STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

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March 22, 1993

KELLAHIN AND KELLAHIN
Attorneys at Law
P. O. Drawer 2265
Santa Fe, New Mexico 87504

RE: CASE NO. 10680
ORDER NO. R-9864

Dear Sir:

Enclosed herewith are two copies of the above-referenced Division order recently entered in the subject case.

Sincerely,

Sally E. Leichtle
Administrative Secretary

cc: BLM - Farmington
OCD Aztec Office

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:	)	CONSOLIDATED:
APPLICATION OF MERIDIAN OIL INC.	)	CASE NO. 10679 CASE NO. 10680

REPORTER'S TRANSCRIPT OF PROCEEDINGS

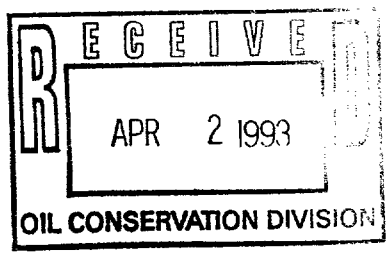
EXAMINER HEARING

BEFORE: David R. Catanach, Hearing Examiner

March 4, 1993

Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Division on March 4, 1993, at 1:00 p.m. at the Oil Conservation Division Conference Room, State Land Office Building, 310 Old Santa Fe Trail, Santa Fe, New Mexico, before Freda Donica, RPR, Certified Court Reporter No. 45, for the State of New Mexico.



I N D E X

March 4, 1991
Examiner Hearing
CASE NO. 10679

* * *

E X H I B I T S

A P P E A R A N C E S

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

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

EXAMINER CATANACH: At this time we'll call the hearing back to order and call Case 10679.

MR. STOVALL: Application of Meridian Oil Inc. for a high-angle directional-drilling pilot project, special operating rules therefor, a nonstandard oil proration unit, an unorthodox oil well location, and special project oil allowable, 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, for hearing purposes, Mr. Examiner, that you consolidate this case with the next one, which is Case Number 10680.

EXAMINER CATANACH: At this time we'll call Case 10680.

MR. STOVALL: Application of Meridian Oil Inc. for a high-angle/horizontal directional-drilling pilot project, special operating rules therefor, and an unorthodox oil well location, Rio Arriba County, New Mexico.

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

There is none, so let's proceed.

MR. KELLAHIN: I have three witnesses, Mr. Examiner.

EXAMINER CATANACH: Ask the three witnesses to stand and be sworn.

(Witnesses sworn.)

MR. KELLAHIN: Call at this time Mr. Alan Alexander.

ALAN ALEXANDER

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

EXAMINATION

BY MR. KELLAHIN:

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

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

Q. On prior to occasions, Mr. Alexander, have you testified as an expert petroleum landman before the Division?

A. Yes, sir, I have.

Q. Pursuant to your employment with Meridian, have you continued to make studies of the

landownership, the offsetting operatorship, for the areas involved in these two applications?

A. Yes, sir.

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

EXAMINER CATANACH: Mr. Alexander is so qualified.

Q. (By Mr. Kellahin) Mr. Alexander, let me direct your attention, sir, to Case 10679. And let's talk, first of all, about the Jicarilla 99 Well Number 17. Identify for us the first display.

A. The first display behind the Exhibit Number 1 is a copy of our application to the Division for proper rules to drill the Jicarilla 99 Number 17 Well. Attached to that exhibit -- to that application are three exhibits, Exhibit A being a planned view of the wellbore, Exhibit B being a vertical profile of the wellbore, and Exhibit C being an offset operator owner plat.

Q. Let's start with the offset owner plat, which is the last page of the exhibit. The proposed spacing unit for the well is what portion of the section?

A. It consists of the north half of Section 26 North, Range 3 West, Rio Arriba County, New Mexico.

Q. Have you determined what, in your opinion, is the appropriate pool to be designated for production if this well is successful?

A. Yes, sir.

Q. What is that pool?

A. We believe it to be the Northeast Ojito Pool.

Q. This is the Northeast Ojito Gallup-Dakota Oil Pool?

A. Yes, sir.

Q. Pursuant to that pool, what are the spacing rules? How many acres do you need for spacing rules?

A. I believe that is 160 acres for that pool.

Q. The proposed dedication for the high-angle horizontal well is what portion of Section 23?

A. We are proposing to dedicate the northeast quarter and the northwest quarter, which consists of the north half of the section for this project.

Q. Can you use Exhibit C to illustrate for us who the offset operators or interest owners are that are surrounding this spacing unit?

