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 NOS. 10721 10722, 10723, 10724, 10725

APPLICATION OF MERIDIAN OIL INC.

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: Michael E. Stogner, Hearing Examiner

April 22, 1993

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on April 22, 1993, at the Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Deborah O'Bine, RPR, Certified Court Reporter No. 63, for the State of New Mexico.

I N D E X

April 22, 1993
Examiner Hearing
CASE NOS. 10721- 10725

E X H I B I T S

A P P E A R A N C E S

FOR THE DIVISION: ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Commission
State Land Office Building
310 Old Santa Fe Trail
Santa Fe, New Mexico 87501

FOR THE APPLICANT: KELLAHIN AND KELLAHIN
117 N. Guadalupe
Santa Fe, New Mexico
BY: W. THOMAS KELLAHIN, ESQ.

EXAMINER STOGNER: Hearing will come to order. I'll case No. 10721.

MR. STOVALL: Application of Meridian Oil Inc. for an unorthodox gas well location and downhole commingling, San Juan County, New Mexico.

EXAMINER STOGNER: Call for appearances.

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin appearing on behalf of the applicant.

EXAMINER STOGNER: Any other appearances?

MR. KELLAHIN: Question of procedure, Mr. Examiner. We would like to attempt to consolidate all these five downhole commingling cases for a joint presentation.

We have put on the hearing room wall a locator map for you. The identified arrows show the five wells that we propose to have commingling approval for. I have distributed the hearing exhibit books for each case, and they're before you, and then on top of the exhibit books is a summary index to try to give you a summary of what we're trying to accomplish.

The spreadsheet shows the well name. The pool information, in all instances, this is Basin-Fruitland Coal to be commingled with Pictured Cliff.

There are two different Pictured Cliff pools. There's either the West Kutz or the Fulcher Kutz-PC.

One of the other issues is the ownership. We've tabulated for you those cases in which the ownership is common. There are two of the cases in which there will be a difference in ownership between the Pictured Cliff and the Fruitland Coal, and Mr. Alexander will address those differences.

There are four of the five cases in which one or both of the pools will be nonstandard locations for the well, and we'll identify those. In all instances, the location is being moved for topographic reasons. At least three of those cases are because we're trying to move in among irrigation facilities on the NAPI project.

The final column shows economics, and it's intended to give you a summary to show you which pool is considered to be subeconomic. In some instances, both pools are subeconomic. In the last two cases, the Fruitland Coal would be economic alone, but we propose to commingle with the PC in order to produce PC that might not otherwise be produced.

So this is our effort to give you a summary of all five cases and the locator map, and my plan would be to have Mr. Alexander go first to go through

the elements of his presentation as to each case. Then we'll put on the engineering witness to show you his methodology for his allocation formula, some of his reasons for pursuing commingling. And then finally a geological witness to give you the geology and perspective for approving these.

They're all very similar, dealing with the same two formations, but each case has a slightly different twist to some of the things we need to accomplish. If that's acceptable to you, we'll try to do this as a commingled case with all five cases being heard as a consolidated matter.

EXAMINER STOGNER: With that, I'll call cases 722, 723, 724, 725.

MR. STOVALL: Okay. Case 10722, application of Meridian Oil Inc. for downhole commingling, San Juan County, New Mexico. Cases 10723, 10724, and 10725 are all the applications of Meridian Oil Inc. for an unorthodox gas well location and downhole commingling, San Juan, New Mexico.

EXAMINER STOGNER: Are there any appearances in any or all of these cases other than Meridian? There being none, Mr. Kellahin?

MR. KELLAHIN: I have three witnesses to be sworn, Mr. Examiner.

EXAMINER STOGNER: Will the witnesses please stand and be sworn.

(Witnesses sworn.)

MR. KELLAHIN: I'd like to call at this time Mr. Alan Alexander.

One last point of reference, there are prehearing statements that were filed. Each of the prehearing statements has been outlined, if you will, so that it would give you the context of the elements of proof for each of the cases. And Mr. Alexander and I had hoped that that would serve as a partial outline for you to help you organize your way through the five cases.

MR. STOVALL: I want to commend you for the manner in which you are now doing prehearing statements, Mr. Kellahin. They're most useful of the ones we're getting. They do specify not just the style of the case but really what's involved.

EXAMINER STOGNER: Yes, Mr. Kellahin, I echo that.

MR. STOVALL: Mine was serious.

ALAN ALEXANDER,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. For the record, Mr. Alexander, would you please state your name and occupation.

A. My name is Alan Alexander. I'm currently employed as a senior land adviser with Meridian Oil Inc. in the Farmington, New Mexico, office.

Q. Mr. Alexander, on prior occasions have you qualified as an expert petroleum landman before the Division?

A. Yes, sir, I have.

Q. Pursuant to your employment in that capacity, have you made a study of the land matters involved in each of these five cases now before Examiner Stogner?

A. Yes, sir, I have.

MR. KELLAHIN: We tender Mr. Alexander as an expert petroleum landman.

EXAMINER STOGNER: Mr. Alexander is so qualified.

Q. (BY MR. KELLAHIN) Let me have you go first, Mr. Alexander, to the index map that we have placed on the hearing room wall.

It is not marked as an exhibit, Mr. Examiner, it's simply a point of reference for you. I'll have Mr. Alexander identify for you each of the

well locations starred and the numbers. The numbers will correspond to the spreadsheet index we gave you that goes with each of the cases.

Let me have you start, Mr. Alexander, and tell us generally where each of these wells are located.

A. As you can see from this index map, which, by the way, is the index map that we brought to the Commission back on March the 10th of this year to get their input, their suggestions, and their ideas on this year's drilling program, the commingled drilling program that we had.

Basically, we've got three types of commingled programs of the wells this year, the Fruitland Coal, Pictured Cliffs, Pictured Cliffs-Mesaverde, and Mesaverde Dakota commingles. At this hearing this afternoon we're dealing with those wells that are stars, and they're indexed as Fruitland Coal-Pictured Cliffs wells. As you can see from the index map, here are the towns of Farmington, Bloomfield, and Aztec. And these wells lie generally south of Bloomfield anywhere from five to probably ten miles south in that area.

I have put an arrow indicating which of these wells are on the application today. Wells No.

and 3 which correspond with your index were in the West Kutz-Pictured Cliffs Field for the PC interval. Here in the Basin Fruitland-Coal Pool for Fruitland Coal interval. Wells Index No. 4 and No. 5 are in the Fulcher Kutz-Pictured Cliffs Field and, again, the Basin Fruitland-Coal Pool.

These are some of the wells -- some of these applications the Division has already heard, and then a few of them remain yet to be heard by the Division.

Q. That comment refers to those that are located on the map with the exception then of those that have the arrows?

A. Yes. My last comment does refer to those wells.

Q. Let me have you return to your seat and let's turn to the first case, which is the Rowley Com 500. It's the No. 4 well on the index, and it's case 10721.

Before we talk specifically about the displays, explain to the Division how you have organized the exhibit book for each of the cases, and tell us where we're going to find the various information within each of the books. What's found behind Exhibit Tab No. 1 in all the books?

