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STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION

CASE 10,702

EXAMINER HEARING

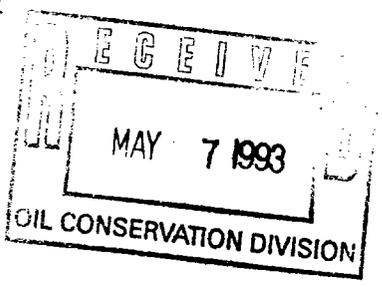
IN THE MATTER OF:

Application of Meridian Oil, Inc., for a high angle/horizontal directional drilling pilot project, special operating rules therefor, an unorthodox gas well location, and a nonstandard gas proration unit, San Juan County, New Mexico

TRANSCRIPT OF PROCEEDINGS

BEFORE: DAVID R. CATANACH, EXAMINER

ORIGINAL



STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

April 8, 1993

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A P P E A R A N C E S

FOR THE DIVISION:

ROBERT G. STOVALL
Attorney at Law
Legal Counsel to the Division
State Land Office Building
Santa Fe, New Mexico 87504

FOR THE APPLICANT:

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

ALSO PRESENT:

DENNIS FOUST
OCD Office, Aztec, New Mexico

* * *

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E X H I B I T S

APPLICANT'S EXHIBITS:

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1 WHEREUPON, the following proceedings were had
2 at 2:33 p.m.:

3

4

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6 EXAMINER CATANACH: At this time we will call
7 Case 10,702.

8 Application of Meridian Oil, Inc., for a high
9 angle/horizontal directional drilling pilot project,
10 special operating rules therefor, an unorthodox gas
11 well location, and a nonstandard oil proration unit --

12 MR. KELLAHIN: The oil is a mistake. It's a
13 gas --

14 EXAMINER CATANACH: Okay.

15 MR. KELLAHIN: -- proration unit. It's a
16 typo in the docket.

17 The Application and the notices to all the
18 parties involved correctly describe that as a gas
19 spacing unit. Anybody who read the docket or the
20 advertisement here, they'd figure out that that was gas
21 and not oil.

22 EXAMINER CATANACH: Okay. -- San Juan
23 County, New Mexico.

24 Appearances in this case?

25 MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin

1 of the Santa Fe law firm of Kellahin and Kellahin,
2 appearing on behalf of Meridian Oil, Inc.

3 There are four witnesses for presentation in
4 this case.

5 EXAMINER CATANACH: Any other appearances?

6 And I believe all the witnesses have
7 previously been sworn in, Mr. Kellahin?

8 MR. KELLAHIN: They have, Mr. Examiner.

9 EXAMINER CATANACH: Okay.

10 MR. KELLAHIN: Call first, Mr. Kent Beers.

11 May the record reflect, Mr. Examiner, that
12 Mr. Beers is a qualified expert petroleum landman and
13 continues under oath in this case?

14 EXAMINER CATANACH: The record shall so
15 reflect.

16 KENT BEERS,

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

19 DIRECT EXAMINATION

20 BY MR. KELLAHIN:

21 Q. Mr. Beers, there's a couple of questions I'd
22 like to ask you about the land information available
23 for this particular project, and perhaps we're best
24 served if you'll turn to Exhibit A, and let's look at
25 the pool boundary and the plat of well information.

1 A. All right.

2 Q. As an illustration, let's look at this and
3 have you summarize for us what it is that your company
4 seeks to accomplish with this Application. What is it
5 that you're trying to do?

6 A. We would like to re-enter an existing
7 wellbore and drill out a horizontal leg with that
8 horizontal leg crossing the section lines. Therefore,
9 the a variety of things included in our Application.

10 Doing that, we recognize the need for, first,
11 the ability to drill the horizontal well at all, and
12 then to come up with a set of rules that will allow us
13 to produce this well in a nonstandard spacing unit.

14 The existing wellbore that we're kicking out
15 of is itself a nonstandard location in the pool, so
16 again, that's another of our requests.

