NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NO. 10970

IN THE MATTER OF:

The Application of Merrion Oil & Gas Corporation for Downhole Commingling and an Unorthodox Coal Gas Well Location, San Juan County, New Mexico.

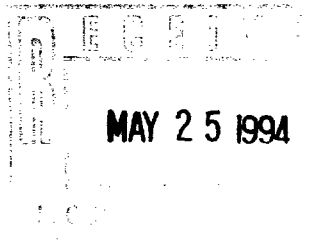
BEFORE:

MICHAEL E. STOGNER

Hearing Examiner

State Land Office Building

May 12, 1994



REPORTED BY:

CARLA DIANE RODRIGUEZ
Certified Shorthand Reporter
for the State of New Mexico

ORIGINAL

A P P E A R A N C E S

FOR THE APPLICANT:

TANSEY, ROSEBROUGH, GERDING & STROTHER, P.C.
Post Office Box 1020
Farmington, New Mexico 87401-1020
BY: **B. TOMMY ROBERTS, ESQ.**

I N D E X

E X H I B I T S

EXAMINER STOGNER: At this time I'll call Case 10970, which is the application of Merrion Oil & Gas corporation for downhole commingling and an unorthodox coal gas well location, San Juan County, New Mexico.

At this time I'll call for appearances.

MR. ROBERTS: Mr. Examiner, my name is Tommy Roberts. I'm with the law firm of Tansey, Rosebrough, Gerding and Strother in Farmington, New Mexico, appearing on behalf of the Applicant, Merrion Oil & Gas Corporation, and I have one witness to be sworn.

EXAMINER STOGNER: Mr. Roberts, the witness you asked to be sworn at this time, has he testified in the previous case?

MR. ROBERTS: Yes, he has.

EXAMINER STOGNER: Let the record show that George Sharpe has been previously sworn in Case 10969, and remains under oath.

Any other appearances in this matter? If not, please continue, Mr. Roberts.

GEORGE SHARPE

Having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. ROBERTS:

Q. Would you state your name and place of residence for the record.

A. My name is George Sharpe. I live in Farmington, New Mexico.

MR. ROBERTS: Mr. Examiner, Mr. Sharpe has previously been qualified as an expert petroleum engineer, and that would be the purpose for his testimony in this case, and we would ask that you take administrative notice of that fact.

EXAMINER STOGNER: Notice is so taken of that fact.

Q. Mr. Sharpe, would you briefly state the purpose of this application?

A. The purpose of this application is to obtain approval--request approval for the downhole commingling of the Carnahan Com No. 1 well in the Basin-Fruitland Coal and Fulcher Kutz-Pictured Cliffs Pools.

The well is located in the southeast quarter of Section 35, Township 30 North, Range 12 West, San Juan County, New Mexico.

Q. What is the footage location of that

well?

A. The footage location is 990 feet from the south line and 990 feet from the east line of Section 35, 30 North, 12 West.

Q. Would you briefly summarize the drilling, completion and producing history of the Carnahan Com No. 1 well?

A. The Carnahan Com No. 1 well was drilled in the 1950s as a Dakota well. It produced through, I believe, the early 70s out of the Dakota, and developed a casing leak. They plugged it back out of the Dakota, fixed the casing leak, and completed it as a Mesaverde well. It has produced as a Mesaverde well for a number of years, and is currently shut in uneconomic in the Mesaverde, and we would recomplete it back to the Fruitland and Pictured Cliffs.

Q. What kind of hydrocarbon substances do you expect to be produced from the Fruitland Coal and from the Pictured Cliffs? In other words, do you expect any liquid hydrocarbons from either zone?

A. We do not anticipate liquid hydrocarbons. We anticipate dry gas production

from both zones.

