STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	CASE NO. 11,536
APPLICATION OF MERIDIAN OIL, INC., FOR AN UNORTHODOX COAL GAS WELL LOCATION, SAN JUAN COUNTY, NEW MEXICO	)	ORIGINAL

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

BEFORE: DAVID R. CATANACH, Hearing Examiner

May 16th, 1996

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Thursday, May 16th, 1996, 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.

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I N D E X

May 16th, 1996
Examiner Hearing
CASE NO. 11,536

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A P P E A R A N C E S

FOR THE APPLICANT:

CAMPBELL, CARR, BERGE and SHERIDAN, P.A.
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P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: WILLIAM F. CARR

* * *

WHEREUPON, the following proceedings were had at 10:59 a.m.:

EXAMINER CATANACH: At this time we'll call Case 11,536, which is the Application of Meridian Oil, Inc., for an unorthodox coal gas well location, San Juan County, New Mexico.

Are there appearances in this case?

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan.

We represent Meridian Oil, Inc., in this matter, and I have three witnesses.

EXAMINER CATANACH: Any additional appearances?

Will the witnesses please stand to be sworn in?

(Thereupon, the witnesses were sworn.)

ALAN ALEXANDER,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Will you state your name for the record, please?

A. Yes, my name is Alan Alexander. I'm employed with Meridian Oil, Inc., in our Farmington, New Mexico, office as a senior land advisor.

Q. Mr. Alexander, have you previously testified

before the New Mexico Oil Conservation Division?

A. Yes, sir, I have.

Q. At the time of that testimony, were your credentials as an expert in petroleum land matters accepted and made a matter of record?

A. Yes, sir, they were.

Q. Are you familiar with the Application filed in this case on behalf of Meridian Oil, Inc.?

A. I am.

Q. And are you familiar with the status of the lands in the subject area?

A. Yes, sir, I am.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER CATANACH: Yes, sir.

Q. (By Mr. Carr) Initially, Mr. Alexander, could you briefly state for Mr. Catanach what it is Meridian seeks with this Application?

A. We're seeking an off-pattern Basin Fruitland Coal Pool location in the -- which would be located 1000 feet from the north line and 1265 feet from the west line of Section 23 of 32 North and 7 West in San Juan County, New Mexico.

Q. This well is actually standard in terms of the setbacks from the outer boundary of the spacing unit; is

that not correct?

A. That is correct.

Q. It is just off pattern because you desire to place it in a quarter section other than that authorized by the rules for this pool?

A. Yes, sir, that's correct.

Q. Have you prepared exhibits for presentation here today?

A. Yes, sir, I have.

Q. Let's go to the exhibit book, and would you just identify Exhibit Number 1 for the Examiner?

A. Yes, behind Exhibit Tab Number 1 we have placed our Application for the requested off-pattern coal well location.

Attached to that exhibit are a couple of additional exhibits, a nine-section land plat and an offset operator plat. We have repeated those plats in a couple of the following exhibits for clarification and discussion.

Q. Let's go to Exhibit Number 2 in the exhibit book, and start with the nine-section land plat. Would you review the information on that exhibit for Mr. Catanach?

A. Yes, sir, I've provided a nine-section land plat here, and as you might notice, we have -- The blue border is the outside of the nine-section plat. We have some green dashed lines internal to the plat. What we are

dealing with here are two federal units: the Allison unit, which Meridian operates, and the San Juan 32-7 unit, which Phillips Petroleum Company operates.

I have shown on this plat all of the existing wells and completions in the nine-section area. I've shown where our proposed well would be located in the northwest quarter of Section 23, and I have shown by the hached outline the proposed drilling block.

And as you will notice, 50 percent of the drilling block is dedicated to the Allison Federal unit -- and that would be the northwest quarter -- and 50 percent of the drilling block would be dedicated to the San Juan 32-7 unit. And therefore, any subsequent allocation would be also allocated on that basis.

Q. You have reviewed this Application with Phillips, have you not?

A. Yes, sir, we have.

Q. Have you received any indication from them as to whether or not they're going to join in this effort?

A. We met with them Tuesday of this week. I went through a complete explanation with them for why we desire this well to be located at this location.