A. Yes, sir. They're indicated numerically in the boxes surrounding the proposed drill block. They consist of Meridian Oil Inc. and the Jicarilla Apache Tribe.

Q. Have you caused notices to be sent to the various entities involved in the Jicarilla Apache tribal lands?

A. Yes, sir, we have.

Q. Have you received any objection?

A. No, sir, we have not.

Q. Does the spacing unit, the north half of 23, is that also Jicarilla Apache Tribe land?

A. Yes, sir, the surface is, and they do also own the mineral rights under that land.

Q. The proposed surface location is unorthodox for this pool, is it not?

A. That's correct.

Q. You would normally have to be 660 from the side boundaries of 160-acre spacing unit?

A. Yes, sir, I believe that's correct.

Q. Where do you propose to put this well on the surface?

A. We propose to locate the well at 150 feet from the north line and 670 feet from the west line.

Q. Do you have a display in the book that illustrates the surface conditions and limitations that you have enccountered with regards to siting of this well on the surface?

A. Yes, sir. We have enclosed as Exhibit

Number 4 a topographic map that illustrates the locations that we have worked with and the proposed location. As you can see from the topographic map, the contours that are shaded dark are basically composed of forest, being pinon, juniper, and ponderosa pines. We have worked extensively with the tribe to locate a well in such a position that it does not interfere with any of those trees, in other words, where we would not have to cut any of them down. There is also indicated on the map in the square box in the north half an area of three archeological sites that we have found there which pretty much determine that we could not put a location within that area also.

Q. I think I misspoke to you, Mr. Alexander. The north Ojito Gallup-Dakota Oil Pool setback rules on 160 acres is 790 from the side boundaries, if I'm not mistaken. I asked you 660, but I believe a standard location needs to be 790?

A. Yes, sir, that is correct. It is 790 instead of 660.

Q. What is the status of the proposed surface location at this point?

A. The proposed surface location has been approved by the Jicarilla Tribe.

Q. Do you have a display that will show us the offsetting spacing units so that we can see what leases are included within the lease that has Section 23?

A. Yes, sir. Behind Exhibit Number 3 there is a nine-section land plat that shows the arrangement of the offsetting leases as well as the ownership of those leases. You will notice that on our display we list our lease number being New Mexico 9979, which covers not only Section 23, but Sections 13, 14, and 24. Also of interest, you'll notice in the south half of Section 15 and all of Section 22, that is currently unleased minerals owned by the Jicarilla Indian Tribe.

Q. At this point, has Meridian obtained the necessary surface clearances to commence the well at the location you propose?

A. Yes, sir, we have.

Q. Let's turn to the other well, the Cheney Federal B Well Number 2, which is the subject of Case 10680. If you'll take that exhibit book and identify for the record what is behind Exhibit Tab Number 1.

A. Again, as in the prior case, Exhibit Number 1 is a copy of our application to the Division for the special operating rules and location for the Cheney

Federal B Number 2 Well located in Section 8 of 26 North, 2 West, Rio Arriba County. And attached to that application are Exhibit A, which is the plan view of the wellbore, and Exhibit B is the offset operator plat for this well, showing the offset owners or operators surrounding Section 8.

Q. Let's turn to the information behind Exhibit Tab Number 2. What have you shown on that display?

A. Exhibit Number 2 is a copy of the offset operator plat, the same plat that was attached to the application. And it shows that we do have numerous owners and operators surrounding all of Section 8. They are indicated numerically in the square boxes.

Q. Have you caused notification to be sent to those other owners?

A. Yes, sir, we have.

Q. And have you received any objection to your application from any of those operators or owners?

A. No, sir, we have not.

Q. The Cheney Federal B Number 2 Well is targeted to be in what pool, sir?

A. It's in the Gavilan-Mancos Oil Pool.

Q. What will be the spacing unit to be dedicated to this well?

A. The spacing unit for that pool consists of 640 acres, which would be all of Section 8 of 26 North, 2 West.

Q. Is there already in that spacing unit an existing Gavilan-Mancos well?

A. Yes, sir, there is.

Q. Where is that located, approximately?

A. If you would refer to Exhibit Number 3, behind Exhibit Number 3 we have a nine-section land plat which also shows the wells that are located in the immediate area. And you will see a Gallup-Dakota well located in the northeast quarter of Section 8.

Q. Under the Gavilan-Mancos Oil Pool rules, wells on a standard spacing unit should be located no closer than 790 to the outer boundary of the 640?

