

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

IN THE MATTER OF THE HEARING CALLED BY)	
THE OIL CONSERVATION COMMISSION FOR THE)	
PURPOSE OF CONSIDERING:)	
)	
APPLICATION OF MEWBOURNE OIL COMPANY)	CASE NOS. 11,723
FOR AN UNORTHODOX GAS WELL LOCATION)	
AND NONSTANDARD GAS PRORATION UNIT,)	
EDDY COUNTY, NEW MEXICO)	
)	
APPLICATION OF FASKEN OIL AND RANCH,)	11,755
LTD. FOR A NONSTANDARD GAS PRORATION)	
AND SPACING UNIT AND TWO ALTERNATE)	
UNORTHODOX GAS WELL LOCATIONS,)	
EDDY COUNTY, NEW MEXICO)	
)	
APPLICATION OF TEXACO EXPLORATION AND)	11,868
PRODUCTION, INC., FOR CLARIFICATION OR,)	
IN THE ALTERNATIVE, AN EXCEPTION TO THE)	
SPECIAL POOL RULES AND REGULATIONS FOR)	
THE CATCLAW DRAW-MORROW GAS POOL,)	
EDDY COUNTY, NEW MEXICO)	
)	(Consolidated)

REPORTER'S TRANSCRIPT OF PROCEEDINGS (Volume I)
COMMISSION HEARING

BEFORE: WILLIAM J. LEMAY, CHAIRMAN
WILLIAM WEISS, COMMISSIONER
JAMI BAILEY, COMMISSIONER

October 30, 1997
Santa Fe, New Mexico

This matter came on for hearing before the Oil Conservation Commission, WILLIAM J. LEMAY, Chairman, on Thursday, October 30th, 1997 (Volume I), at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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* * *

1 WHEREUPON, the following proceedings were had at
2 9:03 a.m.:

3 CHAIRMAN LEMAY: Good morning, this is the Oil
4 Conservation Commission here, special meeting here in late
5 October. My name is Bill LeMay, Chairman of the
6 Commission. To my left is Commissioner Bill Weiss, to my
7 right Commissioner Jami Bailey representing the
8 Commissioner of Public Lands, State of New Mexico.
9 Welcome.

10 I think we'll start with a little business. Do I
11 hear a motion for approval of the minutes for the previous
12 meeting?

13 COMMISSIONER WEISS: Yeah, I motion that we
14 approve the minutes of the previous meeting.

15 CHAIRMAN LEMAY: Second?

16 COMMISSIONER BAILEY: Second.

17 CHAIRMAN LEMAY: Thank you. So moved and
18 seconded. The minutes of the previous meeting will be
19 approved.

20 * * *

21 CHAIRMAN LEMAY: We will now call Case Number
22 11,723, which is the Application of Mewbourne Oil for an
23 unorthodox gas well location and nonstandard gas proration
24 unit, and Case Number 11,755, Application of Fasken Oil and
25 Ranch, Ltd., for a nonstandard gas proration and spacing

1 unit.

2 Is there a motion to consolidate these two cases?

3 MR. BRUCE: Yes, Mr. Chairman, Jim Bruce
4 representing Mewbourne Oil Company. I move that those two
5 cases be consolidated, and I think with Mr. Carr's
6 permission --

7 MR. CARR: Yes.

8 MR. BRUCE: -- there's a third case on the docket
9 also to be consolidated.

10 CHAIRMAN LEMAY: I was going to ask Mr. Carr if
11 they want that consolidated with it.

12 MR. CARR: Yes, we do.

13 CHAIRMAN LEMAY: Case Number 11,868, which is the
14 Application of Texaco Exploration and Production for
15 clarification or, in the alternative, an exception to the
16 special pool rules and regulations in the Catclaw Draw
17 field.

18 So we will consolidate all three of those cases,
19 and I shall now call for appearances in these cases.

20 MR. BRUCE: Mr. Chairman, in all three cases, Jim
21 Bruce of Santa Fe, representing Mewbourne Oil Company
22 together with Michael F. Shepard, general counsel of
23 Mewbourne Oil Company.

24 CHAIRMAN LEMAY: Thank you. Mr. Shepard.

25 Yes, sir, Mr. Kellahin?

1 MR. KELLAHIN: Mr. Examiner, members of the
2 Commission, my name is Tom Kellahin of the Santa Fe law
3 firm of Kellahin and Kellahin. I'm appearing on behalf of
4 Fasken Oil and Ranch and Fasken Land and Minerals. They're
5 both limited partnerships. They are the parties Applicants
6 in Case 11,755.

7 CHAIRMAN LEMAY: Thank you, Mr. Kellahin.
8 Mr. Carr?

9 MR. CARR: May it please the Commission, my name
10 is William F. Carr with the Santa Fe law firm Campbell,
11 Carr, Berge and Sheridan. We represent Texaco Exploration
12 and Production, Inc., in this matter.

13 The record also shows an entry of appearance
14 which we filed for Penwell Energy, Inc., the west offset to
15 the Fasken location.

16 Neither Texaco nor Penwell will be presenting
17 testimony in opposition to the Fasken location.

18 I do have two witnesses.

19 CHAIRMAN LEMAY: Thank you, Mr. Carr.

20 How many witnesses, Mr. Kellahin?

21 MR. KELLAHIN: I have three witnesses to be
22 sworn, Mr. Chairman.

23 CHAIRMAN LEMAY: Thank you. Mr. Bruce?

24 MR. BRUCE: I have three witnesses, possibly
25 four. I will swear in four.

1 CHAIRMAN LEMAY: Any other appearances in the
2 case?

3 If not, will those witnesses that will be giving
4 testimony please stand and raise your right hand?

5 (Thereupon, the witnesses were sworn.)