A. Behind Exhibit Tab No. 1 we have presented you with our application to the Division requesting the commingling for the particular well. And of course attached to those exhibits are our offset operator plats and a list of the owners and operators and a land plat as applicable.

Behind Exhibit No. 2 in the books we have included the offset operator owner plats, along with a listing of the offset owner or operator. In each of the cases they are indexed numerically on the plat against the person or person's names. We have attempted to give you a plat for the -- depending upon the particular case, we have given you a plat for the Fruitland Coal, an offset operator plat for the Fruitland Coal and an offset operator plat for the Pictured Cliffs.

In those cases where we have a nonstandard location, we have also given you a plat for those particular wells.

Behind Exhibit No. 3, we have provided a nine section land plat showing the proposed well in each case as well as the wells located in the nine section area. It also shows the proposed spacing units for the Fruitland Coal and the Pictured Cliffs, as the case may be.

Behind Exhibit 4, if the well had as a part of the application a request for a nonstandard location, we have included a topographic plat which we will use to explain why we feel that we need a nonstandard location for the particular well.

The next exhibit, and in the case of case No. 10721, behind Exhibit No. 5, we have listed the formula to be used in allocating the reserves to each of the formations in question.

Behind Exhibit No. 6, we have provided you with net pay isopach maps for the Fruitland Coal, following that net pay isopach maps for the Pictured Cliffs formation.

Then behind Exhibit No. 7 we have provided you a structure map on the base of the Fruitland Coal Formation.

And behind Exhibit 8 we have provided you with typical well logs and cross-sections that are in the packet at the very rear of the booklets.

Q. As to all cases, have you had notification sent pursuant to Division rules to all the offset operators that might be affected by the granting of this application or these applications?

A. Yes, sir, we have.

Q. And have you received any objection from

any offset operator to the granting of these applications?

A. No, sir, we have not.

Q. As to those cases that involve a difference in ownership between the two spacing units that are to be commingled, have you provided an accurate list of all the interest owners, royalty, overriding, and working, that might be affected by that allocation?

A. Yes, sir, we have.

Q. Have you received any objection from any of those parties that would share in production?

A. No, sir, we have not.

Q. Let's turn now to the Rowley Com 500 book and turn to Exhibit Tab 3 and look at the plat that goes with that one. What is the proposed dedication of acreage for the spacing unit for the Basin-Fruitland Coal?

A. We are proposing a west-half dedication for the Basin-Fruitland Coal Field.

Q. The exact number of acres within that spacing unit is more than 320 acres, is it not?

A. Yes, sir, that's correct.

Q. Is the additional acreage within the pool rule tolerance to be a standard spacing unit for that pool?

A. Yes, sir, it is.

Q. And the southwest quarter is the dedication for the Pictured Cliff Pool?

A. Yes, sir, that's correct.

Q. And is that spacing unit, while not exactly 160 acres, within the tolerance for a standard proration unit for that pool?

A. That is correct.

Q. The well location as spotted is a nonstandard well location as to the Pictured Cliff Pool?

A. Yes, sir, that is correct.

Q. And it will be a standard location for the coal gas?

A. That is correct.

Q. Describe for me in what way this well is nonstandard as to the Pictured Cliff.

A. The location is 305 feet from the north line of the southwest quarter of Section 7, where it should have been 790 feet from that north line. That is the reason that it is nonstandard.

Q. Let's address that issue and have you turn now to Exhibit 4 and describe to Examiner Stogner why Meridian seeks this nonstandard location.

A. If you will refer to the topographic plat

behind Exhibit No. 4, I will explain the topographic plat. First, please locate where the section boundaries are. They are indicated by the dark crosses indicating each of the four corners of the section. You will see that this well down in the southwest quarter, nearly all of the southwest quarter is in the Kutz and East Kutz River bottom. There is very little land that is not down in that river bottom.

We also are encumbered by an area that has been determined as wetlands by the Bureau of Land Management, and we have indicated that wetlands area.

You can see, one of the few remaining places that we can locate that is not in an area where they have pipelines for an existing well or is not in the river bottom is up in the northwestern quadrant of the southwest quarter, and it is pushed up into the area where we see the topography begin to rise, and that was the location --

MR. STOVALL: Mr. Alexander, is it northwest or northeastern quarter of the quadrant?

THE WITNESS: It's northeastern quarter of the southwest quarter.

MR. STOVALL: I thought I heard you say

it's northwest; so I just wanted to make sure the record is clear on that. Thanks.

THE WITNESS: This was the location we were able to work out with Bureau of Land Management.

Q. (BY MR. KELLAHIN) Have personnel from Meridian made a surface inspection along with personnel from the BLM and determined that the site as you propose to have approved by the Division is the only available site within that southwest quarter for a well?

A. That is correct.

Q. When you look at the proposed Rowley 500 Com well as spotted on the display, look south, there is a well symbol, and then a faintly written word. It says "well"?

A. Yes, sir.

Q. And then it says "wetlands"?

A. Yes, sir.

Q. What does that mean?

A. That well symbol, the little circle that you can see there is actually a water well, and that water well flows continuously, and it itself has created this wetlands area, and the BLM does not want us in that wetlands area. And that water flows at the request of the Bureau of Land Management to provide

provide water to that wet lands area.

Q. I think you and I have addressed the issues for your attention on this case. Let's go to the next one. It's the exhibit book for Case 10722, and that's the McAdams No. 500 well. It's the fifth well on the index.

Let me have you again turn to what is Exhibit 3 in this book and identify for us the spacing unit to be dedicated for each of the two pools?

A. The spacing unit that we propose to dedicate to the Fruitland Coal is hatched in green, as you will see on the plat, and it consists of the east half of the section. The spacing unit for the Pictured Cliffs formation is hatched in red, and it consists of the northeast quarter of Section 28, Township 27 North, 10 West.

Q. Is this proposed well at a standard well location in both pools?

A. Yes, sir, I believe that it is.

Q. Is there any difference in ownership between the parties entitled to share in the Pictured Cliff production and the parties that would be entitled to share in the 320 gas space Basin-Fruitland Coal Pool?

A. Yes, sir, it is different between the two

pools.

Q. Describe for the examiner how that difference occurs.

A. As you will note, you do not see any lease lines in that section. That's because this is one single federal lease. However, the formations have been segregated historically, and they are now owned differently between the northeast quarter and the southeast quarter.

Q. Can you identify for the examiner an example of how that ownership differs?

A. Yes, sir. We have a recent title opinion that has been rendered on that. And as an example, the northeast quarter, formations from the surface to the base of the Pictured Cliffs formation are owned by El Paso Production Company 100 percent. And for the southeast quarter, those same formations are owned by Amoco Production Company and Conoco, Inc., on a 50-50 basis.

Q. And that difference then will result in a different ownership when you get to the commingling issue of taking production from both pools in the same --

A. Yes, sir, that is correct.

Q. Have you received any objection from any of

those parties notified that would have an interest in the commingled production?

