

STATE OF NEW MEXICO
ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
OIL CONSERVATION DIVISION
STATE LAND OFFICE BUILDING
SANTA FE, NEW MEXICO

9 August 1989

EXAMINER HEARING

IN THE MATTER OF:

In the matter of cases called on this
date and continued or dismissed with-
out testimony presented.

CASES
9712
9713
9698
9700
9714
9703
9716
9718
9709
9719
9721
9722
8668
8769
9707

*Transcript in
Case 9712*

BEFORE: Michael E. Stogner, Examiner

TRANSCRIPT OF HEARING

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

1 STATE OF NEW MEXICO
2 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT
3 OIL CONSERVATION DIVISION
4 STATE LAND OFFICE BUILDING
5 SANTA FE, NEW MEXICO

6 23 August 1989

7 EXAMINER HEARING

8 IN THE MATTER OF:

9 Application of Meridian Oil, Inc. for CASE
10 the vertical contraction and redesi- 9718
11 nation of an existing Delaware Oil Pool
12 and for a new pool creation, Eddy County,
13 New Mexico.

14 BEFORE: David R. Catanach, Examiner

15 TRANSCRIPT OF HEARING

16 A P P E A R A N C E S

17 For the Division: Robert G. Stovall
18 Attorney at Law
19 Legal Counsel to the Division
20 State Land Office Building
21 Santa Fe, New Mexico

22 For Meridian Oil, Inc.: W. Thomas Kellahin
23 Corporation: Attorney at Law
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For Santa Fe Energy James Bruce
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1 MR. CATANACH: Call next Case
2 Number 9718.

3 MR. STOVALL: Application of
4 Meridian Oil, Inc., for vertical contraction and redesignig-
5 nation of an existing Delaware oil pool and for a new pool
6 creation, Eddy County, New Mexico.

7 MR. CATANACH: Are there ap-
8 pearances in this case?

9 MR. KELLAHIN: Mr. Examiner,
10 I'm Tom Kellahin of the Santa Fe law firm of Kellahin,
11 Kellahin & Aubrey. I'm appearing on behalf of the appli-
12 cant.

13 MR. BRUCE: Mr. Examiner, my
14 name is Jim Bruce from the Hinkle law firm in Albuquerque,
15 appearing on behalf of Santa Fe Energy Operating Partners,
16 L. P..

17 MR. CATANACH: Any other ap-
18 pearances?

19 Can I get all the witnesses
20 in this case to stand and be sworn in at this time?

21

22 (Witnesses sworn.)

23

24 MR. KELLAHIN: Mr. Examiner,
25 we'd call as our first witness Mr. Lee Catalano. He spells

1 his last name C-A-T-A-L-A-N-O.

2

3

LEE CATALANO,

4

being called as a witness and being duly sworn upon his

5

oath, testified as follows, to-wit:

6

7

DIRECT EXAMINATION

8

BY MR. KELLAHIN:

9

Q For the record would you please state
10 your name and occupation?

11

A My name is Lee Catalano and I'm Senior
12 Staff Geologist with Meridian Oil in Midland, Texas.

13

Q Mr. Catalano, as a geologist have you
14 previously testified before the Oil Conservation Division?

15

A Yes, sir.

16

Q Would you describe for us what geologic
17 study you have made of the Parkway Delaware Field in Eddy
18 County, New Mexico?

19

A I've made a series of cross sections and
20 maps describing what we believe are two separate Delaware
21 pay zones, which are horizontally and vertically separated
22 from one another.

23

Q How long have you been employed as a
24 geologist for your company?

25

A Eight and a half, eight and a half

1 years.

2 Q And how long have you been involved in
3 studying the Parkway Delaware Field?

4 A About a year now.

5 Q How old a field is that?

6 A I think it's a little over a year old.

7 Q Are you satisfied now that there is
8 sufficient information from which you as a geologist can
9 reach geologic opinions about the separate reservoirs that
10 you're going to describe to the Examiner?

11 A Yes, sir.

12 MR. KELLAHIN: At this point,
13 Mr. Examiner, we tender Mr. Catalano as an expert petroleum
14 geologist.

15 MR. CATANACH: He is so qual-
16 ified.

17 Q In analyzing the Parkway Delaware Field,
18 would you describe for us what the existing vertical limits
19 are for the current Parkway Delaware Field, in terms of the
20 gross formation?

21 A It's a -- I'm not sure I understand what
22 you're getting at.

23 Q All right. The vertical limits for the
24 Parkway Delaware Field, do they include all of the Delaware
25 formation?

1 A That's correct.

2 Q Do you have on the cross section that we
3 have shown on the wall, which is Exhibit Number One, do you
4 have sufficient portion of the log of any of those wells to
5 show the total Delaware zone or the total Delaware forma-
6 tion?

7 A Yes, sir.

8 Q Okay. Let me have you go to that dis-
9 play.

10 A So far, to date, most of the wells, all
11 the wells except one in the field have produced from this
12 zone in here, which we call the Delaware A Zone.

13 Q And on your Exhibit Number One that is
14 identified by the area shown as the colored portion of it
15 in yellow as the Delaware area?

16 A Right, it's the lowermost yellow colored
17 zone, shown right in here.

18 Q Let's take that second well on the cross
19 section, the Meridian 1-A Apache Federal Well, do you see
20 that one?

21 A Yes.

22 Q Can you show us approximately what the
23 Commission is using as the top and the bottom of the Park-
24 way Delaware Pool?

25 A To date it's included as this -- this

1 entire interval would be part of the Parkway Pool.

2 Q Give us the top. What's the footage?

3 A From approximately 3940 feet through
4 4300 feet in this particular well.

5 Q The index map that is shown over in the
6 far left margin of the display, does that show all of the
7 Parkway Delaware Field?

8 A No, it does not. There is additional
9 wells that were drilled by Santa Fe and Strata up -- Strata
10 has a well to the north and Santa Fe has drilled several
11 wells off to the east of this section.

12 Q You have other displays that will show
13 the entire pool?

14 A Yes, sir, right.

15 Q In examining the production or the logs
16 of wells in the Parkway Delaware Field, do you find any of
17 the current producing Delaware wells that are producing out
18 of any other zone than you have identified as the Delaware
19 A Zone?

20 A Yes. In the Apache Federal No. 1-A Well
21 the zone -- it's producing from an upper member, which we
22 call the Delaware B, B Zone.

23 Q Are there any other instances where
24 there is a well that is perforated and producing out of
25 what you've identified as the Delaware B Zone?

1 A No. This is the only well that we know
2 of.

3 Q We don't have a pool that has commingled
4 production, then, between the two reservoirs?

5 A No, sir, we don't.

6 Q Describe for us what you see when you
7 prepare an east/west cross section such as this in terms of
8 whether or not you are satisfied as a geologist that you
9 have a Delaware B Zone that is a separate and distinct
10 common source of supply or reservoir that is separate and
11 distinct from the Delaware A Zone.

12 A Okay. Starting from the lefthand side
13 of the cross section, what I've used to group this sand out
14 here, there are a couple of hot gamma ray markers shown
15 here and here on this log, approximate depth, I guess, in
16 this 4-A Well would be at 3950 feet and the base would be
17 4005 feet.

18 I've been able to trace these two gamma
19 ray markers across the field in wells shown here on this
20 east/west cross section. Other, which I'll show you in a
21 minute, other wells in the field, these two markers are
22 readily correlative through the field.

23 Q In examining the wells in the field for
24 which you have logs, have you satisfied yourself that you
25 maintain that separation throughout the entire proposed

1 pool area, to keep the Delaware B reservoir separated from
2 the Delaware A reservoir?

