

NEW MEXICO OIL CONSERVATION DIVISION

STATE LAND OFFICE BUILDING

STATE OF NEW MEXICO

CASE NOS. 10754 and 10745 (Consolidated)

IN THE MATTER OF:

(10754) The Application of Meridian Oil, Inc.,
for an Unorthodox Gas Well Location,
Non-Standard Gas Proration Units,
and Downhole Commingling, Rio Arriba
County, New Mexico.

(10745) Application of Meridian Oil, Inc.,
for an Unorthodox Gas Well Location
and Downhole Commingling, Rio Arriba
County, New Mexico.

BEFORE:

MICHAEL E. STOGNER

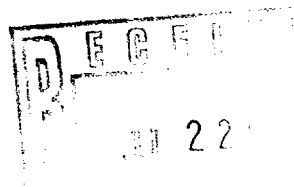
Hearing Examiner

State Land Office Building

Thursday, July 1, 1993

REPORTED BY:

CARLA DIANE RODRIGUEZ
Certified Court Reporter
for the State of New Mexico



COPY

A P P E A R A N C E S

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1 EXAMINER STOGNER: Hearing will come to
2 Order. Call next case, No. 10754.

3 MR. STOVALL: Application of Meridian,
4 Oil, Inc., for an unorthodox gas well location,
5 nonstandard gas proration units and downhole
6 commingling, Rio Arriba County, New Mexico.

7 EXAMINER STOGNER: Call for
8 appearances.

9 MR. KELLAHIN: Mr. Examiner, I'm Tom
10 Kellahin of the Santa Fe law firm of Kellahin and
11 Kellahin, appearing on behalf of the Applicant,
12 and I have three witnesses to be sworn.

13 EXAMINER STOGNER: Any other
14 appearances? There being none, will the
15 witnesses please stand to be sworn.

16 [And the witnesses were duly sworn.]

17 MR. KELLAHIN: Mr. Examiner, we would
18 like to try to consolidate the case you just
19 called with the next case, 10745. The wells are
20 within a mile of each other, I believe. They
21 involve the same formations to be commingled.
22 They're PC and Fruitland in each case, and we
23 would like to expedite the presentation, if
24 possible, by consolidating the two cases for
25 hearing purposes.

1 EXAMINER STOGNER: With that, we'll
2 call next case, No. 10745.

3 MR. STOVALL: Application of Meridian
4 Oil, Inc., for an unorthodox gas well location
5 and downhole commingling, Rio Arriba County, New
6 Mexico.

7 EXAMINER STOGNER: Other than Meridian,
8 are there any appearances in this matter? Cases
9 10754 and 10745 will be consolidated for purposes
10 of testimony. And with that, we'll proceed.

11 Mr. Kellahin?

12 MR. KELLAHIN: Mr. Examiner, we would
13 request that you take administrative notice of
14 the case Meridian presented to you on the June
15 3rd docket, Case 10735. It was for the Huerfano
16 Unit 549 well. The testimony that we're
17 presenting today is substantially consistent with
18 the testimony then.

19 The areas of concern in the June
20 hearing were the allocation formula, how it was
21 constructed, and then economic justifications.

22 The documents we're submitting to you
23 today to support this case are consistent with
24 the prior case that you have pending for your
25 decision.

1 EXAMINER STOGNER: Administrative
2 notice will be taken of Case 10735.

3 MR. KELLAHIN: We would like to, simply
4 because that's the way we reviewed them, start
5 with the Valdez cases first. It's 745. And then
6 we'll go into the unit case, which is 754.

7 At this time I would like to call Mr.
8 Alan Alexander.

9 ALAN ALEXANDER

10 Having been first duly sworn upon his oath, was
11 examined and testified as follows:

12 EXAMINATION

13 BY MR. KELLAHIN:

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

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

20 Q. On prior occasions have you testified
21 before the Division and had your qualifications
22 as an expert petroleum landman accepted and made
23 a matter of the record by the Division?

24 A. I have.

25 Q. Pursuant to your employment in that

1 capacity, have you made a study of the land title
2 information with regards to both of these cases?

3 A. I have.

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

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

8 Q. Mr. Alexander, before we look at the
9 exhibit book for the Valdez #5 well, while it's
10 not marked as an exhibit, we've attached to the
11 hearing room wall a locator plat. Would you
12 identify that plat for us and indicate to the
13 Examiner the general location of the two wells
14 that we're describing today?

15 A. Yes. The plat is a summary of
16 Meridian's plans for 1993 to drill and complete
17 or recomplete, through the commingling process,
18 several wells in the basin. They're indicated on
19 that map. Each type of well is indicated by a
20 different symbol.

21 If you'll note, we've marked this
22 morning on that map the two proposed locations
23 with red arrows. They're located in 28 North, 4
24 West, of the San Juan Basin.

25 Q. For each of these cases, what does

1 Meridian propose to accomplish?

2 A. We propose to the Division that we
3 develop these two locations by using the method
4 of commingling both the Fruitland Coal and the
5 Pictured Cliffs formation. We feel that's the
6 only economically viable method of recovering the
7 reserves for both of these formations.

8 Q. Let's start with the Valdez #5, which
9 is the case book and exhibits for Case No.
10 10745. Tell us how the book is organized.

11 A. We have organized several displays and
12 exhibits for the Division, which we hope
13 illustrates our contention that, in fact, the
14 only viable way to develop the reservoir in this
15 area of the basin, both the Pictured Cliffs and
16 the Fruitland Coal, is the commingling.

17 We have provided, in each exhibit book,
18 basically the same types of exhibits. You'll
19 note behind Exhibit 1 that we have included a
20 copy of our application to the Division
21 requesting authority to commingle the two
22 reservoirs.

23 Behind Exhibit No. 2 we have provided
24 an offset owner/operator plat for those parties
25 that we have notified in each of the cases this

1 morning.

2 We've also included, behind Exhibit No.
3 3, a nine-section plat showing the lands and
4 wells in question, along with a topographic plat
5 for each well.

6 Behind Exhibit No. 4, we have provided
7 a trend map for the Pictured Cliffs development
8 in the area in question.

9 Behind Exhibit No. 5 you will find net
10 isopach, sandstone isopach maps for the Upper
11 Pictured Cliffs portion of the reservoir and the
12 Fruitland Coal formation.

13 Behind Exhibit No. 6 we have included a
14 structure map, to illustrate and depict the
15 structure in this area.

16 Behind Exhibit No. 7 we are including a
17 typical well log for the wells, the Pictured
18 Cliffs wells in this area.

19 And behind Exhibit No. 8, we will
20 present to you the allocation formula that we
21 propose to use for each of the subject wells.

22 Q. In addition, Exhibit 8 also includes
23 the economic illustrations of the decisions made
24 by Meridian with regards to choices between
25 downhole commingling, dual completion, and

1 stand-alone, single completion?

2 A. Yes, that's correct.

3 Q. Let's look at the Valdez #5 well,
4 specifically. In addition to the downhole
5 commingling approval that you're seeking, is
6 there any other remedy or solution you need in
7 order to drill this well?

8 A. Yes. The Fruitland Coal formation,
9 under the proposed wellbore you'll note, if you
10 look behind Exhibit No. 3, is located in the
11 northwest quarter of Section 16 of 28 North and 4
12 West, Rio Arriba County, New Mexico. That would
13 be an off-pattern location for the Fruitland Coal
14 formation.

15 Q. What's the basis for having it drilled
16 in the off-pattern quarter section?

17 A. The basis for that is, we had to
18 consider both reservoirs in order to economically
19 have a viable project. You'll note on that plat
20 that there is a Pictured Cliffs well already
21 located in the northeast quarter, and, as our
22 expert witnesses will testify later on, we could
23 not recomplete the coal in that well. And we
24 also would like to complete the reserved for the
25 Pictured Cliffs formation, so that left us with a

1 location in the northwest quarter to attempt this
2 operation.

