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:

APPLICATION OF MERIDIAN OIL, INC.

CASE NO. 11,331

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

ORIGINAL

BEFORE: DAVID R. CATANACH, Hearing Examiner

July 27th, 1995

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, July 27th, 1995, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

* * *

# I N D E X

July 27th, 1995
Examiner Hearing
CASE NO. 11,331



* * *

E X H I B I T S

| Applicant's | Identified | Admitted |
|---|---|---|
| Exhibit 1 | 11 | 22 |
| Exhibit 2 | 11 | 22 |
| Exhibit 3 | 11 | 22 |
| Exhibit 4 | 12 | 22 |
| Exhibit 5 | 48 | 55 |
| Exhibit 6 | 51 | 55 |
| Exhibit 7 | 52 | 55 |
| Exhibit 8 | 36 | 43 |
| Exhibit 9 | 56 | 56 |

* * *

A P P E A R A N C E S

FOR THE DIVISION:

RAND L. CARROLL
Attorney at Law
Legal Counsel to the Division
2040 South Pacheco
Santa Fe, New Mexico 87505

FOR THE APPLICANT:

KELLAHIN & KELLAHIN
117 N. Guadalupe
P.O. Box 2265
Santa Fe, New Mexico 87504-2265
By: W. THOMAS KELLAHIN

* * *

WHEREUPON, the following proceedings were had at 8:51 a.m.:

EXAMINER CATANACH: At this time we'll go ahead and call Case 11,330.

MR. CARROLL: Application of Meridian Oil, Inc., for downhole commingling, a nonstandard gas proration unit, dual completion, and an unorthodox gas well location, Rio Arriba County, New Mexico.

EXAMINER CATANACH: Are there appearances in this case?

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

We would request at this time, Mr. Examiner, that you also call the next case, which is numbered 11,331.

EXAMINER CATANACH: At this time we'll call Case 11,331.

MR. CARROLL: Application of Meridian Oil, Inc., for downhole commingling, a nonstandard gas proration unit, an unorthodox gas well location, and dual completion, Rio Arriba County, New Mexico.

EXAMINER CATANACH: Are there any additional appearances in either of these cases?

Mr. Kellahin?

MR. KELLAHIN: I have three witnesses to be

sworn, Mr. Examiner.

EXAMINER CATANACH: Okay, will the three witnesses please stand to be sworn in?

(Thereupon, the witnesses were sworn.)

MR. KELLAHIN: By way of introduction, Mr. Examiner, Mr. Alexander and I have looked at the docketing advertisement of these two cases. We believe that the original application has simply been docketed twice.

It's our belief that you may dismiss 11,330, because the information contained within the scope of our request is adequately covered under 11,331, and we simply have duplicate cases for the same Application.

EXAMINER CATANACH: At the Applicant's request, Case 11,330 is hereby dismissed.

MR. KELLAHIN: Let me give you a short explanation of why we're here this morning.

Mr. Alexander will describe to you the circumstances involved in a federal unit. It's called the San Juan 30-4 Unit.

This unit was formed a substantial number of years ago, and in its formation the parties involved at that time, as well as the regulatory agencies, did something that is no longer done, and that is, in the unit agreement they specifically specified, and the Commissioner of Public Lands, the Bureau of Land Management and the Oil

Conservation Commission at that time specifically dedicated spacing within the unit for Pictured Cliff production on 320 acres.

You and I both know that the East Blanco-Pictured Cliff Pool is spaced upon 160 acres. And so anyone looking at the unitization documents would perceive there to be a pooling size difference for production in the Pictured Cliff if it's in the unit or outside the unit.

The problem I'm about to describe to you is a problem for which Mr. Alexander and I do not have a recommended solution.

Here's the issue, that within this federal unit, the east half of this particular Section 21, as well as other sections within the unit, has been developed under 320-acre concept, where that production is allocated and shared initially on a 320-drillblock basis, with that production distributed to those owners.

There's participating areas. When the Pictured Cliff well, then, is brought into the PC participating area, then the well is treated as if it was part of a participating area.

For purposes of drilling, the operator and all interest owners have developed this on 160 acres. And here's the dilemma they have, is that when they file the dedication plats, they will find a dedication on 160 acres,

and when that information is inputted into ONGARD and the operator subsequently shows a distribution of proceeds on a 320-acre basis, the computer is going to flag that and it's going to kick out as a potential violation.

What we are concerned about is that we're not asking for an exception from the spacing, but we are asking for an acknowledgement that Meridian as the current operator continues to properly pay and distribute proceeds on 320 acres within the unit area, notwithstanding the fact that spacing is 160.

It is our expectation that a finding that addresses that issue may be of some comfort to us when these kind of spacing units are going to be kicked out by the ONGARD computer as potential auditing violations, and we're searching for some way to footnote or asterisk these spacing units so that when these things occur, we'll have a basis for talking to those regulators, to tell them that we are not in fact in violation of any rule.

That's Mr. Alexander's dilemma. There are other parts to the case that deal with the technical issues.

We're going to present a petroleum engineer, and based upon her judgment she has determined that the next appropriate 160 within Section 21 in which to locate the next well is the southeast quarter. It is her conclusion and analysis that this is the appropriate place to put the

next PC well.

It is also going to be her conclusion that this well is best drilled and recoveries are maximized if we are allowed to commingle the PC with the Fruitland Coal. Her testimony will be that the three nearby Coal wells are nonproductive, so she wants the chance to access the PC as a downhole commingle with the Coal.

In addition, the plan is to initially dual those commingled zones, then, with the Mesaverde, so that at some point in the future that may be added as a third commingle zone. But at least initially, the well would be drilled as a dual between the Mesaverde and then the combined PC/Coal.

This is a new drill. It will be off-pattern in the Coal. And as to the footage location, it is nonstandard as to each of the three reservoirs. The nonstandard footage location is based upon topographic reasons that Mr. Alexander will describe to you.

While the docket asks for approval of nonstandard 320 PC spacing units, in fact, as I've described, that is not what we're asking. We're not seeking an exception from the spacing, just a notation in the findings of the case that the distribution of proceeds within the context of these unit agreements on 320 allocation is appropriate.