17 Just briefly summarizing what's on Exhibit A,
18 is an outline in red of Paradox Creek -- Barker Creek
19 Paradox Gas Pool.

20 The area where Meridian holds 100 percent of
21 the leases, these are all leases from the Ute Mountain
22 Ute Tribe. The multiple leases covered by those hash
23 marks have all been consolidated under a consolidation
24 agreement in 1957, so it's as if we're operating under
25 a single lease. There are no overriding royalty

1 owners, so the only parties involved here are Meridian
2 and the Ute Mountain Ute Tribe.

3 Q. On Exhibit A there is a red outline. What
4 does that represent?

5 A. The red outline represents the current pool
6 outline.

7 Q. With regards, then, to this proposed
8 nonstandard spacing unit, which would consist of all of
9 Sections 15 and 16, the ownership is common as to all
10 interest owners; is that correct?

11 A. That is correct.

12 Q. And for every spacing unit around it?

13 A. That's correct.

14 Q. You as operator effectively control 100
15 percent of the operating rights, and you share your
16 production with the Ute Mountain Indian Tribe?

17 A. That's correct.

18 MR. KELLAHIN: Okay, that concludes my
19 examination of Mr. Beers.

20 Move the introduction of Exhibit A.

21 EXAMINER CATANACH: Exhibit A will be
22 admitted as evidence, and I have no questions.

23 MR. KELLAHIN: All right, sir.

24 Call at this time Mr. Jim Hornbeck. Mr.
25 Hornbeck is a petroleum geologist.

1 JAMES M. HORNBECK,

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

4 DIRECT EXAMINATION

5 BY MR. KELLAHIN:

6 Q. For the record, Mr. Hornbeck, would you
7 please state your name and occupation?

8 A. My name is Jim Hornbeck, and I'm a senior
9 staff geologist with Meridian Oil in Farmington, New
10 Mexico.

11 Q. On prior occasions, Mr. Hornbeck, have you
12 testified as a petroleum geologist before the Division?

13 A. Yes, I have.

14 Q. Pursuant to your employment by Meridian, have
15 you made a geologic study of this particular project?

16 A. Yes, I have.

17 MR. KELLAHIN: We tender Mr. Hornbeck as an
18 expert petroleum geologist.

19 EXAMINER CATANACH: He is so qualified.

20 Q. (By Mr. Kellahin) Mr. Hornbeck, I'll leave
21 it up to you to give us a display to look at. Perhaps
22 we could start with Exhibit A, just to orient us.

23 A. Okay.

24 Q. Summarize for us what has happened in this
25 pool and why you see, as a geologist, an opportunity to

1 recover additional hydrocarbons from the pool that you
2 might not otherwise achieve with this project.

3 A. For a little bit of historical background,
4 the Barker Creek Pennsylvanian Paradox field was
5 developed in the late Forties and early Fifties from a
6 series of carbonates, stacked carbonate pays, all of
7 Desmoinian age. And the majority of the production
8 from the field to date, in excess of 220 billion cubic
9 feet of gas, has been coming from a Lower Barker Creek
10 interval which has subsequently watered out to some
11 degree.

12 And as Meridian has tried to prudently
13 maintain the integrity of the wellbores in this field,
14 we have defined some additional opportunity in the
15 shallower Ismay and Desert Creek intervals in these
16 existing wellbores.

17 I have a type log on the wall, and there's
18 also one included under Exhibit -- give me a second
19 here, I think I can find it -- under Exhibit F. But
20 I'd like to use the one on the wall because there's a
21 little more color involved.

22 Q. Let me have you go to that display on the
23 wall -- it's a large size -- Mr. Hornbeck, and let's
24 talk about where has been the historic production out
25 of this Pennsylvanian Pool and where it is that you now

1 want to look for new production.

2 A. The original majority of production has been
3 produced -- Let me start over.

4 This is a type log for the producing
5 intervals in the field, and this is a gamma-ray,
6 neutron-density, open-hole wireline log on a newly
7 drilled well in the field.