3 A Yes.

4 Q Describe for us the nature of the rock
5 that separates the Delaware B from the Delaware A reser-
6 voir.

7 A Again this is interbedded sandstone and
8 siltstone and little strands of dolomite in between the
9 Delaware B Zone and the Delaware A Zone.

10 Q What other wells have you put on your
11 cross section, Mr. Catalano?

12 A The Apache, Meridian Oil Apache No. 4-A
13 Well is our far lefthand side.

14 The previously mentioned Apache No. 1-A,
15 the Meridian No. 2-A Apache Federal, and the Meridian Oil
16 No. 3-A Apache Federal.

17 Q If you had prepared an east/west cross
18 section through any other portion of the reservoir, are you
19 going to see a similar display of the two reservoirs as
20 you've seen here with your Exhibit Number One?

21 A Yes.

22 Q There will not be a material significant
23 difference in the positioning of the reservoirs as they
24 relate one to another?

25 A No. I can carry these correlation marks

1 of the B Zone and then down in the A Zone across the field
2 comfortably.

3 Q In terms of continuity of the B reser-
4 voir from one well to another, how would you describe the
5 degree or the character of continuity as you map the B
6 reservoir from well to well?

7 A I've found that within the Parkway Field
8 area that I've been able to isolate these two gamma ray
9 markers and isopach the sand interval within those gamma
10 ray markers very comfortably and I'll show you some iso-
11 pach maps here shortly.

12 Q Let's look at the Delaware A Zone. Your
13 proposal is to contract the vertical limits of the existing
14 Parkway Delaware Pool. To what vertical limits, then,
15 would you propose to contract that pool if you used the 1-A
16 Apache Federal as a type well?

17 A Okay. Approximately 4110 feet in the
18 No. 1-A would be the top, down to the existing -- let's
19 see, it would be 4220.

20 Q All right, so if we use the 1-A as the
21 type well and we're looking at the A reservoir, which is
22 the lower one, the top of the vertical limits for that pool
23 is going to be what did you say, 4110?

24 A Approximately 4110, that's correct.

25 Q And the base is going to be --

1 A 4220.

2 Q -- 4220. What is the geologic basis for
3 using that as the pick of the top and the bottom of the
4 vertical limits for the A reservoir?

5 A The base of the Delaware A Zone, there's
6 another gamma ray kick which can be traced throughout the
7 field area, which is very easily -- easy to correlate.

8 The upper boundary, you can see it on
9 here, I call it the 3-finger silt, but you can see these,
10 1, 2, 3 gamma ray markers right in here. They can be
11 readily identified, 1, 2, 3; 1, 2, 3; 1, 2, 3; that can be
12 readily identified throughout the field, also.

13 Q What does the gamma ray tell you when it
14 kicks like that? What are you seeing, what kind of rock is
15 it?

16 A Increasing radioactivity to the right is
17 what it's telling me. It really doesn't tell you what the
18 rock is. It's just describing radioactivity.

19 Q Is that a useful means by which you as a
20 geologist can -- can separate out one reservoir from
21 another?

22 A Yes.

23 Q And why do you say that?

24 A It's -- the only way you can, in this
25 particular geologic setting, to (unclear) packages of sand

1 and make regional type correlations, as well as field
2 correlations.

3 Q When you look at the Delaware A Zone,
4 how have you satisfied yourself that using those two gamma
5 ray kicks as the top and the bottom of your reservoir, that
6 you have included then the sand in the A reservoir that is
7 going to constitute that separate source of supply?

8 A I'm very comfortable with the picks that
9 I've made in the field.

10 Q Do you see anything between those two
11 kicks within the A reservoir that would constitute a bar-
12 rier within the interior of the A reservoir as you propose
13 to define it --

14 A No.

15 Q -- that would separate out production
16 within an individual wellbore?

17 A No, I've seen no barriers within the
18 Delaware A Zone, as we've defined it here in the 1-A Well.

19 Q In terms of picking a geologic marker to
20 give yourself a base for the A reservoir, have you shared
21 that information with other operators that operate wells in
22 this reservoir?

23 A Yes, indirectly.

24 Q Have you received any objection from any
25 of the operators to using that gamma ray kick as the base

1 for the A reservoir?

2 A What we call the A reservoir, no.

3 Q All right. Are you aware of any dis-
4 agreement among any of the operators about redefining the
5 Parkway Delaware Pool to contract it to define it now as
6 you've shown it to be in your type log for the 1-A Well?

7 A No.

8 Q Is there any dispute among the various
9 geologists as to picking the top of the A reservoir, as
10 you've shown it?

11 A The top -- the top of the A, basically,
12 no.

13 Q Okay. Let's go now to the B reservoir,
14 which is the upper one. Do you see any evidence that the B
15 and the A reservoirs are going to be in communication by
16 further production or further perforations based upon any
17 of the log analyses?

18 A No, sir.

19 Q Okay. What have you used as the marker
20 to satisfy yourself that you have the base of the B reser-
21 voir?

22 A Okay, again there's a gamma ray marker
23 shown right here, here, here, and here, which I've defined
24 as being the base of the Delaware B sand.

25 Q In your opinion is that a readily iden-

1 tifiable geologic marker that geologists can find from log
2 correlation interpretation to satisfy themselves that
3 they've found the base of the B reservoir?

4 A Yes, I believe it is.

5 Q Do you see any other alternative means
6 by which you can as a geologist find a suitable marker to
7 give you the base of the B reservoir?

8 A No, I think this is the easiest and best
9 approach at trying to group this sand package as one zone
10 out there.

11 Q Can you consistently correlate that
12 gamma ray marker as the base of the B reservoir from well
13 to well?

14 A Yes, I was able to do it for all the
15 wells in the field.

16 Q Do you find that B gamma ray marker,
17 base of the B, that gamma ray marker present in all the
18 logs for all the wells?

19 A I've been able to define it in every
20 well, yes.

21 Q What have you used for the top of the B
22 reservoir as a marker?

23 A Again there's another gamma ray spike.
24 You can see it, in fact, this is interesting because it
25 shows up where some of the sand is already pinched out,

1 this gamma ray is still present and it's right there, it's
2 right there, and right there, and I can follow that gamma
3 ray marker again throughout the field area.

4 Q Give us, using the 1-A Apache Federal
5 Meridian Well as a type well, give us the footages for your
6 proposed vertical limits of the B reservoir.

7 A Okay. The top of the B zone would be at
8 3945. The base would be at 4015, we'll call it.

9 Q Can you consistently map and locate the
10 top of the B reservoir using that gamma ray kick that
11 you've found in the 1-A Apache Well?

12 A Yes.

13 Q Okay. Let's go to a north/south cross
14 section. Have you prepared a north/south cross section?

15 A Yes, I have.

16 Q Describe for us, Mr. Catalano, how you
17 have constructed and prepared the north/south cross sec-
18 tion, which is marked as Exhibit Number Two.

19 A Okay. This is a north/south cross sec-
20 tion which pretty much runs right through the heart of the
21 Parkway Delaware Field.

22 Both of these, by the way, are struc-
23 tural cross sections hung on a -1000 foot datum, and again
24 the same color scheme which was shown in the first cross
25 section, same breakout is -- is on this cross section here.

1 One thing we failed to point out was the
2 color, what these colors represent in the wellbores on
3 these cross sections.

4 Blue represents water; green, oil pro-
5 duction; and red, gas production. The same color scheme
6 holds true down here and again up here in the B sand we
7 have water and oil above gas.

8 This is the tie well right here, the No.
9 1-A Apache Well is the second well from the left on this
10 cross section.

11 Q Do you see anything different when you
12 construct the north/south cross section in comparing it to
13 an east/west cross section?