And finally, the last witness will be a geologic witness, and he will validate the engineering conclusions

that there is no geologic reason to support doing other than what the engineer has proposed in terms of further development.

We'll present to you our baseline economic case to justify downhole commingling. It will follow the same methodology that you've seen previously.

And then lastly, she has an allocation formula that follows the same methodology that we have previously presented to you.

So that's where we're headed with this one.

All right, sir?

ALAN ALEXANDER,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

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

Q. On prior occasions have you testified and qualified as an expert in matters of petroleum land management?

A. Yes, I have.

Q. And within that expertise and that capacity, on behalf of your company have you made an analysis of the fact situation surrounding this Application?

A. I have.

MR. KELLAHIN: We tender Mr. Alexander as an expert witness.

EXAMINER CATANACH: Mr. Alexander is so qualified.

Q. (By Mr. Kellahin) Mr. Alexander, let's take a moment and have you describe those components of the exhibit book which address matters to which you will testify.

A. Yes, I would like to refer you to Exhibit Number 1, which we have included for the Division, copies of our Application and our continuance of this Application to today's date.

Attached to those applications are the exhibit for notification of the offset owners, which we also have provided for you under Exhibit Tab Number 2 so that we might talk about those separately from the Application.

And behind Exhibit Tab Number 3 I have provided a land plat showing the nine-section area surrounding the proposed new-drill well and all of the currently existing wells and leaseholds. And behind that exhibit I would like to talk a little bit about the reason for this well being

nonstandard.

And then behind Exhibit Tab Number 4, I would like to talk just briefly about why we would like a recognition by the Division of the fact that we need to distribute revenues and to allocate costs based upon 320 acres, as opposed to the normal procedure whereby we would be following the State spacing rules, in this case more particularly aimed at the East Blanco-Pictured Cliffs Pool.

Q. Let's start with the topic of notification. Have you satisfied yourself that Meridian has correctly determined the offsetting operators to whom notice is entitled in this kind of case?

A. Yes, if you would look behind Exhibit Tab Number 2, we have provided plats that show the location of the offset operators, and they are denoted numerically within the square boxes. We have plats for the offset operator notifications for the Fruitland and the Pictured Cliffs formation.

And then following those two plats, there is a listing of the parties that were notified by registered mail.

Following the second page of the parties listed, we have also included plats for the purpose of notifying people about the unorthodox well locations for all three formations, being the Mesaverde formation, the Fruitland

Coal formation and the Pictured Cliffs formation.

Again, following those plats, you will see a numeric listing of the parties that we notified by registered mail.

Q. With regards to the offset notifications, did that notification -- Was it made?

A. Yes, it was.

Q. And as a result of the notification, did you receive any objection from any of the offset interest owners?

A. No, we have not.

Q. Let's deal with the topic of the ownership within the spacing unit. When we look at the proposed commingled PC and Fruitland ownership, with regards to this spacing unit, is that interest common?

A. No, sir, it is not. The reason for the uncommon ownership is that -- well, let me refer you -- For a little clearer explanation, let me refer you to the Exhibit Number 3 and the land plat immediately following Exhibit Tab Number 3.

You will note in Section 21, the east half, that we are showing a single lease, and we do that by the notation at the top. You will see no lease boundaries in there.

You will see the San Juan 30-4 Unit boundary

running through the midsection. In other words, the east half of Section 21 is all of Section 21 that's included in the San Juan 30-4 Unit.

The ownership for the drill block of this well consists of three parts. It is on a drill block ownership for the Fruitland Coal, and it consists of those owners in the east half of Section 21.

For the Pictured Cliffs formation, however, the ownership is based upon the participating area that is currently established in the San Juan 30-4 Unit.

The east half of Section 21 is a part of that participating area, and the reason that it is is because you will notice there is a Pictured Cliffs well in the northeast quarter of Section 21. It's numbered the Number 14 well. That well was previously drilled, and according with the rules of the unit, we bring that acreage into the participating area on a 320-acre basis. Therefore, our proposed well is already in the participating area.

And it follows with the problem that Mr. Kellahin outlined to you, which we will speak about in a little while, on why we have a disparity between the pool rules, the field rules, for well density and drainage, as opposed to cost and revenue allocations.

To finish with my statement about the ownership, the Mesaverde formation is again back on a drillblock

basis, consisting of only the owners in Section 21, and that's why we have a noncommon ownership for this particular Application.

Q. When the operator, Meridian, is looking for further opportunities for development of resources in Section 21, from a landman's perspective, is that exploration best served by spacing, dedications and orientations that are totally confined within the east half of Section 21?

A. Yes, we believe they are.

Q. And the east half of 21 would be within the 30 and 4 Unit and the west half would be exclusively outside that unit?

A. That is correct.

Q. And the unit is one where there's unitized interest as to all formations at all depths?

A. That is correct.

Q. Okay. Let's turn to the topographic issues concerning the footage locations being unorthodox, once the decision is made to put the well in the southeast quarter of 21.

Is there a display that illustrates that topic?

A. Yes, there is. Immediately following the nine-section land plat behind Exhibit Tab Number 3, I have provided a topographic map with certain data delineated on

that map. We have shown on this map the standard drilling windows for the Pictured Cliffs and the Mesaverde. They are in the rectangles. The standard drilling window for the Fruitland Coal formation is in the dashed outline.

And you will, of course, note that our well location is outside both those standard drilling windows. And the reason for that is that we are in the forest, the Carson National Forest, I believe, and we have worked very closely with the BLM and the Forest Service to find an acceptable location.

Q. Have you indicated for us where the standard locations would be within the southeast quarter of 21?

A. Yes, they are indicated by both the rectangular solid lines and the dashed lines.

Q. What else is shown on the display?

A. We have shown where we have -- In the red outlines, we have shown where we found archeological problems and restrictions where we couldn't locate an acceptable drill site.

You will also note that we have a pipeline running through the south half of the acceptable drilling windows that caused us problems in there.