8 The gamma-ray shows lithology and porosity
9 and pay as indicated by the shaded orange intervals
10 throughout the log. The color blue is limestone, the
11 color purple is dolomite and the brown intervening is a
12 series of anhydrites and tight dolomitic shales.

13 The majority of the production from the field
14 to date has been produced from the Barker Creek
15 intervals, in particular, the Lower Barker Creek
16 interval, and we are proposing to evaluate the
17 productive potential in a shallower separate reservoir
18 within the Paradox Pool, described as the Upper Ismay
19 zone.

20 Q. Okay. Why don't you come back to your seat,
21 and let's continue with your description of the
22 identification of this interval.

23 You have a stratigraphic correlation chart
24 behind Exhibit F. Let's take a look at that for a
25 moment.

1 A. Exhibit F is just merely a stratigraphic
2 correlation chart of the Paleozoic section in
3 northwestern New Mexico, and I just was including it to
4 indicate that, as opposed to most of the predominant
5 producing horizons in the San Juan Basin, being the
6 Cretaceous section, this is a much older Pennsylvanian
7 section. And you can see that the Desmoinian Age
8 Paradox formation is colored in red.

9 The reservoirs in the Ismay and Desert Creek
10 intervals at Barker Creek are very similar to the
11 reservoirs in southeast New Mexico of Strawn age, very
12 similar in limestone character and reservoir
13 characteristics.

14 Q. We've called this, or identified it is a
15 pilot project for a horizontal well. Is it also a
16 pilot project to gather data for other purposes, other
17 than just horizontal technology?

18 A. Well, primarily the reason for drilling in a
19 horizontal fashion is because we've seen in the
20 recompletions in the vertical wellbores that we are not
21 effectively draining the 640 acres allocated for each
22 spacing unit.

23 We've seen rapid declines, and we have a lot
24 of analogies with fields off to the northwest in Utah,
25 in the Paradox Basin, that have been very closely

1 studied and have shown a lot of variations in
2 permeability and reservoir heterogeneity, and we just
3 feel that a horizontal wellbore will help us see if we
4 can actually effectively drain a 640 drill block in
5 these horizons on the structure.

6 Q. Will this be an opportunity to have data from
7 which you can come back to the Division and apply for
8 modifications in pool rules so that you may more
9 effectively and efficiently produce this reservoir?

10 A. Yes, that's true.

11 Q. The current pool rules provide for a single
12 gas well on a 640-acre tract?

13 A. That's correct.

14 Q. And well locations to be standard are 1650
15 from the outer boundaries of the section?

16 A. That's correct.

17 Q. In your search for information, did you find
18 any information approving this Ute Number 8 for its
19 location, where it is now?

20 A. I might not be the best qualified to answer
21 that question.

22 Q. Okay, all right.

23 A. That might be better answered by Mr. Beers.

24 Q. It is at an unorthodox location?

25 A. Yes, it is.

1 Q. And your proposal is to re-enter that well
2 and to horizontally drill it in a northwesterly
3 direction?

4 A. That is correct.

5 Q. Describe for us why you have chosen this
6 wellbore at this location in the pool to test the
7 horizontal concept.

8 A. If I could refer to an exhibit -- the first
9 exhibit under Exhibit G, we have a net pay isopach map
10 of the Upper Ismay interval. And you can see that the
11 Ute 8, which is in Section 15, is located on the very
12 edge of the interpreted Ismay stratigraphic buildup.

13 And consequently, when we went in and
14 recompleted it from the existing perforations of a
15 deeper horizon, it did not perform very well, and we
16 have a marginal producer at best in the vertical
17 section.

18 Q. Why have you chosen this particular
19 orientation of the lateral?

20 A. We've chosen the direction because we have an
21 existing producing well, the Ute 4, to the direct
22 north, which is in Section 10. And based on the
23 spacing of the Ute 4, we would be drilling directly
24 into the effectively drained area of the 4 if we went
25 specifically due north and stayed within the Section

1 15.

2 We also felt that in going to the northwest,
3 we would have an ability to optimize the drilling into
4 the thickest part of the reservoir buildup and maximize
5 the chances of having a successful economic venture.