A. No, sir, we have not.

Q. I think that completes your issues in that case, Mr. Alexander. Let's turn now to Case 10723. It's the Whitley A No. 100 well. And if you'll turn to Exhibit 3 in this case book, identify for me the proposed spacing units for the Whitley A No. 100 well.

A. The proposed spacing unit for the Fruitland Coal formation is again hatched in green and consists of the west half of Section 17, 27 North, 11 West. The spacing unit, proposed spacing unit for the Pictured Cliffs formation is hatched in red and consists of the southwest quarter of that section.

Q. Point of information. In the west half of 17, you've identified by well symbol the kinds of wells that now exist or have existed in that spacing unit?

A. That is correct.

Q. When you look at the northwest quarter, what kinds of wells have already been drilled in the northwest quarter?

A. We have wells in the northwest quarter, you will currently see, as indicated by the legend, that

one of the symbols located probably in the northeast quarter of the northwest quarter is a Pictured Cliffs well. The other symbol represents a plugged and abandoned well. I don't have information with me that suggests the total depth that it was originally drilled. However, that well has tested the Fruitland Coal and the Pictured Cliffs and has since been plugged in both zones.

Q. When you're looking in the west half then for available spacing units on 160-acre PC spacing that have not yet been drilled, the southwest quarter then is the only spacing unit available that would meet that criteria?

A. That is correct.

Q. This case involves a nonstandard well location?

A. Yes, sir, it does.

Q. As to what pool?

A. It is nonstandard for the Pictured Cliffs pool.

Q. Let me have you turn to the information behind Exhibit Tab No. 4 and have you describe to the examiner in what way this well is proposed to be nonstandard.

A. The topographic plat that is behind Exhibit

No. 4, first, if you would please locate the section boundaries, and again they are indicated by the heavy dark crosses at each of the corners of the section. The round circles represented on that plat are the irrigation systems for the NAPI irrigation project. The area that is hatched down in the southwest quarter of that section are the surface and underground facilities that service those circular irrigation systems.

You will also see that there is an existing well in the southwest quarter and a gas pipeline. You will also please notice that there are roads in the area that service these irrigation facilities. The best that we could do in working out with the various agencies involved was to locate the well between the roads, between the surface and underground facilities and between the circular irrigation projects.

Q. If you attempted to locate this well at the closest standard location, you would have to move about 160 feet south of its proposed location?

A. Yes, sir, that is correct.

Q. And that would place you in what portion of the display?

A. That would put you down into the area that is hatched that are the surface and underground

facilities.

Q. What agencies have you dealt with in order to obtain a surface location within the spacing unit in which to locate the well?

A. We dealt with the Navajo Tribe, the Bureau of Indian Affairs, the Bureau of Land Management, and the Bureau of Reclamation who has an interest in the -- they do some supervision in the NAPI project.

Q. Is the location as you propose now to Examiner Stogner one that satisfies the requirements of those other agencies?

A. Yes, sir, that is correct.

Q. Let's turn now to the Rhodes C 101 well. It's case 10724. And turn with me to Exhibit No. 3. Identify for the examiner the information shown on this display, and then we'll talk about this specific well.

A. This nine section land plat locates the well in Section 30 of Township 28 North, 11 West. As you will see, the proposed well is located in an area that is not committed to the Gallegos Canyon Unit. You will see the unit to the north, to the south, and to the east as indicated by the darker green line.

Q. Who operates the Gallegos Canyon Unit?

A. I believe that is BHP that operates the

Gallegos Canyon Unit.

Q. When you're looking at how to develop Section 30 and the north half of 31, are you looking at the development of interest for a single lease, or are we dealing with multiple leases?

A. We are dealing with a single federal lease, and it is common between all of Section 30 and the north half of Section 31.

Q. The proposed location down in the southeast quarter of the spacing unit for this well is approximately what, 100 feet off that south line?

A. Yes, sir, that is correct.

Q. And what would a standard location be for this well?

A. It would be 790 feet from that south line.

Q. And so it is nonstandard as to both pools?

A. Yes, sir, that is correct.

Q. In addition to being too close to the south line, you're also too close to the east line of that spacing unit?

A. Yes, sir, that's correct.

Q. Are the interests common for the west half when you compare them to the east half?

A. Yes, sir, they are.

Q. And when you make that comparison to the

north half of 31 with the west half of 30, are the interests common?

A. Yes, sir, they are.

Q. Describe for me, Mr. Alexander, why the well is proposed at this unorthodox location.

A. If you will please refer to Exhibit No. 4, we have a topographic plat. Again, the sections -- the corners of the section in question, Section 30, are indicated by the heavier crosses. Again, in this case, as in the prior case we heard, we are within the boundaries of the NAPI irrigation project. You will see it is quite complicated due to the roads in the area, the circular irrigation projects, and the related surface facilities, as well as existing oil wells and pipelines.

Q. Let's take each item individually. And if you'll look at the west half of 30, describe the limitations imposed by the irrigation system on possible locations for the well.

A. As you will note, nearly the entire southwest quarter is taken up or consumed by a single circular irrigation facility that is known as the 4-2A facility. We were restricted to locating a well down in the southeast quarter of the southwest quarter to a very minuscule tract of land.

If you will see the circular location which indicates the Rhodes C No. 101 well, we even attempted to move a bit further to the north, but immediately to the north you will see a well symbol that is located there, and there is an existing pipeline that services that well that's up in the triangular portion of land immediately north to our proposed location. So with the existence of the well, the pipeline, and the circular irrigation project, we were unable to move any further to the north.

Q. When you look to the north portion of the circle and just beyond it but still within the southwest quarter of the section, there appears to be an open area adjacent to what is called the main canal and slightly west of the highway. Why is it not possible to locate the well within that area?

A. The canal falls under perhaps not the jurisdiction of the Bureau of Reclamation, but they are advisory to the tribe, and they have established a setback, and the exact feet I don't recall off the top of my head, but it is somewhere between 300 and 500 feet that they will not let you locate any facility to that water canal. It's one of the main canals that services the NAPI irrigation project. So that eliminated that triangular shape of land that you will

see up there to the north that you might have suspected that we could locate a well.

Q. Has Meridian exhausted all opportunities to find a surface location for a well for these two pools within the southwest quarter?

A. Yes, sir, I believe we have.

Q. And does the proposed location -- is that the only location that you can find?

A. Yes, sir.

Q. Is the proposed location for this well one that meets the criteria established by the other regulatory agencies involved in deciding for you where this well is located?

A. Yes, sir. This was the location we were able to work out between all of the concerned regulatory entities.

Q. Let's turn now, sir, to the next exhibit book and look at the Rhodes C No. 102 well. And that's Case 10725. If you'll turn to the display shown behind Exhibit Tab No. 3. This is the same display that we looked at behind Exhibit Tab No. 3 in the prior case with the exception that you've now spotted the proposed 102 well?

A. Yes, sir, that is correct.

Q. So we're looking at the same Sections 30

and the north half 31?

A. Yes, sir, that is correct.

Q. Describe for us what you propose as spacing units for the two pools involved in this case.

A. We are proposing a north half dedication, which again is hatched in green for the Fruitland Coal formation, and we are also proposing a northeast quarter spacing unit for the Pictured Cliffs formation which is crosshatched or hatched in the red color.