14 A Basically no. The correlations are --
15 are fairly simple concerning the Delaware B sand interval.
16 Again I can trace two gamma ray peaks in a north/south
17 direction in the field and isolate this Delaware B sand.

18 Q Based upon your construction of the
19 cross sections and your further study of the Parkway Dela-
20 ware Field, do you have any reservations at all as a geol-
21 ogist that in fact you're dealing with two separate and
22 distinct sources of supply when you address the B reservoir
23 and the A reservoir?

24 A No, absolutely, they're different.

25 Q When we -- have you shared with other

1 operators your proposal for the vertical limits on the B
2 reservoir?

3 A Yes.

4 Q Is there any disagreement or dispute
5 among the various geologists for the companies as to your
6 pick of the top of the B reservoir?

7 A No, not the top.

8 Q Is there any difference of opinion among
9 the geologists as to how the base of the B reservoir is to
10 be picked?

11 A Yes. The geologist for Santa Fe, Steve
12 Johnson, in three wells within the field we differ on a
13 basal pick.

14 Q Does Mr. Johnson for Santa Fe Energy
15 have a different pick for the base of the B zone in any-
16 thing other than the three wells that's there's a differ-
17 ence?

18 A Not as far as we know, that's correct.

19 Q Using his methodology and your method-
20 ology, in all but three of the wells that have been exa-
21 mined, you and he have reasonably close agreement?

22 A That's true. That's right.

23 Q Identify any of the three wells that are
24 shown on any of your cross sections for which there is a
25 difference of opinion.

1 A Okay. The Apache No. 1-A Well; the 2-A
2 Well. Then the Strata Production No. 2 Elcon State Well.

3 Q Let's use the type well, which is the
4 1-A?

5 A Right.

6 Q All right. As best you understand it,
7 Mr. Catalano, describe for us what Mr. Johnson for Santa Fe
8 has used to determine the base of the B reservoir.

9 A Okay. He has taken a dolomite stringer
10 with an approximate depth of 39 -- the top of it would be
11 at 3975 and the base of it at 3985 in the Apache No. 1-A
12 Well. He feels that that is the base of the -- of the
13 B sand.

14 Q All right. Can you, as a geologist,
15 take that dolomite marker that Mr. Johnson has found in
16 that well and consistently and reliably map that from well
17 to well within the reservoir?

18 A I cannot do that.

19 Q In your opinion is the use of Mr.
20 Johnson's dolomite marker in that type well a reliable,
21 readily identifiable base for the B reservoir?

22 A I don't believe it is.

23 Q And why not, sir?

24 A It's not as continuous as the two gamma
25 ray peaks which I've used over the width of the field.

1 Q Let's look at the next well that Mr.
2 Johnson has a difference with you on picking the base of
3 the B reservoir. I think that's the 2-A Apache Federal?

4 A That's correct.

5 Q Again, within the Delaware B zone he has
6 picked a point that is not as deep as you have for the base
7 of that reservoir?

8 A You'll have to refresh my memory on
9 that. I think the base of it would be at 4000 feet, is
10 that correct? 3998, okay, 4000 feet.

11 Q He's approximately how many feet higher
12 up in the log section than you are in picking the base of
13 the B reservoir?

14 A 25 feet, approximately.

15 Q And your understanding of that is that
16 based upon the presence of a dolomite marker?

17 A That's correct.

18 Q Can you look at --

19 A It seems to be in the same dolomite
20 marker as what's in the No. 1-A Well.

21 Q Do you see any other dolomite markers in
22 the 2-A Well that might also represent a way to correlate
23 that dolomite marker?

24 A Within the -- what I've defined as the
25 Delaware B Zone interval I see two dolomite stringers here

1 -- I'm sorry --

2 Q Identify the approximate footage where
3 that occurred.

4 A Yeah, it's at 3965 to 75 and then the
5 one that he's using, from 3985 to 4000 feet.

6 Q Which are you going to pick, Mr. Cata-
7 lano?

8 A You could just as easily, I suppose, go
9 to the upper one or to the lower one.

10 Q What -- what, in your opinion, then, for
11 the 2-A Well is the appropriate means to locate and ident-
12 ify the base of the B reservoir sand?

13 A I believe that, again go back to what is
14 reliable, the rest of the field and stick to these two
15 gamma ray markers, here and here. I must point out that in
16 this particular well the lower marker is not as high, but I
17 think it's readily apparent that that's the same marker
18 running through here in this well.

19 Q Can you take on your cross section and
20 look at the last log, the 3-A Apache Federal Well?

21 A Yes.

22 Q Do you and Mr. Johnson agree, using your
23 various methods of picking, do you agree approximately on
24 the base of the B reservoir in that well?

25 A Yes, we do.

1 Q Do you find a dolomite marker at the
2 approximate location you find the gamma ray kick in the
3 base of the B zone for that well?

4 A There is a gamma ray marker right here,
5 that's correct.

6 Q Well, where's the dolomite?

7 A Well, it's not readily apparent on this
8 particular cross section, you can't see it. There may be a
9 little, very small stringer of dolomite down here at 4085.

10 Q How thick is this dolomite marker as you
11 find it in the 2-A and the 1-A Apache Federal Well shown in
12 the center of your cross section?

13 A It's approximately 10 feet thick. Again
14 going back to what you mentioned, here, also within this
15 interval that I've defined as the Apache B zone in the No.
16 3-A Well, there's another dolomite stringer which occurs at
17 4010 to 20, and again I think that it is reasonable to cor-
18 relate, perhaps, one of these dolomite stringers, this up-
19 per one, in the 3-A Well.

20 Q Do you have an opinion as a geologist as
21 to whether or not if this dolomite marker that Mr. Johnson
22 has proposed is adopted by the Division as the method by
23 which we locate the base of the B sand, whether that is
24 going to lead to ambiguities in picking out the base of the
25 B reservoir?

1 A Yeah, I think it would be a lot simpler
2 to stick with these gamma ray markers.

3 Q Have you picked an interval that's large
4 enough to include all of the porosity above a certain level
5 that would be contributive of reservoir for the B Zone?

6 A Yes.

7 Q You don't see any opportunity for a
8 difference of opinion that there is B reservoir below your
9 marker that ought to be dedicated to the B reservoir?

10 A No.

11 Q Let's go to the Strata Production Com-
12 pany 2 Elkan State?

13 A Yes.

14 Q That was the third of the wells in the
15 pool that you and Mr. Johnson had a difference about.

16 A That's correct.

17 Q All right, where is -- where is your
18 understanding of his pick of the dolomite marker as the
19 base of the B reservoir in that log?

20 A He's picking it at 4050 feet.

21 Q Do you agree with him at that point?

22 A No, I have it down at approximately 4090
23 feet, again on this gamma ray marker.

24 Q As to all other wells, though, in the
25 reservoir, there is no disagreement with you between the

1 two geologists about how to find the vertical limits of the
2 reservoir?

3 A That's correct.

4 Q All right. There is no inconsistency.
5 All right.

6 Let's go to -- did you prepare the
7 structure map on either of the reservoirs?

8 A I have prepared the structure and iso-
9 pach map of both of these zones.

10 Q All right. I think you did the A zone
11 first, did you not?

12 A We'll work from the bottom up.

13 Q All right, let's do that. You might
14 return to your seat. I think these are small enough to
15 work with from the table.

16 Let me ask you to look at Exhibit Number
17 Three, Mr. Catalano.

18 This, as well as all the other geology,
19 is work that you have personally done yourself?

20 A That's -- that's correct.

21 Q What's the control point for your struc-
22 ture? What -- what have you mapped this on?

23 A This is the structure on the top of the
24 Delaware A pay sand. Let me point it out on the cross
25 section to give you a depth for that.