6 Q. In order to execute this plan, you are
7 seeking a drilling window which consists of an area
8 within two sections?

9 A. That's correct.

10 Q. And that drilling window would allow you to
11 produce in this reservoir, so long as you were no
12 closer than 1650 from the south, east, and west lines
13 of the two-section unit, and 990 from the north
14 boundary?

15 A. That is correct.

16 Q. Okay. When we look at this section in 15,
17 the Ute 8 is the only well, and that's to be the re-
18 entry for the project

19 A. Yes, that's right.

20 Q. If you look into the next section, 16, is
21 there a producing well in the pool?

22 A. There is, and it's the Ute 12 in the
23 northwest of Section 16.

24 Q. When we look at your type log, in what
25 particular part of the reservoir is the Ute 12

1 producing?

2 A. The Ute 12 is currently producing from the
3 Lower Barker Creek interval within the Paradox
4 formation, separate and distinct from the Upper Ismay,
5 which we're proposing to drill through.

6 Q. The approval of the horizontal well, then, is
7 to test the Upper Ismay, and would be a productive
8 interval separate and apart from the interval currently
9 producing in the Number 12 well?

10 A. That is correct.

11 Q. Would you seek the approval of the Division,
12 then, to continue to produce the Number 12 well,
13 although it is on the same spacing unit as the project
14 well?

15 A. We would like to do that, yes, sir.

16 Q. Okay. Let's turn now, sir, to the display
17 behind Exhibit G. You've described the first one, the
18 isopach. Let's look at the next one. There's a cross-
19 section?

20 A. Yes, the second exhibit under G is a
21 stratigraphic cross-section which runs from a newly
22 drilled or recently drilled well within the field of
23 the Ute 16, towards the Southwest, down to the subject
24 well we'd like to re-enter and sidetrack, the Ute 8.

25 The orientation of this cross-section is

1 included on the net-pay isopach map, the previous
2 exhibit, and it's colored green so you can see the
3 orientation of it.

4 And this cross-section was included to
5 indicate the stratigraphic complexity of the Upper
6 Ismay reservoir. These are composite logs showing SP
7 deflection. These are wireline -- open-hole wireline
8 logs. The SP log indicates permeability.

9 There's a resistivity log which -- And these
10 are fairly old logs on the Ute 8 and the Ute 4. And
11 then there is microlog on the very far right, which
12 should also help indicate where the permeability within
13 the reservoir is.

14 And as you can see, there are vertical
15 changes in the high-perm streaks within the reservoir
16 between the 8 and the 4 with the microlog response
17 being on the top of the upper Ismay built up in the Ute
18 8 and in the lower part of the Ismay built up on the
19 Ute 4.

20 We've seen from analogies with other fields
21 that have been cored and studied in detail that there
22 is tremendous changes in vertical and lateral
23 permeability and porosity within these stratigraphic
24 traps.

25 Q. Let's turn to Exhibit H, have you identify

1 and describe that display.

2 A. Exhibit H is a structure map centering around
3 the subject well, the Ute 8. It is mapped on a
4 shallower cretaceous horizon, the top of the Graneros,
5 and it shows the structure that we will have to deal
6 with in drilling the sidetrack out to the northwest.

7 The contour interval is 10 feet, and it shows
8 that we will have to drop approximately 35 feet
9 structurally to stay within the major zone.

10 Q. Let's go back, now, and look at the
11 information to give us a regional idea of where the
12 Barker Creek dome is in relation to --

13 A. That's Exhibit E.

14 Q. I was trying to find -- Exhibit E. Let's
15 look at that to give us a regional perspective of where
16 this particular pool is located.

17 A. Okay, the first exhibit under Exhibit E is
18 just a regional structure map of northwestern New
19 Mexico, and it locates the Barker Creek Dome feature
20 along the hogback on the northwestern side of the San
21 Juan Basin up on the Four Corners platform.