A. Yes, sir, that's correct.

Q. And you're seeking an exception?

A. Yes, sir, only because the lateral extent of the wellbore will encroach upon the 330-foot quarter-quarter setbacks that are incorporated in this pool rule.

Q. So in this case the only footage location that you encroach upon is the interior 330 setback from the quarter section line?

A. Yes, sir, that's correct.

Q. And you maintain the 790 buffer setback around the boundaries of the spacing unit?

A. Yes, sir.

Q. In addition, in those rules is a separation between the infield well and the original well of 1650 feet?

A. That is correct.

Q. And are you maintaining that separation pursuant to the rule?

A. Yes, sir, we should maintain that separation along the entire length of the lateral bore hole.

Q. Under the Gavilan-Mancos Pool rules, you're entitled to an infield well so long as it's in a different quarter section?

A. Yes, sir, that is correct.

Q. Do you have any topographic or surface limitations that apply to the Cheney Federal B Number 2 Well?

A. No, sir. It's -- the actual surface location of the well is within the permitted setbacks. It's the fact that the lateral bore hole encroaches upon some of the distances in the pool, namely, the quarter-quarter section that causes the problem here.

Q. That's an interior requirement within the spacing unit?

A. Yes, sir.

Q. Do you have any surface problems, any topographic limitations that cause the initial drilling point of the well at the surface to be changed in any way?

A. No, sir, not appreciably.

Q. Did you have an approved surface location for this well?

A. We're waiting on the final approval. We cannot gain access to this location at this time because of the heavy mud that's in this area. However, the agencies have said that they anticipate absolutely no problem with it. So we're confident that once we get the final inspection, everybody is able to get out there, that it will be an approved location.

Q. And what agencies control surface?

A. I believe this one is the Bureau of Land Management.

MR. KELLAHIN: That concludes my examination of Mr. Alexander. In each of the exhibit books, we move the introduction of the Exhibits 1 through 4.

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

Mr. Alexander, with regards to the Cheney Federal Number 2, that is standard because it's more than 790 feet from the outer boundary. Are there interior setbacks in the Gavilan-Mancos Pool?

THE WITNESS: Yes, sir. According to our reading of the rule, there's a 330-foot setback from the quarter-quarter sections. And, actually, the surface location of the well even meets those requirements. It's the lateral bore hole that causes us the problem.

EXAMINER CATANACH: The lateral portion of the wellbore does encroach upon the 790?

THE WITNESS: No, sir, it does not.

EXAMINER CATANACH: All right. Do you anticipate BLM will approve this surface location?

THE WITNESS: Yes, sir, I do.

EXAMINER CATANACH: Have you conducted archeological surveys on this?

THE WITNESS: Yes, sir.

EXAMINER CATANACH: Is the well currently in Section 8, is that producing, the existing well?

THE WITNESS: Yes, sir, I believe it is. Our other witness may be able to confirm that better

than I can.

EXAMINER CATANACH: All right. Has Meridian had any contact with any of the offset operators on this Cheney Federal Number 2 Well?

THE WITNESS: Yes, sir. We've had a telephone call, and we did send all of our exhibits to Apache Corporation, who is the parent corporation for the MW Petroleum Corporation listed on the plat. They said that they did not have any problems with it, but they would like to see our exhibits to get a better understanding of our project.

EXAMINER CATANACH: I see Meridian listed as an offset operator in almost every case. Is that in partnership with the companies listed behind the names?

THE WITNESS: No, sir. We just happened to own an undivided interest in the minerals. It's not actually in partnership with them.

EXAMINER CATANACH: Are the offset proration units developed?

THE WITNESS: For the most part, they are not. If you'll look at the plat behind Exhibit Number 3, the Gallup wells are indicated by a square symbol, triangular symbol -- or not triangular, but square symbol. And you can see that, for the most part,

there is not a lot of development in this area.

EXAMINER CATANACH: With regards to the Jicarilla Number 17, Meridian originally sought to put that at a standard surface location?

THE WITNESS: Yes, sir, originally we did, but we just could not convince the Jicarilla Tribe to locate it at a standard location because all of the standard windows are completely filled with fairly heavy forest out in that area.

MR. STOVALL: Mr. Alexander, I realize this is not really your expertise, but you've been around this enough from an operational standpoint; in terms of correlative rights and waste, does it really matter where the surface location is on a horizontal well, or is it the producing section of the well that we should be most focused on?