6 CHAIRMAN LEMAY: I think before we get into it,
7 we have to deal with this -- lemonade, I call it, or *limine*
8 proposal. I have to admit, the first time we've ever seen
9 that. And if you want to explain what that's all about,
10 Mr. Kellahin? I know as far as dealing with the operating
11 agreement I know you were wanting to not have that as any
12 type of testimony in here, and we want to hear why we
13 shouldn't or what you'd like us Commissioners to do.

14 MR. KELLAHIN: I'd be happy to present my motion.

15 CHAIRMAN LEMAY: We did give a preliminary ruling
16 on this. The reason why -- I mean, I denied the motion,
17 but the reason why I wanted you to present this is because
18 it's something new for the Commission. I'd like to have
19 something on the record, what is all about, I guess, in
20 terms of future presentations.

21 MR. KELLAHIN: I'd be happy to explain it.

22 CHAIRMAN LEMAY: Thank you.

23 Well, first of all, what is it? I mean,
24 generally it's a motion, isn't it?

25 MR. KELLAHIN: Yes, sir, I'm going to tell you.

1 CHAIRMAN LEMAY: Okay.

2 MR. KELLAHIN: Let me give you a little bit of
3 background of what this is about.

4 This little map here is going to be our Exhibit
5 1, and it's a production map. It will be color-coded when
6 you see Exhibit 1, to present it by our witnesses.

7 We are looking at an area in which the principal
8 objective of the wells down here in 12, 13, 11 and 14 has
9 been gas production out of the Catclaw Draw Oil and Gas
10 Pool.

11 You will remember that that gas pool was a
12 prorated gas pool. The history of that pool is complicated
13 and involved. It was prorated on 640-acre gas spacing.
14 Wells were to be located 1650 from the side boundaries of
15 the section.

16 In about 1980 Tenneco came before the Division
17 with a technical presentation to demonstrate the necessity
18 for additional wells in the spacing unit. Their strategy
19 was to ask the Division to downspace the pool.

20 The Division approved the downspacing to 320 gas
21 spacing and adopted side boundary setbacks for wells, which
22 was the convention at that time, being 660 from the side,
23 1980 from the end.

24 Just about the time that order was dry, Tenneco
25 realized, when they talked to their land people, that they

1 had made a mistake. The downspacing cost created the
2 potential that wells previously -- leases previously
3 dedicated to those spacing units would be terminated,
4 because they were no longer dedicated to a producing
5 spacing unit.

6 So they came back in and asked the Division to
7 vacate that rule. The concept was still the necessity for
8 additional wells. However, in order to overcome the
9 inherent problems anytime you downspace a pool, they
10 adopted infill wells. And so when you look at the Catclaw
11 Draw Rules, you'll find that we still have 1650 setbacks,
12 and we have the option to drill a second well in the
13 spacing unit.

14 You may remember that while the pool is still
15 technically prorated, the Division has suspended
16 prorationing, production is no longer reported, and wells
17 produce at capacity.

18 We're going to be talking in Section 12 with the
19 Texaco wells. There's two of them. The Levers 1, which is
20 the southern well, and -- Levers, the Levers 2 is the
21 northern well.

22 The Levers well is 2448 feet from the common
23 boundary between the two sections. Section 1 is an
24 irregular size section. It contains more than 640 acres.
25 The center third of that section is now held by the Bureau

1 of Land Management because the lease has expired. And when
2 we talk about the old Fasken well in the center third of
3 the section, that well was drilled at a time at which this
4 lease was subject to the operating agreement.

5 There are two things going on here, there are two
6 disputes.

7 One is a contractual dispute over operations in
8 the south half of Section 1. That dispute is based upon a
9 contractual interpretation of an operating agreement that
10 dates from 1970. Under that agreement there is a dispute
11 between Fasken and Mewbourne about operations, about
12 multiple well proposals, about priority of well proposals.
13 All those matters are being litigated in a district court
14 in the State of Texas.

15 What Mewbourne proposes is to place their well,
16 which we call the Mewbourne location, 660 from the boundary
17 with Texaco and 2310 from the east boundary.

18 Fasken has a different idea. Their proposal is
19 for a well 750 from the west line and 2080 feet from the
20 south line. The Fasken location does not encroach on
21 Texaco, and Texaco has no objection.

22 The Fasken location does encroach upon Section 2,
23 which is operated by Penwell. Penwell has signed a waiver.
24 There is no objection to the Fasken location. Texaco
25 objects to the Mewbourne location.

1 The motion *in limine* is simply to exclude from
2 discussion today evidence and argument about the
3 contractual dispute.

4 CHAIRMAN LEMAY: Okay, I'll just interrupt you
5 for a minute. The reason I wanted you to go into that is
6 because we had some discussion within the district --
7 within our Division here, that my fellow Commissioners did
8 not have an opportunity to be involved in. So by denying
9 the motion, I wanted them to know what the motion was about
10 and to have it explained to them, and also to have it on
11 the record so that we can refer to this if it comes up
12 again.

13 Thank you, Mr. Kellahin. Continue. I just
14 wanted to reiterate the reason for it.

15 MR. KELLAHIN: The motion *in limine* is simply
16 nothing more than a motion to exclude. It is done in
17 district court proceedings, it's an understood process in
18 district court, and it's to expedite the process to deal
19 with relevant issues before that particular court.