Q. You have some lots in the far west side of the 320 spacing unit that are less than 40 acres. Does that fact cause your spacing unit to be nonstandard in size for the coal gas?

A. No, sir, it does not.

Q. This well location is standard as to the coal gas?

A. Yes, sir, that is correct.

Q. And it is nonstandard for the Pictured Cliff?

A. That is correct.

Q. Let's turn to Exhibit Tab No. 4 and have you describe for us the surface limitations that have caused Meridian to seek the nonstandard location for the PC portion of the case.

A. Behind Exhibit No. 4 we have our

topographic plat. You will please note the outlines of the section which are crosshatched. You will also see that this is the third well of our application today that is involved in the NAPI irrigation project. Virtually all of the northwest quarter and a triangular piece extending down to the intersection of the south and the west lines is all included in the NAPI irrigation project.

We have indicated the surface facilities for those circular irrigation projects, as well as a facility that you will see in a rectangle on the other side of the road which is labeled 4-3. It's a facility for the project out there. We had to locate the well between the topography that is on the eastern side of the spacing unit in which the BLM would not let us locate up on top of that rather inaccessible topography, nor could we locate further to the east because of the NAPI irrigation project and its related facilities.

Q. The specific well location is 790 from the north line and 1950 from the east line?

A. That is correct.

Q. That would put you 690 from the western side of the 160-acre spacing unit for the northeast quarter, would it not?

A. I believe that is correct. I didn't run that calculation -- yes, that is correct.

Q. So you're 100 feet too close to the west boundary of the spacing unit?

A. Yes, sir.

Q. And if you move 100 feet to the west, you're within an area the BLM precludes you from accessing because of terrain?

A. That is correct.

Q. Are there any standard locations available to you that the BLM will approve in the northeast quarter of the section?

A. No, sir. This is the only location that they were agreeable to letting us use for this well.

Q. We have common ownership of interests in both of these spacing units, do we not, Mr. Alexander?

A. Yes, sir, that is correct.

MR. KELLAHIN: That completes my questions for Mr. Alexander.

EXAMINER STOGNER: I have no questions of Mr. Alexander. All the exhibits are somewhat thorough.

MR. KELLAHIN: Thank you. I'd like to call at this time Scott Daves.

EXAMINER STOGNER: Will you be going

through the exhibits in the same manner with this witness?

MR. KELLAHIN: I'll direct Mr. Daves' attention. He's the petroleum engineer involved, and he is going to spend most of his time discussing the allocation formulas which will be found at the same point in the exhibit books.

MR. STOVALL: Is it the same formula in all five wells?

MR. KELLAHIN: I think that's right.

MR. STOVALL: I know in the last ones you had, it's some for new drills and some for existing wells. Are they all the same situation?

MR. DAVES: They're all the same. There's subtle differences based off the geology, and that's it.

EXAMINER STOGNER: Mr. Kellahin?

SCOTT DAVES,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation.

A. My name is Scott Daves. I'm a reservoir

engineer with Meridian Oil. I've been with them approximately six years.

Q. And you're located in Farmington, New Mexico?

A. I'm located in Farmington.

Q. On prior occasions have you testified as a reservoir engineer before the Division?

A. Yes, I have.

Q. In fact, you have been a previous witness in some of these commingling case, have you not?

A. That's correct.

Q. Pursuant to your employment as a reservoir engineer, have you made engineering studies of the details of all five cases by which you then came to conclusions about an allocation formula?

A. Yes, that's correct.

Q. In addition, have you been involved with this project as a petroleum engineer so that you can describe to the examiner why it is you're seeking to have these wells commingled?

A. That's correct.

MR. KELLAHIN: We tender Mr. Daves as an expert reservoir engineer.

EXAMINER STOGNER: Mr. Daves is so qualified.

Q. (BY MR. KELLAHIN) Mr. Daves, let me have you turn to case 10721, and let's go to Exhibit Tab 5 and talk about the allocation formulas.

A. Okay.

Q. The information behind Exhibit Tab No. 5 consists of two pages, and that is true for all the cases?

A. That's correct.

Q. You've got two displays?

A. That's correct.

Q. And this represents your work as to all the cases?

A. That's correct.

Q. Before we look at the specifics, describe for us your methodology in arriving at an allocation formula so that you could appropriately commingle production between the PC and the Fruitland owners and have a fair and equitable allocation.

A. Okay. Basically the approach that's been taken in the past and that's been approached here is that the Pictured Cliffs is a sandstone reservoir that is far greater understood than is the Fruitland Coal from the standpoint of reserves are much easier to calculate. There is a pressure depletion relationship there that's been established for wells in the general

area of each of the different areas that we're allocating production. And from that data we were able to establish what we felt were reasonable numbers for Pictured Cliffs reserves and also a method of testing the Pictured Cliffs to adequately allocate from an initial point.

Q. Describe for us the engineering methodology used to arrive at the Pictured Cliff reserves in each of the cases.

A. There were basically two methods used. One was volumetric calculations, determining thickness, porosity, water saturation. And also there was a material balance relationship there, determining a pressure depletion relationship. And in all of the cases listed, that relationship is fairly similar.

Q. Are you satisfied as a reservoir engineer that that methodology is an appropriate and fair way to determine the volume of recoverable reserves in the Pictured Cliff Pool underlying that spacing unit to which the well will be dedicated?

A. That's correct.

Q. Having made that conclusion or reached that conclusion, how does the formula work in terms of allocating production in this wellbore between the PC and the Fruitland Coal?

A. How this formula works is it basically establishes a relationship that says that the Pictured Cliffs reserves are a function of the reservoir pressure, the volumetrics and also the initial rate. And through those relationships, you can determine an initial rate, a reserve number, and a decline.

Q. Let's use the first book as an illustration and the allocation formula that's shown behind Exhibit Tab 5. We've got two displays.

A. Right.

Q. Summarize each of them for us.

A. What the first page basically does is describe the relationship and how the equation is determined. It says that the total production is equal to the sum of the Fruitland Coal production and the Pictured Cliff production. And then I've rearranged that formula to solve for the Fruitland Coal production which basically says that the total production less the Pictured Cliffs production is equal to the Fruitland Coal production.

What I've described down through here is the way that we come up with a decline curve for the Pictured Cliffs. And further down into that is the actual allocation of reserves to the Pictured Cliffs. That is where the G as a function of pressure is equal

to a number .84, in this case, times a pressure times a recovery factor. And then I describe the recovery factor there.

And on the second page is how we are actually determining that initial rate for the Pictured Cliffs, which basically it says the first month Pictured Cliff rate is equal to the total production for that first month times the flow test of the Pictured Cliffs, and this is a ratio here, divided by the total of the Pictured Cliff flow test plus the Fruitland Coal flow test.

Q. Going back to the first page, would it be appropriate, in your opinion, should the examiner approve your application, to simply take this page and attach it to the order as an exhibit, and would that then give you enough information by which you can allocate production in the well?