You will note by the contours that the south half of the windows are in a rather steep and dipping contour intervals. We could not adequately locate a location in

there without a lot of disturbance, and this area is very heavily timbered, and we tried to work the best we could with the Forest Service to avoid cutting as many trees as we could.

All of that resulted in us finally being able to locate a location. There is a round circle, and it is labeled the San Juan 30-4 Unit Number 40 well, up towards the midpoint of the section and towards the northwest quadrant of the southeast quarter. That's the location we were finally able to work out with all of the regulatory agencies.

Q. Is there any standard location that satisfies the topographical limitations of well locations within the southeast quarter of Section 21?

A. No, sir, we were not able to find a standard location to meet all of those problems.

Q. All right, sir, let's turn to Exhibit Tab 4 and have you identify and describe for us the issue identified earlier with regards to allocation of production on 320 basis, versus the spacing deemed appropriate by the Division for production out of the PC formation.

A. The first exhibit behind Exhibit Tab Number 4 is a rather simple exhibit, there's not much there. But I wanted to try to get the concept of the differences out in front before we discussed anything else.

I've shown you what we are required to use by the San Juan 30-4 Unit agreement, hached in green. That's a 320-acre dedication of acreage for the purposes of disbursing revenue and allocating costs to the unit owners.

I've also shown what the current pool rules for the East Blanco-Pictured Cliffs Gas Pool are, and that would consist, of course, of 160 acres being the southeast quarter of Section 21. Here you can see the problem that we face.

You will also note that, as I explained to you before, the east half of Section 21 has already been included in the participating area by virtue of the fact that we drilled the Number 14 well up in the northeast quarter, and we are required to bring in that entire 320-acre drill block when that well is drilled and deemed commercial for unit purposes.

So there I'm simply showing you a graphic representation of the problem that we are addressing now that ONGARD system is coming into effect, and we've been informed that the acreage dedications, by means of the C-102 plats -- the information will be entered into ONGARD, and then, of course, any leaseholds that exist within that dedication, and more particularly when we find that occurrence to be a state lease, then when the production is reported via the C-115 report, there is going to be -- a

discrepancy is going to appear, because we're going to report 8/8 of the production, but like in this case, if -- and let's take a hypothetical here -- if the state lease were located in the southeast quarter and there was either another state lease or a federal lease or some other type of lease in the northeast quarter, the State would only be receiving one half of 8/8 times their royalty interest.

And immediately the auditing functions they are building into ONGARD are going to flag this, and it appears to be a mistake. But in fact, it is not a mistake; it's exactly what is required by both the spacing and the unit agreements.

Q. What's the vintage of the unit agreement that's involved here?

A. This agreement was entered into in 1953, and I have included as the third page, the third and fourth page, just for the Division's information, a copy of the order of the Commission authorizing and approving the San Juan 30-4 unit, and the Division approved it on the 26th day of May, 1953.

So these rules have been in existence, and we have been operating for revenue distribution purposes since that date, so it has been going on for a great many years.

Q. Within the context of that agreement, is there specific language with regards to spacing unit allocations?

A. Yes, there is, and I have included an excerpt from the unit agreement as the second page behind Exhibit Tab Number 4.

And if you would look down into paragraph 11, oh, about midway down, you will see that the agreement requires us to develop drill blocks consisting of either the east-half or west-half dedications within this unit.

And that's where we -- That's how we based the cost allocation for the unit owners when we developed these wells, is based upon 320 acres. That's how we bring the acreage into the participating area, based upon 320 acres. And that's how we allocate revenues, based upon a successful well in the unit.

The Division has for many years approved these plans of development. They have approved the spacing units consisting of 320 acres when we submit them, and they have approved the inclusion of 320 acres into the participating area.

So this isn't anything new. I think the problem simply exists because the State is now going to be auditing the spacing against production, and it's something they have not done in the past.

And so this problem -- It's not a problem, but there is -- Depending upon what's entered into ONGARD system, there is going to be an audit exception that's

going to be raised.

And what we're really proposing that we do is to start working this problem, and perhaps when we file our C-102s, we could note both the proper pool rules for density of well patterns and drainage and the allocation of revenues for the unit.

In other words, in this particular case we would note that, yes, this is subject to the East Blanco-Pictured Cliffs Pool, which uses 160-acre dedications, but for the purposes of allocation of the revenues it is based upon 320 acres, per the unit agreement.

And then whoever is entering information in the ONGARD system, I would hope, for the purposes of matching auditing revenues against the proper size of unit for allocating revenues would in fact enter in 320, as opposed to the 160 acres.

We wanted to start addressing this problem today, because there are 16 federal units in the San Juan Basin that follow this pattern of development for cost and revenue allocations.

So this is not by any means going to be an isolated problem. And I think it is readily workable; we just need to address it and find the proper solution to prevent these audit exceptions from happening in the future.

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

We move the introduction of his Exhibits 1 through 4.

EXAMINER CATANACH: One through --

MR. KELLAHIN: -- four.

EXAMINER CATANACH: -- four.

MR. KELLAHIN: Yes, sir.

EXAMINER CATANACH: Exhibits 1 through 4 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Alexander, did you say that we've handled -- we've accepted C-102s in the past with 320 acres shown for a dedication?

A. That has been done several ways. For a while they were accepted, and we have some old ones in our file that show that.

But for the most recent time, I'd say for the last five or six years -- and let's march back in time a little bit.

When I arrived out here in the Basin in 1984, we still continued to submit the C-102s showing 320 acres. But the Division came back and asked us to redo those and submit them according to the applicable pool rules. And

this happens not only in Pictured Cliffs, but it could happen in Chacra or any shallower formation that's spaced upon 160 acres.

So we were attempting to submit them on 320s to avoid this problem, but they asked us to go ahead and resubmit them on 160s in those cases, and we did.

So I would say currently that the procedure that's being followed is, we're simply submitting them based upon the applicable pool rules and not based upon the requirements of the federal unit agreement.

But it has been done differently over the years, because it's been an ongoing problem.