20 In this instance my argument is, the relevant
21 issues for you are engineering and geologic issues with
22 regards to the well locations. You can make those
23 decisions independent of and exclusive of the dispute in
24 litigation over the contract in terms of who drills how
25 many wells where.

1 That's --

2 CHAIRMAN LEMAY: Okay, well, I wanted that
3 presentation, and I appreciate that.

4 Is there confusion with that? Are we --

5 (Off the record)

6 CHAIRMAN LEMAY: Mr. Bruce, did you want to
7 respond to that?

8 MR. BRUCE: Well, I had a brief opening argument,
9 a statement that kind of addresses that.

10 CHAIRMAN LEMAY: Do you? Okay. So you have a
11 chance to certainly bring it into your opening argument
12 and --

13 MR. BRUCE: Yes, sir.

14 CHAIRMAN LEMAY: -- is it all right with you if
15 we go on with the arguments now -- or with the opening
16 statements, I should say?

17 MR. BRUCE: Sure.

18 CHAIRMAN LEMAY: I appreciate that. I appreciate
19 your indulgence while we educated my fellow Commissioners
20 here on what was going on with that.

21 MR. BRUCE: Mr. Chairman, members of the
22 Commission, I think this is an interesting case. It
23 involves some issues not commonly before the Division,
24 although in thinking about that, I think your recent cases
25 have involved many issues which you commonly haven't seen

1 before, so many it's no different from what you've faced
2 over the last year or two.

3 As Mr. Kellahin said, this case involves the
4 Catclaw Draw-Morrow Gas Pool, which is spaced on 640 acres,
5 with wells no closer than 1650 feet to the outer boundaries
6 of the section. This 640-acre spacing is not based on
7 drainage. The Division has previously held that wells in
8 this pool only drain 320 acres.

9 As Mr. Kellahin said, the 640-acre spacing was
10 actually reinstituted. It was 640-acre spacing, it was
11 downspaced, and then it was respaced to 640 acres, merely
12 to prevent the loss of leases of the working interest
13 owners in this area.

14 Now, the applications by both Fasken and
15 Mewbourne involve nonstandard well units. This is an
16 irregular -- It's about a 900-acre section. The
17 nonstandard unit is necessitated because the middle third
18 of this section is unleased federal land. It's under, I
19 believe, a falcon study. There is no time line for even
20 putting it up for bid. And therefore whoever drills a well
21 in this section needs a nonstandard proration unit. We
22 believe that's a minor issue.

23 The second issue involves the two well proposals
24 by Mewbourne and Fasken. This matter does not involve
25 competing compulsory pooling applications where the

1 Commission grants one and denies the other. In this case
2 there's an operating agreement. That agreement provides
3 that once a well proposal is made, a time line is started
4 to implement the drilling of that well. The operating
5 agreement states that after the 30-day election period
6 ends, the consenting parties shall actually commence work
7 on the proposed operation and complete it with due
8 diligence.

9 Mewbourne was the first party to propose a well
10 to the interest owners under the operating agreement, and
11 as a result, the parties must proceed to drill that well.
12 And that is the well in which I believe Fasken elected to
13 participate.

14 Mewbourne fails to see how a party who agreed to
15 participate in a well under a JOA can now object to that
16 well.

17 Now, in regard to the dispute between Mewbourne
18 and Fasken, there is a difference in geology, but we don't
19 think that's the determining factor as between those two
20 parties. Mewbourne, the largest interest owner in the
21 proposed well, with the most at risk, has a vested interest
22 in proposing a good geologic location. That only makes
23 sense.

24 However, if an interest owner under the operating
25 agreement doesn't agree with Mewbourne's geology, its

1 option is to go nonconsent under the JOA, not to come to
2 the Division or the Commission and fight approval of that
3 well, as Fasken has done.

4 Now, regarding the unorthodox locations, because
5 this is a nonstandard unit and because of the pool rules,
6 every well in the proposed unit is nonstandard; there's no
7 way you can be 1650 feet from the outer boundaries anywhere
8 within this well unit.

9 The unorthodox locations are of concern because
10 of Texaco's objection. Mewbourne will present evidence
11 that, based on geology, its location is necessary to
12 develop the unit and to protect the correlative rights of
13 these section-line interest owners.

14 In addition, based on drainage, based on the fact
15 that Texaco's well in the north half of Section 12 was
16 drilled without permission, has already drilled -- I should
17 say, has already produced 2.2 BCF of gas, which we believe
18 is illegally produced, and because of the well development
19 patterns within this pool, no penalty should be assessed on
20 Mewbourne's unorthodox location. At this time, because of
21 drainage of Section 1, granting Mewbourne's Application
22 without penalty only puts it on an equal footing with other
23 wells in the pool.

24 We are asking the Commission to approve the
25 Mewbourne location and either deny the Fasken Application

1 at this time, or approve it with the stipulation that
2 Mewbourne's well has a right to be drilled first. The fact
3 of the matter is, both the Fasken and Mewbourne wells can't
4 be drilled and produced without a simultaneous dedication
5 order, and no one has requested that in this case.

6 If the Commission approves the Fasken well
7 location and denies the Mewbourne location, then you're
8 treating this like competing pooling cases, rather than as
9 wells proposed under an operating agreement. Such a
10 decision will give any interest owner under a JOA an
11 absolute veto power over any well proposal by simply
12 proposing a second well. We don't think that's
13 contemplated by the operating agreement and should not be
14 condoned by the Commission.