3 Q. Let's deal specifically with the issues
4 of your expertise, and if you'll turn behind
5 Exhibit Tab No. 2, identify for us the well
6 location and how you have made your search to
7 determine who the offset operators are?

8 A. If you will note on the exhibits behind
9 Exhibit No. 2, we have included an offset
10 operator and owner plat for the Valdez #5 well,
11 which is located 1850 feet from the north line
12 and 1820 feet from the west line.

13 We've included two plats; one plat will
14 illustrate the Pictured Cliffs formation and the
15 following plat illustrates the Fruitland Coal
16 formation. Each plat depicts, numerically, the
17 offset owners and operators that would be
18 impacted or involved in this case. Those are the
19 parties we've notified in this case.

20 We have also notified the royalty and
21 the overriding royalty owners in this drill
22 block. However, the ownership in this drill
23 block is common between both reservoirs.

24 Q. So, the only purpose for the
25 notification would be to provide notice to those

1 operators offsetting the coal gas spacing unit as
2 to the off-pattern nature of that well?

3 A. That is correct.

4 MR. KELLAHIN: Mr. Examiner, I have
5 marked as Exhibit No. 9 our certificate of
6 mailing to all those parties shown within the
7 tabulation of information behind Exhibit Tab No.
8 2.

9 Q. All right. Let's turn now, if you
10 will, to Exhibit No. 3, and have you identify and
11 describe that display.

12 A. Exhibit No. 3 is a nine-section land
13 plat that shows the proposed spacing units for
14 each of the reservoirs, the Pictured Cliffs
15 reservoir being developed on 160 acres, and the
16 Fruitland Coal reservoir being developed on 320
17 acres.

18 The Fruitland Coal is the north half of
19 the section and, as I mentioned, the Pictured
20 Cliffs is the northwest quarter of this section.

21 This plat also shows the existing wells
22 in the area, and there is a legend at the bottom
23 of the map that shows the type of well or the
24 formation that well was completed in.

25 Q. What's the purpose of the topographic

1 display that's shown on the next exhibit behind
2 the one you've just described?

3 A. We've included a topographic display
4 for this well because it is located a little to
5 the south, in the northwest quarter, and there
6 are topographic reasons for doing that.

7 If you will look at that plat, you'll
8 notice there's a pipeline that runs immediately
9 to the north of the proposed location. In that
10 same area as the proposed location, you'll note a
11 heavy black contour line immediately north. That
12 is a stand of fairly prime timber. This location
13 is located in the Carson National Forest. They
14 did not want us into that timber area, and so we
15 moved south to avoid that timber area and the
16 pipeline, and that's the reason the well is
17 located where we've proposed it.

18 Q. Let's turn now, Mr. Alexander to the
19 next exhibit book, if you will, for Case 754, and
20 this is the one for the San Juan 28-4 Unit #225
21 well.

22 If you'll turn to Exhibit No. 3, let's
23 use that map to have you illustrate for us the
24 specific provisions of the relief you're seeking
25 from the Division. You're asking for an

1 unorthodox gas well location, nonstandard gas
2 proration units, and downhole commingling
3 approval?

4 A. Yes, sir, that's correct. Behind
5 Exhibit No. 3, we again have a nine-section land
6 plat. The section that we're dealing with this
7 morning is section 28 North, 4 West, for the San
8 Juan 28-4 Unit #225 well.

9 You'll notice that that is an irregular
10 governmental section. It's a short section. It
11 only contains 229.88 acres. Therefore, we have
12 chosen and proposed the remedy that was initially
13 established when the 21 Mesaverde well was
14 drilled. You'll see that well symbol in what is
15 the southwest quarter of Section 7.

16 The spacing for that well was
17 established back in the late 50s and early 60s by
18 an administrative decision of the Aztec office of
19 the NMOCD. We were not able to locate an NSL
20 order on it, and we had the people at Aztec look
21 through their records, and we have also checked
22 the records here in Santa Fe. It appears that
23 the wells in this area were developed separately,
24 that the spacing units were developed for each of
25 these old completions separately, but we think

1 it's a reasonable solution and we would like to
2 follow the Mesaverde solution in this area.

3 Q. The downhole commingling covers what
4 pools?

5 A. The downhole commingling covers the
6 Pictured Cliffs formation and the Fruitland Coal
7 formation.

8 Q. In what way is the well an unorthodox
9 gas well location?

10 A. It's unorthodox because it would be on
11 pattern in that what is left of the section is
12 basically the south half of this section, and it
13 would be located in the southwest quarter.

14 However, because of topographic reasons
15 which we'll explore in just a minute, it's
16 located a little bit too far to the south. The
17 location that we have currently staked is 695
18 feet from the south line and 1375 feet from the
19 west line.

20 The other reasons that it is a
21 nonstandard proration unit is that the Mesaverde
22 solution was to include all of the acreage in
23 what is left in Section 7, as opposed to a
24 governmental half-section as the Basin Fruitland
25 Coal order provides for.

1 Also, the Pictured Cliffs formation is
2 in what is left of the south half of the section,
3 the southwest quarter, and that's slightly
4 irregular for the Pictured Cliffs formation,
5 also.

6 Q. Do you have the specific acreage for
7 each of the pools within the section for purposes
8 of allocation?

9 A. Yes. We would like to allocate to the
10 Fruitland Coal, as I previously indicated, all of
11 Section 7, and that contains 229.88 acres.

12 We would like to allocate, to the
13 Pictured Cliffs formation, 114.60 acres, and the
14 acreage that would be included in that number of
15 acres is Lots 3, 4 and 5 in the southeast quarter
16 of the southwest quarter of Section 7.

17 Q. That acreage and those descriptions are
18 contained within the application which is shown
19 within the package of documents under Exhibit No.
20 1?

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

22 Q. Let's turn now to the topo map which is
23 the next display behind Exhibit No. 3 and have
24 you identify and describe that.

25 A. The topographic plat that we have

1 included behind the nine-section plat illustrates
2 the current well location through the red dot.
3 You'll notice there's a smaller black dot
4 immediately to the north of that location.
5 That's the location for the existing San Juan
6 28-4 Unit #21 Mesaverde well.

7 Again, we are in the Carson National
8 Forest and we have worked with that group to
9 develop this location.

10 You'll note that immediately to the
11 north of this location and the older #21 well,
12 there is a road that heads basically southwest,
13 across the southwest quarter of Section 7. Along
14 with that road, there is a pipeline that services
15 the #21 well.

16 You'll also note there's a heavy
17 contour line immediately to the north of the
18 location that forms a ridge. It's actually the
19 contour line that is marked 7400 feet. That is a
20 ridge, and there are many archaeological sites
21 all along that contour line and on top of that
22 ridge. They did not want us to build in that
23 area for that reason, along with, the forest is
24 in that area. They asked us to build as close as
25 we could to the existing No. 21 well. That's the

1 reason that the location is spotted where it is.

2 Q. As to both the Valdez 5 and this Unit
3 Well 225, is the ownership common within the
4 spacing unit for each of the pools to be
5 commingled?

6 A. It is.

7 Q. When we look back at Exhibit No. 2,
8 identify and describe for us your tabulation of
9 the offset operators.

10 A. On Exhibit No. 2, you'll note that we
11 have tabulated the offset owners and operators
12 numerically, in the rectangular boxes, and each
13 of those parties is represented below the plat,
14 numerically.

15 Basically that consists of just
16 Meridian, Phillips Petroleum Company and Richmond
17 Petroleum Company. Those are the parties that we
18 did notify. We have attached a certificate of
19 mailing showing that we did, in fact, notify
20 those parties, and I've attached copies of the
21 certified return receipt notices that were sent
22 out to each of those parties.