1 In the Apache Federal No. 1-A Well it
2 would be at 4135 feet.

3 Q What do you conclude as a geologist from
4 examining the structure in terms of the likely horizontal
5 limits of the A reservoir?

6 A It looks to me that the -- from the
7 drilling that I have logs and information from, access to
8 at this point, that the horizontal limits of the A sand are
9 pretty much confined to Section 35 and perhaps the west
10 half of Section 36, in 19 South, 29 East.

11 Q The initial producing well out of the A
12 sand is the well in unit letter C in Section 35. That's
13 your 1-A Well, is it not?

14 A Out of the B sand.

15 Q I'm sorry, out of the B sand.

16 A Right.

17 Q The rest of them, then, are noted as
18 producing out of the --

19 A Now, what --

20 Q -- A sand.

21 A Now, what this map shows, there's green
22 circles on it and it shows all the wells producing out of
23 the A sand.

24 Q All right, let's go to the isopach for
25 the A sand. That's shown as Exhibit Number Four?

1 A Right, Exhibit Four.

2 Q What do you conclude from an examination
3 of the isopach of the A porosity?

4 A Well, what this map describes, first
5 off, it's a density -- I use a density porosity cutoff of
6 18 percent to make this -- this isopach map, and it's
7 showing, again, the horizontal limits of the -- of the A
8 sand, due to lateral pinchout of porosity.

9 Q All right, let's compare those now to
10 your mapping of the structure and the -- the thickness of
11 the sand for the B reservoir.

12 We will turn to Exhibit Number Five.
13 Would you identify and describe that exhibit for us?

14 A Sure. This is a structure map on top of
15 the B sand and let me get you a top from the log here.

16 In the 1-A Well it would be at 3935 --
17 45, I'm sorry, 3945.

18 This map, again, the green circle around
19 the No. 1-A denotes that it's the only well that's produc-
20 ing from this particular reservoir in the field.

21 The half circles shown in 1, 2, 3, 4, 5,
22 6 wells, 6 additional wells within Section 35 appear to be
23 productive from this zone.

24 Q In mapping both the structure and the
25 sand thickness on the B reservoir, Mr. Catalano, do you, as

1 a geologist find a reservoir of adequate size and thickness
2 that, if produced, it ought to be able to stand alone as a
3 reservoir?

4 A Yes, the B sand could stand alone as its
5 own reservoir.

6 Q Do you see sufficient horizontal extent
7 and vertical thickness to it that it is more than simply an
8 isolated stringer of Delaware production?

9 A Yes.

10 Q Do you have any recommendation to the
11 Examiner as to whether or not there needs to be, or should
12 be at this point, any difference with regards to spacing or
13 well locations for each of the pools?

14 A No.

15 Q I believe each of the -- the Parkway
16 Delaware is currently being developed on 40-acre spacing?

17 A That's correct.

18 Q Do you see any reason to do anything
19 other than that with the B reservoir if it's adopted by the
20 Examiner as a new reservoir?

21 A No, 40 acres would be fine.

22 Q Do you see any special requirements with
23 regards to either reservoir in terms of special rules and
24 procedures?

25 A No, sir.

1 Q Statewide rules will work for both, as
2 you understand them?

3 A Yes.

4 Q Am I correct in understanding that in
5 summary, Mr. Catalano, that as best you can determine there
6 are no operators that oppose the contraction of the A
7 reservoir and the creation of the new B reservoir?

8 A That's correct.

9 Q And the only difference of opinion is on
10 three wells there's a difference as to what the base of the
11 B reservoir ought to be?

12 A That's correct.

13 Q Summarize for us as a geologist why you
14 believe your method of locating and identifying the base of
15 the B reservoir is one the Examiner should accept.

16 A I believe the -- those two gamma ray
17 picks that I can correlate across the field, which I can
18 demonstrate on the two cross sections, which I did show,
19 are easily correlative and they can bracket where the B
20 sand reservoir is.

21 MR. KELLAHIN: That concludes
22 my examination of Mr. Catalano.

23 We would move the introduction
24 of his Exhibits One through Six.

25 MR. CATANACH: Exhibits One

1 through Six will be admitted as evidence.

2 MR. BRUCE: No questions.

3

4

CROSS EXAMINATION

5 BY MR. CATANACH:

6

Q Mr. Catalano, in the Apache Federal
7 Well, is that currently -- it's just currently produced or
8 being produced from the B, is that correct?

9

A The No. 1-A Apache Federal is being
10 produced from the 1-A -- let me give you a little history
11 on that particular well.

12

We attempted to complete -- we attempted
13 to complete in the Delaware A zone but unfortunately when
14 we fraced the well we fraced into the gas cap in the reser-
15 voir and subsequently we squeezed that off and went in and
16 made a completion up in the B zone.

17

MR. CATANACH: Is your next
18 witness an engineer?

19

MR. KELLAHIN: Yes, sir.

20

MR. CATANACH: That's all the
21 questions I have of the witness at this point.

22

MR. KELLAHIN: Mr. Examiner,
23 my next witness is Mr. Bret Herring. Mr. Herring is a pet-
24 roleum engineer.

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BRET HERRING,

being called as a witness and being duly sworn upon his oath, testified as follows, to-wit:

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A My name is Bret Herring. I am a reservoir engineer for Meridian Oil.

Q Mr. Herring, on prior occasions have you testified on behalf of your company before this Division as a reservoir engineer?

A Yes, sir, I have.

Q And pursuant to that employment have you made an engineering study of the Parkway Delaware Pool?

A Yes, sir, I have.

Q And are you familiar with the production out of the 1-A Apache Federal Meridian well that's been described thus far this afternoon?

A Yes, sir.

MR. KELLAHIN: We tender Mr. Herring as an expert reservoir engineer.

MR. CATANACH; He is so qualified.

1 Q Mr. Herring, let me have you take what
2 is marked as Exhibit Number Seven and before we describe
3 the details of that information identify it for the Exa-
4 miner.

5 A Yes, sir. This is a plat that I have
6 constructed that depicts all the producing wells within
7 Section 35 and one producing well within Section 36 that we
8 have available production information on.

9 Q In examining the available production
10 information for the Parkway Field, do you find any well
11 other than your Apache A Federal 1 Well that has been per-
12 forated and produced from the B sand?

13 A No, sir, I don't.

14 Q What have you studied, Mr. Herring, to
15 satisfy yourself as a reservoir engineer that you in fact
16 are dealing with two separate and distinct reservoirs when
17 you talk about the A reservoir and the B reservoir?

18 A Mainly the geologic correlation that has
19 already been presented. Going into a little bit of the
20 production information that we do have, this plat depicts
21 IP's and also current production out of the A zone. There
22 are 14 wells currently producing from that. Of that, 12
23 are top allowable or within 2 to 3 barrels of being top
24 allowable wells. Our Apache A No. 1 Well is currently a
25 top allowable well. It had initial IP, 289 barrels of oil

1 and 269 MCF and 82 barrels of water.

2 Q How long has the A reservoir been pro-
3 duced?

4 A For approximately two months.

5 Q The A reservoir, the lower reservoir?

6 A Oh, I'm sorry. I'm sorry. The first
7 well was completed, I believe, in August of 1988, so it's
8 going on a year right now.

9 Q Okay. Do you have any pressure infor-
10 mation to draw any comparisons or reach any engineering
11 opinions on between pressures in the two reservoirs?

12 A No, sir. We do have pressure on the
13 upper reservoir, the B sand reservoir.

14 The lower reservoir, the A sand, we
15 don't have any pressure information on.

16 Q Let me ask you to identify Exhibit
17 Number Eight for us, Mr. Herring.

18 A Exhibit Number Eight is an analysis that
19 we had performed on both the A sand and the B sand. What
20 it is is a -- what's commonly called in the industry, a GPC
21 fingerprint analysis, a GPC abbreviation for gel permeation
22 chromatograph.