Q. Yeah, I'm not sure that under ONGARD -- If you entered it into the system as a 320-acre, I'm not sure that there's something in there that would catch that and spit that back out as being the wrong amount of acreage. So --

A. Yes.

Q. -- you may have a problem either way.

A. One of the other -- To clarify it a little bit more, if we look back into the records, I do have an example which we would be happy to give you. It's of the San Juan 30-4 Number 34 well. It was filed back in 1973. And the acreage dedication at the top of the plat actually shows 320 acres, and it was approved by the Division. Now, in some instances, these things were modified at a later

date.

But one of the other complicating factors was, quite a few years ago it was the practice to show only the leasehold upon which the well was actually located, and we didn't even in those days show all of the leaseholds that may have been involved in a particular spacing unit. So we have some complicating factors when you look back through the historic records.

The practice today, though, is to show all leaseholds within the applicable drilling block.

Q. Have you guys talked to anybody who's real familiar with the system, with the ONGARD system, to see if there's anything that can be done outside of our -- outside of this process here?

A. We have, and we started that dialogue. I've visited with all of the internal people in Meridian. We are filing electronically with the State of New Mexico. However, we are only filing the production information off the C-115, and that's not going directly into ONGARD. It's being -- We are prodding a magnetic tape, and then that information is being formatted and loaded into ONGARD.

So I haven't found out that we are not filing information that would link the problem -- in other words, the spacing and the production. We're only filing the production.

The spacing information is being inputted by the Division personnel, and so we have no interface with that particular problem.

And I have talked enough with the people -- It is my understanding that the spacing information will be inputted so that it can be developed, a set of audit procedures, automated audit procedures in ONGARD, that will check the spacing requirements against the leaseholds, particularly for the State of New Mexico, and make sure they're getting 8/8 of the production allocated so that they get their full royalty share.

That I have discovered to date, and I have not had an opportunity to visit yet with any of the personnel about how we might try to prevent audit exceptions when we're dealing with these federal units, and that would be the next step.

Q. Well, the man to talk to here is Mr. Ed Martin. He's our ONGARD liaison. I think it might be a good idea to set up a meeting with him of some sorts.

A. We'll do that.

However, we believe that we could begin this process by having some findings in this order, and so that the people recognize that the problem has been discussed and evaluated and that we in fact do need to do something about it.

Q. Did I -- You were talking about the various drillblock costs and revenue distributions and all that. Was it my understanding that there is a participating area for the PC within this unit?

A. Yes, sir, there is.

Q. And was it my understanding that the Mesaverde and the Fruitland were allocated just on a drillblock basis?

A. That is correct.

Q. There's no PA?

A. Not -- This acreage is not within an existing PA for any one of those. If this well is drilled and it is deemed commercial, then those two formations will either establish a participating area or be added to an existing participating area.

Q. Okay, that's what I wasn't clear of. I wasn't sure whether there was a PA in existence. There's not one for this drillblock at this time --

A. Not for the Fruitland --

Q. -- that would be included?

A. Yes, sir, not for the Fruitland nor the Mesaverde formation, there is not.

Q. Is there a PA already established in the unit for the Fruitland?

A. I don't believe we have one established yet.

We're working on one. As you'll hear testimony later on -- You'll see on the nine-section map behind Exhibit Tab Number 3, there are some Fruitland Coal wells.

Q. Uh-huh.

A. But those wells are not economic, and they will certainly not be included in the PA nor establish a PA. But we are working on that.

Q. So the ownership still may be not common, even when PAs are established and this acreage is put in PAs, the ownership may still not be the same; is that correct?

A. No, quite likely the problem will be aggravated by the fact that they'll go into different participating areas that have different acreage than the unit allocated to them. So I would assume that as the life of this well continues, they will all remain noncommon.

In checking my records, there is an existing Mesaverde participating area within the unit, and there is not an existing Fruitland Coal participating area.

Q. Okay, let's talk about the unorthodox location. This unorthodox location is unorthodox relative to the Mesaverde and the PC by the footage. Is it not correct that this is an off-pattern Fruitland well?

A. That is --

Q. It's in the wrong quarter section?

A. Yes, sir, that is correct.

Q. Okay. Is the well being drilled as a commingled Fruitland PC for economic reasons that will be later evaluated or later expanded on?

A. Yes, sir, that's correct.

Q. Okay. What type of land are we dealing with? Is this federal land, Mr. Alexander?

A. Yes, it is, and it's located -- I believe it's in the Carson National Forest, is where the southeast quarter of this section is located.

Q. So you've been dealing with the US Forest Service trying to find a suitable location?

A. Yes, sir.

Q. Now, I can see the location of the archeological sites. Were the other drilling windows abandoned -- Well, let's see.

The two northern drilling windows -- It seems to me that there's an archeological site in the vicinity of the two northern drilling windows. Was the main reason the two southern drilling windows were not used was because of that -- of the pipeline?

A. It was a combination of the pipeline, and you'll see that we have labeled down there terrain. You'll notice that this is steeply dipping down in the southern windows, and so it would have been difficult to get an access road and to build a location in there without a lot of

disturbance.

Q. So an attempt was made to try and find a standard location with the US Forest Service; is that correct?

A. Yes, it certainly was.

Q. Was this -- Was the proposed location the closest you could come to that objective?

A. Yes, it was.

Q. This has been agreed to by the US Forest Service?

A. Yes, sir.

Q. The offset acreage to the west, in the west half of Section 21, that's not within the unit?

A. Yes, sir, the west half of Section -- You'll notice the unit outline goes around the west half of Section 21, so it is not included in the San Juan 30-4 Unit.

Q. Okay, but that acreage is operated by Meridian?

A. Yes, sir. In fact, the whole Section 21 is a common leasehold. The only difference, again, being that a portion of it -- the east half is dedicated to the federal unit, and the west half is not.

Q. The offset operator to the south is also Meridian; is that correct?

A. Yes, sir, that is correct. Let me look back at my plat just a minute. Yes, sir.

Q. But you've got listed a bunch of other interest

entities. What do those represent?