23 Q. As to both cases, has Meridian received
24 any objection from any of the parties notified?

25 A. No, sir, we have not.

1 MR. KELLAHIN: That concludes my
2 examination of Mr. Alexander. I would move the
3 introduction of Exhibits 1 through 3 in each of
4 the exhibit books.

5 EXAMINER STOGNER: Exhibits 1 through
6 3, in both cases, will be admitted at this
7 point.

8 EXAMINATION

9 BY EXAMINER STOGNER:

10 Q. Referring to 754, and looking at the
11 map in Exhibit 3, I'm to assume that this is
12 within the Carson National Forest area?

13 A. Yes, sir, that is correct.

14 Q. That really wasn't clear. I didn't
15 know whether the east side was or the west side.

16 Now, is this proposed location on the
17 existing well pad, or is there much of a well pad
18 out there for that old #21 well?

19 A. It utilizes a portion of the southern
20 part of the old 21 well. The old 21 is still a
21 producing well, but we did utilize as much as we
22 could of the existing well pad.

23 Q. Has this well location been approved,
24 or what is the status of the APD with the Forest
25 Service and the BLM at this time?

1 A. We have submitted the APD, and we're
2 currently waiting on the approval of the Forest
3 Service and the BLM with respect to, this is in
4 the spotted owl habitat, and it has been hooted,
5 and it will be cleared. We have been advised
6 that they've found no spotted owls in this area.

7 It is also within a habitat that has
8 recently been established, it's not an endangered
9 species, but the Forest Service is currently
10 doing surveys for the goshawk in this area. They
11 will do that survey next week. That survey, even
12 if they do find that species in the area, will
13 not prohibit us from drilling the well. They'll
14 simply note on the APD that we cannot drill the
15 well during the incubation and hatching period of
16 the young hawks. And we should be clear to drill
17 that around September the 1st, if, in fact, they
18 find the species in this area.

19 MR. STOVALL: Are there any sparrows up
20 there?

21 THE WITNESS: With spotted owls and
22 goshawks, I doubt there are any left.

23 MR. KELLAHIN: As a footnote, Mr.
24 Stovall, the goshawk apparently likes to eat the
25 spotted owl, and I don't know if we're going to

1 be responsible for that predatory event or not.

2 MR. STOVALL: Oh, gosh, Mr. Kellahin.

3 Q. You used the term, and I know I don't
4 want to go into this, "hooted." Do you want to
5 elaborate a little bit?

6 A. Yes. They actually hire a team of
7 surveyors and they, through voice manipulation,
8 can make a sound that attracts--it's a hooting
9 sound that attracts the spotted owls. They
10 actually go out in the field with white mice to
11 attract the spotted owl and if they find one, if
12 one comes to the call, they'll actually try to
13 visually track that back to a nesting site and
14 locate the nesting site.

15 They basically do the same thing with a
16 goshawk, but they're using a recorded call for
17 that event. And the goshawks, apparently, are
18 very particular to--

19 MR. STOVALL: They don't call those
20 goshers, do they?

21 THE WITNESS: Not that I'm aware of.
22 But they actually make the sounds that will
23 attract those two species, and try to call them
24 in, and then track them back to the nesting
25 site.

1 MR. STOVALL: I can see it now, the
2 contest that Meridian sponsors, the San Juan
3 Basin hooters contest.

4 Q. (BY EXAMINER STOGNER) I am going to
5 get off this subject and take note that the APD
6 is still pending the federal agency's approval?

7 A. Yes, sir.

8 MR. STOVALL: I have a question.

9 EXAMINER STOGNER: Mr. Stovall?

10 EXAMINATION

11 BY MR. STOVALL:

12 Q. Mr. Alexander, I think it was the case
13 that we've taken notice of, one of the wells was
14 actually a Southland Royalty-operated well. Is
15 that the case in either of these situations? Are
16 these both truly Meridian?

17 A. Both of these wells are Meridian Oil,
18 Inc.-operated wells.

19 Q. As I understand, those are indeed still
20 separate companies, although Meridian is the only
21 one with personnel to actually do the physical
22 operating, is that correct?

23 A. Yes, sir, you're correct.

24 EXAMINER STOGNER: Any other questions
25 of Mr. Alexander? If not, he may be excused.

1 MR. KELLAHIN: I would like to call
2 Mike Dawson. Mr. Dawson is a petroleum
3 geologist.

4 MICHAEL K. DAWSON

5 Having been first duly sworn upon his oath, was
6 examined and testified as follows:

7 EXAMINATION

8 BY MR. KELLAHIN:

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

11 A. I'm Mike Dawson, a petroleum geologist
12 with Meridian in Farmington.

13 Q. On prior occasions, Mr. Dawson, have
14 you qualified as an expert petroleum geologist
15 and testified with regards to the downhole
16 commingling of PC formation gas with Fruitland
17 Coal gas?

18 A. Yes, I have.

19 Q. And have you made such a geologic
20 investigation with regards to both of these cases
21 now before the Examiner?

22 A. Yes.

23 MR. KELLAHIN: We tender Mr. Dawson as
24 an expert petroleum geologist.

25 EXAMINER STOGNER: Mr. Dawson is so

1 qualified.

2 Q. Before we talk about the specifics of
3 the geology for each of the two cases, give us a
4 general summary, from a geologic perspective, of
5 what Meridian seeks to accomplish with this
6 application, and why, in your opinion, is it
7 necessary?

8 A. Meridian would like to further develop
9 the Pictured Cliffs in this area. It's an area
10 where the Pictured Cliffs is far from fully
11 developed and there are extentional opportunities
12 with relatively high risk, compared to other PC
13 drilling in the basin.

14 The same goes for the Fruitland Coal.
15 There are very few Fruitland completions in the
16 area of these two applications, and none of them
17 have proven to be economical.

18 Meridian would like to go ahead and
19 literally explore the Fruitland Coal some more in
20 this area and attempt to develop it.

21 Q. Why has not the Pictured Cliffs
22 formation been developed in this particular
23 area? Is there a geologic explanation to it?

24 A. Yes, sir, there is. The trends of
25 viable reservoir are very thin--not thin, but not

1 very wide, so that there's relatively high risk.
2 There are a few other extenuating circumstances.
3 It's relatively deep. The Pictured Cliffs, for
4 instance, is 4400 feet, so it's a little bit more
5 expensive to develop. I think the combination of
6 risk and expense have prevented full development
7 in this area.

8 Q. When you talk about a Pictured Cliffs
9 well that is a successful producer within this
10 area, what's the general producing rate of a well
11 that you would consider to be a success?

12 A. Around 150 Mcf per day would be a good,
13 successful PC rate. An EUR that would be
14 associated with that might be from, say, 400
15 million. And in a couple of anomalous wells, the
16 EUR might exceed a Bcf. By and large, though,
17 the estimated ultimate recovery is much less on
18 the average than 1 Bcf, throughout this area.

19 Q. In mapping this portion of the Pictured
20 Cliffs reservoir in the displays, do you find any
21 areas where it may not be typical of the
22 situation you just described so that you would
23 have, from a geologic perspective, the ability to
24 drill a well that was a stand-alone PC well?

25 A. At this point in time we can't identify

1 the reservoir quality well enough to drill a
2 stand-alone well. We're limited by the risk and
3 the uncertainty--the geologic uncertainty.

4 Q. Let's switch now to the coal gas
5 exploration. What has been the status of that
6 exploration in this area?

7 A. There have been very few tests. There
8 are probably only three tests within a mile or
9 two of the two applications. None of those wells
10 are currently producing from the coal. They're
11 noncommercial endeavors.

12 Q. Let's turn now to the specifics of the
13 geology for the Valdez well. If you'll turn with
14 me to the exhibit that commences with Exhibit 4?