22 Q. Have you more specifically identified the
23 Barker Creek Dome with the next display?

24 A. Yes, I have.

25 Q. Describe that for us.

1 A. This is a more detailed structure map showing
2 the doubly plunging anticlinal structure of the field.
3 The structural datum is the top of the Desert Creek,
4 which is one of the prospective pays in the field on
5 the type log.

6 Q. Okay. Summarize for us your conclusions, Mr.
7 Hornbeck, about this project.

8 A. Well, we'd really like to do two things with
9 this pilot project.

10 The first is to take a marginal edge well on
11 an Ismay buildup at Barker Creek and hopefully direct a
12 sidetrack oriented towards the thicker buildup in which
13 we can make a marginally commercial well at the present
14 time, a better producer, better commercial venture.

15 And in addition, we'd like to gain some
16 information on the horizontal sidetrack or horizontal
17 drilling in general within this reservoir to see if it
18 has a solid economic foundation. And if so, we'd
19 propose to come back and create some kind of spacing or
20 rules that would allow us to develop the fields and the
21 three prospective zones with horizontal drilling.

22 MR. KELLAHIN: That concludes my examination
23 of Mr. Hornbeck.

24 We would move the introduction of Exhibits E
25 through H.

1 EXAMINER CATANACH: Exhibits E through H will
2 be admitted as evidence.

3 EXAMINATION

4 BY EXAMINER CATANACH:

5 Q. Mr. Hornbeck, the Ute Number 4 has been
6 completed in the Upper Ismay?

7 A. That is correct.

8 Q. And it's a pretty good producer?

9 A. It's commercial. It has about twice as much
10 pay, as can be seen from the net pay isopach, and
11 consequently, it is producing at commercial rates right
12 now.

13 Q. Do you know what that might be?

14 A. Yes, I do. It's about 1.6 million a day
15 right now. So...

16 By contrast, the Ute 8 is only limping along
17 at about 200 MCF a day, and they've both had very
18 similar completions, and it's just poorer quality
19 reservoir, on the edge of the buildup.

20 Q. That's the Number 8, you said?

21 A. Yes, that's correct.

22 Q. Is there something about the Ismay formation
23 that lends itself to horizontal-type drilling? Is it
24 fractured, or what's the --

25 A. Well, it probably is to some degree

1 fractured, but I think the primary mechanism that lends
2 itself to horizontal drilling would be the
3 compartmentalization we're seeing. Many limited
4 reservoirs within the mound that -- One single vertical
5 wellbore just won't effectively drain a drill block.

6 And we propose with drilling the sidetrack
7 horizontal to connect up numerous compartments and much
8 more effectively drain a single drill block.

9 Q. Is the potential for Ismay development within
10 the entire pool?

11 A. Yes, yes.

12 Q. Is there no potential below the Upper Ismay,
13 in the Lower Ismay or anyplace else?

14 A. Let me just say that the three pays have been
15 mapped across the structure. There is potential in all
16 three zones.

17 We see application of this technology, if
18 it's successful, for numerous projects on the feature.

19 There is -- We don't perceive there to be as
20 much opportunity in this wellbore in the lower Ismay
21 and Desert Creek.

22 But this is something we might find out. We
23 might find that we can take the horizontal technology
24 into a very poor-looking piece of these reservoirs,
25 such as you see in the 8, in the Lower Ismay, where

1 there's just a very slight indication of commercial
2 reservoir, and perhaps with horizontal technology we
3 could effectively develop even that part of the
4 reservoir.

5 Now, that's a different log. That's not the
6 8. I mean, so there is buildup in the Lower Ismay in
7 this Ute 16, and the Upper Ismay. So they are --
8 Stratigraphically, those three accumulations do occur
9 across the structure.

10 Q. Is there a potential for horizontal drilling
11 in the Barker Creek?

12 A. There could be. Again, we'd like to test the
13 opportunity -- the technology, and with the thought
14 that possibly we would try it down in the lower zone
15 also. We'd like to see if we mechanically can do it,
16 and this would be the way to try.