A. Those are common owners with us in those leaseholds. We have an undivided interest with those other people.

EXAMINER CATANACH: Okay, I believe that's all the questions I have, Mr. Alexander.

Mr. Kellahin, before I forget, I would appreciate it if you would submit a rough finding that we can use in this order, maybe.

MR. KELLAHIN: All right, sir, be happy to.

Mr. Examiner, I'd like to call Meridian's petroleum engineer, Julia Gwaltney. She spells her last name G-w-a-l-t-n-e-y.

JULIA GWALTNEY,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name?

A. Julia Gwaltney.

Q. Ms. Gwaltney, where do you reside and what do you do?

A. I'm in Farmington, New Mexico, and I'm a production engineer for Meridian Oil.

Q. On prior occasions have you testified in that

capacity before the agency?

A. No, I have not.

Q. Summarize for us your education.

A. I graduated in 1993 from the Colorado School of Mines with a bachelor of science in petroleum engineering.

Q. Subsequent to your graduation, would you summarize your employment experience as a petroleum engineer?

A. I worked two summers with Chevron as a petroleum engineer, a summer intern in Bakersfield, California, and in New Orleans, Louisiana, and as a petroleum engineering summer intern for Bass Enterprises in Denver, Colorado.

Q. What are your current duties, insofar as they relate to what your company's trying to do in Section 21?

A. I'm the -- I'll be the completion engineer responsible for the design, the completion and any follow-up work that's required on the well.

Q. In addition, have you made yourself knowledgeable about the other engineering aspects of this well, particularly in evaluating where to put it in Section 21 and how to design the program by which these reservoirs are accessed?

A. Yes, I have.

Q. As part of that study, have you come to engineering conclusions about the best method to access

these three reservoirs?

A. Yes, I have. Based upon the economics and EURs that we have seen, I feel that the best way to develop the Coal in this unit would be to commingle it with the Pictured Cliffs.

MR. KELLAHIN: We tender Ms. Gwaltney as an expert petroleum engineer.

EXAMINER CATANACH: She is so qualified.

Q. (By Mr. Kellahin) Let me have you turn to the display locator map that Mr. Alexander was talking about. I think it's behind Exhibit Tab Number 3, if I'm not mistaken. It's -- Did I get in the right place? Exhibit Tab Number 3.

Let's first talk about what currently exists or has formerly existed as wellbores in Section 21. What do you find?

A. There is a pre-existing Pictured Cliffs well in the northeast quarter of the Number 14 and a dryhole location in Section -- the Number 18, in the northwest quarter.

Q. The Number 18 well in the northwest quarter of 21 was an attempt to produce out of what formations?

A. That was a Pictured Cliffs attempt.

Q. And it was unsuccessful?

A. Correct.

Q. The northeast quarter of 21, where Number 14 well is located, that's a single completion in the Pictured Cliff?

A. That is correct.

Q. What's the status of that well?

A. It is currently producing and has an EUR of 1.5 B's.

Q. What's its approximate current rate? Do you know?

A. I do not know offhand. I believe it's about 100 MCF a day.

Q. When you look at the coal wells in this area, how are they identified? What kind of symbol is used?

A. It's the triangle with the star in the middle.

Q. And the point of the triangle would be faced north?

A. That is correct.

Q. When we look at those locations, let's start with the Coal well in the southwest quarter of 15. Do you find that one?

A. Uh-huh.

Q. What are the results of that attempt?

A. It is currently unproductive.

Q. Was that well, in your opinion, properly drilled so that there was no mechanical reason for it not to be

productive?

A. No, it was a plug-back from the PC.

Q. And so it's a reservoir explanation as to why it didn't produce in the Coal?

A. That is correct.

Q. Over in 17, in the northwest quarter of the display, up in the northeast quarter of 17, there's another Coal well?

A. That is correct, the 100.

Q. Yes, ma'am. Explain to us the results of that attempt.

A. That is unproductive as well and will be p-and-a'd this year and is a stand-alone Fruitland Coal.

Q. Any reason, mechanical reason, for that to be unproductive in the coal?

A. No, sir.

Q. And then finally there's a coal attempt in the northeast of Section 20, the west offset to your Section 21. Do you find that?

A. The Number 101?

Q. Yes, ma'am. What's the results of that attempt?

A. It is unproductive as well, for no mechanical reasons.

Q. All right. Based upon that information with regards to coal, what do you anticipate to be the results

of a coal well drilled in the southeast quarter of Section 21?

A. Based upon the previous unit history of Fruitland Coal wells, we believe this to be a very marginal Fruitland Coal interval with marginal economics as well.

Q. Based upon your economic studies and your forecasts of recoverable gas out of the Pictured Cliff, what, in your opinion, is the only way that you're going to have a chance to get any coal gas production out of that wellbore?

A. Based on the economics I've done, it will only be marginally economic when commingled with the Pictured Cliffs.

Q. How do you propose to access an opportunity to test the Mesaverde formation?

A. To dual it with the Pictured Cliffs and Fruitland Coal as a dual completion.

Q. All right. When you look at the Pictured Cliff potential, what are the ranges of your expectation with regards to the Pictured Cliff reservoir at this location?

A. It would probably range between about 300 MMCF up to 1.5 B's. We feel the average most likely case is around 700.

Q. Okay. When you look at Section 21, you've got the dryhole in the northwest, the existing well in the

northeast.

Of the remaining 160s in 21, what is your judgment and opinion about the next best 160 in which to access these reservoirs?

A. That would be the southwest quarter of Section 21.

Q. All right.

A. Or southeast, I'm sorry.

Q. When you look at the other requirements, the technical requirements the agency has for downhole commingling, and specifically looking at the Pictured Cliff and the Coal as commingled reservoirs, do you see any engineering reason not to commingle that production?

A. No, I do not. Both intervals will be dry, and they meet within the pressure requirements.

Q. No potential incompatibilities of reservoir fluids or gases or constituents?

A. No. As I said before, this is underpressured Fruitland Coal, so no water will be produced, and the Pictured Cliffs will be dry as well.