15 A. Yes, sir.

16 Q. Identify and describe that display.

17 A. This is a map that I've included for
18 the purposes of providing an index or a reference
19 to show you where this project is, relative to
20 the Pictured Cliffs development.

21 All the well symbols here represent
22 Pictured Cliffs completions. In 28-4 I've
23 identified the Choza Mesa Field. To the north,
24 in 29-5, I've identified the Gobernador field.

25 The Valdez #5 will attempt to extend

1 production from the Choza Mesa field to the
2 northwest, toward the Gobernador trend.

3 Shaded in north on this map are the
4 trend of wells with cum production greater than
5 300 million. I think that production trend is
6 significant, and I've attempted to relate it to
7 the geology.

8 Q. This display, while we're on it, also
9 shows the 28-4 Unit 225 well?

10 A. Yes, sir.

11 Q. Why don't we talk about both of those
12 now in terms of this display, and show us why you
13 have proposed locating them as you do for
14 Pictured Cliffs exploration.

15 A. The Valdez #5 is an attempt to stay on
16 the production trend that I feel connects the
17 Choza Mesa and Gobernador fields. It could be
18 regarded as a developmental extension well. The
19 San Juan 28-4 Unit #225, in contrast, is not on a
20 production trend. It represents what I would
21 term an exploratory extension.

22 I have mapped a reservoir trend through
23 Section 7, 28 North, 4 West, that I feel is
24 prospective, but the oil truly is more than an
25 exploratory extension, in contrast to the Valdez

1 #5, which would represent a developmental
2 extension.

3 Q. Let's turn now to Exhibit 5. Would you
4 identify and describe the first display?

5 A. Yes, sir. This is a net sandstone
6 isopach of the Upper Pictured Cliffs formation.
7 In this area, we have an Upper Pictured Cliffs
8 and a Lower Pictured Cliffs interval, which I'll
9 show you on our type log in just a moment.

10 The Upper Pictured Cliffs trend
11 corresponds to the production trend that I had
12 shaded in orange, on the previous exhibit. It's
13 a little difficult to make a one-to-one
14 correlation between log characteristics and
15 production in this area in the Pictured Cliffs,
16 but I feel that this trend of net sandstone in
17 the Upper Pictured Cliffs interval, does explain
18 why the better wells are good wells and they are
19 commercial.

20 Q. Let's talk about the opportunity for
21 exploration in this section. First of all, why
22 is the well located between the 10- and the
23 15-foot contour lines, as opposed to locating it
24 in a thicker portion of the map, as you've shown
25 it?

1 A. For the topographic and environmental
2 reasons, that Mr. Alexander referred to, we've
3 had to limit ourselves to the south half of the
4 northwest quarter of that section. It would have
5 been slightly preferable to be nearer the axis of
6 the trend, and perhaps get 18 feet of net pay,
7 but I feel that we still have a good chance for
8 success or an acceptable chance of success at the
9 location we've chosen here.

10 Q. Why not take the Valdez No. 2, over in
11 the northeast quarter of that section, and
12 reenter that well and use it for commingling in
13 the PC and the Fruitland Coal?

14 A. That well was drilled as a sling hole,
15 and, given the very small casing size, it's
16 impossible to go in and do a pay and commingle
17 type of operation.

18 Q. Has it depleted any portion of the PC
19 reservoir underlying that portion of the spacing
20 unit? Was it productive?

21 A. Yes, sir, it was. It was marginally
22 productive, and we don't feel that there has been
23 any substantial drainage into the northwest
24 quarter.

25 Q. But you've explored the opportunity to

1 reenter that well, and it's not a viable choice?

2 A. Yes, sir.

3 Q. Let's go now to the next display behind
4 Exhibit Tab No. 5, and have you identify and
5 describe that.

6 A. This is a net coal map for the
7 Fruitland Coal. The Valdez 5 is represented by
8 the red star. We feel that we'll have upwards of
9 40 feet of net coal in the well.

10 This coal thickness, plus our estimate
11 of gas content of between 200 and 350 standard
12 cubic feet per ton, makes us believe that there
13 is a substantial amount of gas in the Fruitland
14 Coal here, and a substantial amount of
15 potential. But, at this point, it's very high
16 risk. We don't know how to predict
17 permeability. So far there have been no
18 commercial coal completions in this vicinity.

19 We would like to further test the
20 coal. We think there's a substantial resource
21 there in terms of gas in place, and we're hoping
22 to be able to complete the coal and produce a
23 significant amount of that gas.

24 Q. Turn to Exhibit 6, and identify and
25 describe the structure map.

1 A. This is a structure map, using, as our
2 datum, the base of the Fruitland Coal. It shows
3 a rather consistent southwest dip of about 60
4 feet per mile through the area. There's no
5 significant faulting, folding, or basically any
6 kind of significant deformation.

7 Q. Does structure play an essential
8 element in your selection of well locations?

9 A. No, sir. Structure is irrelevant.

10 Q. As to this well in this spacing unit?

11 A. Yes, sir.

12 Q. All right. Let's turn to the type log
13 behind Exhibit 7 and have you describe that for
14 us.

15 A. This shows the type log, and it shows
16 the Upper Pictured Cliffs unit that I referred to
17 earlier and also a Lower Pictured Cliffs unit.

18 Basically, all wells in the area will
19 have some amount of pay in the Lower Pictured
20 Cliffs, but it's much lower resistivity, much
21 finer-grained sandstone. In general, you can
22 complete it and make gas, but not in commercial
23 quantities.

24 In contrast, the Upper Pictured Cliffs
25 sandstone represents sands deposited more in a

1 beach or upper shore face environment, in
2 contrast to the lower, which is a lower shore
3 face deposition in a shore line system, but in
4 much deeper water, much finer grain size, and
5 less perspective speculative.

6 For those reasons, I feel we do see the
7 correspondence between the production trend and
8 the trend of net sand in this Upper Pictured
9 Cliffs. Lying directly on top of the Upper
10 Pictured Cliffs, with virtually no reservoir
11 boundary, is a package of coal with about 46 feet
12 net coal.

13 Q. What, if any, participation did you
14 have with the engineering group of Meridian, and
15 Mr. Shipley, in determining the reservoir
16 parameters that were used in any estimated
17 ultimate gas recovery and a calculation of
18 volumetrics to determine the gas in place for the
19 Pictured Cliffs?

20 A. I provided Mr. Shipley with calculated
21 water saturations, net thicknesses, and average
22 density porosity.

23 Q. In your opinion, were those values
24 reasonable and accurate, to the best of your
25 knowledge and information?

1 A. Yes, sir.

2 Q. Let me ask you, what's the purpose of
3 the two displays here? You've brought us two
4 samples. What are these?

5 A. Those are cores from the gas buggy
6 project that El Paso drilled many years ago. It
7 so happens that we're only about five miles to
8 the southwest of that well. They represent an
9 interesting contrast between the Upper PC
10 reservoir type and the Lower PC reservoir type.
11 One is obviously much finer grained than the
12 other. The porosities are actually similar, but
13 the permeabilities are quite dissimilar.

14 The coarser grained Upper PC sandstone,
15 in general, based on core analyses through the
16 basin, would have, say, 20 to 25 times the
17 permeability as the lower. That explains why,
18 when we look at this section, we see something
19 like a hundred feet of gross sandstone but
20 relatively little of the sandstone section is
21 effective sandstone; in other words, having
22 enough matrix permeability for commercial
23 production.

24 Q. Let's turn now, Mr. Dawson, to the
25 display book for the Unit 225 well, and it's the

1 case book 10754. If you'll turn with me now to
2 Exhibit 4, again this is the same illustration
3 that we've discussed in the other exhibit book,
4 talking about where you have selected your well
5 location based upon the Pictured Cliffs
6 development?