17 EXAMINER CATANACH: Okay, I have nothing
18 else.

19 EXAMINATION

20 BY MR. STOVALL:

21 Q. Okay, I just have -- Mr. Hornbeck, just so I
22 briefly understand the structure here, looking at
23 Exhibit E, your first structure map, the Greenhorn --

24 A. Yes.

25 Q. -- am correct in interpreting that, that what

1 you've got is coming from northeast to southwest, is
2 it's coming out of the basin, it's a rising structure
3 on the Greenhorn, the greater contour lines there?

4 A. Are you looking at the regional?

5 Q. The regional map, yes, the first page behind
6 that.

7 A. What you're seeing is -- Yes, that whole area
8 to the northwest of the northeast-southwest-trending
9 structure contours, which is actually the hogback
10 monocline, to the northwest of that is the Four Corners
11 platform.

12 And on that, the rocks such as the Dakota,
13 which are at depths as great as 9000 feet in the
14 central part of the San Juan Basin, are only 1000 or
15 2000 feet.

16 So it's a big, high structural terrace,
17 essentially, a large regional feature.

18 Q. And that's where the dome sits, out --

19 A. That is correct.

20 Q. Okay.

21 A. It's outside the San Juan Basin proper.

22 MR. STOVALL: Got you. That's all I wanted
23 to know.

24 MR. KELLAHIN: I'd like to recall Scott Daves
25 in this case and have the record reflect that he has

1 already qualified as an expert petroleum engineer and
2 continues to testify in that capacity in this case.

3 EXAMINER CATANACH: The record shall so
4 reflect.

5 SCOTT B. DAVES,
6 the witness herein, having been previously duly sworn
7 upon his oath, was examined and testified as follows:

8 DIRECT EXAMINATION

9 BY MR. KELLAHIN:

10 Q. Mr. Daves, let's talk about the reservoir
11 engineering aspects of this particular project for this
12 pool.

13 Mr. Hornbeck has given us a geologic view of
14 what he views the opportunity is for Meridian.

15 Give us your summary of what you see as a
16 reservoir engineer.

17 A. Primarily two things that I see are -- There
18 are two reservoirs there. There is the Lower Barker
19 Creek reservoir, which currently is in a pressure area.
20 The reservoir pressure is approximately 650 p.s.i., and
21 it makes a gas that has about 15 percent CO₂ and 1 to
22 1.5 H₂S, very distinct gas.

23 When you look at the upper zones, the Ismay
24 and the Desert Creek, you see an entirely different gas
25 at approximately 3500 pounds of reservoir pressure.

1 The gas that you see in the upper zones has
2 little or no CO₂, less than one percent, approximately
3 .05 percent H₂S. So it's a completely distinct gas, a
4 completely distinct reservoir from a pressure gas
5 standpoint.

6 The Lower Barker Creek makes water. These
7 upper zones in the tests that we've done, almost no
8 water at all to speak of.

9 Q. When you look at the opportunity for a
10 horizontal well, why has Meridian selected the Ute 8
11 well?

12 A. Initially, when we plugged back the lower
13 zones and came up, we tested Desert Creek, the Lower
14 Ismay and the Upper Ismay, and we had what we thought
15 initially was a significant show in the Upper Ismay.
16 It tested at over 3 million a day when we brought it
17 on. It displayed a very hyperbolic decline. It
18 declined extremely rapidly, down into the neighborhood
19 of about 200 MCF a day.

20 We produced the well for a set period of
21 time, and then we shut the well in and did a fairly
22 extensive buildup test.

23 When we did the buildup test, what we did is,
24 we combined what geology we knew with what the pressure
25 data was showing us.

1 And what we identified was a very limited
2 reservoir. In fact, we were able to, within a certain
3 amount of reason, identify the dimensions of what we
4 saw, and that confirmed our inclinations that what we
5 had was a compartmentalized reservoir.

6 Q. When you look at the existing well spacing
7 for the wells that are already producing, why have you
8 chosen to orient the direction of this lateral as you
9 have to the north and west?