Q. Is there a possibility of condensate from the Pictured Cliffs formation?

A. There is some possibility.

Q. What about the Fruitland Coal?

A. There is little possibility.

Q. Was this wellbore at a standard location for the development of the Dakota formation?

A. Yes, it was.

Q. Was it at a standard location for the Mesaverde formation?

A. Yes, it was.

Q. Is the wellbore at a standard footage location for the development of the Picture Cliffs formation?

A. Yes, it is.

Q. For the Fruitland coal formation?

A. Yes, it is.

Q. Is it accurate to say that this well is in a nonstandard location in accordance with the rules applicable to the Basin-Fruitland Coal formation, by virtue of its being located in a different quarter section than dictated by the rules?

A. Yes, it is. It is located in the southeast quarter, and the proper location, per the rules, would be either the northeast quarter or the southwest quarter of the section.

Q. Have you filed an administrative application for approval of this nonstandard coal gas well location?

A. Yes, we have.

Q. Has that application been acted upon by the Oil Conservation Division?

A. Not to my knowledge.

Q. Do you know the status of that application?

A. I do not.

Q. I want you to refer to what you have marked as the Applicant's Exhibit No. 1. Identify the exhibit, and describe the information that is illustrated on the exhibit.

A. Exhibit No. 1 shows the offset acreage and the offset ownership surrounding our proposed location. The cross-hatched section, going from northeast to southwest, indicates the 320 acres that would be dedicated to the Fruitland Coal. The cross-hatch going from the northwest to the southeast indicates the 160 acres that would be

dedicated to the Pictured Cliffs formation.

Also shown on the map are all offset Pictured Cliffs and Fruitland Coal wells that surround our proposed location.

Q. What is the half section which would be dedicated to the Fruitland Coal completion in this well?

A. The half section is a stand-up 320, located in the east half of Section 35, Township 30 North, Range 12 West.

Q. Is that a 320-acre spacing unit?

A. I don't know if it's exactly 320 acres or not, to tell you the truth.

Q. To your knowledge, would it be within the limits?

A. To my knowledge, it's within the limits of an acceptable spacing unit.

Q. What is the quarter section which would be dedicated to the Pictured Cliffs completion in this wellbore?

A. It would be the southwest--excuse me, southeast quarter of Section 35, Township 30 North, Range 12 West.

Q. Does that comprise 160 acres or at least is it within the variations permitted by

the Oil Conservation Division?

A. That is 160 acres.

Q. How is the location of the Carnahan Com No. 1 well depicted on Exhibit No. 1?

A. The Carnahan Com No. 1 well is labeled as the Carnahan Com No. 1, and an arrow points to it saying it's a proposed Fruitland recompletion, and it should be Fruitland and Pictured Cliffs recompletion.

Q. What types of oil and gas leases comprise the east half of Section 35?

A. The east half of Section 35 contains three leases. It contains a fee lease in the northeast of the northeast that's owned by Merrion. The remainder of the northeast quarter is a federal lease that is operated by Meridian.

And the southeast quarter, 160 acres is a fee lease that is owned and operated by Merrion.

Q. Now focus on the area surrounding the east half of Section 35. Would you describe the type of leases which offset the east half proration and spacing unit for the Fruitland Coal and identify the operators of those leases?

A. The offset leases are federal and fee

leases. The owners are Amoco, Meridian, Conoco and Southland Royalties.

Q. What do you know, if anything, about the production histories and productive capabilities of the offsetting wells which are depicted on the exhibit?

A. Most of the wells on the exhibit are Pictured Cliffs wells. The Fulcher Kutz-Pictured Cliffs, the heart of the trend is to the south and west of our well. We're kind of a step out off of this trend.

There's one dry Pictured Cliffs producer to the north and east of our well. That would be the fee-pooled unit No. 1. So we are stepping out on the PC trend. There are two--back to the Pictured Cliffs. Those wells, most of them are depleted, and if they're producing anything, they're producing at very marginal rates.

The Pictured Cliffs is fairly depleted. There are only two Fruitland Coal wells currently located around our well. One is the FC State Com No. 24, located immediately east of our well, in Section 36, and the other is the Cornell No. 5, located in the northeast quarter

of Section 1, Township 29 North, 12 West.