23 Q Why -- why is it referred to as a fin-
24 gerprint, Mr. Herring?

25 A What it does is it takes the stock tank

1 oil of each of a sample of reservoir fluid and then it runs
2 it through this chromatograph to determine the various
3 components of that liquid.

4 What you get if you compare one reser-
5 voir to the other is a distinct and very accurate finger-
6 print of each -- of each liquid.

7 If you'll turn to the two following
8 pages, the first page, I believe, is the A sand and the
9 second page is the B sand, you'll see two fingerprints.
10 The fingerprint on the B sand has its highest peak around
11 the C-7 component. The highest peak on the A sand has its
12 highest peak around the C-18 component.

13 Q What does this tell you as a reservoir
14 engineer about whether or not the two reservoirs are in
15 fact separate?

16 A This tells me that you have two distinct
17 fluids; two separate reservoirs.

18 Q The fingerprints of each are signifi-
19 cantly different enough to you to tell you by looking at
20 that that they are separate sources of supply?

21 A Yes, sir. If you look at the top of
22 each you'll have a molecular weight. The molecular weight
23 of the A sand is about 217 grams per MOL. The molecular
24 weight of the B sand is -- the liquid from the B sand is
25 194 grams per MOL.

1 Q And that's enough for you as a reser-
2 voir engineer to tell that they are different reservoirs?

3 A Yes, sir.

4 Q All right. If they were the same reser-
5 voir what would happen to the MOL weight?

6 A You would have an identical fingerprint.
7 The molecular weight would vary maybe 1 gram per MOL. It's
8 very accurate.

9 Q And how about the next entry? It says
10 "higher mass"? That "higher mass", what is that?

11 A Yes, sir, what they do is they take 10
12 percent of the highest mass within that sample. It's com-
13 pared to molecular weight but they just section out the
14 highest components of that sample and determine a -- a
15 molecular mass from that.

16 Q And the magnitude of difference between
17 the two is sufficient for you as a reservoir engineer to
18 conclude they're in fact separate reservoirs?

19 A Yes, sir.

20 Q And how about the API gravity, is there
21 enough difference there?

22 A No, sir, I would rely on the molecular
23 weight and the 10 percent higher mass as totally suffi-
24 cient.

25 Q What other reservoir engineering infor-

1 mation have you examined to satisfy yourself that these are
2 in fact separate reservoirs?

3 A That's about it.

4 Q Is there any information derived from
5 the log analysis and the cross sections that you as a re-
6 servoir engineer can use to support your conclusion that
7 these are in fact separate?

8 A Yes, sir, just in the vertical separa-
9 tion between the two zones.

10 Q How about the -- how about the relation-
11 ship of the fluids one to the other?

12 A Yes, sir, down below in the A sand we
13 have seen a distinct gas cap on top of oil. In the upper
14 sand we have seen -- we have not seen a distinct gas cap,
15 but, of course, we had the oil column.

16 Q The type well, the 1-A Apache Federal,
17 shows what is colored in to be water above the gas cap of
18 the A reservoir.

19 A Yes, sir, normally that --

20 Q Is there water present in that -- in
21 that well?

22 A We are producing water out of that well,
23 yes, sir. Normally you do not have gas on oil, or you
24 normally have gas on oil on water and your gas should
25 migrate up hole if there was no separation.

1 Q In terms of operation of the Parkway
2 Delaware, why can't we simply perforate all the porosity
3 stringers, whether it's A or B, and produce it out of the
4 same tubing string as commingled reservoirs?

5 A To properly manage both reservoirs, if
6 you were to perforate the A sand, bring it down in reser-
7 voir pressure to whatever, come up, shoot your upper zone
8 at the virgin pressure, you would have cross flow problems,
9 mechanical, as far as initial production goes there
10 wouldn't be a problem. You have to contend with on primary
11 production, your cross flow between the two reservoirs.

12 Q All right. I was going to ask you, have
13 you satisfied yourself as an engineer that the B reservoir,
14 the upper reservoir, has sufficient volumes of producible
15 oil within that reservoir that it can stand alone as a re-
16 servoir?

17 A Yes, sir, I did.

18 Q Okay.

19 A Another problem that you do have is the
20 permeability variations between the two zones.

21 The A zone, from core analysis we've
22 seen permeabilities in the 3 to 4 millidarcy range.

23 Permeabilities in the A sand -- excuse
24 me, the B sand, are a magnitude of 10 higher, 20, 30 milli-
25 darcies.

1 So that would also contribute to your
2 cross flow problems. The B sand would have a tendency to
3 flow more readily than the A sand.

4 Q Is there any doubt in your mind as a re-
5 servoir engineer that you're dealing with two separate and
6 distinct sources of supply when you look at the A reser-
7 voir and the B reservoir?

8 A No, sir, they are two distinct, separate
9 sources of supply.

10 MR. KELLAHIN: I have no fur-
11 ther questions of Mr. Herring.

12 We would move the introduction
13 of his Exhibits Seven and Eight.

14 MR. BRUCE: No questions.

15
16 CROSS EXAMINATION

17 BY MR. CATANACH:

18 Q Mr. Herring, if you don't have any data
19 on the pressure in the A zone, how do you know if there is
20 going to be cross flow?

21 A I'm basing that primarily on permeabil-
22 ity variations between the two sands. We did do a dip in
23 on the lower sand which had been shut in for approximately
24 three weeks. Mr. Catalano had brought that information,
25 or asked me about pressure information. We did not have a

1 sufficient build-up. We had three weeks of shut-in pres-
2 sure.

3 The two reservoirs pressurewise based on
4 those dip-ins are essentially identical; 1663 was the pres-
5 sure that we recorded on the dip-in.

6 But as far as a build-up on the A sand,
7 no, sir, we don't have a detailed build-up.

8 Q What's the top allowable for this pool
9 currently?

10 A 80 barrels a day.

11 Q And tell me how, if we split this re-
12 servoir up, tell me how it's going to be produced. Are you
13 going to have to drill -- are you going to drill more
14 wells?

15 A Yes, sir.

16 Q You are?

17 A Yes, sir.

18 Q Is that not going to be somewhat unnec-
19 essary, in your opinion, drilling unnecessary wells?

20 A No, sir, it isn't. If you go in, not
21 only will you have cross flow -- cross flow problems down
22 the road between the two sands, if you get into secondary
23 and tertiary recovery, utilizing the same wellbore will be,
24 in my opinion, totally inefficient to flood both zones.

25 Q Is it -- is it not currently feasible to

1 dually complete these wells?

2 A Based on the wellbore configurations
3 that we have out there, no, sir, you've got too much mech-
4 anical downhole components that you would have to use, that
5 you would have to use elaborate downhole production
6 equipment to do such.

7 Q What's the approximate cost to drill one
8 of these wells?

9 A The last well, supposedly you're sup-
10 posed to be getting more efficient as you go along, the
11 last well we completed for approximately \$386-or-87,000.
12 That included facilities.

13 Q Have you calculated the recoverable re-
14 serves in the east half?

15 A I've calculated the original oil in
16 place based upon log calculations. I'm estimating it to be
17 about 10.3-million barrels.

18 As far as recoverable reserves go, a lot
19 is dependent upon if you have an initial gas cap, which we
20 haven't seen yet, if you have water influx, natural, and
21 then of course you're getting into secondary and tertiary
22 recovery from that.