7 A. Yes.

8 Q. All right. Let's turn now to Exhibit
9 5. Would you identify and describe this display?

10 A. Yes, sir. Again, this is a net
11 sandstone isopach of the Upper Pictured Cliffs.
12 Notable is that there is no production along the
13 axis of this trend, yet the trend is mappable.
14 Our object here is to produce from that trend and
15 find commercial production.

16 Q. Can we use this display to help the
17 Examiner find the coal gas wells that have been
18 attempted without success in this area?

19 A. Yes, sir. Just to the northeast, there
20 have been two attempts by Schaulk Production in
21 Section 32, just to the northeast. That's
22 Section 32 of 29 North, 4 West. And, just due
23 south, about a mile, Meridian has attempted, in
24 the San Juan 28-4 Unit, No. 202, a coal
25 completion; again, unsuccessful. None of these

1 three wells are currently producing.

2 Q. Let's turn now to the next display
3 behind Exhibit 5. Identify and describe that
4 display.

5 A. This is another Fruitland formation net
6 coal isopach, demonstrating the thickness of the
7 coal. Again, although we have not seen any
8 commercial successes in here, we still think
9 there's a substantial recourse and we want to try
10 to develop that.

11 Q. Let's now go to Exhibit 6. Identify
12 and describe the structure map.

13 A. Another structure map on the base of
14 the Fruitland Coal, showing a gentle dip to the
15 southwest. Structure does not play any part in
16 our pursuit of the coal in either the Fruitland
17 or the Pictured Cliffs in the proposed well.

18 Q. Okay. Exhibit 7.

19 A. This is a type log, and this is the
20 well that would be with the #225. It's the same
21 Mesaverde well that Mr. Alexander referred to
22 earlier in testimony.

23 It shows a similar pattern, an upper
24 and a lower Pictured Cliffs package. It shows a
25 thick basal coal sitting nearly on top of the

1 Upper Pictured Cliffs.

2 One contrast here is that there is a
3 thin coal between the Upper and the Lower
4 Pictured Cliffs sandstones. This represents a
5 classic Pictured Cliffs/Fruitland innertongue
6 situation, so that this upper Pictured Cliffs
7 sandstone represents a temporary transgression
8 back to the southwest by the Pictured Cliffs
9 shoreline system.

10 MR. KELLAHIN: That concludes my
11 examination of Mr. Dawson. We move the
12 introduction of his Exhibits 4 through 7 in each
13 of the two cases.

14 EXAMINER STOGNER: Exhibits 4 through 7
15 will be admitted into evidence at this time.

16 MR. STOVALL: And will be held in place
17 by the core samples.

18 EXAMINATION

19 BY EXAMINER STOGNER:

20 Q. In preparing your Exhibits 5, and when
21 I look at them, you're just showing the PC wells,
22 is that correct?

23 A. No, sir.

24 Q. Are there other wells shown?

25 A. Yes, sir, there are.

1 Q. Those are deeper Dakota and Basin
2 Dakotas?

3 A. And Mesaverdes. The #225 map, the
4 circular symbol represents Mesaverde wells. The
5 triangular symbols, although there are very few,
6 represent Fruitland wells. The traditional or
7 standard gas well symbols, represent Pictured
8 Cliffs wells.

9 Q. So, in your 28-4 #225 well, will this
10 be the first test, hopefully, within the main--I
11 don't want to call it main channel, but the main
12 pay thickness of this little Upper Pictured
13 Cliffs string?

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

15 Q. What's the status on that 226 well down
16 to the south and east?

17 A. That's another well that we've proposed
18 to management and that would be a similar
19 Pictured Cliffs/Fruitland Coal commingle, and it
20 would be a second well in this same trend.
21 Hopefully, between the two wells, we could define
22 the productivity of this specific trend.

23 Q. And that's proposed?

24 A. Yes, sir. And, if I may, that well is
25 also shown on the index map on the wall just to

1 the south. Each of the starred wells is a
2 proposed Pictured Cliffs/Fruitland Coal
3 commingle.

4 MR. STOVALL: That's the one between
5 your two locations, is that right? Between the
6 two ones marked with the orange arrows?

7 THE WITNESS: Yes, sir. It's the one
8 that the Examiner referred to as just to the
9 south of the two arrows.

10 Q. Who will be completing these wells?
11 Does that fall under your supervision?

12 A. No, sir, it doesn't. The next witness,
13 Mr. Shipley, will be in charge of the completion.

14 Q. I was thinking more on line of
15 fracturing. That would still be under his--

16 A. Yes, sir.

17 EXAMINER STOGNER: Okay. Any other
18 questions of this witness? You may be excused.

19 Mr. Kellahin?

20 MR. KELLAHIN: I would like to call Mr.
21 Kurt Shipley.

22 **KURT A. SHIPLEY**

23 Having been first duly sworn upon his oath, was
24 examined and testified as follows:

25

EXAMINATION

BY MR. KELLAHIN:

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

A. Kurt Shipley, Meridian Oil, production engineer.

Q. And where do you reside, sir?

A. Farmington, New Mexico.

Q. Would you summarize for us when and where you obtained your degree in petroleum engineering?

A. Texas Tech University in the spring of 1991.

Q. Subsequent to graduation, have you been employed as a petroleum engineer?

A. Yes.

Q. And with what company?

A. Meridian Oil.

Q. Summarize for us the kinds of duties that you have performed as a petroleum engineer that apply to the cases that are before the Examiner today.

A. Mainly, well economics associated with projects, reserve calculations, and flow rates.

Q. As part of your duties, have you

1 reviewed, with Mr. Scott Daves, Meridian Oil's
2 petroleum engineer that testified in Case 10735,
3 the allocation formulas that he has presented to
4 the Examiner?

5 A. Yes, I have talked with Scott Daves.

6 Q. In addition, have you reviewed the
7 economic analysis to determine, for Meridian,
8 what is the most appropriate means to complete
9 this well, whether it's a stand-alone PC, or a
10 dual completion with the Fruitland Coal, or
11 whether it's downhole commingled with the
12 Fruitland Coal production?

13 A. Yes, I have considered all three
14 methods and I've talked extensively with Scott
15 Daves.

16 Q. At this point, do you have
17 recommendations to the Examiner with regards to
18 an allocation formula to allocate production
19 between the two pools?

20 A. Yes, I do.

21 Q. In addition, do you have
22 recommendations for the Examiner with regard to
23 the economics involved that justify the downhole
24 commingling of these two wells?

25 A. Yes, I do.

1 MR. KELLAHIN: We tender Mr. Shipley as
2 an expert petroleum engineer.

3 EXAMINER STOGNER: Mr. Shipley is so
4 qualified.

5 Q. Before we look at the displays
6 themselves, Mr. Shipley, describe for us, in a
7 general way, the method for allocation between
8 the two pools.

9 A. We'll note and consider a commingled
10 well, knowing that the total production will be
11 allocated by the total production of the
12 Fruitland Coal and the Pictured Cliffs together.

13 Taking that, we have a very good
14 understanding of how Pictured Cliffs reservoirs
15 operate out in the field, and I came up with a
16 way to determine Pictured Cliffs production here,
17 and everything above and beyond Pictured Cliffs
18 production, when considering the total sales rate
19 of gas, would be considered Fruitland Coal gas in
20 this situation.

21 Q. Are you and Mr. Daves in agreement with
22 regards to not only the allocation method, but
23 the actual procedures, formulas and calculations
24 that would be utilized by the Examiner, or anyone
25 else, in making the allocations between the two

1 pools?

2 A. Yes, sir, we are.

3 Q. Are you confident that you had
4 sufficient reservoir information to make reliable
5 calculations of the Pictured Cliffs estimated
6 ultimate gas recoveries for these wells?