The Cornell No. 5 is, I believe it's currently shut in in the Fruitland Coal. The State Com No. 24 is making approximately 70 Mcf a day, the well to the east of us, operated by Conoco.

Q. Now turn to what you've marked as Exhibit No. 2, and identify that exhibit.

A. Exhibit No. 2 displays the division of interest for the Pictured Cliffs spacing unit and the Fruitland Coal spacing unit and shows the various owners in those formations.

Q. Does this identify 100 percent of the ownership of the revenue interest as to each zone?

A. It does.

Q. I think, from the exhibit, it can be seen which owners have working interest ownership and net revenue attributable to the working interest, but it's not specific which of these individuals have royalty interests or overriding royalty interests. Can you describe for the record which are the owners of royalty interests?

A. For the Pictured Cliffs formation, David A. Carnahan is the royalty owner, interest

at 12 and a half percent.

For the Fruitland Coal formation, from MMS down, including, G. T. McAlpin, L. B. McAlpin, Joe Dennis, Kay Dennis, Duff-Leach, Ted Duft and David Carnahan, those parties are the royalty owners in the Fruitland Coal.

Q. And all of the other owners not depicted as working interest owners, have overriding royalty interests, correct?

A. Yes.

Q. This exhibit reflects that the ownership of the zones, to be commingled, is not common. Is this the reason for the application in this case?

A. Yes.

Q. Now let me have you turn to what's been marked as Exhibit No. 3, and I would ask you to identify that exhibit.

A. Exhibit No. 3 is a wellbore schematic showing the current situation at the Carnahan Com No. 1. Again, it shows there's a bridge plug with cement above the Dakota perforations, and that they are currently open perforations in the Mesaverde.

It shows that a DV tool at 2278 feet

was used to place cement across the Pictured Cliffs and the Fruitland Coal formations, and so we do not anticipate any required casing work to complete in these zones.

Q. Now, how do you propose to affect the downhole commingling of the Pictured Cliffs and Fruitland Coal production in the wellbore of this well?

A. Our recompletion procedure would call for abandoning the bottom of the hole, by placing a cement plug across the Gallup top, cement plug across the Mesaverde perforations, and then we would then complete the Pictured Cliffs, perforate, fracture, and conduct a flow test on the Pictured Cliffs formation. We would set a bridge plug above the Pictured Cliffs formation and perforate, frac and test the Fruitland Coal formation.

We would then pull the bridge plug and run a single string of tubing, and produce these zones as commingled.

Q. Assuming that downhole commingling is authorized, will fluid-sensitive sands be adequately protected from contact with water or other liquids produced from other zones in the

well?

A. Yes, they will. All other zones in the well will be isolated from the two producing zones, and later exhibits will show that the water characteristics in the two producing zones are close to identical. We do not anticipate any fluid incompatibility problems.

Q. Refer to what you've marked as the Applicant's Exhibit No. 4 and identify that exhibit.

A. Exhibit No. 4 is a copy of the induction log across the Pictured Cliffs and Fruitland Coal formations. Shown on that are proposed perforated intervals for the Fruitland Coal and for the Pictured Cliffs.

It can be seen that there's only 14 feet separating the perforated intervals, so mechanically it will be difficult to produce this as a dual well.

In addition, there's a high likelihood that a frac in the Pictured Cliffs would frac up into the coal and/or a frac in the coal will frac down into the Pictured Cliffs and you'll produce some commingled, anyway, although it would be outside the wellbore.

Q. Refer to what you've marked as Applicant's Exhibit No. 5, and identify that exhibit.

A. Exhibit No. 5 is a printout from Dwight's Data Service. The first page gives some well information concerning the Cornell No. 5, concerning its Fruitland Coal completion.

The second page of the exhibit shows that in 1985, the last point that data was available on the Fruitland Coal in that well, the wellhead shut-in pressure indicated by WHSIP was 300 psi. Assuming a solid column of gas with no liquid in the hole, that basically is equal to your bottomhole pressure at that low pressure and at that shallow a depth.