THE WITNESS: I believe it is the producing -- the open-hole producing portion of the wellbore that could possibly create any correlative rights. But here you'll also notice that we have worked with the tribe, and the tribe would be the party, if there were any correlative rights violations, that would suffer those. They're well aware of that. They fully approve the location as it is situated.

MR. STOVALL: They manage and own both the

surface and the minerals; is that correct?

THE WITNESS: Yes, sir, that's correct.

MR. STOVALL: The question is framed not only in the context of this well, but in general in terms of -- we had some discussion prior on developing some rules for this. So would it be your opinion that that might be generally applicable, that the producing section of the well is a thing we need to be most concerned with?

THE WITNESS: Yes, sir, I would agree.

EXAMINER CATANACH: I have nothing further of the witness. He may be excused.

MR. KELLAHIN: Call at this time David Schoderbek.

DAVID SCHODERBEK

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

EXAMINATION

BY MR. KELLAHIN:

Q. Would you please state your name and occupation?

A. My name is David Schoderbek. I'm a geologist with Meridian Oil in Farmington.

Q. Mr. Schoderbek, on prior occasions have you testified before the Division as a petroleum

geologist?

A. Yes, I have.

Q. Pursuant to your employment with Meridian, have you developed two additional high-angle/horizontal wellbore projects for your company?

A. Yes, sir.

Q. And those are the subject of this application?

A. That's correct.

Q. You have one identified as the Jicarilla 99 17, the other one identified as the Cheney Federal B 12?

A. Yes, sir.

Q. Do both of those projects and wells represent your geologic efforts?

A. Yes, sir, they do.

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

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Kellahin) Let me have you go to one of the displays, and perhaps we ought to start with the exhibit that is the locator map. It says, "Gallup EUR Map, Northeast Ojito & Gavilan Fields."

A. That's in your exhibit book. I think it's

behind tab five.

EXAMINER CATANACH: In which case?

THE WITNESS: It's the same in both. The same locator map is in both cases. This is a map that the scale of one inch is 2,000 feet.

MR. STOVALL: It's behind tab four; is that correct?

THE WITNESS: It's a little fold-out.

MR. KELLAHIN: I have one --

THE WITNESS: It appears in two different places in the two different books, but it is the same map in both.

MR. KELLAHIN: In Case 10679 it's behind Exhibit 5, in the 680 it's behind tab four, but it will be the same in both books.

Q. (By Mr. Kellahin) Mr. Schoderbek, before we talk about the details, tell us where we are.

A. We're in Rio Arriba, New Mexico. Primarily the area we're going to be talking about is Township 26 North, Ranges 2 and 3 West. The western part of the project area is on the Jicarilla Reservation. The line that separates Jicarilla Reservation from private surface runs like this. There is a little piece of the reservation that sticks over into the --

Q. Locate for us the Bear Canyon Unit.

A. The Bear Canyon Unit is outlined in green. It encompasses parts of Sections 1, 2, 3, and all of 10, 11, 12, 13, 14, and 15, Township 26 North, Range 2 West.

Q. On the display, how have you identified what is the current pool boundary for the Gavilan-Mancos Pool?

A. The Gavilan-Mancos Pool is outlined in a red dot/dash pattern. We're at the northern end of the Gavilan Pool.

Q. For the northeast Ojito Pool, how have you identified the current pool boundary for that pool?

A. The type of line is the same, a red dot/dash line, with a sign that denotes the boundary.

Q. How have you located on the exhibit the approximate location for the Jicarilla 99-17 Well?

A. The Jicarilla 99-17 Well has a surface location shown by this large pink dot. The surface projection of the lateral wellbore is a group of pink lines.

Q. And then the approximate location and orientation of the lateral for the Cheney Federal B Number 2 Well, how is that located?

A. Similarly with a pink dot on the surface location in the Than southwest of Section 8 and a --

the lateral wellbore of the line on the surface in pink.

Q. On the display there is a third horizontal well shown. Where is it and how is it named?

A. The Tapacitos Number 3 is the case we last heard before the Division. It's a horizontal sidetrack. It's in Section 16, Township 26 North, Range 2 West.

Q. Has Meridian drilled the Tapacitos 3 Well at this point?

A. Not the sidetrack. That well, as you may recall, was a vertical well we drilled in 1988 and are going to sidetrack in the near future.

Q. Using this as a way to illustrate your geologic interpretation, give us a general idea of why Meridian has proposed what amounts to a three-well project to explore the Gallup and the Mancos Pool with the high-angle/horizontal well.