Preliminary indications from them are good, however they have not decided yet which way -- whether they would like to join or whether they would like to go

nonconsent on this well.

Q. Has the proposed well location been staked?

A. Yes, sir, it has.

Q. And have you received any indication that there are any topographical or other problems that might cause Meridian to need to move the well?

A. No, sir, our field inspection and the archeological inspection were good. They are waiting for the order before they issue an APD on this particular well.

Q. Now, this plat has a code or a key at the bottom that indicates the nature of all the other wells in the nine-section area; is that not correct?

A. That is correct.

Q. If we look at Section 23, it appears we have already an off-pattern well in the Fruitland Coal; is that right?

A. Yes, sir, you'll see the Fruitland symbol, the green symbol, down in the southeast quarter. It's our Allison Unit Number 108 well. That well was drilled almost simultaneously with the adoption of the Basin Fruitland Coal pools and was later grandfathered in by sundry notice in December of 1988.

Q. If we go to Section 15 to the northwest, again, we have off-pattern wells in the Fruitland Coal, do we not?

A. Yes, sir, that's correct.

Q. Is it fair to say that there has been fairly substantial precedent for what we're seeking over the years in the Fruitland Coal Gas Pool?

A. That is correct.

Q. Let's go to page 2 of Exhibit Number 2. Can you identify and review that?

A. Yes, sir, this is the offset operator notification plat. You will see that there are two operators involved, one of the Allison, one of the 32 and 7 unit, which would be Phillips Petroleum Company. So notification was basically made to just two parties.

Q. Will Meridian also be calling engineering and geological witnesses to review those technical reasons for placing the well at this location?

A. Yes, sir, they will.

Q. Were Exhibits 1 and 2 prepared by you or compiled at your direction?

A. They were.

MR. CARR: Mr. Catanach, at this time we would move the admission into evidence of Meridian Oil, Inc., Exhibits 1 and 2.

EXAMINER CATANACH: Exhibits 1 and 2 will be admitted as evidence.

MR. CARR: Mr. Catanach, at this time I would also offer into evidence the certificate of mailing and

compliance with Order R-8054, executed by Mr. Kellahin, confirming in fact that notice of this hearing has been provided in accordance with OCD rules.

EXAMINER CATANACH: This will be admitted as evidence.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Alexander, am I correct in assuming that you're trying to form a west-half spacing unit for this well?

A. Yes, sir.

Q. Is there already an existing east-half spacing unit?

A. Yes, sir, that's correct, for the Allison Unit 108 well.

Q. How exactly is that handled when you've got acreage in two different federal units by two different operators? Is it just by some sort of agreement that you commit the acreage to the spacing unit?

A. Yes, sir, we've dealt with this in the past; this is not an unusual situation. And what basically happens is, each of the unit operating agreements will control their respective acreage, but we do have to reach some

common ground for some items. One of those would be like producing overhead and drilling rates, and possibly nonconsent, should one of the parties want to go nonconsent.

And so what we have proposed in the past and what I have proposed to Phillips is that we'll use the producing and drilling overhead rates out of the Allison unit and that if they wanted to go nonconsent, we would adopt the State's nonconsent of 256 percent. The actual nonconsent for Allison is 200 percent. The actual nonconsent for 32 and 7 is 300 percent.

And of course we will have a communitization agreement in order to split -- to allocate royalties between the two federal units, and we are currently drafting that, and that will be executed.

Q. So at this point in time, it doesn't look like Phillips is not going to commit its acreage in some form or fashion?

A. It looks like that they will, and it looks like they probably will join. After our discussion on Tuesday, they were favorably impressed by what we were trying to accomplish.

Q. They may go nonconsent, but they will commit their acreage?

A. That's true, yes, sir.

Q. What happens if something occurs that they do not commit their acreage?

A. We would have to come back before the Division and force pool this property.

Q. Is federal approval required to execute some kind of an agreement such as you're proposing?

A. Yes, sir, and that would be the communitization agreement.

Q. Okay.

A. And they have relied upon that agreement to satisfy their needs, and then we have relied upon our letter agreements to operate between two federal units.

We do not intend on entering into a third operating agreement, since we already have two operating agreements in place.