23 MR. CATANACH: I believe
24 that's all I have of the witness.

25 Anything, any other questions?

1 MR. LYON: May I ask a ques-
2 tion?

3 MR. CATANACH: Yes, sir, Mr.
4 Lyon.

5
6 QUESTIONS BY MR. LYON:

7 Q I'm Victor T. Lyon, Chief Engineer for
8 the Oil Conservation Division.

9 Mr. Herring, where did you take your
10 samples for your fingerprint?

11 A They were taken right at the wellhead.

12 Q At the wellhead?

13 A Yes, sir.

14 Q Which wells?

15 A The No. 1-A Well and also the 2-A Well.

16 Q 1-A and 2-A, and 1-A is the one from the
17 B zone?

18 A Yes, sir.

19 Q And 2-A then is the A zone.

20 A Yes, sir.

21 Q Have you taken samples from any other A
22 zone wells?

23 A No, sir, that was the only one.

24 Q Do you have the API gravity on the --

25 A Yes, sir, as reported by flow patrol

1 (sic) the API gravity for the A sand from the No. 2-A Well
2 is 34.7 degrees API and from the B sand, is -- which was
3 taken from the No. 1-A Well, is 37.8.

4 MR. LYON: I believe that's
5 all I have. Thank you.

6 MR. KELLAHIN: Any other
7 questions of this witness?

8 He may be excused.

9 MR. KELLAHIN: Mr. Examiner,
10 we have our notice of hearing that we sent to all the
11 operators in the pool about the proposed contraction in the
12 vertical limits in the pool.

13 With the notice provision, Mr.
14 Examiner, that concludes our presentation. We numbered it
15 as No. 9.

16 MR. CATANACH: Exhibit Number
17 Nine will be admitted as evidence.

18 Mr. Bruce?

19 MR. BRUCE: Yes, sir.

20 MR. CATANACH: What have you
21 got?

22

23

GARY GREEN,

24 being called as a witness and being duly sworn upon his
25 oath, testified as follows, to-wit:

1

2

DIRECT EXAMINATION

3

BY MR. BRUCE:

4

Q Mr. Green, would you please state your full name and city of residence?

6

A Gary Green. I live in Midland, Texas.

7

Q And what is your occupation and who are you employed by?

8

9

A I'm employed as a landman by Santa Fe Energy Operating Partners, L. P..

10

11

Q And have you previously testified as a landman before the OCD?

12

13

A Yes, I have.

14

Q And are you familiar with the land matters involved in Case 9718 in the area generally surrounding the application?

16

17

A Yes, I am.

18

MR. BRUCE: Mr. Examiner, are the witness' credentials acceptable?

19

20

MR. CATANACH: Yes, sir.

21

Q Briefly, Mr. Green, what is Santa Fe's position in this hearing?

22

23

A Santa Fe supports Meridian's position that there are two or more distinct and separate pools. We support that concept. I think we have somewhat of a dis-

24

25

1 agreement on correlations, which will be addressed later,
2 and that, also, that we would propose that Section 36 also
3 be included in any new pool designation.

4 Q Well, referring to Exhibit A, which I
5 realize is marked as a structure map, but I believe it's
6 also indicated by shading to indicate different land own-
7 ership in this area, would you please discuss what inter-
8 est Santa Fe does own in this area and the reason why you
9 propose that Section 36, or at least part thereof, be in-
10 cluded in the new pool designation?

11 A Santa Fe, over in Section 36 in the
12 southeast quarter of the northwest quarter, Santa Fe
13 drilled the Parkway State No. 1. The well was completed in
14 February of 197 -- 1987 as a Delaware Sand producer. I
15 believe this is the discovery well for the field.

16 The wells, four -- other four remaining
17 producing wells in Section 36 Santa Fe owns 100 percent of.

18 In Section 35 the Long Knife (sic) in
19 the southeast of the southeast quarter, Santa Fe owns 100
20 percent of.

21 The Osage Lease, as you can see desig-
22 nated there with Wells 1, 2, 3, 4 and 5, Santa Fe owns
23 16.67 percent of.

24 The wells on the Renegade Lease just to
25 the north, Wells 1, 2, 3, Santa Fe owns 25 percent of.

1 Santa Fe owns an interest in 14 of the
2 21 producing wells in this field.

3 Q I believe the other two major interest
4 owners in this area are CFA Oil & Gas and Meridian?

5 A That is correct.

6 Q And you indicated the Parkway State Well
7 was the discovery well, is that correct?

8 A Yes, that well was drilled and completed
9 in February of 1987.

10 Q And what was the second well drilled in
11 the field?

12 A The second well was the -- was drilled
13 in Section 35 in the northwest quarter of the southeast
14 quarter of Section 35. Siete was the operator. It was
15 completed in August of 1988.

16 Q So basically the purpose of your testi-
17 mony is to propose the inclusion of Section 36 --

18 A That's correct.

19 Q -- in the pool. In your opinion is the
20 granting of this application subject to Mr. Parker's sub-
21 sequent testimony, in the interest of conservation and the
22 prevention of waste?

23 A Yes, it is.

24 MR. BRUCE: At this time, Mr.
25 Examiner, I would move the admission of Exhibit -- or, ex-

1 cuse me.

2 Q Mr. Green, were the land matters on
3 Exhibit One, were these taken off of company records at
4 Santa Fe Energy?

5 A Yes, they were.

6 MR. BRUCE: We move the ad-
7 mission of Exhibit Number -- or Exhibit A.

8 MR. CATANACH: Exhibit A will
9 be admitted as evidence.

10 MR. BRUCE: No further ques-
11 tions.

12 MR. CATANACH: Any other
13 questions of this witness?

14 MR. KELLAHIN: I have no
15 questions.

16 MR. CATANACH: He may be ex-
17 cused.

18

19

TIM PARKER,

20 being called as a witness and being duly sworn upon his
21 oath, testified as follows, to-wit:

22

23

DIRECT EXAMINATION

24

BY MR. BRUCE:

25

Q Mr. Parker, will you please state your

1 full name and city of residence?

2 A My name is Tim Parker. I live in Mid-
3 land, Texas.

4 Q And what is your occupation and who are
5 you employed by?

6 A I'm a petroleum geologist, current title
7 Exploration Manager for Santa Fe Energy Operating Partners,
8 L. P.

9 Q And have you previously testified before
10 the OCD?

11 A I have not.

12 Q Would you please briefly describe your
13 educational and employment background?

14 A I have a Bachelor of Science in geology
15 from Stanford granted in 1976; a Master's of Science in
16 geology, also from Stanford in 1977.

17 I went to work for our predecessor com-
18 pany, Oil Development Company of Texas, in Amarillo in
19 1977; have subsequently worked in Amarillo, then Denver,
20 have been in Midland for five years.

21 Q And are you familiar with the geologi-
22 cal matters related to Case 9718?

23 A Yes, I am.

24 Q And does your area of responsibility in-
25 clude the Permian Basin in southeast New Mexico?

1 A The staff who works for me is respon-
2 sible for that area, yes.

3 MR. BRUCE: At this time, Mr.
4 Examiner, I propose Mr. Parker as an expert geological
5 witness.

6 MR. CATANACH: He is so
7 qualified.

8 Q Mr. Parker, referring to your -- well,
9 first of all, let's -- let's clarify. I believe Meridian's
10 geological witness testified that the main area of dis-
11 agreement is picking out the base of the B zone, is that
12 correct?

13 A That's correct. We have no problem
14 whatsoever with the A zone as designated by Meridian and
15 support that application in full.

16 Q And you have no particular problem with
17 the top of the B zone, either, is that correct?

18 A No, sir, I do not.

19 Q Now, in particular I believe there is a
20 dispute with the base of the B zone on the Apache Federal
21 A-2, the Apache Federal A-1, and the Halcon Fed No. 2
22 Wells, is that correct?