7 A. Yes. For the Pictured Cliffs
8 reservoir, we do have a good understanding of
9 that.

10 Q. Okay. With regards to the economics,
11 did you take into consideration the cost of the
12 wells, the rate of production, and the estimated
13 ultimate gas recovery for each of the wells, in
14 analyzing what was the best way to complete those
15 wells?

16 A. Yes. At Meridian Oil, every time we
17 run economics on a project, we consider three
18 variables. The three parameters are, the flow
19 rate, the reserves associated with the project,
20 and the investment of the project.

21 Q. At the request of the Division
22 Examiner, have you made illustrations utilizing
23 those three variables and displayed it in terms
24 of rate of return on your investment?

25 A. Yes, I have.

1 Q. Based upon those calculations and that
2 information, what did you ultimately conclude
3 concerning the choices between a single,
4 stand-alone PC well, versus a dual with the
5 Fruitland Coal, versus commingling both pools?

6 A. The determination that I made was that
7 the well would be uneconomic as a Pictured Cliffs
8 stand-alone well, a dual completed well with the
9 Fruitland Coal, and the only economical way that
10 we can go after these reserves is with a Pictured
11 Cliffs/Fruitland Coal commingling.

12 Q. Are your conclusions consistent with
13 those reached by Mr. Scott Daves, when he
14 undertook that same economic analysis for the
15 Huerfano Unit 549 well involved in Case 10735?

16 A. Yes, they're very similar.

17 Q. Let's turn now to the displays, and
18 let's start with the Valdez #5, which is Case
19 10745. Turn to Exhibit No. 8. Let's don't have
20 you read all this stuff, Mr. Shipley, but let's
21 go through it and have you summarize it in such a
22 way that the Examiner will see your objective,
23 and then, at his convenience, he can go through
24 the actual calculations.

25 So, starting with page 1, what are we

1 looking at?

2 A. This is a summary of the theory behind
3 economics for the project at Meridian Oil. We
4 associate reserves with the reservoir. Then we
5 determine how quickly we can recover those
6 reserves, with the flow rate involved, and then
7 we consider the investment costs for drilling and
8 completing the well and then operating the well.

9 Q. Is this conventional petroleum engineer
10 economic analysis that Meridian routinely runs on
11 all its projects, regardless of whether it's
12 applicable to this type of case or other cases?

13 A. Yes. We use this on every project that
14 we submit to management.

15 Q. So there's nothing especially unique
16 about the circumstances of these two particular
17 applications before the Division, when it comes
18 to setting up an economic analysis?

19 A. No, there's not.

20 Q. Let's turn now to the next page which
21 is captioned, "Valdez #5," and it says, "Monthly
22 Gas Production Allocation Formula." What does
23 this show?

24 A. This shows the general equation for the
25 commingled Fruitland Coal/Pictured Cliffs well.

1 This is an accepted formula.

2 Q. Accepted within Meridian?

3 A. This has been accepted by the state
4 previously.

5 Q. All right. And it's the same formula
6 pending before Examiner Stogner with regards to
7 the prior case?

8 A. Yes, it is. It explains that you have
9 a total production from the well, which is broken
10 out into the--allocated to the Fruitland Coal and
11 the Pictured Cliffs. We feel that we can have a
12 good understanding of what the flow rate will be
13 out of the Pictured Cliffs, and it explains that
14 everything above and beyond that would be
15 allocated to the Fruitland Coal.

16 Q. Let's turn now to the next display and
17 have you give me a quick summary of how Meridian
18 determines the flow rate for the well that's
19 attributable to the Pictured Cliffs production.

20 A. At the time of completion of the well,
21 we will establish a flow test of the Pictured
22 Cliffs formation. Then we will set a bridge plug
23 above the Pictured Cliffs and complete the
24 Fruitland Coal.

25 We will then test the Fruitland Coal,

1 and we'll have established flow test rates for
2 each formation. This is then put into a ratio,
3 allocating a ratio of gas production to the
4 Pictured Cliffs formation only.

5 It should be noted that that is just a
6 test rate and that does not apply to what is put
7 down the sales line against the pipeline pressure
8 that would be associated with this well.

9 Q. Okay. Let's go to the calculation on
10 the next page, then, that shows your best
11 engineering judgment of the estimated ultimate
12 gas recovery attributable in this well, to the
13 Pictured Cliffs formation. What is that number?

14 A. 608.9 million cubic feet of gas.

15 Q. It's about a third of the way down and
16 it's highlighted and underlined?

17 A. Yes.

18 Q. How do you get that number?

19 A. We use offset analogy in the area, but
20 the way we came up with the actual number for
21 this well was using the volumetric method and the
22 parameters supplied to me by Mr. Mike Dawson.

23 Q. Okay. When we turn to the next page,
24 what are we seeing on that page?

25 A. The first section there is a list of

1 the parameters supplied to me by Mike Dawson,
2 just displayed with the parameters and their
3 actual values.

4 Q. What's the rest of that?

5 A. Well, section one there tells us the
6 total, the hydrocarbon pore volume down in the
7 reservoir of 9.894 million reservoir cubic feet
8 of gas.

9 Q. Okay.

10 A. The second section there is a formation
11 volume factor, which takes the natural gas that
12 is down in the reservoir at a certain amount of
13 reservoir pressure, and transfers that,
14 recalculates it for gas that would be--the volume
15 that would be associated on the surface under
16 atmospheric pressure or 15 pounds of pressure.

17 And then the third section there
18 explains how we determine the EUR for the
19 reservoir. The only fact that's left out of
20 there is the actual reservoir pressure of the
21 Pictured Cliffs, which we will determine at the
22 time of the completion of the well.

23 Q. Mr. Alexander has testified that the
24 ownership's common between the two pools, but in
25 determining an accurate allocation of production

1 between those two pools, are you satisfied that
2 this formula, if adopted by Examiner Stogner, is
3 going to attribute the appropriate amount of
4 recoverable gas to each of the two pools?

5 A. Yes, I do.

6 Q. Let's turn now to the economics.
7 There's a summary, it says, "Valdez #5," and then
8 it says, "B. Pictured Cliffs Drilling/Completion
9 Cost Summary." Are you with me?

10 A. Yes.

11 Q. Okay. In making these estimates that
12 are shown on this sheet, are we looking only at
13 that portion of the total well costs that would
14 be attributable to the costs for the Pictured
15 Cliffs formations in each of the examples?

16 A. Yes. The costs here are only the costs
17 associated with the Pictured Cliffs formation.

18 Q. When you make this initial calculation
19 after looking at the costs, are you also dealing
20 only with the estimated ultimate gas recovery
21 attributable to the Pictured Cliffs formation?

22 A. Yes. When determining the economics
23 for the Pictured Cliffs, we only consider the
24 reserves for the Pictured Cliffs formation.

25 Q. PC cost versus PC reserves, in each of

1 the examples?

2 A. And PC flow rate.

3 Q. The reserves are as you've calculated,
4 using your volumetrics for the Valdez #5 and,
5 later on, for the Unit 225 well?

6 A. Yes, sir.

7 Q. Let's go down the sheet and have you
8 tell us what the conclusions are of the cost
9 portion of the analysis.

10 A. We determined that a stand-alone,
11 Pictured Cliffs, new drill completion, total
12 tangible and intangible costs would be around
13 \$324,000.

14 The Pictured Cliffs portion of a dual
15 PC/Fruitland completion, tangible and intangible
16 costs, totals around approximately \$271,000.

17 And then the third case is a commingle
18 completion of the two formations, and the
19 Pictured Cliffs portion of those costs are stated
20 there as a total cost for the Pictured Cliffs, of
21 \$200,000.

22 Q. With those costs, what do you do then,
23 in terms of running case studies as to flow
24 rates, from which you can then make an economic
25 analysis of the viability of the projects? What

1 were the three cases at flow rates that you ran?