Q. You don't see any problem with BLM approving that?

A. No, sir, they have done it in the past on several occasions, and I do not see a problem.

Q. Okay. You said that well in the southeast quarter of Section 23 was grandfathered in; is that right? The 108?

A. Yes, sir.

EXAMINER CATANACH: That's all I have of the witness, Mr. Carr.

MR. CARR: That's all we have of Mr. Alexander, and at this time we would call 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. CARR:

Q. Will you state your name for the record, please?

A. Yes, my name is Gregory L. Jennings.

Q. Where do you reside?

A. I reside in Farmington, New Mexico.

Q. By whom are you employed?

A. I'm employed by Meridian Oil, Inc.

Q. Mr. Jennings, what is your position with Meridian?

A. My title is senior geologist.

Q. Have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that testimony, were your credentials as a petroleum geologist accepted and made a matter of record?

A. Yes, they were.

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

A. Yes.

Q. Have you made a geological study of the portion of the Fruitland Coal which is involved in this matter?

A. Yes, I have.

Q. And are you prepared to share the results of that study with the Examiner?

A. Yes.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) Let's go to the exhibit book, and I would direct your attention to what's marked Exhibit Number 3. Could you identify and review that for Mr. Catanach?

A. Yes, Exhibit 3 is an isopach of the Fruitland Coal, covering a good portion of the Allison unit, and the proposed well, the Number 146, is shown with a black triangle.

And also for reference, I've prepared a cross-section, A-A', and that's shown in red, which runs from southwest to northeast, actually from a Phillips well in the 32-7 Unit, Number 203, up to a well offsetting our proposed Number 146, and then up north to the Allison Number 127.

Q. Basically, what does this isopach map tell you

about the geology across this area?

A. The main purpose of showing this isopach is to demonstrate that the variations in thickness throughout this area are not the controlling factor -- is not the controlling factor on production.

The variations in the vicinity of our proposed location are in the neighborhood of five feet. If you move to the north, that well has 37 feet of thickness. If you move to the west, it's 43 feet. And if you look across the unit, the variations are from perhaps a thin of 25 feet up to a high of in the 40s. And as we'll look at a production map a little bit later, you'll see that there is really no correlation between thickness and production. And this is not new; you've seen this before with the Fruitland Coal. Permeability and other issues control the production much more strongly than thickness.

Q. So by moving to this off-pattern location, in fact, we're not really gaining any advantage in terms of the thickness of the coal?

A. That's correct. In fact, we would be slightly thicker, by two or three feet, if we were in the southwest quarter. But as we'll demonstrate here, the thickness is not the controlling factor, and we're definitely not gaining an advantage in thickness by moving to the northwest quarter.

Q. To the east of the proposed location, we see four wells that look like injection wells. Could you just identify what those are?

A. Yes, we currently have a CO_2 injection program, a pilot program, that has been underway for some time, and those four wells with arrows, numbered 140, 141, 142 and 143 are the four injector wells, and we've included those on this map for reference.

Q. If that project was expanded sometime in the future, it's possible the proposed location might be involved, but that's not on an immediate schedule?

A. That's correct, at the current time we do not have plans for the expansion of the injection program. We don't have plans to drill any more injector wells in the near future.

Q. All right, Mr. Jennings, let's go to the cross-section that's in the back of the exhibit booklet, marked Exhibit 8, and I'd like you to identify and then review the information on this exhibit for Mr. Catanach.

A. I apologize for the size. This three-well cross-section, as I mentioned earlier, runs from a location southwest of our proposed well, which is the Phillips 32-7 Unit Number 203, which is producing 88 MCF per day, which is essentially a noncommercial-type rate, and runs up to a Mesaverde well, which is really almost a twin to our

proposed Number 146, and then up to the northeast to the Allison 127, where we have a producer which is producing in the 500 -- actually, it's currently producing 720 MCF a day. At the time we made the production map that you'll see, it was making 560 MCF a day.

The main point of the cross-section is to show you the continuity of the coal. We have two basic coal packages of what I've informally labeled lower coals and upper coals. This really just supports the isopach map, and that is that the thickness does not change much at all, and in fact, the stratigraphic relationships don't change much at all.

The factors controlling the production are ones of permeability and ones of dewatering. The area to the north is more dewatered. And we'll get into that issue a little more as we proceed.