A. Yes. The one thing you would need is the initial reservoir pressure and the flow test rates.

Q. When you look at the results of your volumetric reserve calculation validated with the material balance, the 0.84, that number is going to change as the examiner looks at the other exhibit books?

A. Yes, that's correct.

Q. Why does that change occur?

A. There are differences in the volumetrics, and those are confirmed by evaluation of the material balance for the general area of each of the cases.

Q. So you have specifically adjusted the parameters in the formula to take into consideration the unique character of the Pictured Cliff as it applies to each of its spacing units?

A. That's correct.

Q. For each of the wells?

A. Right.

Q. Let's go back now and find a locator map, and perhaps it's easiest to use the one behind Exhibit Tab No. 3.

Give us your sense of reservoir engineering conclusions as to why you're proposing, first of all, the location of the well in this portion of the section. What do you think you can achieve by putting the well here?

A. Through the evaluation of the area, we've identified that this is, first off, an open Fruitland Coal drill block. There is not a Fruitland Coal well in there. As we were evaluating that, the first thing we would have looked at is an opportunity to recomplete a well. The wells out of there are

productive. They're Dakota wells. And then we also noticed that there are two abandoned Pictured Cliff locations.

We identified those two wellbores as being too risky to attempt to reenter; so the only option that we were left with was a drill well. The location itself was chosen to insure that we were in the proper spacing and proper area for the Fruitland Coal initially.

Q. On the index summary we've provided to the examiner for this case, the last column shows economics, and it says PC margin?

A. Right.

Q. What is the meaning of that?

A. What that means is basically two things. One, it would be uneconomic to produce the Pictured Cliffs by itself because of the productivity of the Pictured Cliffs in that area. And also it would be uneconomic to drill a well as a straight-up Pictured Cliff well there.

Q. What is your recommendation to the examiner concerning the best method in order to produce Pictured Cliff reserves from this spacing unit that might not otherwise be produced?

A. Commingling it with the Fruitland Coal

production that we will get.

Q. In your opinion as a reservoir engineer, would it be economic to drill the Pictured Cliff as a stand alone Pictured Cliff?

A. No.

Q. The only way you get it in this area is a tag along with the Fruitland Coal well?

A. That's correct.

Q. Let's turn now to the next exhibit book, which is 10722. It's the McAdams 500 well. And again for a visual reference, let's look at the display behind Exhibit No. 3. Give us your engineering summaries as to why you're proposing to locate the well as it's requested and why the orientation here of the spacing units.

A. Here again, we evaluated the drill block as being an open Fruitland Coal drill block. We looked at the wells that were in that drill block. And as it shows here, there are two Dakota wells. Both Dakota wells are basically not viable candidates. There are other opportunities out there. So we were left with the option to either complete or recomplete the McAdams two original Pictured Cliff wells. That well has subsequently been determined as too risky of a venture, and it would be plugged and abandoned. And

that left us with drilling a well. And we identified that as being a standard Fruitland Coal location; so, therefore, that's why it was chosen there.

Q. What are the economic conclusions you reach about the well at this location and the dedication of the two spacing units for this well?

A. The Pictured Cliffs itself would be uneconomic to drill for and produce, and that the Fruitland Coal would be economic in and of itself to drill and produce.

Q. As concerns the allocation formula for this well, have you used the same methodology and applied the same allocation formula to the McAdams 500 that you did for the Rowley Com 500?

A. That's correct.

Q. Let's turn now to the next exhibit book, Mr. Daves, Case 10723. It's for the Whitley A No. 100. And to keep us oriented, if you'll look to the display behind Exhibit 3, let's talk first about your choices concerning where to put the PC well in the section.

A. Right.

Q. What did you decide and why?

A. Primarily, we identified that southwest quarter as an undrilled -- both an undrilled Fruitland

Coal location and a Pictured Cliff location.

Q. You already have a Fruitland Coal well in the northeast quarter?

A. That's correct.

Q. So you have a west-half dedication then for the remaining portion of the section for the Fruitland Coal?

A. That's correct.

Q. What were your reasons for choosing the Pictured Cliff in the southwest quarter?

A. There have been two wells drilled up in the north half of that half section, and they basically were what we determined as uneconomic, and they have been poor tests.

Q. When you look at your summary sheet for the cases, the last column, what's the meaning of the code here when we look at subeconomic as to the PC and the Fruitland Coal?

A. There's several parts that went into that. One is that the flow rates for each of the various Pictured Cliff wells in the area and also the coal wells in that general area are marginal. They're not strikingly -- they're not of sufficient rates that you would call them straight up economic successes.

Q. As to both formations then in this well, it

would be of significant risk to attempt to complete them as single stand alone wells?

A. That's correct.

Q. And you would not do that?

A. No.

Q. Let's go now to the next book. It's case 10724. It's the Rhodes C 101. Again looking at Exhibit 3, give us your engineering conclusions as to why this well is proposed where it is.

A. Basically, we noted that we had an undrilled Fruitland Coal drill block, we had an undrilled Pictured Cliff drill block, and we felt like spacing -- the standard Fruitland Coal spacing would be the thing that would drive us to choosing the southwest quarter for this location.

Q. Section 30 and the north half of 31 have some extremely difficult surface problems, do they not?

A. That's correct.

Q. The location here is simply driven by the limitations of the surface location, aren't they?

A. That's correct. That was the only place we could spot the well inside the area.

Q. Let's use this display to talk about the next case, which is the Rhodes 102.

A. Okay.

Q. And show the examiner what you think is going to happen then with how you're going to access the reservoir with wells in 30 and the north half of 31 within the confines of the surface limitations. Give us a plan to how to exploit those reserves with those kind of restrictions.

A. Basically, that's the only opportunity that we have as far as the southwest quarter of Section 30. That is the only place as it stands right now, given the current surface locations, that we can do anything.

As far as the northeast of Section 31, there again that was the only spot. So we're basically left with the opportunity to drain these reservoirs, but these are the only spots that we can drain them.

Q. Your well location for the Rhodes C 102 is going to be slightly north and east of that Dakota well that's spotted in the northeast quarter of 31?

A. That's correct.

Q. What's the plan for the east half of 30? That's not the subject of the case here, but what's your plan?

A. We have a well staked and currently

permitted for the northeast quarter of Section 30.

Q. And that's a coal gas well?

A. Right, the Rhodes C 100.

Q. So the C 100 is located approximately where the dry hole symbol is located?

A. That's correct.

Q. In the center of the northeast of 30?

A. That's correct.

Q. So that gives you one coal well. You get down to the west half of 30 and look at the southeast corner, that spacing unit, that's your Rhodes 101?

A. Right.

Q. And then you move over to the northeast quarter of 31, and you get your third well?

A. Right. Therefore, with those three wells, we should adequately be able to develop the reserves that are within those three half-sections.

Q. What happens in the PC part of this? What's your engineering choices on how to recover anything that's left in the PC? Can you do that stand alone vertical wells in the PC?

A. No.

Q. Give us a summary then of what the risk is to Meridian as an operator for trying to produce the PC and the Fruitland Coal in this area.