2 A. I ran economic sensitivities, is what
3 we call them, for reserves, using a flow rate of
4 100 Mcf a day, 200 Mcf a day, and 300 Mcf a day.

5 Q. So we're not confused about
6 definitions, define for me the kind of flow rate
7 that went into the analysis. What's the flow
8 rate you're talking about when you say "flow
9 rate"?

10 A. The flow rate is an established
11 first-month production down the sales line,
12 against pipeline pressure.

13 Q. This is a stabilized flow rate?

14 A. A stabilized flow rate down the
15 pipeline.

16 Q. And when you plot that flow rate, that
17 is a number you can use in your economic
18 analysis?

19 A. Yes. Exactly.

20 Q. Before we look at the case studies for
21 the Valdez #5 well, tell us what your best
22 engineering judgment is about what that flow rate
23 will be for the Valdez #5 well?

24 A. The Valdez well should have a flow rate
25 of around 150 Mcf a day.

1 Q. And, using your calculations of
2 estimated ultimate gas recovery, what is your
3 best engineering judgment about the probable gas
4 reserves to be recovered from that well?

5 A. 608.9 million cubic feet of gas.

6 Q. All right. Let's now look at the next
7 portion of the display. What's shown on the next
8 page?

9 A. This is a page showing the expected
10 reservoir pressures for the Pictured Cliffs and
11 Fruitland Coal formations. The Pictured Cliffs,
12 the offset average, initial shut-in pressures is
13 around 986 psi. Fruitland Coal, we anticipate
14 1,078 psi, which is within the pressure
15 requirements for commingling.

16 Q. Okay. When we talk about the flow rate
17 and the EUR that you've just described, now those
18 numbers are PC numbers?

19 A. Yes.

20 Q. They don't include Fruitland numbers,
21 either on EUR or cost?

22 A. Yes.

23 Q. Yes, they do not?

24 A. They do not include Fruitland Coal
25 numbers.

1 Q. Let's go now to the first example, and
2 it's the illustration, the chart?

3 A. Yes.

4 Q. This is the rate at 100 Mcf a day?

5 A. This is an economic sensitivity of the
6 rate of return of the project based on a flow
7 rate of 100 Mcf a day.

8 Q. What's the vertical scale?

9 A. The vertical scale is rate of return.

10 Q. And the horizontal scale?

11 A. The horizontal scale is Pictured Cliffs
12 EUR and MMCF.

13 Q. All right. And the three curves that
14 start on the horizontal scale and move up to the
15 northeast, let's start with the lowest curve.
16 Mine is a black-and-white display and the others
17 may be colored, but what is the lowest, straight
18 line? It's the thin, straight line.

19 A. That is the economic sensitivity for a
20 Pictured Cliffs single completion.

21 Q. All right. It starts on the horizontal
22 line, about halfway between 300 and 400 MMCF?

23 A. Yes, sir.

24 Q. The darker, solid line, the beginning
25 point of which is about 300 MMCF--

1 A. Yes, sir.

2 Q. --what does that line represent?

3 A. That represents the economics of the
4 Pictured Cliffs formation when considered with a
5 Pictured Cliffs/Fruitland Coal dual completion.

6 Q. All right. And the line that commences
7 at the horizontal line, about 200 MMCF, it's the
8 dashed line, what is that?

9 A. This is also the economic sensitivity
10 for the Pictured Cliffs reserves. But the costs
11 associated with it are the Pictured Cliffs,
12 Fruitland Coal commingle.

13 Q. What's the explanation as to why each
14 of those lines has a different starting point on
15 the horizontal axis?

16 A. Starting to the far right, the reason
17 for the shift along the X axis is the initial
18 cost investment. It's lower for the Pictured
19 Cliffs on the commingle, and it incrementally
20 goes up as you add the dual and then the PC
21 single completion.

22 Q. All right. If we're making a judgment
23 based upon rate of return, if you look at the Y
24 axis, give me the baseline point in terms of
25 percentage rate of return at which to peg the

1 economic viability of the project?

2 A. We accept a 15 percent rate of return
3 as our threshold of economic production.

4 Q. Okay. For the Valdez #5 well, let's
5 look at the X axis, come over to the appropriate
6 amount of estimated ultimate gas recovery
7 attributable to the well, and that's just
8 slightly over 600 MMCF?

9 A. Yes, sir.

10 Q. Okay. Let's go to the point where the
11 X and the Y merge.

12 A. Yes.

13 Q. All right. What does that tell you?

14 A. That tells us that, with the costs
15 associated with the Pictured Cliffs single
16 completion, we would only receive around a three
17 percent rate of return with the flow rate of a
18 hundred Mcf a day, and the reserves associated
19 with the Pictured Cliffs of 600 million.

20 Q. How about a dual? What's the rate of
21 return there?

22 A. It's approximately a seven percent rate
23 of return.

24 Q. It doesn't meet your economic
25 threshold?

1 A. Those two cases do not meet Meridian's
2 threshold of production.

3 Q. All right, and neither does the
4 downhole commingling at this flow rate of 100 Mcf
5 a day?

6 A. It doesn't get to the 15 percent rate
7 of return, no.

8 Q. It's what, about 11?

9 A. Yes, approximately.

10 Q. You've estimated for us, in your best
11 engineering judgment, the flow rate on this well
12 will be about 150 Mcf a day?

13 A. Yes, sir.

14 Q. Let's go to the 200 Mcf a day flow
15 rate, which is the next exhibit. Are you with
16 me?

17 A. Yes, sir.

18 Q. Let's find 15 percent rate of return on
19 the Y axis. If you go over and circle 600 MMCF
20 for your reserve recovery on the X axis, find the
21 point where those two merge, what does that show
22 you about the threshold economics as to the three
23 types of wells?

24 A. It tells me still that the Pictured
25 Cliffs single completion and the dual completion

1 for the Pictured Cliffs side would still not be
2 economic in this case of 200 Mcf a day. And if
3 we were able to reduce the costs associated with
4 the Pictured Cliffs' side of the commingling, we
5 would have an economic rate of return of around
6 17 percent.

7 Q. And, if you go to the last
8 illustration, that's at a flow rate of 300 Mcf a
9 day?

10 A. Yes. And we don't expect that out of
11 the Pictured Cliffs here. It's not in the range
12 of any of the wells around there, and it's not
13 anticipated in this well.

14 Q. What's your conclusion about the
15 economics of the Valdez #5 in terms of what
16 option you exercise to go get these reserves?

17 A. Based on the reserves associated and
18 the flow rate anticipated and the costs
19 associated, the only economic way to complete
20 this well is with a Fruitland Coal/Pictured
21 Cliffs commingling.

22 Q. Let me understand the methodology. Had
23 the illustration of the PC analysis been such
24 that the dual completion curve, let's say a rate
25 of 200 Mcf a day, let's speculate that that dark

1 line had been substantially higher and had arced
2 in such a way that it would have been above 15
3 percent rate of return with 600 MMCF of reserves
4 recovered, okay? Assume that.

5 A. Yes.

6 Q. What, then, do you do to analyze the
7 Fruitland portion of the analysis?

8 A. Assuming that the Pictured Cliffs side
9 of a Fruitland Coal/PC dual was economic, we
10 would then have to associate those similar costs
11 to the Pictured Cliffs over to the Fruitland Coal
12 formation, and it would be a stand-alone economic
13 project and it would have to meet these criteria
14 in the same way that the Pictured Cliffs has.

15 Q. And, if that is justified for PC and
16 Fruitland Coal, then you can make an affirmative
17 choice on a single or dual completion?

18 A. Yes. If both formations on a single or
19 a dual completion were economic, then we could
20 make that assumption that we could go out and
21 economically complete both formations without the
22 commingling.

23 Q. On the Valdez 5 example, we can't get
24 by the economics on the PC on any other basis
25 than a dual, so you don't complete the rest of

1 the analysis?