A. Basically, we have a very large acreage position in these two townships and even the townships to the north. There is a relatively low vertical well success ratio in the Niobrara in this area. You're familiar with the Gavilan Pool; it's much more densely developed down south. In this portion of the Gavilan Pool, the vertical well success rate is less than 50

percent. In order to extract these reserves in an economic way, we believe we need to drill horizontal wells. They give us better access to the fractured reservoir of the Niobrara interval that consists of thin-bedded siltly and sandy shales and shaley sandstones.

Q. You have one project in the Gavilan-Mancos that's the topic of one of the hearings today. The other one is over in the northeast Ojito. Is there any material difference when you look at the reservoir between the two?

A. No, sir, there isn't.

Q. Why are you proposing two wells in the same kind of reservoir in this area? What's the purpose of having two wells?

A. Well, we believe a single well can only drain approximately 320 acres.

Q. Why would you want a project area that includes three wells in this area to test the concept of the efficiency or success of the horizontal technology?

A. Because there is such a large area we're discussing, and there are -- for instance, between the Bear Canyon unit and the location of the Cheney Federal, there is essentially a dry hole in the

Tapacitos Number 1. We believe that even the success ratio or the success rate of horizontal wells is such that we need three projects to delineate our potential in the area.

Q. There is a vertical line on the display that's labeled Tapacitos Ridge Dike?

A. Yes, sir.

Q. What does that identify?

A. This is a dike on the surface that's composed of igneous rocks that intruded through what we believe was a preexisting vertical fracture.

Q. What does that feature do for you as a geologist when you're attempting to exploit the hydrocarbons that could be produced out of the Niobrara?

A. Well, that confirms for me that one of the dominant directions of natural fracturing in the subsurface is approximately north-south. Therefore, the orientation of the three horizontal wellbores that we're discussing have been designed to be perpendicular to that.

Q. When we talk about the Gallup or the Mancos in this area, what specifically is the target formation within that interval that you're seeking to produce?

A. Based on this cross section --

Q. You're going to another display now?

A. Yes.

Q. That would be found in the exhibit book for Case 10679 as Exhibit 7. It's the folded-up display in that portion of the book. And you have a similar exhibit in the other case?

A. Yes, we do. This stratigraphic cross section goes from the Bear Canyon unit through the Tapacitos Number 1, the Tapacitos Number 3 location -- they're all on the same pad, essentially -- to the Jicarilla 99 Number 16. That is the well we're offsetting with the Jicarilla 99 Number 17. Our study of the producing interval in both the northern part of Gavilan-Mancos Field and in all the Northeast Ojito Field has led us to the conclusion that the Niobrara B and C zones are the primary reservoir strata, and that's what we're exploiting in our horizontal wellbores.

Q. Describe for us the structure map that's shown on Exhibit Number 7.

A. This is a structure map comprising -- well, consisting of structure on the top of the Niobrara B zone. The purpose of this map is to show that the structure is relatively gentle and that the target

zone, the Niobrara B and C are continuous and between the three locations and essentially represent a zone that's a relatively consistent thickness throughout the area.

Q. Do you have an opinion of the direction of likely fracture orientation as it might be positioned in relation to the structure as you've mapped it?

A. There appears to be less control by structure of fracture orientation than there is just basically where we are in the basin itself. We're very near the eastern edge of the basin. There are a lot of north-south trending dikes on this side of the basin. In addition, there are wire line logs in a large number of the Northeast Ojito and Gavilan-Mancos Pool wells that confirm north-south is the dominant fracture orientation in this area.

Q. As a geologist, is there any material difference in these two cases than the one we presented for the Tapacitos 3?

A. No, there is not.

Q. Same issues involved for you, as a geologist, in all three cases?

A. Yes.

Q. Summarize for us the principal objective that you are trying to achieve with the horizontal

well that you can't obtain for Meridian with the vertical well.

A. Basically, the vertical wells in this area have approximately a 50 percent success rate. If one steps away from the more densely developed areas where one can consider these wells to be development wells around them, the first discovery well, the success ratio goes considerably lower, probably in the 20 percent range. Because of those risks, we can't exploit these reserves in vertical wells economically. We don't want to leave them in the ground and waste them, in one sense; so we think by drilling horizontal wells, we can increase our probability of success enough that we can recover these reserves economically.

Q. Mr. Schoderbek, let me ask you to go around to the other side of the hearing room now, and let's look at the display that's on the wall captioned for the Jicarilla 99-17 case. If you look in the case book 10679, I'm directing your attention to what is included as Exhibit 6 in that case book.