23 A That's correct.

24 Q What are the figures for the base of the
25 B zone which Santa Fe proposes and let me refer you to

1 Exhibit Number B to discuss that issue?

2 A That point on the three logs in ques-
3 tion, or the three wells in question, on the Apache A-2
4 Santa Fe proposes that 4025 is a more appropriate boundary.

5 For the Apache Fed A-1 we believe that
6 4013, 4013 is a more appropriate number.

7 Excuse me. I am sorry, I was given an
8 error. We would -- we would -- for the A-2 we believe that
9 3998 is appropriate; for the A-1 the 3984; and for the
10 Strata Halcon Fed 2, that 4060 is appropriate.

11 And if you'll let me walk you through
12 this I can show you why.

13 Q Please do so.

14 A We have provided as Exhibit B a strati-
15 graphic cross section at expanded scale so that you can
16 really see that these correlations are not as controver-
17 sial as you might believe.

18 First a few words about differences in
19 methodology.

20 The point that Mr. Catalano made earlier
21 that the gamma ray kicks have relatively little to do with
22 lithology, we accept, and believe that what we need to be
23 focused on for reservoir boundaries are tight intervals
24 which -- through which fluid cannot flow, and consequently,
25 that's been our basis for our correlations, and you can see

1 as we run across, we have -- this is a stratigraphic cross
2 section. It is on the base -- our proposed base of the B
3 interval and this is not a difficult correlation running
4 across here.

5 It is a continuous marker. Core data
6 which we had in other parts of the field showed that it is
7 tight and likely a reservoir boundary, and that marker, we
8 have no problem carrying throughout the field.

9 So that, to us, is the kind of markers
10 that you ought to have in this kind of situation, kind of
11 real reservoir boundaries necessary.

12 Q What, in particular referring to the
13 Meridian 2-A Well and the offset well I believe is the
14 Siete --

15 A Uh-huh.

16 Q -- Renegade Fed No. 2 Well, what is the
17 practical effect in the difference between the base pro-
18 posed by Santa Fe and the base proposed by Meridian?

19 A Well, as we previously stipulated, Meri-
20 dian's proposed base of the B in the Meridian 2-A is at
21 this point at 4025, and you see that this interval does
22 fall within a reservoir interval.

23 Their next point we find ourselves in
24 agreement. You can see that this interval, which we bring
25 across here as a continuous reservoir interval, gets split.

1 Where it is present within their B interval to the -- on
2 their well, it is not within the reservoir interval here,
3 and it gets to be a very significant point because we would
4 also disagree with these water designations. Our analysis
5 of the logs in this area, we've spent considerable effort
6 on log evaluation, suggests that that interval is also oil
7 bearing.

8 So this is not a moot point. We do have
9 an interval which does have an economic impact for us and
10 which we think does need to be within the B interval.

11 Q So, in other words, taking Meridian's
12 markers, or their cutoff points could potentially allow,
13 say, the Meridian Fed 2-A Well to produce from a certain
14 zone but the Siete well could not produce from what they
15 have --

16 A That's correct.

17 Q And it could adversely affect Siete's
18 and Santa Fe's correlative rights.

19 A That's how I would understand it to be.

20 Q Now you mentioned the water. Is there a
21 difference between you and Meridian regarding the pay and
22 the non-pay in the B zone?

23 A Yes, there is. As I pointed out just a
24 moment ago, Meridian would hold that this interval on their
25 F-F' cross section, centered about 4000 feet to be more

1 precise from 3985 to 4012 or 4013, would be water bearing.
2 Our well calculations would suggest that that is oil
3 bearing.

4 Q To clarify one point, Meridian's wit-
5 ness talked about Steve Johnson. Does he report directly
6 to you?

7 A Yes, he does. He's done this work under
8 my direct supervision and, additionally, this is an area of
9 more than casual interest to us, so I have worked each one
10 of these logs, correlated them all myself.

11 Q And, to verify one point, in your opin-
12 ion, using the dolomite stringers to determine the base of
13 the B zone is reasonable and can be done with reasonable
14 accuracy throughout this field.

15 A Yes, sir, and I think the accuracy of
16 the methodology is demonstrated by noting the overall
17 parallelism, which is exactly what you'd expect overall in
18 this kind of a setting, suggesting you don't have any big
19 divergences. It seems to us to be a very reasonable and
20 proper methodology.

21 Q And, using your methodology, you do
22 agree with Meridian that there is a reservoir separation
23 between the A and B zones.

24 A Absolutely. Absolutely.

25 Q Now, in your opinion is the granting of

1 this application in the interest of prevention of waste?

2 A Yes, it is.

3 Q And could you give a few concrete ex-
4 amples on that?

5 A Well, it looks to us like, it's very
6 early in the life of this field, but it looks to us that --
7 as if the average well life in currently producing zones
8 will be on the order of 8 to 10 years minimum, and that is
9 not making any allowances for secondary or tertiary re-
10 covery.

11 We would agree with testimony of Mr.
12 Herring that secondary recovery operations would be signi-
13 ficantly compromised by having multiple zones open, so we
14 have two separate instances where we're either not going to
15 produce reserves for the foreseeable future, and secondly,
16 where we are going to have significant mechanical compli-
17 cation.

18 We are in the same position as Meridian
19 in that our currently production wellbores are not config-
20 ured such that we could dually complete.

21 Q And in your opinion will the granting of
22 the application as requested, as with the modifications,
23 maybe we can say, proposed by Santa Fe, will be in the in-
24 terest of the protection of correlative rights?

25 A Yes, it is.

1 Q Was Exhibit B prepared by you or under
2 your direction?

3 A It was.

4 MR. BRUCE: I move the ad-
5 mission of Exhibit B, Mr. Examiner.

6 MR. CATANACH: Exhibit B will
7 be admitted as evidence.

8 MR. BRUCE: That concludes my
9 direct testimony, or my direct presentation.

10 MR. CATANACH: Mr. Kellahin?

11

12

CROSS EXAMINATION

13 BY MR. KELLAHIN:

14 Q Mr. Parker, where is Mr. Johnson today?

15 A Mr. Johnson's in Midland.

16 Q How come he didn't come in your place?

17 A Mr. Johnson is working on other projects
18 today.

19 Q Am I correct in understanding that there
20 is no practical difference between the use of the dolomite
21 marker as the base of the B reservoir and Mr. Catalano's
22 use of the gamma ray kick as the base in all the wells in
23 the proposed pool area with the exception of the 3?

24 A That's correct.

25 Q We find that this dolomite marker is

1 generally contiguous with Mr. Catalano's gamma ray kick on
2 the base?

3 A Generally so, yes.

4 Q And yet in three of the wells we find
5 that the dolomite marker is somewhat above Mr. Catalano's
6 gamma ray pick.

7 A That's correct.

8 Q All right. And two of those wells are
9 Meridian operated wells.

10 A Yes, sir.

11 Q The third well is the Halcon Federal No.
12 2 Well. That's operated by Strata?

13 A Correct.

14 Q Is that one of your wells?

15 A No, sir.

16 Q Did I understand you to tell us that
17 based upon the log analysis you thought there might be some
18 hydrocarbons below the dolomite marker in the Meridian well
19 and yet above the gamma ray kick that Mr. Catalano finds
20 in that well?

21 A No, sir, you understood that incorrect-
22 ly. I found -- we believe there are hydrocarbons below Mr.
23 Catalano's marker and above our dolomite marker.

24 Q All right. Between -- between that in-
25 terval, between the above Mr. Catalano's gamma ray kick and

1 below your dolomite marker, you believe there's hydrocar-
2 bons.

3 A We do.

4 Q Why shouldn't that be included in the B
5 reservoir?

6 A We believe that the reservoir limiting
7 factor is that dolomite marker; that that is what separ-
8 ates -- that that separates the proposed Delaware B reser-
9 voir from reservoirs which are below it.

