

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.)
-----)

CONSOLIDATED:
CASE NO. 10679
CASE NO. 10680

REPORTER'S TRANSCRIPT OF PROCEEDINGSEXAMINER HEARING

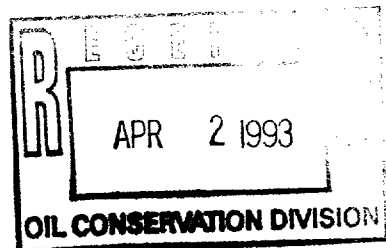
BEFORE: David R. Catanach, Hearing Examiner

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.

ORIGINAL



I N D E X

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A P P E A R A N C E S

FOR THE DIVISION:

ROBERT G. STOVALL, ESQ.
General Counsel
Oil Conservation Commission
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Santa Fe, New Mexico 87501

FOR THE APPLICANT:

KELLAHIN & KELLAHIN
117 N. Guadalupe
Santa Fe, New Mexico
THOMAS KELLAHIN, ESQ.

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

3 MR. STOVALL: Application of Meridian Oil
4 Inc. for a high-angle directional-drilling pilot
5 project, special operating rules therefor, a
6 nonstandard oil proration unit, an unorthodox oil well
7 location, and special project oil allowable, Rio
8 Arriba County, New Mexico.

9 EXAMINER CATANACH: Are there appearances
10 in this case?

11 MR. KELLAHIN: Mr. Examiner, I'm Tom
12 Kellahin of the Santa Fe law firm of Kellahin and
13 Kellahin, appearing on behalf of the applicant. We
14 would request, for hearing purposes, Mr. Examiner,
15 that you consolidate this case with the next one,
16 which is Case Number 10680.

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

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

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

1 There is none, so let's proceed.

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

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

6 (Witnesses sworn.)

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

9 ALAN ALEXANDER

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

12 EXAMINATION

13 BY MR. KELLAHIN:

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

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

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

23 A. Yes, sir, I have.

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

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

3 A. Yes, sir.

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

6 EXAMINER CATANACH: Mr. Alexander is so
7 qualified.

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

12 A. The first display behind the Exhibit Number
13 1 is a copy of our application to the Division for
14 proper rules to drill the Jicarilla 99 Number 17
15 Well. Attached to that exhibit -- to that application
16 are three exhibits, Exhibit A being a planned view of
17 the wellbore, Exhibit B being a vertical profile of
18 the wellbore, and Exhibit C being an offset operator
19 owner plat.

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

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

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

4 A. Yes, sir.

5 Q. What is that pool?

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

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

10 A. Yes, sir.

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

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

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

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

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

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

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

4 A. Yes, sir, we have.

5 Q. Have you received any objection?

6 A. No, sir, we have not.

7 Q. Does the spacing unit, the north half of
8 23, is that also Jicarilla Apache Tribe land?

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

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

13 A. That's correct.

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

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

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

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

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

25 A. Yes, sir. We have enclosed as Exhibit

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

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

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

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

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

1 Q. Do you have a display that will show us the
2 offsetting spacing units so that we can see what
3 leases are included within the lease that has Section
4 23?

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

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

18 A. Yes, sir, we have.

19 Q. Let's turn to the other well, the Cheney
20 Federal B Well Number 2, which is the subject of Case
21 10680. If you'll take that exhibit book and identify
22 for the record what is behind Exhibit Tab Number 1.

23 A. Again, as in the prior case, Exhibit Number
24 1 is a copy of our application to the Division for the
25 special operating rules and location for the Cheney

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

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

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

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

17 A. Yes, sir, we have.

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

20 A. No, sir, we have not.

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

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

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

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

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

6 A. Yes, sir, there is.

7 Q. Where is that located, approximately?

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

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

16 A. Yes, sir, that's correct.

17 Q. And you're seeking an exception?

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

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

25 A. Yes, sir, that's correct.

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

3 A. Yes, sir.

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

7 A. That is correct.

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

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

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

16 A. Yes, sir, that is correct.

17 Q. Do you have any topographic or surface
18 limitations that apply to the Cheney Federal B Number
19 2 Well?

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

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

3 A. Yes, sir.

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

8 A. No, sir, not appreciably.

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

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

19 Q. And what agencies control surface?

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

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

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

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

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

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

15 THE WITNESS: No, sir, it does not.

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

18 THE WITNESS: Yes, sir, I do.

19 EXAMINER CATANACH: Have you conducted
20 archeological surveys on this?

21 THE WITNESS: Yes, sir.

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

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

1 than I can.

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

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

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

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

19 EXAMINER CATANACH: Are the offset
20 proration units developed?

21 THE WITNESS: For the most part, they are
22 not. If you'll look at the plat behind Exhibit Number
23 3, the Gallup wells are indicated by a square symbol,
24 triangular symbol -- or not triangular, but square
25 symbol. And you can see that, for the most part,

1 there is not a lot of development in this area.

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

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

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

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

25 MR. STOVALL: They manage and own both the

1 surface and the minerals; is that correct?