A. This is just a larger scale diagram than was appropriate to put in the book. On this scale, this is all of Section 16. The vertical projection into the map of the wellbore is shown by a red line.

Q. This case is different from the Cheney Federal 2B insofar as a portion of the open hole interval in the Niobrara will be exposed closer to the side boundaries of the spacing unit than the 790 setback.

A. Yes, sir, that's correct.

Q. When you look at the orientation of the well in the north half of 23, it's unorthodox because of the surface limitations imposed by the tribe.

A. Yes, sir.

Q. Why did you not put the starting point of the well down in the southeast of the northeast of 23, then take your lateral to the northwest and honor the typical 790 setback for the horizontal wells?

A. Well, based on the Jicarilla 99 Number 16, that's a very prolific Niobrara well. We wanted to be as close to it as was practical to get in the same fractured set, potentially. If we were to put our surface location here, the 3,500 feet of lateral is -- we believe to be reasonable but optimistic. And the mechanical probability of success gets lower the further out we get from the surface location. We wanted to have the high success rate wellbore that -- the part of the wellbore that we're very well confident we can get as close to this well or the

western side of the section as possible.

Q. When you move down into the display, finding the vertical profile, if you will, for the well?

A. Yes, sir.

Q. At the surface location, why have you chosen that portion of the reservoir to penetrate first rather than going to the other end of the spacing unit? Let me say it again. The Niobrara zone, the B and C, is the target zone?

A. Yes.

Q. Describe for me again why you would not want to intersect that zone in just the opposite direction.

A. Well, we believe of the two zones the B zone to be the primary -- the greater contributor of the two. We believe structurally that, though we need to access the entire north half spacing unit to make the well economic, that the -- that the B zone is our primary objective -- is the -- there are more reserves in the B zone than the C zone, and we want to intersect the B zone in this part of the spacing unit.

Q. And if you reverse the direction in which you penetrate the reservoir by putting the surface location in the other end of the spacing unit, you

cannot maximize the opportunity in the Niobrara B zone?

A. Yes, sir. We would end up starting in the Niobrara B unit in a less optimal position for it and ending in the Niobrara C where we couldn't get at what we think to be the most optimal location for the Niobrara B.

Q. The only boundary that you're encroaching upon is the boundary for the section north of 23?

A. Yes, sir.

Q. In Section 14?

A. Yes, sir.

Q. Mr. Alexander told us that's the same ownership as involved in 23.

A. That's a Meridian lease of Jicarilla minerals.

Q. So there's an identity of ownership?

A. Yes.

Q. What is the advantage that you see achieved if we leave open in the reservoir that portion of the lateral, if you will, that penetrates the Niobrara but yet is within the normal 790 setback? Why not close off the lateral until you're actually into the reservoir no closer than 790?

A. Well, I think there's a very few feet that

we're talking about, probably. And Paul can go into more of the calculation that he went through. We, essentially, would be wasting the reserves that we put behind pipe because we can't get them from either side. And, again, this is not just the same ownership, but it's the same lease, exact same interest.

Q. Going to the Cheney Federal B Number 2 display, which is going to be in that case book for that case number, and it's found behind Exhibit Number 6, looking at that display, describe for us what you see, as a geologist, with this attempt.

A. It's a similar attempt to the other, the Jicarilla 99 Number 17. We've targeted the Niobrara B and C zones as the primary reservoir strata. We intend to get into them as quickly as we can from the mechanical point of view and, essentially, drill out until we've reached 3500 feet, traversing the entire reservoir zone.

Q. There seems to be less slope to the reservoir in the Cheney B Federal 2 than we see in the display?

A. Yes, there's slightly less lower dip here.

Q. Is that a difference of significance to you?

A. No.

Q. The only reason that matters is in where you start the wellbore for the Jicarilla 99-17?

A. I'm not sure I --

Q. Does it make a difference to you in terms of slope in the reservoir?

A. No, it's not --

Q. Where you penetrate the reservoir?

A. No, it's not so much the dip of this tabular reservoir bed as the position on the map. For instance, there's an anticlinal fold that goes near the Jicarilla 99 Number 17 that controls where we want our surface location. The dip in the area of Cheney Federal B Number 2, as you can see from these displays, is somewhat gentler.

Q. In terms of a project allowable for the Cheney Federal B2, that's the typical Gavilan-Mancos oil allowable?

A. Yes, sir.

Q. And for the Jicarilla 99-17, because you have two spacing units in the single project area, you simply want to double the oil allowable that would normally be assigned to the 160?