10 Q Has anyone yet produced that portion of
11 the B reservoir that's below your dolomite marker?

12 A Yes, sir. The Siete Osage Federal No. 5
13 is completed in that interval.

14 Q In that interval alone, or is it also
15 completed in the area above the dolomite marker, as well?

16 A No. No, it is completed by our corre-
17 lations within the A zone and above the A zone but not as
18 high as the B.

19 Q The general thickness of this dolomite
20 marker is approximately 10 feet, is it not?

21 A That's correct.

22 Q As you find it in the Meridian well.

23 A As we find it throughout the field.

24 Q All right, are you willing to tell us
25 that that is a consistent, uniform impermeable barrier that

1 will separate out the upper B from the lower B throughout
2 this reservoir?

3 A We find it so, yes.

4 Q And you find it of consequence in only
5 three of the wells that have been drilled through this
6 area.

7 A We find that we disagree with Meridian
8 on only three of the wells, yes.

9 Q It only makes a difference on three
10 wells, none of which you have an interest in.

11 A That's correct.

12 MR. KELLAHIN: No further
13 questions.

14 MR. BRUCE: Can I ask one?

15

16 REDIRECT EXAMINATION

17 BY MR. BRUCE:

18 Q However, that difference, as we said
19 before, or you said before, I believe, could have an ad-
20 verse effect on the Siete Renegade Well.

21 A Yes, it could. We believe it could.

22 Q There is potential of the Meridian Well
23 draining the --

24 A That's the situation as we see, yes.

25 MR. BRUCE: I have nothing

1 further, Mr. Catanach.

2

3

CROSS EXAMINATION

4

BY MR. CATANACH:

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Q Mr. Parker, explain to me how that's going to adversely affect the Siete Well?

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A The B zone as designated by Meridian would be in -- in this well would be from this point up, and note that in both cases the reservoir quality sand indicated that in our opinion is hydrocarbon bearing.

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When we move to the Renegade No. 2, this point is -- their point has jumped up to this point. Our correlation brings this reservoir, hydrocarbon bearing, in our opinion, directly across to here, and consequently, we have a zone which is continuous from a reservoir point of view, being divided by a designation -- by their designation.

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Q I see.

MR. CATANACH: Are there any other questions of the witness?

He may be excused.

Is there anything further in this case?

Case 9718 will be taken under advisement. Oh, I'm sorry.

1 MR. BRUCE: We did request
2 that the application be expanded, if you will, we'd like to
3 keep the record open, if necessary, if granted by the Ex-
4 aminer, to file the appropriate application or to send the
5 appropriate notices to offset operators, maybe readvertise
6 the case.

7 MR. KELLAHIN: Maybe there's
8 another way to do that and I'm not sure how to make it work
9 but I think if the initial pool area as noticed and adver-
10 tised is approved, then all Santa Fe needs to do is file
11 the notices and because they're in such close proximity to
12 the initial area, it would automatically get expanded and
13 included and they can take in as many of their wells as
14 they want to.

15 MR. STOVALL: Through a nomen-
16 clature procedure.

17 MR. KELLAHIN: Through a no-
18 menclature procedure administratively, and it really would,
19 it would expand immediately to the area that you want to
20 ascribe to the pool. I really do think it would work that
21 way.

22 MR. STOVALL: I have a con-
23 cern, Mr. Bruce, that I don't think this -- keeping this
24 record open for that purpose is appropriate. Now what Mr.
25 Kellahin suggested may be a way to do it or maybe, you

1 know, you need to file an application, but I don't think
2 that changes what you've got to do, but I don't see any
3 reason to keep this record open.

4 I think you've got a notice
5 problem in keeping this record open, a notice and appli-
6 cation problem to take this case further.

7 MR. BRUCE: There's one other
8 gentleman who'd like to make a statement.

9 MR. EDDIE RODRIGUEZ: Okay,
10 this is on the record.

11 Siete Oil & Gas -- my name is
12 Eddie Rodriguez for Siete out of Roswell, and the only in-
13 formation that I knew prior to coming to this hearing was
14 what was submitted to me in the mail. This information has
15 brought me back to what exactly Meridian is asking for and
16 it also brought to me the fact that we might be jeopar-
17 dizing the Renegade Pool reserves.

18 As a prudent operator it is my
19 obligation to make sure that those reservoir reserves are
20 not -- they have to be accounted for, so what I would probably
21 ask is a package of the information that was presented by
22 Meridian today so I can take it back to my office for fur-
23 ther evaluation.

24 MR. KELLAHIN: You can have it
25 right here. I didn't know you were here, I'm sorry. Here

1 you go.

2 MR. CATANACH: Well, does that
3 alleviate your concern, Mr. Bruce, that these can be done
4 administratively or through a nomenclature hearing?

5 MR. BRUCE: Yeah, I think Mr.
6 Rodriguez would like a chance to comment once having
7 reviewed.

8 MR. STOVALL: Mr. Rodriguez,
9 now you did not enter an appearance at the beginning of the
10 case so we'll bring you in as a participant, do you have
11 some sense that Siete would want to add additional testi-
12 mony or evidence to this case?

13 MR. RODRIGUEZ: There is a
14 possibility that might occur. Again, not knowing any more
15 than what was given to me off the one well delineating the
16 vertical limits of the Delaware, some new information has
17 been brought up to make that might make us want to add some
18 information to this (not clearly understood.)

19 MR. STOVALL: Are you -- are
20 you -- do I interpret that to mean that you are requesting
21 a continuance in this case for a period of time to review
22 the information?

23 Do you understand what I mean
24 by a continuance?

25 MR. RODRIGUEZ: Yes, sir,

1 sure.

2 MR. STOVALL: Well, I think --
3 I think leaving the record open creates a little bit of a
4 problem because we don't quite know when -- when to close
5 it in this particular situation.

6 Mr. Kellahin, do you have any
7 --

8 MR. KELLAHIN: Well, with all
9 due respect to the gentleman, we've continued the case once
10 at the request of Mr. Bruce on behalf of his client and
11 we've noticed Siete. I really would like to bring an end
12 to the proceeding. I think leaving it open for a comment
13 period leaves us in the predicament of not being able to
14 respond or cross examine the commentator.

15 I have no objection if Mr.
16 Bruce will extend the courtesy to Siete to enter an ap-
17 pearance for them today and preserve their right to ask for
18 a de novo if they think that the outcome is adverse to
19 their interest and maybe that is the safety net we need to
20 extend to Siete, and I certainly would not object to doing
21 that, and that would give them the opportunity to another
22 hearing if they are disturbed with the outcome of this one.

23 MR. BRUCE: All right, if you
24 will allow it, I will enter an appearance on behalf of
25 Siete Oil & Gas Corporation.

1 MR. KELLAHIN: We will have no
2 objection.

3 MR. CATANACH: We will allow
4 it.

5 And apparently we're in agree-
6 ment to close the record in this case at this time?

7 MR. BRUCE: Sure.

8 MR. CATANACH: Okay, this case
9 will be taken under advisement.

10 And the hearing is adjourned.

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12 (Hearing concluded.)

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C E R T I F I C A T E

I, SALLY W. BOYD, C. S. R. DO HEREBY
CERTIFY that the foregoing Transcript of Hearing before the
Oil Conservation Division (Commission) was reported by me;
that the said transcript is a full, true and correct record
of the hearing, prepared by me to the best of my ability.

Sally W. Boyd CSR

I do hereby certify that the foregoing is
a complete record of the proceedings in
the Examiner hearing of Case No. 9718,
heard by me on August 23 19 45.

David R. Calvert, Examiner
Oil Conservation Division