But the main purpose of the cross-section is to show the continuity of the coal.

Q. All right, Mr. Jennings, let's go to Exhibit Number 4 in the exhibit book. Would you identify and review this?

A. Okay. Exhibit 4 is a structure map on a marker in the Lewis formation, which is just right below the Pictured Cliffs formation. I've chosen this interval because it's a very -- a good structural marker; it doesn't

have a lot of stratigraphic factors influencing it.

And what you're looking at is a relatively gentle structural area. The pink area down on the southern part of the map is a syncline. That's the low spot on this map.

And if you'll look over in the area of our proposed location, there's nothing significant going on structurally, and there are no faults or structural features that would affect production or cause any discontinuities in the reservoir, or, for that matter, give any of these locations any preference or advantage over the other.

Q. So basically what we've looked at so far in terms of the geology are the thickness and the structure, and neither of these actually influence the placement of wells in the Fruitland Coal; isn't that correct?

A. That's correct.

Q. Let's go now to factors which do influence selection of off-pattern locations as we have here, and I'd direct your attention in that regard to Exhibit Number 5 --

A. Right.

Q. -- and I would ask you to identify and review it.

A. Okay. Exhibit 5 is a daily production map that was prepared using, for the most part, data from the month of December, 1995, just a few months ago.

And this map really is the most telling map as

far as why we want to drill in the northern part of the section, and also showing you where the dewatered area is.

The green line is greater than -- Where it turns from blue to green is where the production hits the 500 MCF per day, which is -- which should provide commercial production for these type of well costs. As you get into the blue area, you get below 500 and actually very quickly get into the 100- to 200-MCF-a-day range.

The area to the north and east, which is in the green and the pink, not only has higher gas production but has lower water production now, because those wells have been on production, and the reservoir is in more of a dewatered state.

The area to the east and south and the north, which is depicted in blue, is -- along with those lower gas rates, we see higher water rates. And as our reservoir engineer will get into some details on, this, basically, number one, will allow us to encounter higher gas rates, and number two, the dewatered nature of the reservoir will help us with a better open-hole cavitation completion.

Q. Basically, when we look at this exhibit, as we move into the areas that are shaded in blue, we're getting into areas where there are higher water saturations; isn't that right?

A. That's correct.

Q. And if we look at the section that we're proposing to develop, when we move the well from the proposed unorthodox -- or off-pattern location down into the southwest quarter, based on this information alone, would you conclude that we probably would have an uneconomic well proposal?

A. Yes, that's our conclusion, and we in fact would not propose a well in the southwest quarter. We feel that we would have results very similar to the Number 203 well, which is producing around 100 MCF a day.

Q. Mr. Jennings, were Exhibits 3, 4, 5 and 8 prepared by you?

A. Yes, they were.

MR. CARR: At this time, Mr. Catanach, we would move the admission of Meridian Oil, Inc., Exhibits 3, 4, 5 and 8.

EXAMINER CATANACH: Exhibits 3, 4, 5 and 8 will be admitted as evidence.

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

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Jennings, is water saturation the only thing that explains these higher producing rates? Is there any other geologic factors that would account for?

A. In the immediate vicinity of this location, the answer is yes. Meridian has been aggressive in the Allison unit doing two things. That's recavitating the wells and putting artificial lift pumping units on the wells to dewater the reservoir. And so we have taken these wells from very low rates to the rates that you see on the map now.

Now, there is an area of higher permeability. If you were to go over to the hot pink area where we have the injection wells located, that area did encounter higher permeability -- or the wells that were drilled there encountered higher permeability initially. And so in -- There are variations in permeability within the unit.

But as far as our specific location, we don't have any information indicating higher permeability, you know, a mile to the north or a mile to the south. We believe that what's going on is simply dewatering of the reservoir, allowing higher permeability to gas, and that benefits us in a couple ways.

Q. So it's kind of a regional dewatering thing?

A. That's correct.

Q. Would that southwest quarter of Section 23 -- I mean, would that eventually get dewatered to the point where the production may come up in that area?

A. Eventually, yes. What we've found is that -- And

we've found this through our recavitation program, and our reservoir engineer has some information on that, that will help demonstrate that.