10 A. Primarily to honor the geology that we see,
11 that -- We initially thought that we would pursue it in
12 a northerly direction, but as we began to identify that
13 the Ute 4 was a producing well, we did not want to
14 compete with the reserves that we could see that it
15 could drain.

16 So we felt like if we veered off in the
17 direction that we did, we would reach out into
18 completely different reservoir -- or not completely
19 different reservoir, but new reservoir, and be able to
20 drain those reserves, and which we would probably not
21 do any other way.

22 Q. Have you approximated the location of this
23 lateral so that you would not be competing for reserves
24 that would be produced from either the Number 12 well
25 or the Number 4 well, which is up in Section 10?

1 A. Right, right. That was the primary reason
2 for the direction.

3 Q. Have you any estimates or opinions concerning
4 the current drainage areas being effectively depleted
5 by either the Number 12 well or the Number 4 well?

6 A. Well, there again, the Number 12 is an
7 entirely separate reservoir operating in different
8 conditions than is the 4.

9 But yeah, with the 4 we feel like if we move
10 out of what we would estimate as a primary drainage
11 area, that we should be able to reach reserves that we
12 will not reach in any other way.

13 Q. Can you estimate in terms of acreage or in
14 distances an approximation for the drainage pattern for
15 the Number 4 well?

16 A. It's probably unrealistic to estimate it
17 right now in the sense that the well's only been on for
18 six months.

19 We're seeing a similar behavior that we saw
20 in the 8, and after we've produced it for six months
21 we're going to analyze it identically to how we did the
22 8, to be able to identify all that.

23 Q. Do you see any problems that are created if
24 we go ahead and approve this two-section project area
25 for the horizontal well and continue to produce the

1 Number 12 well in its portion of that same spacing
2 unit?

3 A. No.

4 Q. Producing out of different portions of the
5 reservoir?

6 A. Right, right.

7 Q. And would this information then give you the
8 opportunity as a reservoir engineer to evaluate not
9 only horizontal technology but what should be an
10 appropriate set of rules and procedures to effectively
11 and efficiently maximize recovery from the pool?

12 A. Exactly.

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

15 EXAMINATION

16 BY EXAMINER CATANACH:

17 Q. Mr. Daves, have you looked at actually the
18 drainage characteristics of the Barker Creek interval?

19 A. Uh-huh.

20 Q. And is it your opinion that that's --
21 generally, wells drain only 320 acres?

22 A. They're spaced on 640 acres, and that's a
23 good drainage pattern for those wells.

24 Q. You've got no evidence at the current time
25 about the Ismay zone?

1 A. Only that what evidence we do have shows that
2 there is -- in the case of 8 in particular, that there
3 is a high degree of something limiting your drainage
4 area.

5 EXAMINER CATANACH: I don't have anything
6 else, Mr. Kellahin.

7 MR. KELLAHIN: Call at this time Mr. Eric
8 Bauer.

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

12 DIRECT EXAMINATION

13 BY MR. KELLAHIN:

14 Q. Would you please state your name and
15 occupation?

16 A. My name is Eric Bauer. I'm a drilling
17 engineer for Meridian Oil in Farmington, New Mexico.

18 Q. On prior occasions, Mr. Bauer, have you
19 testified as a drilling engineer before the Division?

20 A. Yes, I have.

21 Q. And pursuant to your employment, have you
22 participated in the drilling program for this
23 particular project?

24 A. Yes, I have.

25 MR. KELLAHIN: We tender Mr. Bauer as an

1 expert drilling engineer.

2 EXAMINER CATANACH: Mr. Bauer is so
3 qualified.

4 Q. (By Mr. Kellahin) Let me have you take --
5 There's a large copy of the display up on the wall, but
6 there are similar copies of that same display contained
7 in the exhibit book. If you'll look at Exhibit C, move
8 past the first exhibit and open up, then, the colored
9 display.

10 Let me have you take us through the plan for
11 the drilling of the well, starting with how you propose
12 to re-enter the existing well, and give us a summary
13 how Meridian is going to accomplish the drilling
14 portion of the project.

