ratios that we've seen in the Little Lucky Lake Field and I think a similar trend is developing with time as the GOR's gradually increase.

The -- I do believe that the GOR as seen here is little more than a snapshot in the life of this well and not reflective of the GOR that we will ultimately see over the life of the well.

Q What was the actual open flow?

A The actual open flow as calculated was 1,514,000 standard cubic feet per day.

The actual -- during the period of tes-

ting we have produced the well as high as 1200 MCF per day and based on the build-up test results we believe the well is capable of producing at significantly higher rates.

I might point out that during the build-up test the flowing pressures of the well were kept well above 1500 psi and the sales line pressure that we're going into is a 100 pound line.

So there is room for increasing the rates in practice and the build-up test indicated a very heavy skin damage in the immediate wellbore area that could possibly be removed by acid treatment or a frac job, which would further increase the potential of the well.

The permeability as measured on the build-up test is 5-1/2 millidarcies over a producing interval of 16 feet.

We calculated a skin of 58 which is the highest we've seen for a well in the area and I think caused by the over balance in mud weight during drilling.

Q Does this exhibit reflect the gravity of the liquids produced out of the well?

A Yes, it does. The gravity is reported as 59 degrees and I'll introduce an additional exhibit that will breakdown the compositional analysis further. I think it is important to note that the heptanes plus based on analysis show an API gravity of 50 degrees, again reflective of

the condensate nature of the reservoir.

The color of the fluid is a clear, very pale yellow; probably most similar in color to lemonade.

Q What does Exhibit Eight show with respect to your bottom hole pressure?

A Bottom hole pressure was measured during the build-up test and found to be 4,075 pounds, which is higher than the -- I don't have -- let's see -- okay, the initial bottom hole pressure of 4.075 pounds is higher than the dew point as determined by the pressure, the PVT analysis of 3,873.

Q And you're referring to Exhibit Nine?

A Yes.

Q Is there anything further you would like to add with respect to Exhibit Eight?

A Exhibit Eight includes the results of the build-up test analysis should the State wish to perform their own analysis in addition.

Q All right, let's look at Exhibit Nine. Would you identify that and explain that to the Examiner.

A Exhibit Nine was prepared by Core Laboratories in Midland and is taken from fluid samples that were collected on the location at the primary separator on October the 12th of this year. At that time the well had been producing for five days and the GOR of the cumulative pro-

duction was 11,573.

By calculaton of the actual gas and oil rates the day that the sample was caught, the GOR was calculated to be 13,798.

Using that and the samples of oil and gas retrieved from the well, Core Labs prepared an analysis of the fluids under bottom hole pressure conditions.

I think the most notable points to be made are the wellstream analysis which is shown on page four, which confirms that the content of the liquids is extremely light and representative of the condensate reservoir by virtue of the high gravity and the extremely high gravity of the heptanes plus.

The gas gravity of the gas is .810 and the BTU value of the gas saturated is 1399 BTU.

In addition, Core labs has prepared a graphical analysis of the retrograde condensation effect that will occur over depletion of the reservoir and that's detailed on page six -- on page five, and shows how the liquid content will be dropping out with time as we deplete the pressure in the reservoir.

Q Is there anything further you wish to add with respect to Exhibit Nine?

A I would conclude that Exhibit Nine is substantial confirmation that what we're dealing with is a

gas reservoir with the hydrocarbon fluids in the reservoir being in a gaseous state and that the high gas/oil ratio that we're seeing during the production of the well is a result of the very rich nature of the gas.

Q All right. Now, Mr. Erwin, I understand from previous testimony that it was originally the plans of Petrus to develop the pool on 80-acre laydown drilling units, is that correct?

A That is correct.

Q With what you know about the field now from Henshaw Federal No. 1, would it be economic to develop the field on any spacing other than 320 acres?

A No, I do not believe so. There are several reasons why we've come to that conclusion, the first of which is hte high permeability which during the build-up test was -- we found it to be 5-1/2 millidarcy peremability and that was from the very first test run in the well and represents a depth of investigation of 500 feet.