If you step out too far, too fast, and you get into the area of higher water saturations, you not only produce higher water rates and lower gas rates with that well, but the reservoir doesn't respond as well to the completion, the cavitation procedure. And just how long it would take for that area to be dewatered, it's a tough question to answer. Eventually, I imagine it would.

But what we will be doing by drilling this well now is accelerating that process. And that's sort of our plan for the Allison unit, is to continually move out and not only recavitate additional wells, but drill additional wells. But we have to be very careful and prudent about where we place those wells, or we will have uneconomic results.

Q. A well in that southwest quarter would likely encounter producing rates less than 500 MCF a day?

A. Yes.

Q. Is that uneconomic?

A. Well, our best guess -- That's bad -- bad terminology. Our best estimate for that southwest quarter would be in the neighborhood of 100 MCF a day, and that would be uneconomic.

Q. Okay.

A. And along with that, high water production, and I believe our water-hauling costs in this area are $2.50 a barrel, and it's very cost-prohibitive to have the combination of low gas and high water.

EXAMINER CATANACH: Okay, I have nothing further.

MR. CARR: That concludes our examination of Mr. Jennings, and at this time we would call Mark Castiglione.

MARK P. CASTIGLIONE,

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

DIRECT EXAMINATION

BY MR. CARR:

Q. Would you state your name for the record, please?

A. Mark P. Castiglione.

Q. Where do you reside?

A. In Farmington.

Q. By whom are you employed?

A. By Meridian Oil, Inc.

Q. And what is your current position with Meridian?

A. My title is Reservoir Engineer II.

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

A. No, sir, I have not.

Q. Could you review your educational background for

the Examiner?

A. Yes, I achieved a bachelor of science degree in petroleum engineering from Texas Tech University in 1993.

Q. Since graduation, for whom have you worked?

A. Meridian Oil, Inc.

Q. Does your area of responsibility include the portion of the San Juan Basin which is involved in this case?

A. Yes, sir, it does.

Q. Have you studied the Fruitland Coal in regard to placement of wells to maximize gas recovery from this pool?

A. Yes, sir, I have.

Q. In fact, did you participate in a decision to place the subject well in this off-pattern location?

A. Yes, sir, I did.

Q. And are you prepared to review the engineering reasons for this off-pattern location with Mr. Catanach at this time?

A. Yes, sir, I am.

MR. CARR: We tender the witness as an expert in reservoir engineering.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Carr) Let's go to what has been marked in the exhibit book as Exhibit Number 6. Would you identify this and review it for the Examiner?

A. Yes, sir. Page 1 of Exhibit 6 is a map of the Allison unit, showing all of the Fruitland Coal wells within the unit, as well as a couple of pressure-observation wells, and it also marks the CO_2 injection wells that we have referred to earlier.

Also on there, marked in yellow, are three proposed new drills for this year. The well that we are talking about today is the 146, marked with the large arrow.

The green circles represent all of the recavitated wells within the Allison unit. Also marked on there is a 1995 Fruitland Coal new drill, the Allison 122 in the south portion of the unit.

Q. All right. Let's move to the second page of this exhibit, and I'd like you to first just explain what information is set forth on the exhibit and then review it for Mr. Catanach.

A. Okay, on this spreadsheet, on page 2, is all of the wells that we have recavitated, and marked on this sheet is the well name and well number, the pre- and post-rates, prior -- the pre- rate representing the rate prior to recavitation, the post- rate representing a stable production rate, one to two months following the workover.

Also noted is the recavitation date, and also is a column noting whether the well was dewatered at the time

of the recavitation.

What I have done here is put together this sheet so that it would show that our more successful recavitations have occurred when the wells were dewatered.

If you look at the bottom -- or about midway through the page, I have an average uplift of the wells not dewatered, and as you can see there, it's only about 50,000 cubic feet per day.

The average of wells that have been dewatered is a little over 600 MCF per day. And what this is showing is that the more dewatered your reservoir is at that well site, the better the chance is that you will have successful cavitation or completion.

Q. So basically, a well in the northwest quarter of the section we're discussing here today, you can anticipate, will decavitate more effectively than one if we were required to go down into the southwest quarter?