The third page of the exhibit is also the Cornell No. 5, and it's data from the Pictured Cliffs formation. It was produced out of the Pictured Cliffs from 1956 through 1981, and in 1981 it was recompleted to the Fruitland Coal. It can be shown in the last data point, which was 1975, the wellhead shut-in pressure was 186 pounds.

There's not significant production from 1975 to 1981. We feel that is representative of

the depleted Pictured Cliffs formation as a worse case scenario, so your pressure differential between your two formations is 300 psi versus 180'ish psi, and is within the 50-percent limit.

Q. You testified that the subject matter of this exhibit is the Cornell No. 5 well?

A. Yes.

Q. Would you point the location of that well out on Exhibit No. 1 for the Examiner?

A. On Exhibit No. 1, it is shown in the northeast quarter of Section 1, Township 29 North, Range 12 West.

Q. Would you anticipate that the bottomhole pressures for each zone would be similar today as they were when last tested?

A. I would anticipate that initial pressure in the Fruitland Coal would be very similar to the 300 psi. We hope that our initial pressure in the PC is actually much greater than the 186 pounds. We anticipate that because we're a step-out well, it could be as high as the virgin pressure of approximately 500 pounds in the Pictured Cliffs formation.

Q. And what you anticipate is--

A. We anticipate somewhere between 180 and

500 pounds in our Pictured Cliffs, and we anticipate 300 pounds in our Fruitland Coal.

Q. With those bottomhole pressures, the requirements of the Oil Conservation Division on the 50 percent limitation, would still be satisfied?

A. Yes, it would, in either case.

Q. Are these bottomhole pressures what you would expect to find in wells throughout the area offsetting the Carnahan Com No. 1 well?

A. The Fruitland Coal pressure of 300 pounds, we believe, is probably representative of the entire area. I've looked at most of the wells to the south in the Pictured Cliffs, and the 200 psi reservoir pressure for the Fulcher Kutz-Pictured Cliffs Pool is representative of most of the wells to the south of us.

Q. In your opinion, will cross-flow occur between the zones to be commingled in this wellbore?

A. In my opinion, it will not. We anticipate producing this off compression at approximately well completion at approximately 25 to 50 pounds pressure. That is significantly below any anticipated reservoir pressure, and

therefore we anticipate production not cross-flowed from the zones.

Q. Let me have you refer to what has been marked as Applicant's Exhibit No. 6, and ask you to identify that exhibit.

A. Exhibit No. 6 has two water analyses. The first page is a water analysis from the Fruitland Coal in the Susco No. 3 well located in Section 9, 26 North and 12 West. That is four townships to the south of our township.

Page 2 of the exhibit is a water analysis from the Hi Roll No. 4, which is completed in the Pictured Cliffs formation, in Section 35, 27 North 13 West. Again, that is approximately three townships to the south and one township west of our location.

Q. When were the samples taken for each zone?

A. The date on the Susco No. 3 is February 13, 1991. There is no date on the Hi Roll. I was unable to determine when the Hi Roll sample was taken.

We have no water analyses in the immediate area. We do not produce Pictured Cliffs or Fruitland Coal in the immediate area,

and these were the closest analyses we could find. However, we would anticipate these log analyses to be generally representative of the water that you would find in the Fruitland Coal and Pictured Cliff's formation, in the area of our proposed recompletion.

Q. What parameters were analyzed by these tests?

A. The dissolved salts were analyzed, and it can be shown that the total dissolved solids on the Fruitland Coal from the Susco No. 3, was 6,407 parts per million, and that the total dissolved solids from the Hi Roll No. 4 out of the Pictured Cliffs formation, was 5,582 parts per million.

In addition, the makeup of the water, the different ions in there are very similar in both. In short, these are almost identical waters.