15 As I said in my motion in response to the -- my
16 response to the motion *in limine*, the Commission has the
17 power to receive evidence and determine whether an
18 applicant owns minerals or has the right to drill in the
19 subject unit.

20 We believe that at this time Fasken does not have
21 the right to drill a well and that the only consideration
22 which should be made by the Commission is the propriety of
23 Mewbourne's proposal.

24 We ask you to hear the evidence and grant
25 Mewbourne's Application.

1 Thank you.

2 CHAIRMAN LEMAY: Thank you, Mr. Bruce.

3 Mr. Kellahin?

4 MR. KELLAHIN: Mr. Chairman.

5 Mr. Bruce is giving you legal opinions with
6 regards to the contractual dispute, over which we disagree
7 with him. These are matters that should not occupy your
8 attention.

9 Mewbourne concedes that Fasken has an interest in
10 the spacing unit. We concede they have an interest in the
11 spacing unit. We both have the right to advance our
12 Applications before this agency. We believe that's all you
13 need to know, and that's sufficient to let both parties go
14 forward.

15 This is not a new issue before the Division. We
16 debated these same issues before Mr. Stogner and Mr.
17 Carroll. He agreed with me and disagreed with Mr. Bruce.
18 We presented our case, he denied the Mewbourne location,
19 approved the Fasken location, and we're here today to ask
20 you to affirm the Examiner's order in that case.

21 There was a procedural dispute back in April.
22 The Fasken Application was filed under their operating
23 company, Fasken Oil and Ranch, Limited. It's not unlike
24 what Nearburg does, Nearburg Producing, versus Nearburg
25 Exploration, or others.

1 Mr. Bruce objected to that. He said that the
2 operating company did not have the ownership interest in
3 the spacing unit.

4 I filed a motion to join the ownership company,
5 which was Fasken -- is Fasken Land and Minerals. That
6 motion was granted. We have corrected any kind of
7 procedural glitch that might be perceived with regards to
8 the identity of our companies. Both companies are before
9 you today. We have an interest and a right to proceed.

10 The dispute involves well locations. That
11 dispute as to the priority of drilling the wells, the well
12 proposals and that contractual interpretation is now being
13 litigated and adjudicated in a district court in Texas.

14 We're asking you to look at our location. And in
15 doing so, we're going to show you the geologic
16 interpretation we have. Our location is unopposed. Our
17 preference for our location is to access not only the
18 Morrow but to also have an opportunity to test for Cisco
19 gas production. That opportunity does not exist at the
20 Mewbourne location. Mewbourne concedes they do have that
21 opportunity.

22 Part of the technical case is going to involve a
23 difference of geologic opinion about the depositional
24 environment in the Morrow. You will have that issue to
25 consider.

1 You will also have the issue of seismic
2 interpretation. We have a geophysicist to discuss with you
3 some faults of significance. These faults are substantial.
4 There is a substantial fault that isolates the Mewbourne
5 location from the Texaco well. Their notion is, they want
6 to get closer to the Texaco property. The problem with
7 their location is, they're on the downthrown side of the
8 fault. They will not be able to compete with the Texaco
9 Levers 2 well.

10 We believe our location is on the correct side of
11 the fault, and we are in the same fault block with the
12 Texaco well. You'll have that evidence presented, and
13 you'll have that issue to resolve.

14 We have engineering evidence to present to you to
15 justify what we think are the recoverable gas reserves
16 under the various geologic scenarios. We believe that we
17 have a valid and legitimate reason to have you approve our
18 location and to affirm what the Division Examiner did.

19 As part of that presentation, we will show you
20 what we think are the adverse consequences of the Mewbourne
21 location, and in doing so, then, you'll have our
22 information upon which to decide how to resolve the Texaco
23 opposition to the Mewbourne location.

24 You have lots of options. As I told Examiner
25 Stogner, you have multiple options. Technically, you could

1 deny them both. You could approve them both. You can
2 approve one and deny another. You could put a penalty on
3 one and not another. The shopping list is significant.
4 It's within your jurisdiction to do those things.

5 It is not within your jurisdiction to adjudicate
6 and worry about the interpretation of contracts. You're
7 absolutely precluded from doing so. And to engage in that
8 discussion and to have Mr. Bruce present his landman to
9 give you legal conclusions and his opinions about that
10 contract is a waste of your time and is not within your
11 responsibilities.

12 I suggest to you that we move ahead and look at
13 the geologic and engineering evidence and let you decide
14 those issues that are within your jurisdiction.

15 Thank you.

16 CHAIRMAN LEMAY: Mr. Carr?

17 MR. CARR: Mr. Chairman, members of the
18 Commission, from Texaco's perspective there are really
19 three parts to this case.

20 The first part is the dispute between Mewbourne
21 and Fasken under their operating agreement, and that is not
22 our dispute, and we do not intend to be involved in that
23 portion of the case.

24 The second part of the case as we see it relates
25 to Mewbourne's proposed unorthodox well location. And our

1 concern is simply that they are proposing a well too close
2 to Texaco-operated acreage.

3 You see, we operate Section 12, the south offset
4 to their proposed unorthodox location. It's a standard
5 unit. And on that unit we have drilled two wells. Instead
6 of being 1650 feet back from the south line of that tract,
7 they propose to drill 660 feet from our lease line, and we
8 object.