A. One of the risks that you have with the Fruitland Coal is, if you'll look there, there are very few Fruitland Coal locations in that general area. So in that respect, it's fairly risky. There have been some tests, but flow tests in and of themselves don't really tell you whether an area is going to be very productive or economically productive.

Q. What's your conclusion then about the best way to explore the opportunity to produce PC and Fruitland Coal reserves for these two wells?

A. The combination of both rates and the reserves should allow us some accommodation for the risk that's involved. You're on the fringes of a known Pictured Cliff pool. You're on a stepout, complete stepout of the Fruitland Coal development in that area.

Q. Is your allocation formula for the Rhodes C 101 and the 102 the same type of formula you've used for the other cases?

A. That's correct.

Q. And but for fine-tuning, the material balance, and the volumetric calculations for each of those five wells, then the formula is the same?

A. Right. The fine-tuning is a relationship

of the reservoir and that specific spacing unit.

Q. And you did that in association with one of the Meridian geologists to map and help you define and planimeter, if you will --

A. Right.

Q. -- the size and shape of the container by which you applied your engineering calculation?

A. That's correct.

Q. Are there any other issues for you as a reservoir engineer that affect the commingling? Do you have pressure differentials that are going to give you a problem?

A. No. The reservoir pressures are well within the guidelines for commingling.

Q. Any kind of liquids, fluids, or other kinds of problems that are going to give you difficulties?

A. The tests that we've seen in the general area of the two Rhodes wells and the Whitley is that the waters are almost identical.

Q. Do you have a conclusion about whether or not approval of these applications would give you an opportunity to prevent waste?

A. Absolutely. Otherwise, those Pictured Cliff reserves will probably be there for a long time before anybody would economically be able to develop

them.

Q. Do you see any opportunity to impair or adversely affect correlative rights?

A. No.

MR. KELLAHIN: That concludes my examination of Mr. Daves.

EXAMINATION

BY EXAMINER STOGNER:

Q. Mr. Daves, in Case 10722, referring to Exhibit No. 3, look up in the northeast quarter, is that a Pictured Cliff well?

A. Yes, sir. That's the McAdams -- northwest or northeast?

Q. Northeast.

A. Northeast. That's the McAdams 2, and it was originally scheduled to be a Fruitland Coal recompletion, but we had substantial casing problems, and the well either has or will be plugged and abandoned.

Q. Has it ever produced?

A. Yes. It was a producing Pictured Cliffs wellbore.

Q. But you have no intention of producing that well once this well is drilled?

A. No. That well is beyond repair.

Q. Now, going back to the two wells in Sections 30 and 31, the Rhodes 101 and 102 --

A. Right.

Q. What's the feasibility of directional drilling to get the wells further apart?

A. We did a study there and evaluated the costs and compared that with the economics of doing something, and we found it was uneconomic to do that. These are, at best, marginal as they are proposed, and to do something horizontally or in a high angle sense would make them uneconomic.

Q. What I asked for is directional drilling. I'm just talking conventional at this point.

A. Right.

Q. And that's what you're referring to?

A. That's exactly what we're talking about.

Q. Is the nature of the Pictured Cliffs out here, should the well have to be shut in for some marginal amount of time or some extended amount of time, water flow back into the Pictured Cliffs from the Fruitland Coal, is that going to cause any harm or drowning out?

A. That was a concern that we had initially, but what we have found is that in general in that area on those coal wells that have been developed, the

water rates and the type of water is very similar to the Pictured Cliffs water; so that shouldn't be a problem. As long as we can maintain an established flow, we shouldn't have a problem with that.

Q. How are you proposing to complete -- I assume these are going to be perforations?

A. Right.

Q. Is there any stimulation that occurs?

A. We use a foam frac in each of the intervals, foam being a nitrogen foam prop and frac stimulation.

Q. In referring to your formula, or go back to the -- I guess it would be the second page of the formula, and look at Qt(1), that's the first month total production?

A. Correct.

Q. That's the initial month that the well produced from Day 1; is that what I understand?

A. That is the first month of sales. That is what that Qt(1) will be, the first month total sales.

Q. That will remain constant from here on out?

A. Right.

Q. Your Qpc and your Qftc, final Pictured Cliffs flow test, final Fruitland Coal flow tests, I'm not sure I follow you there. What do you mean by

final flow tests?

A. Okay. The way that we currently are completing these wells with the Pictured Cliffs, we move on the location with all of our frac equipment and with coil tubing, what we do is we fracture stimulate the Pictured Cliffs, flow it back, clean it up, get aware there is no more sand entering the wellbore and we have good sustainable flow, at that point we shut it in. There's a seven-day shut-in test.

And then we turn back around after that, and we bring the well on, and we test it through a separator so that we can gauge the well and get an absolute idea of the flow. And at that point then we set a bridge plug above the Pictured Cliffs, after we've got that sustained flow test, and then we do the same process with the Fruitland Coal.

Q. How many tests throughout the life -- is this going to be a periodic test?

A. No. This is a one time -- this is basically the flow tests that are from the initial completion.

MR. STOVALL: Is this the same formula that -- or have the orders in the other cases been issued?

THE WITNESS: Um-hm.

MR. STOVALL: It's the same formula that was approved in those cases?

THE WITNESS: Right.

Q. (EXAMINER STOGNER) Again, what is Qpc(P)?

A. That is from the flow test. That's what that means. It basically is a Pitot. That's what the P stands for in each of these cases. I would say that that is a typo comparing the Qpc with the small "P" and the Qftc with the little "P" on the other side of that equation.

Q. They all mean the same?

A. Right. What it basically is is flow tests that we get from the Pictured Cliffs plus the flow tests that we get to the Fruitland Coal establishes the denominator. And then the flow tests we got from the Pictured Cliffs establishes the numerator. Therefore you have a ratio there. They're flowing under the same flow conditions; so they should be in that respect equal. And then you multiply that ratio times the total month's production and the initial month's production. That in combination with your reservoir pressure gives you a reserve number; so then you can calculate your decline at that point.

Q. So that should be a small "P" and not a

capital?

A. Right. That's a typo. I just now noticed it, too. I apologize for that.

Q. It appears like it's so far in the ones I have researched, they should be changed to small "P." Okay. I have no other questions of this witness.

Mr. Kellahin?

MR. KELLAHIN: That's it for this one.

TOM YERSAK,

the witness herein, after having been first duly sworn upon his oath, was examined and testified as follows:

EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation.

A. My name is Tom Yersak. I'm a geophysicist for Meridian Oil Inc.

Q. Spell your last name.

A. Y-E-R-S-A-K.

Q. On prior occasions, Mr. Yersak, have you testified before the Division as a geologist?

A. No, I haven't.

Q. Summarize for us your education.

A. I received a master's in geology in 1977 from Rutgers University. I have about 16 years

experience in the oil and gas industry.

Q. Summarize for us what you've done with regards to the geology in each of these five cases.

A. I basically reviewed the data that was given to me from the previous geologist, K. Stewart Hicks. I reviewed that data. That's the data that's used in the making of the isopachs and the structure map. And I put together the cross-sections to illustrate the geology for the Commission.