Q. Your testimony is that these fluids will be compatible?

A. My testimony is they would.

Q. Will combining these fluids result in the formation of precipitates which might damage either zone?

A. We would not think so.

Q. Let me have you refer to what you've marked as Applicant's Exhibit 7, and please identify that exhibit.

A. Exhibit No. 7 is a summary economic run, showing the economics of both the Pictured Cliffs well and a Fruitland Coal well under various scenarios. Three scenarios were analyzed for each.

The first scenario is the economics of commingling these zones; the second scenario would be the economics of completing these zones individually, either as a dual or as a single completion, and the third economic run would be what we would see if we had to drill a new well to get these reserves.

Shown for each, across the top of the different columns is the investment for each of those scenarios, the operating cost, in dollars per month for each scenario, the anticipated reserves in millions of cubic feet, the rate of return, undiscounted profit, and 20 percent discounted profit.

Q. How did you ascertain reserves?

A. Reserves were set by assuming an IP and

a decline rate, and they were verified, at least for the Pictured Cliffs formation, based on volumetrics.

Q. What was the basis for the values that you've utilized in this analysis for operating costs?

A. Our experience in operating Pictured Cliffs and Fruitland Coal wells was used to determine operating expense.

Q. What was the basis for your investment forecast?

A. The investments, we prepared AFEs for the various scenarios and, based on the costs of doing the recompletion and putting in facilities required to produce those.

Q. Describe the results of your analysis.

A. In summary, the results of our analysis is that the commingling is the most economic way to produce either zone, and it's the only economic way to produce the Fruitland Coal zone.

The cost savings on the investment side and the sharing of facilities, and the cost savings on the operating costs side in the sharing of a pumper, compressor, and maintenance costs of the well, provide acceptable economics

for the Fruitland Coal.

If you have to produce the Fruitland Coal by itself, the economics are--it's basically subeconomic for Merrion's cutoff criteria.

Q. Does this economic analysis also show that the value of commingled production will not be less than the sum of the values of the individual streams?

A. Not only will it not be less, it will be greater under the commingled. We will have more reserves because we'll have a shared operating expense and be able to produce to a lower economic limit. So, we'll be able to increase the reserves and the value going, not only to Merrion Oil & Gas, and to our working interest owners, but also to the royalty owners and override owners.

Q. Now refer to what you've marked as the Applicant's Exhibit No. 8, and identify that exhibit.

A. Exhibit 8 is a proposed monthly gas production allocation formula. It describes, in nauseating detail, how to allocate production between the Pictured Cliffs and the Fruitland Coal.

Q. Why don't you go ahead and go through the formula for the record.

A. The first page of Exhibit 8 summarizes the general concept of how this production would be allocated. The general concept is to set the Pictured Cliffs reserves using volumetrics and, knowing the volumetrics and knowing the initial production test from your Pictured Cliffs, you know your initial rate, you know your reserves, and then use standard exponential decline equations to define your Pictured Cliffs production in the future.

The Fruitland Coal production, then, would be the difference between the total production from the well and your PC reserves, as defined by these formulas.

Moving to page 1, again, step 1 would be to calculate Pictured Cliff reserves from volumetrics. This equation describes the volumetric equation that would define the Pictured Cliffs reserves. It is 7758 barrels per acre foot, times porosity, times net pay, times your drainage area in acres, times 1, minus your water saturation, divided by your formation volume factor, and all of that multiplied by your

BTU factor.

Again, we're defining the PC reserves in MMBTUs. The parameters that we have determined from the log analyses of this well and offset wells is a porosity of 18 percent, a net pay of 30 feet, a drainage area of the spacing unit of 160 acres, water saturation of 50 percent.

To calculate gas formation volume factor, we assumed a reservoir temperature of 100 degrees Fahrenheit and a gas deviation factor of .94. The only unknown in the equation is then the reservoir pressure and the BTU factor.

If you combine all the parameters, you come down to the bottom equation in step 1, that the ultimate gas reserves of the Pictured Cliffs is equal to 1263 Mcf per psia, times whatever the reservoir pressure is, times the BTU factor obtained from the gas analyses upon initially testing the Pictured Cliffs formation.