Q. All right, let's turn to the set of displays that are contained behind Exhibit Tab Number 8, and I think this is arranged where the first three displays deal with the allocation formula.

A. That is correct.

Q. Let's turn past the first three and go to the issue of establishing the economics to support your conclusion that commingling of the PC and the coal is the only economic way to access those reservoirs. Do you have a summary sheet here?

A. That is correct, that is a cost summary sheet on the front.

Q. Let's talk about what you've done. Describe it to us.

A. I break it into three completion scenarios: the stand-alone costs that we would expect for a Fruitland Coal stand-alone well, Fruitland Coal/Pictured Cliffs dual completion -- those costs represent the breakout for just Fruitland Coal -- and then a Fruitland Coal commingle completion. Those costs also represent the cost for the Fruitland Coal alone.

Q. How did you determine the accuracy and the reliability of these cost components in terms of the present-day situation?

A. All of these costs were taken off of Fruitland Coal stand-alone drill wells that are within a township, and the same with dual and commingling.

Q. And they're reasonably current, and you can rely upon them, in your opinion?

A. Absolutely.

Q. All right. And then the last part of this is, you've taken the costs and you're going to compare them to two components in which you have three subfigures, and the figure difference we're going to see deals with the initial rate?

A. That is correct.

Q. All right. Let's turn to the first conclusion page, which is Figure 1.

At the bottom of the figure it shows your assumption that the initial rate in the Fruitland Coal would be 100 MCF a day?

A. That is correct.

Q. And what have you displayed, then, on the horizontal scale of the plot?

A. That is the expected EUR for the Fruitland Coal.

Q. All right. And the expectation is a range anywhere from 100,000 all the way up to 1,100,000 or 1.1 BCF?

A. That is correct.

Q. On the vertical scale what do you show?

A. That would be the rate of return from zero to 30 percent.

Q. All right. And plotted -- The three curves plotted are what curves?

A. The solid lines is the Fruitland Coal/Pictured

Cliffs commingled case. The solid, not-as-heavy line would be the Fruitland Coal/Pictured Cliffs dual scenario. And the dashed line is the Fruitland Coal stand-alone drill well.

Q. Help us understand how to interpret the data if your well comes in at an initial rate in the Fruitland Coal of approximately 400.

A. Of approximately 400, on the 100 MCF-a-day initial rate you would see that it would barely reach zero rate of return on the Fruitland Coal/Pictured Cliffs commingled case, for the Fruitland Coal alone.

Q. At the most optimistic limit of your forecast, indicating 1 BCF of ultimate gas recovery?

A. Right.

Q. And if the initial rate is 100 MCF, in a downhole commingled situation --

A. -- the Fruitland Coal alone would almost reach 10 percent rate of return.

Q. Is that scenario an economic justification for downhole commingling?

A. Yes, it is. It would -- shows that the additional cost savings in commingle greatly helps our economics.

Q. All right, it's the best of the three choices in terms of access?

A. True.

Q. But your best case is only a 10-percent rate of return?

A. True, it's still poor.

Q. Awfully poor, isn't it? You don't want to do this very often, do you?

A. We try to avoid that, yes.

Q. All right. Let's look at Figure 2. Figure 2, what's the assumption that's changed here in terms of the prior display?

A. We have a higher initial rate in the Fruitland Coal of 200 MCF per day.

Q. What's your true best estimate of ultimate recovery out of the Coal?

A. It would be 200 MCF per day.

Q. As a rate?

A. As the initial rate.

Q. All right. And what is your ultimate gas recovery under your best estimate?

A. We are expecting around 400.

Q. All right. At 200 rate and 400,000 ultimate recovery, I guess, is how to describe it --

A. Right.

Q. -- you still barely break 15-percent rate of return -- or 10-percent rate of return?

A. That's true.

Q. Not very good, is it?

A. No, it is not.

Q. All right. The best case, then, is 300 a day?

A. Right.

Q. Show us what happens on Figure 3.

A. If we are able to reach the 300-MCF-a-day initial rate on the Fruitland Coal, the commingled case allows us to break at a 15-percent rate of return for the 400 EUR --

Q. In order to --

A. -- whereas the others are still about zero.

Q. In order to truly drill this well, you need to have the benefit of the PC reserves, as well as the opportunity to access the Mesaverde reserves, don't you?

A. This is true.

Q. And the only way to do it is to commingle the Fruitland with the PC?

A. This is true.

Q. Let's talk about the allocation formula then. If you'll turn back to the first three pages, describe for us your method from the first page. What are you doing here?

A. We take the total flow stream and, calculating the decline using the expected EUR and initial rate, calculate the decline for the Pictured Cliffs. Using that decline, we can calculate what the flow rate for the

Pictured Cliffs will be, and that difference is the Fruitland Coal rate.

Q. All right. And that's a pattern or methodology that Meridian has consistently used in these type of wells with the agency?

A. That's correct.

Q. Where you pick your best-case historically accurate reservoir -- in this case the PC -- you've got a well to the north and so you have some data --

A. That is correct.

Q. -- and then once you plot a forecasted recovery based upon a decline curve, anything in excess of that number is attributed to the Fruitland Coal?

A. That is correct.

Q. All right, let's turn to the second page, and show us what you've done there.

A. The second page is just the equation that I used to calculate what the Pictured Cliffs initial rate would be. You take the total stream from the first month's total production, and break that out to proportion of the PC and Fruitland Coal ratio.

Q. And then the last page of this portion of the discussion?

A. This page was used to calculate the total EUR that we expect for the Pictured Cliffs, and using that we

calculated the initial rate from that equation before, and calculated the decline.

Q. All right. In order to properly allocate production from a commingled stream to the Pictured Cliff, you use two basic components. You're using an initial rate and an estimated ultimate gas recovery?

A. That is correct, and the abandonment rate as well.

Q. All right. And that's a consistent methodology with previously approved cases like this, by the agency?

A. Right, that's a very standard equation.

MR. KELLAHIN: All right. That concludes my examination of Ms. Gwaltney.