Q. Did you independently verify the prior geologist's work?

A. I did, sir.

Q. Were you able to use that work from which to reach your own independent conclusions about the geology?

A. That's correct.

MR. KELLAHIN: We tender Mr. Yersak as an expert petroleum geologist.

EXAMINER STOGNER: Mr. Yersak is so qualified.

Q. (BY MR. KELLAHIN) Give us a visualization of the issue for you as a geologist when we look at the commingling. And I think what I'm asking for is to take any of the cross-sections. We've shown the examiner the cross-section you've prepared out of the

Rowley Com 500. And if you go to the one on the wall of the hearing room, give us a general picture of what you see as a geologist.

A. The first thing is that this is a stratigraphic cross-section, and the datum on which these well logs have been hung on the Huerfanito Bentonite. What I have labeled on the cross-section is the basal coal and the top coal, and in this area the top coal is known as the Rowley coal. And I've labeled the Pictured Cliffs.

Generally speaking, the basal coal is pretty uniform in thickness, and in this particular area the basal coal lies on top of the Pictured Cliffs. There are places where it is separated from the Pictured Cliff by a shale anywhere from 5 to 10 feet. Variations in the net coal isopach map normally are the result of changes in thickness of the Rowley coal or the top coal.

Q. Did you assist Mr. Daves in providing him with your geologic interpretations from which then he did his volumetric calculations of the Pictured Cliff reserves?

A. I did, sir.

Q. And the small variances in his number is the result of your difference in interpretation that's

directly applicable to the change in thickness of the Pictured Cliff?

A. That's correct.

Q. Are all five cross-sections in the exhibit books of similar methodology?

A. That's correct.

Q. And do we see this same relationship between the Coal and the Pictured Cliff if we look at each of those?

A. We do.

Q. And the conclusions you have reached about the coal thickness that varies the most is the top coal in each of the cases?

A. That's true.

Q. Okay, if you would return to your seat.

Let's continue then with the Rowley Com 500 and have you turn behind Exhibit Tab 6. The first display is a Fruitland Coal isopach map?

A. That is correct.

Q. Have you provided similar isopach maps for each of the five cases?

A. I have.

Q. What emphasis or conclusion do you place as a geologist upon coal thickness in helping you decide where to put your coal gas well in a given section?

A. There is no relationship.

Q. Why not?

A. Because there is no relationship between the thickness of the coal and the producibility of that coal. The producibility is a function of permeability, the cleating, and essentially the gas content of the coal, which is a hard thing to quantitatively map.

Q. While all the displays in here will show an isopach of Fruitland Coal, the coal thickness is not the parameter by which you as a geologist help the engineer in making the selection of where to put the well?

A. That's correct.

Q. And there is no currently available data in each of these cases from which you can accurately map permeability?

A. That is correct.

Q. So you're using other information and your best judgment as an expert as to where to put each of these wells?

A. That's correct.

Q. When we turn to the PC mapping, that's different, isn't it?

A. We're dealing now with a sandstone, and

there we can quantitatively define net pay that basically could be used in a volumetric calculation to come up with the gas in place, a number that would -- in this particular case, correlates very well with the reservoir engineer's material balance calculations.

Q. So when we're trying to come up with a methodology to equitably allocate production between the two pools in each of these cases, if we target our reserve calculation efforts on the Pictured Cliff, that's going to be the most accurate way in which to make the allocation analysis?

A. That is true.

Q. When we look at the isopachs for the PC, are you confident that you have accurately and adequately contoured the thickness of that reservoir?

A. I have.

Q. When you look at choices on where to put the well, the PC portion of the well, you've got a 320 gas spacing unit, I guess you would have the choice to put it in either one of the 160's that make up the 320?

A. Correct.

Q. In each of the cases, can you draw a direct conclusion based upon PC thickness from the isopach in which to help you decide where to put the well?

A. You can. Obviously, you would like to position it in the thickest part of the PC if you could, but you are looking at an averaging of that. You're looking at a drainage radius, and you're taking an average net pay thickness.

Q. Summarize for us then what you have done with the assistance of the engineer in trying to find your best opportunity in each of these sections, the five involved, to penetrate not only the Fruitland Coal but the Pictured Cliff. What were the parameters and what did you select from to get your locations where you're now proposing them?

A. Well, besides the surface limitations of where exactly we could position a well, and the fact that we weren't able to -- that the coal was not an issue in terms of where we located the well, we focused on the Pictured Cliffs. Basically, what we try to do is try to find an optimum position where the Pictured Cliffs was the thickest.

Q. All right. Let's take for an example then the isopach of PC behind Exhibit Tab No. 6 in case 721. Your spacing unit orientation is the west half of Section 7?

A. That's correct.

Q. And when you're looking in the west half,

show us why you have picked this particular location for the Rowley Com 500.

A. Well, in terms of -- it wouldn't make any difference if we drilled the well there or if we drilled it --

Q. Farther south?

A. Farther south.

Q. When you look at the northwest quarter of that section, there has already been a PC well drilled in that quarter section, has there not?

A. That's correct.

Q. You have a structure map also shown in all the exhibit books. This one is found behind Exhibit No. 7. Is structure a key component that you as geologist use to find well locations for either one of these two pools?

A. No, it isn't, sir.

Q. It's just a point of information, but it is not one of the parameters that you're using?

A. Correct.

Q. Let's turn now to the next one. It's 723, the Whitley 100. And let's turn to Exhibit 6 and find the isopach on the Pictured Cliff. And to serve as a second illustration for us as to your methodology, show us what the opportunities are for the well in the

southwest quarter as compared to what would happen if it was moved into the northwest quarter.

A. First is the northwest quarter?

Q. Yes, sir.

A. If we drilled the well in the southwest quarter, we would be, on average, draining the thickest Pictured Cliffs. If we drilled it up in the northwest, we'd be averaging, and it would be -- you can see it gets a little thinner to the northwest. And so we wouldn't have quite as much net pay in the northwest quarter.

Q. So when you're looking at all these cases, you can use as a component of your analysis then the net thickness in the PC and see what area might be effectively developed by a well located in one portion of the section?

A. Correct.

Q. And then you factor in the other issues, what you know about coal cleating?

A. Right.

Q. Fracture orientation, and the other criteria in selecting a coal gas location?

A. Well, the other factors that are involved in the Pictured Cliffs, this is a net pay map, but when you do the volumetrics, you take into

consideration the porosity and the water saturation. They're the other two variables that go into calculating the gas in place besides the net pay thickness.

Q. When you complete your analysis, do you reach the same conclusions that Mr. Daves reached, that in each of these cases the proposed location is the optimum available location within the surface limitations?

A. That's correct.

Q. In which to drill these wells?

A. That is correct.

Q. From your geologic perspective, do you see an opportunity to develop this in any other way other than by downhole commingling?

A. I don't.

Q. For each of these examples, then, that represents the best way to do this?

A. That's correct.

MR. KELLAHIN: That concludes my examination.