2 A. We didn't even continue it for the
3 Fruitland Coal because it did not meet the
4 criteria for either the single or the dual
5 completion.

6 Q. Okay. Let's jump over to the Unit 225
7 example. If you'll move to that exhibit book for
8 me, and let's turn now to the Exhibit 8
9 information in that exhibit book.

10 Is the allocation formula and the
11 description of those formulas, as well as the
12 reserves attributable to the PC for that well,
13 done in the same way as were done for the Valdez
14 #5?

15 A. Yes, they were both determined using
16 the volumetric method.

17 Q. Okay. If you'll turn with me, then,
18 and go to page 4 of that information, what was
19 your best engineering judgment of the recoverable
20 gas reserves attributable to the PC in the Unit
21 225 well?

22 A. 946.1 million standard cubic feet of
23 gas.

24 Q. Okay. We turn to the next page, you
25 have your summary of parameters for Mr. Dawson

1 and the rest of your engineering calculations?

2 A. Yes, sir.

3 Q. Turn to the next page, the economic
4 costs. Are those the same numbers that we've
5 just described?

6 A. The costs here would be similar to the
7 Valdez #5.

8 Q. You ran the same economic case studies
9 using the different rates that we described
10 before?

11 A. Yes. I ran the sensitivities similar
12 to the cost sensitivities run in the Valdez #5.

13 Q. The next page, the summary of reservoir
14 pressures, include compatibility?

15 A. Yes, sir.

16 Q. Let's turn now to the first of the
17 economic illustrations of the case study run at
18 100 Mcf a day rate on the 225 well. This is, in
19 fact, the same illustration that we just talked
20 about in the Valdez 5, isn't it?

21 A. Yes. The costs associated with the
22 projects are similar, and the sensitivities that
23 I've supplied here provide a range of initial
24 flow rate and reserves that could be applied to
25 both cases.

1 Q. All right. Let's take this, now, and
2 apply your rate of return percentage. That was
3 15 percent. Does that still work in this well?

4 A. Yes, sir, it does.

5 Q. That's what you're using for all the
6 wells, is it not?

7 A. Yes. That's our cutoff.

8 Q. If you find on the Y axis 15 percent,
9 and read horizontally over, let's find the right
10 X axis volume of recoverable gas that's
11 attributable to the Unit 225 well. It's about
12 900?

13 A. 946. Approximately 900.

14 Q. All right, 946. Now, if we take that
15 and go up to the 15 percent rate of return, what
16 does that show you about the three options for
17 drilling this well?

18 A. That we do not have an economic case
19 for the single completion or the dual completion,
20 and we're almost marginal for the 15 percent rate
21 of return for the commingled portion.

22 Q. So, in each example for these two
23 cases, the economic conclusion is that downhole
24 commingling is the only viable economic choice in
25 order to go get reserves that might otherwise be

1 wasted?

2 A. That's exactly right. We would never
3 complete the Fruitland Coal in this area without
4 a commingle in this situation.

5 MR. KELLAHIN: That concludes my
6 examination of Mr. Shipley. We move Exhibits 8
7 be introduced at this time in both cases.

8 EXAMINER STOGNER: Exhibit 8, in both
9 cases, will be admitted at this time.

10 EXAMINATION

11 BY EXAMINER STOGNER:

12 Q. Mr. Shipley, the witness prior to you
13 made a statement that these are deeper Pictured
14 Cliffs productions than normal. Were those
15 economics taken into account? It seems like the
16 same figures or assumptions were utilized in
17 these particular cases as was in the Huerfano
18 area and the several previous ones prior to
19 that.

20 A. Could you explain your question again?
21 Are you looking at the costs associated with
22 drilling a deeper well or--

23 Q. I guess you're not, so...

24 MR. KELLAHIN: No, I think he
25 misunderstood the question.

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25 I understand it, and correct me if I'm wrong, the

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FURTHER EXAMINATION

BY MR. KELLAHIN:

Q. What he wants to know, has the cost or the analysis been risk-adjusted with regard to depth? because some of these wells are deeper than others. Is there any risk factor applied to the analysis.

A. The Huerfano #549 costs you saw were associated with a shallow well. That was also going to be put on compression. These are deeper wells, higher drilling costs, but we don't have the operating costs associated with compression based on the higher pressures that we plan on seeing in these wells.

Q. So, does this analysis include those additional components, or has it left those aside?

A. Let me have the question again.

Q. I guess I'm confusing you, Kurt. Scott Daves' presentation was based upon an economic analysis which we have used for the two cases before Examiner Stogner today?

A. Exactly.

Q. All right, we have not yet adjusted, as I understand it, and correct me if I'm wrong, the

1 additional components of having these wells be
2 deeper than Scott's well. Have those factors
3 been calculated into the risk involved in the
4 well, or the economics?

5 A. Oh, yes, they've been considered when
6 running the economics for the Valdez #5 and the
7 #225.

8 Q. All right. So we have factored in
9 those for these two specific cases, so that
10 Examiner Stogner is working with your best
11 judgment as to what those actual costs will be
12 for this well?

13 A. Yes. These costs and reserves are
14 specific to the Valdez #5 and the 225 here.

15 Q. And Scott has taken the same
16 methodology, then, and tuned it for his well?

17 A. Yes. The methodology for Scott's was
18 similar to the methodology used in my economic
19 analysis.

20 MR. KELLAHIN: All right.

21 FURTHER EXAMINATION

22 BY EXAMINER STOGNER:

23 Q. What is Meridian's goal on treating and
24 completing these particular wells? Will they be
25 fracture stimulated, and at what point will they

1 be fractured? Will they be fractured together,
2 or separately?

3 A. They will be fractured individually and
4 tested individually. The way we intend to do
5 this is drill a well, move a completion rig on,
6 and complete the Pictured Cliffs formation first
7 with a fracture stimulation.

8 We will then test the well, receive a
9 bottom hole pressure survey on the Pictured
10 Cliffs formation, we'll set a bridge plug,
11 isolate the Pictured Cliffs, and then fracture-
12 stimulate and complete the Fruitland Coal, test
13 the production, and obtain a bottom hole pressure
14 survey for the Pictured Cliffs formation.

15 When we deem that all of these--that we
16 have an accurate test on both formations, then
17 we'll provide with the commingling.

18 EXAMINER STOGNER: Okay. I have no
19 other questions of Mr. Shipley.

20 MR. KELLAHIN: That concludes our
21 presentation, Mr. Stogner.

22 EXAMINER STOGNER: Anything further?

23 MR. KELLAHIN: No, sir.

24 EXAMINER STOGNER: Does anybody else
25 have anything further in either Case 10745 or

1 10754?

2 If not, both of these cases will be
3 taken under advisement.

4 Let's take a 15-minute recess.

5 (And the proceedings concluded.)
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15 I do hereby certify that the foregoing is
16 a complete record of the proceedings in
17 the Examiner hearing of Case Nos. 10754 and 10745
18 heard by me on July 1993.
19 Michael J. [Signature], Examiner
20 Oil Conservation Division
21
22
23
24
25


1 CERTIFICATE OF REPORTER

2
3 STATE OF NEW MEXICO)
4 COUNTY OF SANTA FE) ss.
5

6 I, Carla Diane Rodriguez, Certified
7 Court Reporter and Notary Public, HEREBY CERTIFY
8 that the foregoing transcript of proceedings
9 before the Oil Conservation Division was reported
10 by me; that I caused my notes to be transcribed
11 under my personal supervision; and that the
12 foregoing is a true and accurate record of the
13 proceedings.

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

19 WITNESS MY HAND AND SEAL July 19, 1993.
20

21
22 
23 CARLA DIANE RODRIGUEZ, RPR
24 CCR No. 4
25