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

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

10 THE WITNESS: Yes, sir, I would agree.

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

13 MR. KELLAHIN: Call at this time David
14 Schoderbek.

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

18 EXAMINATION

19 BY MR. KELLAHIN:

20 Q. Would you please state your name and
21 occupation?

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

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

1 geologist?

2 A. Yes, I have.

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

7 A. Yes, sir.

8 Q. And those are the subject of this
9 application?

10 A. That's correct.

11 Q. You have one identified as the Jicarilla 99
12 17, the other one identified as the Cheney Federal B
13 12?

14 A. Yes, sir.

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

17 A. Yes, sir, they do.

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

20 EXAMINER CATANACH: He is so qualified.

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

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

1 behind tab five.

2 EXAMINER CATANACH: In which case?

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

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

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

9 MR. KELLAHIN: I have one --

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

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

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

18 A. We're in Rio Arriba, New Mexico. Primarily
19 the area we're going to be talking about is Township
20 26 North, Ranges 2 and 3 West. The western part of
21 the project area is on the Jicarilla Reservation. The
22 line that separates Jicarilla Reservation from private
23 surface runs like this. There is a little piece of
24 the reservation that sticks over into the --

25 Q. Locate for us the Bear Canyon Unit.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

12 A. No, sir, there isn't.

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

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

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

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

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

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

7 A. Yes, sir.

8 Q. What does that identify?

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

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

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

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

1 A. Based on this cross section --

2 Q. You're going to another display now?

3 A. Yes.

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

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

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

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

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

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

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

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

20 A. No, there is not.

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

23 A. Yes.

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

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

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

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

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

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

6 A. Yes, sir, that's correct.

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

10 A. Yes, sir.

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

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

1 western side of the section as possible.

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

5 A. Yes, sir.

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

11 A. Yes.

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

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

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

1 cannot maximize the opportunity in the Niobrara B
2 zone?

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

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

10 A. Yes, sir.

11 Q. In Section 14?

12 A. Yes, sir.

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

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

17 Q. So there's an identity of ownership?

18 A. Yes.

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

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

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

8 Q. Going to the Cheney Federal B Number 2
9 display, which is going to be in that case book for
10 that case number, and it's found behind Exhibit Number
11 6, looking at that display, describe for us what you
12 see, as a geologist, with this attempt.

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

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

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

24 Q. Is that a difference of significance to
25 you?

1 A. No.

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

4 A. I'm not sure I --

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

7 A. No, it's not --

8 Q. Where you penetrate the reservoir?

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

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

19 A. Yes, sir.

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

24 A. Yes, sir.

25 Q. Anything else?

1 A. No, sir.

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

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

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

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

12 EXAMINER CATANACH: Is that mainly a B zone
13 producer?

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

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

25 THE WITNESS: Yes, we believe they do.

1 EXAMINER CATANACH: Has Meridian drilled a
2 Niobrara horizontal well?

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

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

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

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

19 THE WITNESS: In the two --

20 EXAMINER CATANACH: In these two proposed
21 wells.

22 THE WITNESS: Yes, it will be.

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

25 THE WITNESS: No, sir. Paul will address

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

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

5 THE WITNESS: Yes, sir.

6 EXAMINER CATANACH: I don't have anything
7 further.

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

11 EXAMINATION

12 BY MR. KELLAHIN:

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

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

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

20 A. Yes, I have.

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

25 A. Yes.

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

3 MR. STOVALL: Mr. Allan is so qualified.

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

6 A. The Jicarilla is closest.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

19 A. The Horvino 300 and the Horvino Unit 306.

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

1 A. This well is quite similar to the Jicarilla
2 99 in that we began with a 12 and a quarter inch hole
3 to 200 feet, eight and three-quarter inch hole to
4 6663, then angle at the same 14 degrees per hundred
5 around the corner to 84 degrees in this well, and run
6 seven inch casing to that point. We'll then unload
7 the hole with an air mist system and continue drilling
8 the lateral to total depth.

9 Q. This one is the same as the Jicarilla
10 99-17?

11 A. Yes, it is.

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

15 A. Correct.

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

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

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

1 understanding the question properly.

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

4 THE WITNESS: No, on the 790.

5 EXAMINER CATANACH: I mean the 790.

6 THE WITNESS: Right.

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

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

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

14 THE WITNESS: We're going out to a total of
15 3500 feet of total lateral on both.

16 EXAMINER CATANACH: That's from the surface
17 location?

18 THE WITNESS: Yes, sir.

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

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

25 EXAMINER CATANACH: Do you expect that you

1 will get close to what you proposed in these
2 wellbores?

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

5 EXAMINER CATANACH: I have nothing further.

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

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

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

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

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

22

23

24

25

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 1983.

David R. Catanch Examiner
Oil Conservation Division

1 STATE OF NEW MEXICO)

2 :

3 COUNTY OF SANTA FE)

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

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

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

16 
17 Freda Donica
18 Certified Court Reporter
19 CCR No. 45
20
21
22
23
24
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