We now at this point move the introduction of all of Meridian's exhibits in each of cases. They will be numbered 1 through 8 in each case.

EXAMINER STOGNER: Exhibits 1 through 8 in

each case between cases 10721 and 10725 will be admitted in evidence at this time.

EXAMINATION

BY EXAMINER STOGNER:

Q. In staying with case 10723, the Whitley 100, you give me an isopach here, but I understood your earlier testimony that thickness is not a factor in the coal, but yet you're showing it to be a factor here. I'm a little confused. Did I misunderstand you?

MR. STOVALL: Let me ask another question, maybe I can get to that point. You have provided an isopach just to give us some idea of where the coal is and how the thickness lies?

THE WITNESS: Correct.

MR. STOVALL: But your testimony is that that isopach and those thicknesses did not play a part in your decision; is that correct?

THE WITNESS: That is correct.

Q. (BY EXAMINER STOGNER) Will it be the geologist that chooses the perforations in the coal?

A. In conjunction with the reservoir engineer, yes.

Q. Where does one usually put the coal, and I'm referring to the type log for the Whitley A No.

100, Exhibit No. 8, or that's where it's at.

MR. KELLAHIN: That's where it would be.

Where would be your recommendations on where to perforate the well?

THE WITNESS: This is an example here where the basal coal is not lying directly on top of the Pictured Cliffs, but you can see that we have multiple coal seams in that basal zone, and we'd perf each of those.

MR. STOVALL: When I look at that exhibit, I see -- the coal, I assume, is the dark in the depth track there?

THE WITNESS: That's correct.

MR. STOVALL: And I see numbers to the left. Is that the number of shots in each of those bands?

THE WITNESS: No. That's the number of feet.

MR. STOVALL: Oh, okay.

THE WITNESS: Those are the numbers, if you add those up.

MR. STOVALL: The footages of each little coal seam?

THE WITNESS: That's correct. And it was calculated off the electric log in this particular

case.

Q. (EXAMINER STOGNER) So perforations would be where the coal actually comes in contact with the well; is that correct?

A. That's correct.

Q. None in between on the matrix, sand matrix?

A. No.

Q. You said this was an example of there's a shale layer there between that nine foot of coal and the top of the PC?

A. Right. There's some separation between. The coal isn't directly on top of the Pictured Cliffs, that's correct.

Q. Whenever I have this kind of separation -- maybe I should be asking the engineer, feel free to answer it -- as opposed to the others where the coal is coming right down on the Pictured Cliffs, what kind of association do I see with water and water quality or the difference in the makeup?

MR. KELLAHIN: Can you answer that, Tom?

THE WITNESS: I'd like to --

MR. KELLAHIN: Why don't you step aside and let's recall Scott Daves. Scott, why don't you come back up and answer that? Did you hear the question?

MR. DAVES: Maybe restate that so I make

sure I understand the question.

SCOTT DAVES,

the witness herein, after having been previously sworn upon his oath, was examined and testified as follows:

FURTHER EXAMINATION

BY EXAMINER STOGNER:

Q. I'm talking about the water quality or the water makeup, essentially, the produced water in the coal and in the Pictured Cliffs. Do I see much of a difference whenever I have a shale separation between the two zones as opposed to where the coal sits directly on top of the Pictured Cliffs?

A. What we did in order to answer that question, because that was a real consideration prior to even thinking of applying, was we looked at those wells within the Gallegos Canyon Unit that border our acreage, and what we saw was that the water in the Pictured Cliff wells that they had was almost identical to the water that's produced in the coal wells that they had. And they were similar separation as what are shown in these logs.

Q. So the water quality does not vary regardless of the --

A. No.

Q. I know the formula is for gas, and, of

course, that's the main thing we're after, but do you have any idea what the ratio would be as far as any liquids production that may occur? I'm talking condensate and water.

A. There's little to no condensate in either of the reservoirs. And as far as the water, the water productions were fairly similar to within a barrel or two a day of each other.

Q. How will that be reported, or how will Meridian report that, the produced water from these commingled wells?

A. Probably being with the datum that we see, what we plan to do is report it off of a ratio very similar to this off of the flow tests. And I think the reason why we chose the flow test in the way that we are, so that we would have an idea of initial water rates and be able to allocate it from that point on because there will be an issue of operating expenses, and therefore we'll need to split that out accordingly.

But, there again, all of these are common interests where there is water production. On the ones where there is a differing interest, in the cases of the Rowley and the McAdams, there is no water production in either reservoir.

Q. I assume, in many instances, these are going to be a dewatering process for the coal?

A. Right.

Q. You're initially going to have a large water?

A. Right.

Q. As the well produces and the water drops off.

MR. STOVALL: Let me ask that because I believe you testified in the Huerfanito cases last time that you didn't think there was going to be much dewatering. Is that correct? First, you did testify in those, didn't you?

THE WITNESS: No, not in the Huerfanito.

MR. STOVALL: Did you testify in the last commingling?

THE WITNESS: Right.

MR. STOVALL: One of the Meridian witnesses, and I don't remember whether it was you or whether it was in the Huerfanito cases, testified that they didn't think there was going to be much water in the coal in those locations. Do you remember that testimony?

THE WITNESS: Um-um.

MR. STOVALL: So it wasn't you?

THE WITNESS: I don't believe it was.

MR. STOVALL: But you think there is some water in the coal?

THE WITNESS: Minor amounts in the neighborhood on an average of three to five to ten barrels a day initially.

MR. STOVALL: It's not like when you get further north?

THE WITNESS: No, it's nothing like that. These are entirely different types of scenarios where you might get a slightly different water. It drops off to one or two barrels per day or per week, and then that's it, whereas in the 30-6 or Cedar Hill area, you have substantial water.

Q. (BY EXAMINER STOGNER) But Meridian will separate those out in its monthly reports of production?

A. Right.

EXAMINER STOGNER: Any other questions of either the geologist or the engineering witness?

He may be excused.

MR. STOVALL: Mr. Kellahin, were you going to do your notice? I don't think you had mentioned those yet, if I'm not mistaken.

MR. KELLAHIN: If I haven't, they are

intended to be included in the exhibit book. I think we put them right inside the cover sheet. They are not identified as an exhibit number. I think in all instances, we will have them marked as Exhibit 9.

MR. STOVALL: They're an affidavit by you of notice to the required parties; is that correct?

MR. KELLAHIN: Yes, sir. And then they track the information Mr. Alexander supplied that's in the first portion of the exhibit book.

EXAMINER STOGNER: Anything further?

MR. KELLAHIN: No, sir.

EXAMINER STOGNER: With that, I'll take Cases 10721 through 10725 under advisement.

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10721 through 10725 heard by me on 22 April 1993.

Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Deborah O'Bine, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that I caused my notes to be transcribed under my personal supervision, and that the foregoing transcript is a true and accurate record of the proceedings of said hearing.

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 5, 1993.

Deborah O'Bine

DEBORAH O'BINE
CCR No. 63.

OFFICIAL SEAL
DEBORAH O'BINE
NOTARY PUBLIC - STATE OF NEW MEXICO
My Commission Expires Dec. 19, 1994