The second reason is that the structure at this time is poorly defined. It is still a seismic or wildcat play with very poor definition yet of the structure and I think an excess of drilling would occur if we were to try to develop this on a smaller pattern. There's a very good likelihood that several dry holes would be drilled in an attempt to identify the structure.

I think it's evident by comparison with Little Lucky Lake that we're dealing with a small feature that would not substantiate excessive drilling.

In addition, we have an unknown water content, water contact, excuse me, as seen in the Henshaw Deep Unit No. 1, that we do not know the extent of.

The cost of drilling in this area is quite high. Our dry hole costs are in excess of half a million dollars and completed costs to put a well on production are in excess of $800,000.

In addition, we've not seen other potentially productive intervals in the well to assist in the economics if the target interval in the Atoka-Morrow were to dry.

Q In your opinion will you recover as much hydrocarbon reserves on 320-acre spacing as you would on 80 or 40-acre spacing?

A Yes. The cumulative effect would be the same.

Q What are your plans for future development of the field? Where do you expect the next well might be located?

A The geologists have assured as that their next plans will be to the south. They feel like the area to the north will be properly drained by the position of this

well and because of an interest in trying to delineate the direction that the structure will take and the location of the water content -- water contact, they would like to move south into Section 23 and more than likely it would be due south of the current well by about 1900 -- excuse me, 1860 feet from this well, and we would in that position be requesting another 3 -- or expect to find another 320-acre laydown.

No, I take -- I'm -- I would like to correct that. I think there'd most likely be a standup 320-acre unit for the next well.

Q In Section 23.

A In Section 23.

Q All right. Let's look at Exhibit Ten. Let me ask you, does Exhibit Ten consist of notice letters to all offset operators that you have directed your counsel to send out by certified mail?

A Yes.

Q Now in view of the fact that this application also calls for creation of a new pool, we will -- do you have plans in the future to send additional notice to any of the other surrounding operators?

A Yes.

Q Could you briefly explain on our surface plat the ownership situation surrounding the location?

A Yes, I can. There are three owners, three working interest owners in the -- in this well, Petrus, Flag Redfern, and Primary Fuels, and those three own the interest to this west half of Section 14. In addition they own the drilling rights to the north half of the northwest quarter of Section 23 to the south of the well.

The majority of the remainder of this section, as in the adjacent Section 24, are owned by the partners in the Henshaw Deep Unit. Those partners own all the depths.

Petrus has arranged for the two partners here, Primary Fuels and Flag Redfern, to share in Petrus' ownership on the same percentage basis that they are partners up here. By that I mean in this subject unit Petrus has -- owns one-half of the unit with Primary and Flag each owning a quarter.

Petrus owns 61 percent of the Henshaw Deep Unit and that 61 percent is to be subdivided half to Petrus and a quarter each to both Primary and Flag, and that's at only depths below 9050.

For an additional well to be drilled in this unit, Petrus will be, and Flag and Primary, will be asking the remaining partners in the Deep Unit for farmout rights or for them to participate in drilling this additional well. So they will be allowed the opportunity to

participate.

If there is an interest in -- I'll try, as far as participation in the offset production but it's more complicated.

Q Can we go off the record for just a second?

A Sure.

(Thereupon a discussion was had off the record.)

MR. HALL: For the record we understand that we will be required to give additional notice of the application vis-a-vis the creation of a new pool and also provide additional notice for the unorthodox location to Texaco and the other working interest partners of Petrus. For purposes of giving notice for the creation of a new pool we understand notice to the operators alone will be sufficient. We'll simply submit an affidavit and ask that it be made a part of the record showing the return of the certified receipt cards transmitting the notice.

MR. CATANACH: Also, Mr. Hall --

MR. HALL: And we would request that the record be kept open until notice period --

MR. CATANACH: That's what I

was going to mention. We might as well just continue the case for a month.

MR. HALL: Okay.

MR. CATANACH: So that should give them time enough to get those in, and we'll entertain any additional testimony at that time. That will be the November 18th hearing.

But if there is no testimony at that time we'll just take the case under advisement.