We move the introduction of her exhibits behind Exhibit Tab Number 8.

EXAMINER CATANACH: Which exhibits are those, Mr. Kellahin?

MR. KELLAHIN: Exhibit 8, Mr. Examiner.

EXAMINER CATANACH: Exhibit 8 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Ms. Gwaltney, in terms of the Fruitland Coal formation, is there a preference -- If you were picking a Fruitland Coal formation location in the south half of

Section 21, is there a reason that you would pick the southeast over the southwest quarter?

A. For the Fruitland Coal reservoir alone, no. But as we stated before, economic reasons dictate that it is necessary to complete it with the Pictured Cliffs, and we would prefer to put the Pictured Cliffs in the southeast quarter of Section 21.

Q. Would that be because of the dryhole drilled in the northwest quarter of Section 21?

A. That is correct.

Q. Okay. Is there a preference as to the Mesaverde for the southeast quarter, as opposed to the southwest quarter?

A. No, not at this time.

Q. I believe you testified that you expected -- Did you testify that you expected a rate of 200 a day from the coal?

A. That was our anticipated -- That is a risk rate as well, though.

Q. What's that based on?

A. Based on what we've seen in other underpressured -- this is expected to be an underpressured Fruitland coal, and that is based on what we've seen in other areas, the underpressured Fruitland Coal to perform.

Q. Is there a difference in the thickness of the

reservoir, as opposed to the north where you've got three dryholes?

A. No, we don't believe that it has to do with the net pay thickness; it is more due to the fact that it is a very tight matrix and low permeability, and that's what has inhibited us in the past from a productive interval. The net pay is there.

Q. Do you have an anticipated rate for the PC?

A. We believe that will be slightly over 200, about 240.

Q. That's based on some production history in this area?

A. That is correct.

Q. Okay. What about Mesaverde? Any ideas?

A. I believe that would be at 330 MCF per day.

Q. Also based on production in this area?

A. That's correct.

Q. It's your opinion that a stand-alone Fruitland Coal well is not economic?

A. That is correct, based on my analysis.

Q. Does that hold true also for a PC well?

A. No, that is not correct. The EURs range from 300 to 1.5 B's. So on the high side it is economic, on the low side it is not.

Q. Your allocation formula is the same type of

formula that we've historically used for this kind of situation; is that correct?

A. That is correct.

Q. Was it your testimony there's no water in the Coal in this area?

A. It will be very minimal.

Q. Does the -- How does the Coal behave in the absence of water? How does the production characteristics of the Coal behave in this area?

A. I'm not sure I understand your question.

Q. Do you have any -- Do you have declines in production in the coal in this area, like a typical gas reservoir?

A. Right, yes, we do. We see about a 15-percent decline.

Q. Do you believe it's necessary to utilize this type of allocation formula if you've got normal behavior, normal production behavior, in the coal? Might it not be better to use a fixed percentage?

A. No, I feel at this time we don't have an accurate handle on estimating reserves in the Coal, probably -- especially in the underpressured Coal.

So therefore the difference that we could feel that we have a firm handle in a conventional reservoir in the Pictured Cliffs, the difference is our most accurate

handle that we have.

EXAMINER CATANACH: I believe that's all I have, Mr. Kellahin.

The witness may be excused.

MR. KELLAHIN: All right, sir. Call at this time Mr. Greg Jennings.

GREGORY L. JENNINGS,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Jennings, for the record would you please state your name and occupation?

A. My name is Greg Jennings, I'm a senior geologist for Meridian Oil, located in Farmington, New Mexico.

Q. On prior occasions, Mr. Jennings, have you testified before the agency and been accepted as an expert witness in the field of petroleum geology?

A. Yes, I have.

Q. Within that capacity, have you made a geologic investigation of all three reservoirs involved in this particular Application?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Jennings as an expert witness.

EXAMINER CATANACH: Mr. Jennings is so qualified.

Q. (By Mr. Kellahin) Let's set up the geologic setting, Mr. Jennings. If you'll turn to Exhibit Tab Number 5, identify and describe what is shown on the log.

A. Exhibit 5 has two pages. These are type logs for the three formations that we plan to test with this proposed Well Number 40.

This first log shows the Fruitland formation and the Pictured Cliffs formation. It's got an SP curve on the left and a resistivity curve on the right.

Addressing first the Fruitland Coal, I've colored it in black, and you can see it's approximately 20 feet thick. That is one of the -- There's one zone approximately 20 feet thick, and that's one of the reasons that this is a poor area for production, not much coal.

If you go on down to the bottom half of the log, we show the Pictured Cliffs formation. We've got it divided into two zones, the Upper Sand and the Lower Sand, and the resistivity log shows very low resistivity for those sands, which is consistent with the low production in the area. It's just a very poor quality reservoir.

Q. As you map and evaluate the coal opportunities within Section 21, do you perceive geologically any differences of significance when you look at the Coal opportunity in 21, as compared to those sections that have

existing Coal wells near you?

A. No, the geology is very consistent across the area. We would expect, frankly, similar results as the other Coal wells.

Q. With regards to the Coal reservoir, do you as a geologist see any reason to disagree with Ms. Gwaltney's conclusion about accessing that reservoir next in the southeast quarter of this section?

A. No, I agree with her analysis of the reservoirs.

Q. All right, let's look at the Pictured Cliff, then. When you look at the Pictured Cliff, the existing PC well in the northeast, is there any material geologic difference in the reservoir, when you look at the northeast compared to the southeast? And taking into consideration the dry hole in the PC in the northwest of 21, what do you see?

A. No, the formations are essentially the same, as far as the characteristics that we can identify from log analysis and mapping, et cetera.

Basically, the issue is one of permeability, and from a log-analysis standpoint, the reservoirs are fairly similar throughout the thickness, structurally throughout the section.

Q. When you make your economic analysis, then, with regards to the PC reservoir, do you see any geologic reason

to indicate that -- a different conclusion than she's arrived at?