A. That's correct, based upon what Greg showed under Exhibit 5, you can see that the northwest corner, northwest quarter section, appears to be more dewatered than the southwest quarter section. Thus, we anticipate the 146 to cavitate more successfully by being drilled in the northwest quarter section.

Q. Has Meridian drilled a well that actually shows or represents what we're talking about here today?

A. Yes, sir, they have. In late 1995, we drilled the Allison Unit Com Number 122, which is on page 1 of Exhibit 6 down in the south portion of the unit in Section 31. We drilled that well and cavitated it over the course of about three weeks. We saw a successful cavitation. Our pitot gauges over the course of the cavitation increased, as well as our coal returns, seemed to show that we were having a successful cavitation.

And our -- when the well was first delivered in January of this year, our initial rate was about 700 MCF per day and about 70 barrels of water per day, and it continues to produce at those rates.

Q. So basically what we have is, we have the Number 122, which was a new drill?

A. Yes.

Q. And if we take that location, which is shown on the first page of Exhibit 6, and we go over to Exhibit 5, we can see that it is an area that is shaded in green in terms of the extent to which the well is anticipa- -- is producing. We compare that to the proposed location, and we have virtually the same sort of a profile for this well, the well we're talking about here today, as we did for the 122?

A. Yes, that's correct. We believe that the 122 was successful because it was in an area that has been

dewatered.

Q. And if we move that proposed location for the 146 and drop that down into the southwest quarter of the section, would you be optimistic about the success of your recavitation in that well?

A. No, I would not.

Q. Let's go to what has been marked Exhibit Number 7, a schematic drawing for the proposed well, and I would ask you just to briefly review that for Mr. Catanach.

A. This is a wellbore schematic of the proposed well, Allison Unit Com Number 146. Our plan is to top-set the Coal down to about 3375 feet and set 7-inch casing there and cement it. Then we plan to open-hole complete the well, cavitate the well over the period of two to three weeks.

We will then run a 5-1/2-inch liner, will not cement the liner in place, and the liner will have pre-perforated intervals based upon where we find the coal seams when we drill through the coal section.

Q. Let's just briefly review the reasons for placing this well in an off-pattern location.

First of all, has it been your testimony that, in fact, you anticipate by going to the off-pattern location you will be able to drill a well that, in fact, will more effectively produce the Fruitland Coal?

A. Yes, sir, that's correct.

Q. And that's because you anticipate recavitation will be better in this dewatered area?

A. Yes, sir, that's correct.

Q. This, in fact, is an on-pattern location, if we look just at the section. That is, it's in the opposite quarter section from where there is an existing Fruitland Coal well; is that not right?

A. Yes, sir, that's correct.

Q. In fact, if we ultimately move to a CO_2 flood in this area, is this well well positioned to be an effective part of a subsequent CO_2 flood?

A. Yes, sir, that's correct.

Q. Is it your recommendation that the well be drilled, for engineering reasons, at the proposed location, as opposed to a standard location in the southwest quarter of this section?

A. Yes, sir, that's correct.

Q. Will approval of this Application be in the best interest of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, sir, that's correct.

Q. Were Exhibits 6 and 7 prepared by you?

A. Yes, sir, that's correct.

MR. CARR: I move the admission into evidence of

Meridian Oil Exhibits 6 and 7.

EXAMINER CATANACH: Exhibits 6 and 7 will be admitted as evidence.

EXAMINATION

BY EXAMINER CATANACH:

Q. What do you consider to be a dewatered area?

A. Okay, I've prepared some backup data as to criteria --

MR. CARR: Mr. Catanach, I think I have an exhibit here -- we'll mark this as Exhibit Number 9 -- which I think will assist in responding to this question.

If you would, Mark, just review the criterion approach you used to determine whether or not you had a dewatered area or not.

THE WITNESS: Okay. This spreadsheet simply gives the well name and number and gives the dewatered marking that you saw on the previous spreadsheet, whether I considered it dewatered or not.

And then the last three columns show the criteria that I looked to determine whether it was dewatered or not.

The first of those three columns is -- shows whether the well had a progressive cavity pump prior to recavitation. That's something that I would consider as -- that accelerated the dewatering of that well site. Note that the first five wells do not have -- or did not have

progressive cavity pumps prior to the recavitation. And note also that they were marked as not dewatered at the time of the recavitation.