9 When we developed the acreage in Section 12, we
10 honored the setbacks. And we believe this is, in fact, a
11 case that is overridden with drainage issues. You have one
12 operator who is over 2000 feet from the common line, and
13 the offset wants to locate 660 feet from that line. And we
14 believe, in fact, they will be draining reserves from us.

15 The evidence is going to show that Mewbourne
16 proposed their location for one reason, one reason alone,
17 and that is, they wanted to be as close as possible to the
18 offsetting Texaco property. They've admitted that in the
19 papers they filed in their Midland litigation. It's a
20 classic case of closeology. And after they decided to
21 drill on top of us, they have gone out and tried to build a
22 technical case to support their decision that was not based
23 on technical reasons at all.

24 But we do know that they're 60-percent too close
25 to us. We do know that the Levers Number 2 well, the

1 offsetting well on the Texaco tract, will drain a large
2 area. We do know that they hope to get a comparable well
3 and, if so, they will be competing for reserves.

4 And what we also know is, wells in this pool
5 decline at very rapid rates. They decline at a rate as
6 much as 70 percent during the first year. And they have
7 recommended that if there is a penalty it be based on
8 calculated absolute open flow.

9 And when you have a well that is declining at 70
10 percent a year and you have a 60-percent penalty -- which
11 they say is too heavy, which is only one of the factors
12 we're going to ask you to consider -- but when you have a
13 well declining at 70 percent a year and a penalty of 15
14 percent or what we feel -- 80 percent, you've got to really
15 determine where you hit the point that the penalty is
16 meaningful to all.

17 And we're going to ask you to impose a penalty on
18 that location, and a penalty that will be at such a level
19 that it actually offsets the advantage they're gaining on
20 us.

21 The last part of the case involves clarification
22 of Division rules.

23 Texaco came to the hearing last April, they felt
24 their correlative rights were being impaired, and they
25 sought help from this Division. They asked you to do what

1 statute tells you to do, and that is, impose a penalty to
2 offset the advantage they were gaining on us.

3 And the result was, one, that the Mewbourne
4 location was denied. But we were also called in and
5 advised that, as you now interpreted the rules, we had too
6 many wells on this spacing unit; although everyone else in
7 the pool has been able to develop with two wells per
8 spacing unit, we now had too many wells, and we were asked
9 to shut in one of those wells until we were able to get an
10 exception from the, at least interpretation of the moment,
11 the then-current pool rules.

12 And we've done that. We've shut in the Levers
13 Number 1, and we are losing revenue to the tune of \$1000 a
14 day. The evidence will show that that is the extent to
15 which we're being penalized for coming here and trying to
16 protect our correlative rights.

17 We're going to show you that this pool was, as
18 Mr. Kellahin indicated, prorated back in 1974 and that
19 there were various changes in the spacing. It has a long
20 history, like many of the older pools in southeastern New
21 Mexico.

22 But then in 1995 the Division decided to suspend
23 prorationing. When we were told we had to shut in the well
24 it was because this is, and I quote the Division, now a
25 technically prorated pool, not a prorated pool. And in a

1 technically prorated pool, memos that were written by the
2 Director in the late 1980s applied to operators differently
3 in a technically prorated pool than they do in a prorated
4 pool.

5 You see, all we did was drill a well consistent
6 with the rules under an approved APD from the BLM, and we
7 found that when we came in here we were told that we had to
8 shut in a well and come back and seek an exception to pool
9 rules. And when you've worked through the pool rules
10 you'll find it's pretty hard to figure out what exactly is
11 meant and how technically prorated pools differ from
12 prorated pools. So what we have is a situation in which
13 we're asking for clarification.

14 We're asking for clarification not because you
15 initially told us to seek clarification; you told us to
16 come in and get an exception. And then we had discussions
17 with Division staff about, what was the effect of
18 suspending prorationing? Did you intend to change not just
19 the allowable situation but all the other -- or a number of
20 other rules and policies related to the development of now
21 technically prorated pools.

22 And it was suggested maybe we ought to seek an
23 exception, and we're seeking that, or, in the alternative,
24 we ought to seek clarification of the rules, because if you
25 clarify the rules you won't be potentially creating

1 problems in the other pools in which you've suspended
2 prorationing.

3 So we're here today, we're going to ask you for
4 permission to return the Levers Number 1 to production,
5 we're going to ask you to clarify the rules, and if the
6 clarification means we need an exception, we're going to
7 ask for that too. And that's going to be the focus of our
8 part of the case. We will, however, fully participate in
9 the full proceeding.

10 CHAIRMAN LEMAY: Thank you, Mr. Carr.

11 I'd like just a minute here to discuss something
12 with Counsel and with my fellow Commissioners. Let's take
13 about a five-minute break.

14 (Thereupon, a recess was taken at 9:31 a.m.)

15 (The following proceedings had at 9:41 a.m.)

16 CHAIRMAN LEMAY: Okay, you sure bring some
17 interesting cases before us, gentlemen.

18 Number one, interest owners have a right to bring
19 cases before us; they always have. And in this case, each
20 party has an interest. We're talking about the issue of
21 Mewbourne and Fasken in competing locations, so those two
22 Applications are certainly something we've seen before.

23 In terms of interpreting operating agreements,
24 we've gone on the record historically as not interpreting
25 operating agreements. We understand that they're --

1 They're a critical in this, but this is not our
2 jurisdiction. We will assume that that is going to be a
3 separate forum and that any arguments you bring as to who
4 has a right under the operating agreement will not have any
5 weight with us, because that will be decided elsewhere.