A. No, I do not.

Q. Let's turn to the Mesaverde, just to complete the discussion. The next display is a portion of the type log that shows the Mesaverde interval?

A. Yes, this is from the 30 -- This type log is for the Mesaverde interval. It's from the 30 and 4 Number 10, which is located approximately a half mile southeast of our proposed wellbore.

This well was drilled to the Mesaverde but was not completed in the Mesaverde because of the poor reservoir development.

The log confirms that. Of course, It's an old gamma-ray resistivity log, but once again it shows very low resistivity in all the sands, which is consistent with the lack of production in the area, and the lack of attempts at production.

Q. Geologically, then, are you able to conclude and support Ms. Gwaltney's exploration concept of drilling the single wellbore initially as a dual between the Mesaverde and a combination of the commingled PC and Coal gas reservoirs?

A. Yes.

Q. And you concur in her choice of a location?

A. Correct.

Q. Let's look at some of the other relevant information to support that conclusion. If you turn behind Exhibit Tab Number 6, quickly summarize for us each of the three displays that are shown there.

A. Exhibit 6 contains three pages. Each is a map, a structure map for the respective horizons that we're talking about.

The first page is a structure map on top of the Fruitland formation, and you see a syncline to the east of our location, an anticline to the west of our location, and we're located on the flank.

Nothing to -- No data to indicate any faulting or any significant structural features that might cause separation of the reservoir or cause us to believe that our well would encounter any better production or worse production than the other wells. It's essentially a gentle flank with no significant features.

Q. All right, sir. The next display?

A. And really, we see the same basic structural geometry for the next two displays.

The next map is a structure on top of the Pictured Cliffs formation. We see essentially the same structural geometry, with our location being located on the flank.

And then the third page is a structure map on top of the Mesaverde, and this gives you a little bit of an idea of the lack of Mesaverde penetrations in the area. But once again, we see the same structural geometry and the same conclusions.

Q. All right, sir. I'm sorry, I lost track. That completes your geologic displays, doesn't it?

A. Well, Exhibit 7 has the --

Q. All right, sir, let's turn to Exhibit 7 and look at those.

A. -- isopachs.

Q. Yes, sir.

A. This -- Exhibit 7 contains actually four isopachs.

The first one is an isopach of the Fruitland Coal. It shows, as I mentioned from looking at the type log, that we're going to encounter approximately 20 feet of coal in this area, a very uniform coal thickness, obviously not expecting any greater thickness in coal than the nearby wells, which have performed poorly.

If you turn to the next page, as I mentioned, we've divided the Pictured Cliffs sands into an Upper and Lower Sand. This map is an isopach of the Upper Sand, and the thickness ranges from about 30 to 50 feet. We're expecting approximately 30 feet at our location.

If you turn to the next page -- And I should say, that's a little thinner than the wells to the north.

If you turn to the next page, it's an isopach of the Lower Sand, and we're slightly thicker than the wells to the north.

So overall, it balances out, giving us roughly the same sand thickness as the nearby wells.

Q. When you look at where the Pictured Cliff in Section 21 is located, in relation to the high-productivity PC wells, where are we?

A. We're actually south of the better well in the area, and what we find is that as the production varies in the area, there really is not a correlation with the sand thickness.

What we'd like to see, of course, is a nice one-to-one correlation between sand thickness and ultimate recovery. That's not the case.

It's a very tight reservoir. Natural fracturing is necessary to establish commercial production, and that's sort of a hit-or-miss proposition, and we feel that the location in the southeast quarter has the best chance of establishing commercial fracturing.

Q. When you look at a map of the Basin and simply look at well locations for the Pictured Cliff, there's a general fairway running from northwest to southeast, and

then there will be a band along this fairway of high-ultimate-recovery PC wells.

In relation to that relationship, where are we, physically, in the Basin?

A. We're very much on the eastern edge of the commercial Pictured Cliffs production.

Q. Finally, then, give us a sense of the isopach distribution of reservoir sands in the Mesaverde.

A. Once again, this map is based on limited well control, because the production has not warranted stand-alone drilling for the Mesaverde.

The Cliff House is actually so tight that it's not even considered prospective.

This isopach consists of total interval from the Menefee to the bottom of the Point Lookout. And what it shows is fairly continuous thickness, 270 to -- 250 to 300 feet, with our location having about 270 feet.

It shows that we would expect similar overall thickness to the other wells in the area, and therefore would expect similar production results.

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

We move the introduction of his Exhibits 5, 6 and 7.

EXAMINER CATANACH: Exhibits 5, 6 and 7 will be

admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Jennings, where in relation to the main Mesaverde production in the Basin is this well?

A. We are east and northeast of the good commercial production.

The nearest Mesaverde production can be seen, if you look behind Exhibit 7 -- let's just -- Let's go to that isopach map of the Mesaverde. If you go all the way over to the west, to actually the next township, 30 and 5, you see a well in Section 1, another well in Section 13, 24, 25, and you start to see some -- a cluster of wells down in the southwest corner of the map.

You're just getting onto the fringe of Mesaverde production. And even that production is noncommercial by today's economic standards and would not justify stand alone.

So -- I mean, we're actually over a township away from anything that is significant.

EXAMINER CATANACH: I have nothing further.

The witness may be excused.

Anything further, Mr. Kellahin?

MR. KELLAHIN: A certificate of notification, Mr. Examiner, which I have stamped and marked as Meridian

Exhibit Number 9.

EXAMINER CATANACH: Exhibit Number 9 will be admitted as evidence.

MR. KELLAHIN: That concludes our presentation.

EXAMINER CATANACH: Okay, there being nothing further in this case, Case Number 11,331 will be taken under advisement.

(Thereupon, these proceedings were concluded at 10:08 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11331, heard by me on July 27 1995.

David R. Catanach, Examiner
Oil Conservation Division

CERTIFICATE OF REPORTER

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

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

I FURTHER CERTIFY that I am not a relative or employee of any of the parties or attorneys involved in this matter and that I have no personal interest in the final disposition of this matter.

WITNESS MY HAND AND SEAL July 30th, 1995.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998