So, our procedure to determine the Pictured Cliffs reserves would be to, upon initially testing the well, shut it in, obtain the reservoir pressure, be it 200 pounds or be it 500 pounds. We would then be able to come to

this equation. We would also get a gas analyses and determine the BTU content of the Pictured Cliffs gas. We would then be able to come to this equation and define our Pictured Cliffs reserves in MMBTUs.

Q. Under this proposed formula, then, I take it, that production on a monthly basis would be allocated, pursuant to this formula to these two zones, but that that percentage could vary from month-to-month?

A. That could. All I've done is gone through the volumetrics. Let me continue through the exhibit. Step 2 of the exhibit is to calculate the Pictured Cliffs' initial monthly production rate.

The Pictured Cliffs' monthly production rate would be the ratio of the Pictured Cliffs test rate over the sum of the Pictured Cliffs test rate upon initially completing the Pictured Cliffs, plus the Fruitland Coal test rate upon initially completing the Fruitland Coal; multiplied times the first month's total production in MMBTUs per month.

That would then be, if the month was a partial month, that would be ratioed up to a full

month's production, and so that would set our initial Pictured Cliffs production rate for our decline equation.

Step 3 in the process calculates the abandonment rate of the Pictured Cliffs based on the operating costs of $500 per month, assumed in our analysis, and a buck-sixty-five per MMBTU wellhead gas price, net revenue interest of 84 percent, tax rate of nine percent. The calculated abandonment rate is 396 MMBTUs per month, is the economic limit of the Pictured Cliffs production.

Step 4, now that we know the initial rate, the final rate and the reserves, we can rearrange the exponential decline equation to calculate the decline rate, as depicted in that Step 4, where the decline rate is equal to the initial rate minus the abandonment rate over the reserves.

Step 5, once we know the decline rate and we now know the initial rate, we can calculate the Pictured Cliffs production rate for any month in the future based on the formula, again the decline curve formula, where the production at any time in the future is equal to

your initial production times E to the negative decline rate, times how many months to that date.

So, we will be able to generate our Pictured Cliffs production schedule from now to the future, and assume that that's accurate.

Step 6 merely takes the total production rate and subtracts the calculated Pictured Cliffs production rate, to determine the Fruitland Coal production rate for any given month.

Q. Has this basic allocation formula been approved by the Oil Conservation Division in a prior case?

A. This allocation formula has been approved by the Oil Conservation Division.

Q. Do you have a case number or order number available to you?

A. I don't have that in front of me. Do you?

MR. ROBERTS: Mr. Examiner, for the record, it's Case No. 10700, Order No. R-9881. It was an application of Meridian for downhole commingling of Pictured Cliffs and Fruitland Coal production in the wellbore of the Shiotani 400

well, I believe.

Q. Mr. Sharpe, is the allocation formula you produce identical to the allocation formula that was proposed by Meridian in the Shiotani case?

A. There's one slight difference, and that is that I propose to allocate on a MMBTU basis, as opposed to an Mcf basis, recognizing the difference in the BTU contents of the Pictured Cliffs and the Fruitland Coal.

The steps, the equations, the methodology is identical.

Q. Why is it more appropriate, in your opinion, to allocate on the basis of MMBTUs as opposed to Mcf?

A. Because that is how the dollars are paid, and that is how royalty interest owners are paid is on the value of their gas. It's allocated to their formation. If you allocate on an Mcf basis, then the Fruitland Coal, which we would anticipate having a lower BTU content than the Pictured Cliffs gas, would be receiving too much of the value.

Q. In your opinion, does this proposed allocation formula adequately and equitably

protect all owners of projection from each zone?

A. Yes, it does.

Q. Now, in the event there's production of liquid hydrocarbons, how should they be allocated?

A. They should be allocated to the Pictured Cliff formation. We don't anticipate any liquid hydrocarbons, but if there is any, the Pictured Cliffs would be the only formation that might possibly be capable of producing liquid hydrocarbons.