6 So we will be looking at geologic reasons for the
7 different locations. I think the interest each party has
8 in the sections, those kind of land issues are important.
9 We've always considered interest a factor in competing
10 force-pooling applications.

11 But we will look at this, rather than trying to
12 decide between a joint operating agreement right, versus
13 competing force-pooling application rights. That's not
14 what we're here to do. You have to decide that issue here
15 first before you can bring anything to us, because
16 otherwise we don't have a -- otherwise we have to send you
17 all home and say two days later -- two years later, or
18 whenever the litigation is through and we have a court
19 decision, bring your cases before us.

20 I would say that, given my operating experience,
21 that would be a stupid thing for all interest owners to do,
22 because we turn on the Texaco well, and they could just
23 keep draining it for two years and you're still arguing
24 amongst yourselves who has the rights under your operating
25 agreement to protect all your lands in that section.

1 So as a practical matter, we will look at
2 whatever evidence you bring in terms of, not joint
3 operating agreement rights or legal interpretation, but in
4 terms of what we normally consider in a joint -- in
5 competing force-pooling applications. And we will look at
6 drainage, we will look at geology, we will look at interest
7 owners' rights, because you're here, you have rights before
8 us, and we'll look at the situation that Texaco mentioned.

9 So with that, we shall continue.

10 MR. BRUCE: One thing I will ask the Commission
11 to do is simply accept the operating agreement into
12 evidence, without any testimony.

13 CHAIRMAN LEMAY: We'd be happy to -- Unless
14 there's objection.

15 MR. KELLAHIN: May I visit with Mr. Bruce for
16 just a second?

17 CHAIRMAN LEMAY: Sure.

18 (Off the record)

19 CHAIRMAN LEMAY: In terms of that motion to
20 accept the operating agreement into the record, was there
21 any objection to that?

22 MR. KELLAHIN: Yes, I object to it.

23 CHAIRMAN LEMAY: Well, your objection is
24 overruled. I think --

25 MR. KELLAHIN: I figured that much, Mr. Chairman.

1 CHAIRMAN LEMAY: I think there are factors in the
2 operating agreement we've always considered, not
3 necessarily these parties' rights, but certainly other
4 aspects of it have merit on our decisions concerning
5 competing force-pooling applications.

6 So the operating agreement will be accepted into
7 the record.

8 Mr. Bruce?

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

12 DIRECT EXAMINATION

13 BY MR. BRUCE:

14 Q. Would you please state your name and city of
15 residence for the record?

16 A. Steve Cobb, Midland, Texas.

17 Q. And who do you work for and in what capacity?

18 A. Mewbourne Oil Company, district landman.

19 Q. Have you previously testified before the Division
20 or the Commission as a petroleum landman?

21 A. Yes, I have.

22 Q. And were your credentials as an expert petroleum
23 landman accepted as a matter of record?

24 A. They were.

25 Q. And are you familiar with the land matters

1 involved in this case?

2 A. Yes, I am.

3 CHAIRMAN LEMAY: Could I just -- One thing I
4 forgot to mention, and I don't want to interrupt -- sorry,
5 Mr. Cobb, but I -- there was another thing we decided here
6 too so there wouldn't be any dispute, that if you get into
7 the names of Fasken Land, Fasken Oil, we will consider that
8 as the same entity. We've done that in the Nearburg cases,
9 and that won't be a dispute, the fact that you have two
10 different entities here that will be -- they will be
11 treated as one, as far as the purposes of this case goes.

12 Excuse the interruption, I wanted to get that
13 out.

14 You may continue, Mr. Bruce.

15 Q. (By Mr. Bruce) Mr. Cobb, what does Mewbourne
16 seek in this case?

17 A. We seek the approval of a nonstandard Morrow well
18 unit, comprised of the south one third of Section 1, 21
19 South, 25 East, Eddy County, New Mexico, containing 297.88
20 acres. We also would like approval of our unorthodox well
21 location, to be located 660 from the south line and 2310
22 from the east line of Section 1.

23 Q. What is Exhibit 1?

24 A. Exhibit 1 is my land plat which outlines our
25 proposed unit and our well location, and I've highlighted

1 in yellow the offsetting interest owners, and/or operators.

2 Q. Or unleased mineral interest owners?

3 A. Correct.

4 Q. Now, again, why can't you form a standard well
5 unit in this section?

6 A. I've been advised by the BLM that the middle one-
7 third of this section is subject to an environmental study
8 which I believe involves a falcon or some type of wildlife
9 study.

10 Q. Because it's unleased it can't be made part of
11 this well unit; is that correct?

12 A. Correct.

13 Q. Now, what is Exhibit 2?

14 A. Exhibit 2 is the ownership by tract, and I've
15 summarized the 297.88-acre ownership at the bottom of this.

16 Q. Who is the largest interest owner in the well?

17 A. Mewbourne Oil Company.

18 Q. And what is its interest?

19 A. 43.29 percent.

20 Q. And did you have these interests determined by a
21 title opinion?

22 A. I did.

23 Q. Now, the ICA, Unocal and Chevron interests are
24 listed as committed to Mewbourne. How was that
25 accomplished?

1 A. We secured a farmout from ICA Energy and
2 purchased the interest of Unocal and Chevron.

3 Q. And when was the ICA farmout obtained?

4 A. November of 1996.

5 Q. And Fasken Land and Minerals, Ltd., is the owner
6 of record of an interest in this well unit?

7 A. That's correct.

8 Q. Is Exhibit 3 a copy of the operating agreement
9 we've been discussing, Mr. Cobb?

10 A. It is.

11 Q. Okay. And this operating agreement, the operator
12 was originally David Fasken, I believe?

13 A. Correct.

14 Q. Okay. I your review of the land files, have you
15 seen any documentation that Fasken Land or Fasken Oil was
16 ever elected operator?