15 A. Okay. First of all, Mr. Examiner, we're
16 going to set a cast iron bridge plug below our kickoff
17 point.

18 Then we're going to set a cement kickoff
19 plug, very densified cement, and mill a section of 60
20 foot, and then ream that section out to a 12-inch
21 diameter.

22 Then we're going to add some more cement
23 another cement plug, actually the same slurry, a
24 kickoff plug, and we will go in with a building
25 assembly and build at 17 degrees per 100 foot, which is

1 illustrated on this Exhibit C, this spread-out one and
2 the one you have right in front of you.

3 We will continue at that build rate, that
4 planned build rate, to 80 degrees. And at that point,
5 at 80 degrees, we will trip back out of the hole and go
6 in with a smaller building assembly, a steerable
7 assembly, and set that at five degrees per 100 foot.
8 And that will allow us to fine-tune our inclination and
9 azimuth and put the wellbore directly where we want it.

10 We can -- With that five-degree-per-one-
11 hundred-foot tool, we can get a maximum of eight
12 degrees build if we set it that high, or we can go to
13 zero-degree build.

14 Q. Once you've drilled to the maximum length of
15 the lateral, to that end point, what then do you do to
16 the well in order to complete it for production?

17 A. Okay, we're going to go ahead and stimulate
18 the well with acid, and then we will run a 4-1/2
19 plugged and perf'd liner and hang that in the existing
20 7-1/2 inch above our kickoff point, in the vertical
21 portion.

22 Q. Let's go back, now, to the plan views, which
23 is shown behind Exhibit Tab B, and let's look at the
24 dimensions for the proposed drilling window, starting
25 with the Ute 8, and give us the estimate, then, of the

1 maximum distance that you will need for the drilling
2 window when we approach the northwest corner of the
3 spacing unit.

4 A. Okay, we plan to use an azimuth of 330
5 degrees, and you'll see a 30-60-90 triangle on this
6 page, under Exhibit B. The reason we chose that, once
7 again, was to go for the thickest part of the sequence.

8 And we plan to -- Using those build rates I
9 described earlier, the 17-degrees-per-100-foot to 80
10 degrees and the five degrees for that soft landing till
11 we hit the 89-degree point, we calculated out that it
12 would be 2932-foot vertical section from the Ute 8
13 wellbore to a point in Section 16 where we are at
14 exactly 990 feet from the north of that section, the
15 north section line.

16 Q. Would a nonstandard spacing unit consisting
17 of all of Sections 15 and 16, with a drilling producing
18 window setback, so that you could produce within that
19 spacing unit, so long as you were no closer than 990 to
20 the north boundary or 1650 from the other three
21 dimensions, provide Meridian as the operator the
22 appropriate flexibility to execute this plan?

23 A. Yes.

24 MR. KELLAHIN: That concludes my examination
25 of Mr. Bauer.

1 We move the introduction of Exhibits B and C.

2 EXAMINER CATANACH: Exhibits B and C will be
3 admitted as evidence.

4 EXAMINER CATANACH: I guess the only thing I
5 would ask is that if you guys could provide me a detail
6 of the drilling procedures as were explained on the
7 record by the witness --

8 MR. KELLAHIN: Okay, sure, be happy to.

9 EXAMINER CATANACH: And I think that's all I
10 have.

11 MR. KELLAHIN: All right. The last Exhibit,
12 then, Mr. Examiner, is Exhibit I, which is the
13 certificate of mailing, went to the BIA and to the Ute
14 Mountain Ute Tribe.

15 We do have the active support of the tribe
16 for the execution of this project, and they've
17 encouraged us to go forward.

18 With the introduction of that exhibit, that
19 completes our presentation.

20 EXAMINER CATANACH: Exhibit I will be
21 admitted as evidence, and there being nothing further
22 in this case --

23 MR. FOUST: I've got a request, David, for
24 Meridian -- I guess they don't have an extra copy -- to
25 provide a copy of the exhibits to Ernie.