Q. Refer now to Applicant's Exhibit No. 9, and identify that exhibit.

A. Exhibit No. 9 is an affidavit stating that copies of this application were sent to four offset operators; Amoco, Conoco, Meridian and Southland Royalties. In addition, a copy was sent to the Bureau of Land Management, due to the fact that there was a federal lease involved.

Also attached are copies of the certified letters that were sent to the four offset operators, and the last page is a copy of the return receipts, indicating that those individuals received their copies April 20th, April 20th, April 21st and April 22nd.

Q. What were the dates of the certified letters notifying the parties of this hearing?

A. The date on the letter is April 18th. The letters were mailed April 19th.

Q. Did you have any responses to these items of correspondence?

A. We had none.

Q. Do you recall the date of the notification to the Bureau of Land Management?

A. They were sent notification at the same time. I did not send them a separate letter; I merely sent them a copy of the application.

Q. In your opinion, have the notice requirements of the Oil Conservation Division, applicable to the downhole commingling case, been satisfied?

A. They have.

MR. ROBERTS: Mr. Examiner, we have two other exhibits in your package, Exhibit Nos. 10 and 11. These exhibits apply more specifically to Merrion's application for administrative approval of the unorthodox location of this well for the Fruitland Coal formation, and I think it's probably not appropriate that they be submitted into evidence in this case.

Originally we had filed this as an application for downhole commingling only. We knew that we had filed the application for administrative approval and had hoped that that might be approved by this time.

I think the Division advertised this case as an application for approval of the nonstandard location, but we did not notify the offsetting operators that that be the matter for hearing today. So the Applicant, I think, would like to rely on its administrative application for approval of the unorthodox location.

Q. (BY MR. ROBERTS) Mr. Sharpe, in your opinion, will the granting of this application be in the best interest of conservation, and result in the prevention of waste and the protection of correlative rights?

A. Yes.

Q. Were Exhibit Nos. 1 through 9 either prepared by you or at your direction and under your supervision?

A. Yes, they were.

MR. ROBERTS: Mr. Examiner, I would move the admission of Exhibit Nos. 1 through 9.

EXAMINER STOGNER: Exhibits 1 through 9

will be admitted into evidence at this time.

MR. ROBERTS: I have no other questions on direct.

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Sharpe, you mentioned that this case differs from the Meridian cases, in particular Order No. R-9881--which I'll take administrative notice of, by the way. The difference was that you're proposing an MMBTU instead of a Bcf. Why is that difference again?

A. The split of Mcfs of gas between, as Meridian has proposed, between the wells, would indeed accurately split how many Mcfs were produce from each zone, as they proposed it.

However, if I take the dollar amount that's being paid to each of those zones and split it on that same basis, it will inaccurately split it, because the Mcfs that go to the PC would have an 1100 BTU per Mcf, or MMBTU per Mcf ratio, while the coal gas would have in the neighborhood of a thousand.

So, if I take my dollars which is paid on an MMBTU basis, and I split it the same as those Mcfs, then I'll inaccurately allocate the

dollars, which is the true bottom line of the allocation.

Therefore, we feel it's more accurate to make a split on an MMBTU basis that accounts for the BTU content of your PC and your Fruitland Coal. You will end up with the same Mcfs, it's just that your PC MMBTUs are going to be greater than they would have been before.

In other words, if I take my PC stream at 1100 BTUs and my Fruitland Coal stream at a thousand BTUs and I combine those two, I've got a thousand and fifty BTU stream, assuming it's a 50/50 split.

If I divide my Mcfs 50/50, then I've done it correctly; but if I divide my dollars 50/50, then I've not done it correctly, because the PC would have 50 percent times 1100 BTUs, the Fruitland Coal would have 50 percent times 1000 BTUs, and therefore the dollars should go with the BTUs and not with the Mcfs.