Q Okay, I have a couple of clean-up questions with Mr. Erwin.

Mr. Ewin, in your opinion will the granting of Petrus' application be in the best interests of conservation, the prevention of waste and protection of correlative rights?

A Yes.

Q And were Exhibits Four through Ten prepared by you or at your direction?

A Yes.

MR. HALL: We'd move the admission of Exhibits Four through Ten and that concludes our case.

MR. CATANACH: Exhibits Four through Ten will be admitted into evidence.

I have a couple of questions.

CROSS EXAMINATION

BY MR. CATANACH:

Q Mr. Erwin, what causes you to believe that the proposed pool is not part of the Lucky Lady Morrow Gas Pool? Have you done any research on that?

A It's entirely seismic as far as I know.

The -- I would feel better if the geologist were here to further develop that, but he tells -- he sees the structure as dropping off to the north and it probably comes back up again in the Little Lucky Lake Field.

(Not clearly understood) I do not believe the feature is continuous all the way through and productive to the Little Lucky Lake Field.

Q Okay, can I get you to submit any -- some kind of written report from your geologist showing or giving some proof that that may not be continuous or contiguous with the Little Lucky Lake Morrow?

A Certainly.

Q And you can submit that sometime between now and the 18th of November.

If -- if this pool is classified as a gas well and assuming you have a market for your gas, you'll probably be producing at high rates, is that correct?

A Yes.

Q Okay, do you think that producing the well at high rates will have any adverse effect upon the reservoir?

A No, I do not. We're currently restricted on our producing rates by two criteria. One, the gas market's ability to take gas; their pressure requirements for producing into a casinghead gas line; that if we over-pressure it packs the line and could back other casinghead gas off, so we're working within those pressure requirements.

And then thirdly is the skin damage that we alluded to from the build-up test analysis, that does restrict the well's ability to produce.

And so it's not a situation where we are in an unlimited ability, have an unlimited ability to produce. There are constraints also with it.

Q Okay. Could you briefly go through again and explain to me how you have determined or how you think that this well will drain a 320-foot area?

A The 320-acre pool is standard for Atoka-Morrow. The major support for that contention is the high permeability that we've seen on the build-up test.

I think it's entirely possible that at a later date -- with -- with just having this one wll producing in the Atoka-Morrow, it's very early to really

determine what the drainage potential of the well is. A build-up test will only see out 500 feet at this point. Subsequently, in several months, we'll be able to run additional build-up tests that we'll be able to see boundary effects for further out on the -- to the extent of hte 320-acre drainage pattern.

At such time, if it's substantiated by test analysis that we cannot drain 320, we will be the first to propose drilling on a smaller spacing, perhaps 160's, in order to further define the field.

At this point, because it is a wildcat in a -- ona poorly defined structure, we would prefer the more common 320-acre spacing.

Q Okay, in the alternative, would you have any objection to the Division creating a pool and adopting these rules for a temporary period, say two years, and have you folks come back in at the end of two years and justify the 320-acre proration units?

A My only objection would be that I believe Little Lucky Lake is also developed on a 320-acre spacing and that I think we can substantiate our belief that we are consistent -- that this is consistent production with Little Lucky Lake.

Q So you would rather not we'd adopt temporary rules.

A We would -- we would prefer not.

Q I think that's all I have of the witness at this time.

MR. CATANACH: Is there anything further?

MR. HALL: No, sir.

MR. CATANACH: Okay, there being nothing further at this time, we'll leave the record open in Case 9241 until the November 18th, 1987 hearing, at which time we may entertain additional testimony in this matter.

MR. HALL: Okay, thanks.

MR. CATANACH: The hearing for Docket Number 32-87 is hereby adjourned.

(Hearing concluded.)

C E R T I F I C A T E

I, SALLY W. BOYD, C.S.R., DO HEREBY CERTIFY that the foregoing Transcript of Hearing before the Oil Conservation Division (Commission) was reported by me; that the said transcript is a full, true, and correct record of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 9241, heard by me on October 21, 1987.

David R. Catanach, Examiner
Oil Conservation Division