17 A. I have not.

18 Q. And the operating agreement does allow a
19 nonoperator to propose a well, does it not?

20 A. Yes, it does.

21 Q. Now, when did Mewbourne first start looking at
22 drilling a well in Section 1?

23 A. The latter part of 1996.

24 Q. And it was at that time that you first obtained a
25 farmout?

1 A. From ICA, correct.

2 Q. And then you subsequently purchased the interests
3 of Unocal and Chevron?

4 A. That's correct.

5 Q. Now, did Mewbourne propose a well under the JOA?

6 A. Yes, we did.

7 Q. And is Exhibit 4 your proposal letter?

8 A. I don't have Exhibit 4.

9 Q. Yeah, I'll give you -- Is Exhibit 4 your proposal
10 letter --

11 A. Yes.

12 Q. -- to Fasken?

13 A. Yes, it is.

14 Q. And were similar letters sent to the other
15 working interest owners?

16 A. They were.

17 Q. What was the result of those letters?

18 A. Everyone has elected to participate in our
19 proposed location --

20 Q. Except --

21 A. -- except for a small interest, 1.4-percent
22 interest declared to Mayer and Haynie, which they elected
23 to go nonconsent.

24 Q. Okay. Now, when did Fasken's election period
25 expire on Mewbourne's well proposal?

1 MR. KELLAHIN: Objection, Mr. Chairman. We're
2 getting into interpretation of the operating agreement and
3 the issue in litigation concerning the priority of well
4 proposals and the competing proposals. These opinions
5 expressed, or about to be expressed by Mr. Cobb, are legal
6 opinions, and we are disputing these matters, and so that's
7 my objection.

8 CHAIRMAN LEMAY: I'm going to overrule on the
9 basis that we can accept testimony concerning the operating
10 agreement.

11 What I think is clear is, we will not render any
12 kind of a judgment concerning who has a right to drill.
13 There are elements in the operating agreement, depending on
14 where you're going with this, Counselor, that certainly
15 affect our decisions, but --

16 MR. BRUCE: This will be very, very brief.

17 CHAIRMAN LEMAY: -- as long as it's understood
18 that our deliberations will not include who has the right
19 to drill, I think that other discussion is open game.

20 MR. KELLAHIN: To clarify my objection, the
21 document speaks for itself, and this witness should not be
22 allowed to make his interpretation.

23 CHAIRMAN LEMAY: Well, Mr. Kellahin, Let's see
24 where he's going with it.

25 MR. KELLAHIN: Yes, sir.

1 CHAIRMAN LEMAY: Continue.

2 Q. (By Mr. Bruce) Mr. Cobb, when did Fasken's
3 election period expire under your Exhibit 4 letter to them?

4 A. February 20th.

5 Q. Was that extended?

6 A. Yes, we extended till February 26th.

7 Q. At Fasken's request?

8 A. That's correct.

9 Q. What is Exhibit 5?

10 A. Exhibit 5 is a letter from Fasken Oil and Ranch
11 electing to participate in our proposed well.

12 Q. Okay. Looking at the second page of that letter,
13 other than electing to participate, what else did it do?

14 A. Paragraph two, Fasken says at the second line
15 from the bottom of paragraph two, Fasken intends to oppose
16 the Mewbourne location.

17 Q. Even though they elected to participate?

18 A. That's correct.

19 Q. What else did this letter do besides electing to
20 participate in the Mewbourne well?

21 A. It also proposed Fasken's well to us.

22 Q. So this also contains the proposal for the Fasken
23 well that's the subject of Case 11,755 today?

24 A. That's correct.

25 Q. And Mewbourne commenced this Application to get

1 its well proposal approved; is that correct?

2 A. That's correct.

3 Q. Has Mewbourne elected to participate in Fasken's
4 well?

5 A. No, we have not.

6 Q. And what is Exhibit 6?

7 A. Exhibit 6 is our letter to Fasken, wherein we
8 refused to participate in their proposed well.

9 Q. Finally, Mr. Cobb, were the offset operators or
10 mineral interest owners notified of this hearing?

11 A. Yes, they were.

12 Q. And is Exhibit 7 my affidavit of notice with the
13 notice letters?

14 A. Yes, it is.

15 Q. Were Exhibits 1 through 7 prepared by you or
16 under your supervision or compiled from company business
17 records?

18 A. They were.

19 Q. In your opinion, is the granting of Mewbourne's
20 Application and denial of Fasken's Application in the
21 interests of conservation and the prevention of waste?

22 MR. KELLAHIN: Objection to the question, Mr.
23 Chairman. He's asking this landman geologic and
24 engineering questions concerning waste and conservation
25 issues.