Q. Would that be a dilution of the Fruitland Coal of the moneys that should be attributable to the Fruitland Coal going to the PC?

A. It would be a dilution of the PC moneys

if it were done differently. If you did not account for the higher BTU content of the Pictured Cliffs in the allocation process, you would send those incremental 50 BTU difference between the Fruitland Coal--you would be paying the Fruitland Coal for BTUs that it didn't contain.

So, no, this is the most accurate allocation of dollars, and it will result in identical allocation of Mcfs. The Mcf allocation will be the same. One way to do this would be to allocate Mcfs to each formation, then take your BTU factors that are different, as opposed to the average BTU to allocate your dollars. That would be doing the same as just including the MMBTUs in the formula itself.

But what I understood Meridian did was that they're going to allocate Mcfs and then take the average BTU content of the combined gas stream, and assume that represents both the PC and the Fruitland Coal.

Q. A percentage, per se?

A. Right.

Q. Referring to Exhibit No. 3, which is essentially your downhole schematic, is there a

possibility this well can be dually completed, as opposed to downhole commingled?

A. Referring to Exhibit 4, which shows the physical difference between the Pictured Cliffs and the Fruitland Coal in more detail than Exhibit 3, it would be mechanically difficult within the wellbore itself, and possibly mechanically impossible outside of the wellbore, to keep the zones from being commingled outside of the wellbore, because of the proximity of the Basin-Fruitland Coal to the Pictured Cliffs.

So, from a mechanical standpoint it would be difficult to do inside the wellbore, and it would be possibly impossible to do outside the wellbore.

Q. Do you think a periodic spinner survey would be a little better allocation method, or do you have any idea how accurate that would represent?

A. I would tend to think that that would be difficult to be accurate because of the water production from your Fruitland Coal. We would anticipate some water production. And although there are methods to attempt to divide your gas out of your water and account for that in your

spinner survey, I think it would be very difficult to do that accurately.

I think that the method proposed by Meridian, I think that pinning down the PC reserves is a fairly accurate method to where those reserves are pinned down; and, on a month-to-month basis, how much is being produced may not necessarily be accurate. You're really kind of guessing.

But I think over the long run, through the economic limit of the well, that you've accurately, in this method, split the reserves between the formations and that attempting to do that in any way on a month-to-month basis, and changing it on a month-to-month basis, would be extremely difficult.

EXAMINER STOGNER: I have no other questions of this witness.

THE WITNESS: May I point out an omission?

EXAMINER STOGNER: Sure.

THE WITNESS: It just came to me, an omission in the allocation formula, Exhibit No. 8, step 1. The ultimate gas reserves, the equation I have there describes the gas in place.

That needs to be multiplied by a recovery factor to get reserves.

EXAMINER STOGNER: Okay. Which formula are you talking about?

THE WITNESS: Exhibit 8, page 2, step 1. The equation at the top, GP equals et cetera, et cetera, at the end of that equation should be "times recovery factor." And the recovery factor proposed by Meridian in the offset well, the Shiotani 400, which is a few miles away, has a recovery factor of 85 percent.

So the final equation at the bottom, gas reserves equals 1263, times pressure, times BCU factor, times 85 percent recovery factor. Here's the official change.

MR. ROBERTS: Mr. Examiner, we could submit a replacement page for that exhibit, if that would be preferable.

EXAMINER STOGNER: Why don't we do that. I've made the marks, and so did Mr. Sharpe here, but if you'll submit to me at a later time an amended Exhibit 8, that way we'll have that on file.

MR. ROBERTS: I have no other questions for this witness.

EXAMINER STOGNER: You may be excused. If there's nothing further, I'll take Case No. 10970 under advisement.

(And the proceedings concluded.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10970 heard by me on 12 May 1994.

, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Carla Diane Rodriguez, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I caused my notes to be transcribed under my personal supervision; 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 May 20, 1994.

Carla Diane Rodriguez

CARLA DIANE RODRIGUEZ, RPR
CCR No. 4