A. Yes, sir.

Q. Anything else?

A. No, sir.

MR. KELLAHIN: That concludes my examination of Mr. Schoderbek. We move the introduction of -- I believe it's going to be Exhibits 5 through 7 in the two books.

EXAMINER CATANACH: Exhibits 5 through 7 in each case will be admitted as evidence.

Mr. Schoderbek, that Well Number 16, that's producing from the Niobrara?

THE WITNESS: Yes, that's an existing Niobrara producer.

EXAMINER CATANACH: Is that mainly a B zone producer?

THE WITNESS: No, it's actually completed in the A, B, and C. We believe from studies elsewhere in the Northeast Ojito Field and from what we saw as that well was drilled, that B and C are the primary reservoir zones in that well. The B zone showed to have the greatest hydrocarbon shoals when we drilled it, and the C zone, on a bore hole televiewer, was the most intensely fractured.

EXAMINER CATANACH: Are the fracture systems in all three of these different zones -- they run the same direction?

THE WITNESS: Yes, we believe they do.

EXAMINER CATANACH: Has Meridian drilled a Niobrara horizontal well?

THE WITNESS: Yes, we have, several. USA Number 2. Number 218 was partially a Niobrara well, as was the 300.

EXAMINER CATANACH: You must have met with some success if you're continuing on with the projects.

THE WITNESS: We think each of those has its own probabilities of success. We believe this is an area where vertical wells are too risky, and so we need -- it's a fracture reservoir. We know that the reservoir strata are more or less continuous, but that the risk of finding those fractures is too high in vertical wells as evidenced by the relatively low success rate to make vertical exploitation economical.

EXAMINER CATANACH: Is the A zone in these two wells -- is it cased off?

THE WITNESS: In the two --

EXAMINER CATANACH: In these two proposed wells.

THE WITNESS: Yes, it will be.

EXAMINER CATANACH: You're not going to attempt any completion in the A zones?

THE WITNESS: No, sir. Paul will address

this some more later, but casing will be set to this point around that.

MR. STOVALL: You mean where it enters the Niobrara B?

THE WITNESS: Yes, sir.

EXAMINER CATANACH: I don't have anything further.

PAUL ALLAN

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

EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Allan, would you please state your name and occupation?

A. My name is Paul Allan. I'm a drilling engineer with Meridian Oil in Farmington, New Mexico.

Q. On prior occasions have you testified and qualified as an expert drilling engineer for your company?

A. Yes, I have.

Q. Pursuant to your employment, have you continued in that capacity to help design and implement the drilling programs for the Cheney Federal B Number 2 and the Jicarilla 99 Number 17 wells?

A. Yes.

MR. KELLAHIN: We tender Mr. Allan as an expert drilling engineer.

MR. STOVALL: Mr. Allan is so qualified.

Q. (By Mr. Kellahin) Which one do you want to start with?

A. The Jicarilla is closest.

Q. Let's do the Jicarilla 99-17, if you'll go to the display on the wall for that case. It's in case book 10679, and it's the display behind Exhibit Tab Number 6. If you'll look at the large one on the wall, Mr. Allan, starting at the surface, show us your plan to execute the drilling and completion of the well.

A. Okay. We'll begin by drilling the 12 and a quarter inch hole to 200 feet. We'll then set nine and five-eighths inch casing. We'll then drill out an eight and three-quarter inch hole to the kickoff point of 6704. This is mud drilled. We will then pick up directional tools and build angle of approximately 14 degrees per 100 feet of measured depth to 84 degrees with mud. We'll then run seven inch casing to that point on top of the Niobrara B zone. We'll unload the hole with an air mist system and continue drilling the entire lateral with the air mist system. We'll then run a perforated and plugged liner and a lateral

wellbore, spacing the perforations and plugs over the shoals that we get in that part of the well and go back in and mill off the plugs and unload the hole with mist and begin producing the well.

Q. Can you help us visualize what portion of the well is going to be open in the producing reservoir between the 330 setback and the 790 setback in this well?

A. Okay. If we were to abide by the 790 setback at this point, we would enter -- that coincides with 1225, which is right here. That's 865 feet of potential formation that we would be unable to produce if we were to set pipe to that point and honor the 790 setbacks.

Q. If you were to reverse the direction, putting the surface location down in the southeast corner of the spacing unit and drill to the lateral extent in the northwest and honor the 790 setbacks, is that the same thing?