Below in that column -- All of the other wells, after those first five, other than two, did have a progressive cavity pump prior to recavitation, other than the 112 and the 130, and I've noted with an asterisk there that although those wells did not have PCPs prior to recavitation, all of their offsets did. Essentially the offsets had dewatered that well site for -- by their progressive cavity pumps. The five wells at the top of the list, they were not surrounded by wells that didn't -- that had PCPs.

The next column indicates another thing that I looked for in determining whether it was dewatered, and that's cum water production. And note that the first five wells have some of the lowest water production of the whole list.

The last thing that I looked at was the location within the unit, and once again, this correlates with what Greg showed earlier in Exhibit 5. And as you go down the list, you'll note that the first five wells essentially are on the outer parts of the unit.

For example, the 128 is located along the south -- south and west -- really more west end of the unit. The

123 is located on the very far west end of the unit. The 101, 134 and 135 are in the northeast part of the unit, where substantial dewatering has not occurred; therefore, they were not successful recavitations.

And that was the criteria that I looked at for determining whether the wells were dewatered or not.

Q. (By Examiner Catanach) So you feel like the well location for the 127 -- or the 127 well has actually contributed to the dewatering of the northwest quarter of this section?

A. Yes, sir, that's correct. I believe that the 127 has helped in simply just the expansion outward from the center of the unit.

Q. There isn't a well close to the southwest quarter of this section that's been dewatered?

A. No, sir, there's not. The closest well would be the 108, which is directly east, the Allison Unit Number 108.

Q. Has the 122 well been completed?

A. Yes, sir, it was completed back in December of 1995.

Q. And what's that producing at? What rate?

A. It initially produced at 700 MCF per day and about 70 barrels of water per day, and it has continued to produce that since it was first delivered in January of

this year.

Q. It's been a while since I've visited this coal. Can you briefly go over what the recavitation procedure is?

A. Okay. Generally what we do is, for example on the 146, when -- we'll drill through the coal, and then we will under-ream that same section, and essentially we under-ream to help prevent shale swelling and to give us a little bit more room to play with.

And then after that is done, we begin with -- by naturally letting the reservoir build up, and then we surge the well to atmosphere. And if need be throughout the process, we might even pressure up on the well from the surface, pressure up to a certain pressure, then we'll release that pressure to the atmosphere, surging the well. We believe that helps create an enhanced permeability zone near wellbore.

Q. So the 122 has had that procedure done?

A. Yes, sir, that's correct. And as a matter of fact, it's probably the only well in the unit that was cavitated over an extended period of time, during its original completion. Most of the original new drills, drilled in the early 1990s and late 1980s, were only cavitated for a couple of days' time.

Q. So this procedure has to be done when the well is initially drilled; is that correct?

A. Yes, that's what we plan to do.

Q. But is that the standard procedure out here?

A. It is now. The reason that we cavitated the 122 was based upon our recavitation results. We saw that by spending an extended period of time, letting the well naturally build up or pressuring up on the well and surging it to atmosphere, we saw that we were seeing better rates. So we thought that it would be best to cavitate and complete -- complete the well through cavitation over an extended period of time when we first drilled it.

Q. Okay, and that's what you propose to do to the 146?

A. Yes, sir.

Q. And you just feel like you'd get better rates in that area because it's dewatered?

A. That's correct, we feel that it would cavitate better, which would lead to better rates, and of course that would lead to a better economic value.

Q. Do you have an opinion as to whether that well, the 146 in the northwest quarter, would effectively drain that west half?

A. Yes, I believe that it would effectively drain that west half.

EXAMINER CATANACH: I have no further questions.

MR. CARR: Mr. Catanach, at this time we would

move the admission into evidence of Meridian Oil, Inc., Exhibit 9, which is a table entitled "Allison Recavitation Program - Criteria for Determining Dewatered Status".

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

MR. CARR: And that concludes our presentation in this case.

EXAMINER CATANACH: Okay, there being nothing further in this case, Case 11,536 will be taken under advisement.

(Thereupon, these proceedings were concluded at 11:44 a.m.)

* * *

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11536, heard by me on May 16 1996.

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 May 20th, 1996.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998