A. The problem there is that we would be -- this is the better part of the formation.

Q. Which is up in the northwest corner of the spacing unit?

A. The western half of the spacing side, from what David Schoderbek has found, and the probability

of hitting this part of the wellbore is obviously much lower than hitting this part of the wellbore.

Q. When you say "this" and "this," tell me.

A. The western part of the wellbore as planned is the -- has a higher probability of mechanical success than the eastern part of the wellbore due to mechanical problems as you get farther and farther out into the lateral wellbore.

Q. How is this proposed well program different from the Tapacitos 3?

A. The Tapacitos 3 utilized an existing wellbore where we cut a section in the existing casing and then sidetracked out and did our horizontal and directional drilling out of the existing wellbore. These are both grassroots new wells.

Q. Can you give us an example of a well like this that was previously approved by the Division Examiners?

A. The Horvino 300 and the Horvino Unit 306.

Q. Can we go to the Cheney Federal B Number 2 display? That's in the exhibit book for that case behind Exhibit Number 6. Again, take us from the surface location, describe for us what you propose to do for your plan of drilling and completing that well.

A. This well is quite similar to the Jicarilla 99 in that we began with a 12 and a quarter inch hole to 200 feet, eight and three-quarter inch hole to 6663, then angle at the same 14 degrees per hundred around the corner to 84 degrees in this well, and run seven inch casing to that point. We'll then unload the hole with an air mist system and continue drilling the lateral to total depth.

Q. This one is the same as the Jicarilla 99-17?

A. Yes, it is.

Q. And the only difference then is where you approach the setbacks in terms of honoring the 790 footage distance?

A. Correct.

MR. KELLAHIN: All right, sir, you may return to your seat. That concludes my examination of Mr. Allan.

EXAMINER CATANACH: Mr. Allan, on the Jicarilla 99 Number 17, what will actually be the distance from the north lease line when the wellbore penetrates the B zone? Have you calculated that?

THE WITNESS: This is shown on this map by a cross. It's rather hard to see it from there, but it's across here. It's right at 330 and 987, if I'm

understanding the question properly.

EXAMINER CATANACH: You had said there was going to be some encroachment on the 330 feet.

THE WITNESS: No, on the 790.

EXAMINER CATANACH: I mean the 790.

THE WITNESS: Right.

EXAMINER CATANACH: So you will be penetrating it at 330 feet?

THE WITNESS: Yes, correct, right where the star is shown, at 987 feet from the west and 330 feet from the north.

EXAMINER CATANACH: What are the lateral distances you propose to drill these wells on?

THE WITNESS: We're going out to a total of 3500 feet of total lateral on both.

EXAMINER CATANACH: That's from the surface location?

THE WITNESS: Yes, sir.

EXAMINER CATANACH: You say the probability of drilling further out decreases -- the probability of success decreases. What's the longest Meridian has drilled one of these wellbores?

THE WITNESS: I believe 3200 feet on the Piedro Numbre.

EXAMINER CATANACH: Do you expect that you

will get close to what you proposed in these wellbores?

THE WITNESS: Yes, that is the planned TD at this point.

EXAMINER CATANACH: I have nothing further.

MR. KELLAHIN: In each package there should be a Certificate of Mailing of notification to all the offsetting owners to which notice is required.

MR. STOVALL: I don't think they're in the book.

MR. KELLAHIN: All right, I've got them here. In Case 10680 it will be Exhibit Number 8, and in Case 10679 it will also be Exhibit Number 8. And with the introduction of the notices, that completes our presentation, Mr. Examiner.

EXAMINER CATANACH: Exhibits Number 8 in each case will be admitted as evidence. There being nothing further, Cases 10679 and 10680 will be taken under advisement. And the hearing is adjourned.

(The foregoing hearing was adjourned at the approximate hour of 1:56 p.m.)

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 10679, 10680 heard by me on March 4 1993.

David R. Catanach, Examiner
Oil Conservation Division

STATE OF NEW MEXICO)
:
COUNTY OF SANTA FE)

I, FREDA DONICA, RPR, a Certified Court Reporter, DO HEREBY CERTIFY that I stenographically reported these proceedings before the Oil Conservation Division; and that the foregoing is a true, complete and accurate transcript of the proceedings of said hearing as appears from my stenographic notes so taken and transcribed under my personal supervision.

I FURTHER CERTIFY that I am not related to nor employed by any of the parties hereto, and have no interest in the outcome hereof.

DATED at Santa Fe, New Mexico, this 26th day of March, 1993.

Freda Donica
Certified Court Reporter
CCR No. 45