1 It's beyond this witness's expertise.

2 CHAIRMAN LEMAY: Well, we'll hear it and decide
3 ourselves, thank you. You're overruled.

4 THE WITNESS: It is.

5 MR. BRUCE: Mr. Chairman, I'd move the admission
6 of Mewbourne Exhibits 1 through 7.

7 MR. KELLAHIN: Mr. Chairman, we object to the
8 introduction of Exhibits 3 through 7.

9 CHAIRMAN LEMAY: Objection so noted and
10 overruled. Those exhibits will be entered into the record.

11 Are you through, Mr. Bruce?

12 MR. BRUCE: I'm through with Mr. Cobb.

13 CHAIRMAN LEMAY: Mr. Kellahin?

14 MR. KELLAHIN: Just a moment, sir.

15 No questions, Mr. Chairman.

16 CHAIRMAN LEMAY: Mr. Carr?

17 CROSS-EXAMINATION

18 BY MR. CARR:

19 Q. Mr. Cobb, you are Mewbourne's landman on this
20 project, are you not?

21 A. That's correct.

22 Q. As such are you familiar with each of the
23 Applications that have been --

24 A. Yes, I am.

25 Q. And have you been involved in discussions at

1 Mewbourne concerning the position that Mewbourne would take
2 on each of the Applications that are before the Commission
3 today?

4 A. No, I have not sat through them.

5 Q. You are aware, are you not, that Texaco is
6 seeking authority from the Division to produce two wells in
7 Section 12?

8 A. Yes, I am.

9 Q. Is Mewbourne opposing that Application?

10 A. I don't have -- I was not involved in that -- in
11 those discussions.

12 Q. You do not know whether you're opposing that
13 Application or not?

14 A. I was not involved in those discussions.

15 Q. In your role as a landman, are you required to
16 understand the rules of the Division?

17 A. Yes, I am.

18 Q. Do you understand that the rules for this pool
19 provide for 640-acre spacing; is that correct?

20 A. That's correct.

21 Q. And they also provide for a setback from the
22 outer boundary of the tract of 1650 feet; is that right?

23 A. That's correct.

24 Q. Are you the person to ask about the meaning of
25 the rules for technically prorated pools as opposed to

1 prorated pools?

2 A. No, I am not.

3 Q. You started acquiring additional interests. You
4 acquired the -- is it TCA interest in --

5 A. IC- --

6 Q. ICA, in November of last year?

7 A. That's correct.

8 Q. And subsequent to that time you've acquired the
9 Unocal and Chevron interest?

10 A. That's correct.

11 Q. Prior to the acquisition of the ICA interest, how
12 much of the interest did Mewbourne have in this?

13 A. None.

14 Q. They had none at that time?

15 A. Right.

16 Q. So the first interest was the ICA?

17 A. That's correct.

18 Q. And that was acquired in November?

19 A. That's correct.

20 MR. CARR: That's all I have. Thank you.

21 CHAIRMAN LEMAY: Thank you.

22 Commissioner Bailey?

23 COMMISSIONER BAILEY: I have no questions.

24 CHAIRMAN LEMAY: Commissioner Weiss?

25 COMMISSIONER WEISS: No questions.

1 CHAIRMAN LEMAY: Just a couple for clarification,
2 Mr. Cobb, as a follow-up.

3 EXAMINATION

4 BY CHAIRMAN LEMAY:

5 Q. You say Mewbourne had no interest in that
6 proration unit prior to acquiring ICA and Chevron's
7 interest --

8 A. Correct.

9 Q. -- a year ago?

10 And that gives them current -- How about Unocal?
11 They acquired Unocal's --

12 A. We acquired Unocal's also, yes, sir.

13 Q. Purchase or farmout?

14 A. Unocal was purchased.

15 Q. So that gives you 43 percent of the proration
16 unit?

17 A. That actually is -- That assumes that everybody
18 takes their proportionate share of that 1.47 --

19 Q. The Haynie-Mayer nonconsent --

20 A. -- nonconsent interest, which I've been advised
21 that everybody would.

22 But without that we would have roughly, you know,
23 43 percent. It's just a minute decimal change.

24 CHAIRMAN LEMAY: Okay, that's the only question I
25 had. Thank you. You may be excused.

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

4 DIRECT EXAMINATION

5 BY MR. BRUCE:

6 Q. Would you please state your name for the record?

7 A. My name is Keith William. I live in Midland,
8 Texas.

9 Q. By whom are you employed and in what capacity?

10 A. I'm a geologist for Mewbourne Oil Company.

11 Q. Have you previously testified before the
12 Commission as a petroleum geologist?

13 A. I've testified many times before the OCD. This
14 is the first time before the Commissioners.

15 Q. Would you please outline briefly your educational
16 and employment background?

17 A. I have a BS in geology I received in 1980 from
18 Texas Tech University. I've been employed as a petroleum
19 geologist for 17 years, about 16 of that with Texaco in
20 Midland, and the rest with Mewbourne.

21 Q. And have you pretty much worked the Permian
22 Basin, eastern New Mexico, west Texas?

23 A. Yes.

24 Q. Are you familiar with the geologic matters
25 involved in this Application?

1 A. Yes, sir.

2 Q. Now, in what pool will Mewbourne's well be
3 located?

4 A. All of Section 1 is dedicated to the Catclaw
5 Draw-Morrow Pool for the field rules.

6 Q. Now, you said you worked about 16 -- how many
7 years for Texaco?

8 A. Sixteen and a half, roughly.

9 Q. And the last year or so with Mewbourne Oil?

10 A. Yes, sir.

11 Q. When you were employed by Texaco, was this pool,
12 Catclaw Draw Pool, in your area of responsibility?

13 A. Yes, and during 1990-91, I worked most all of the
14 Eddy County properties.

15 Q. Okay. And have you prepared certain geologic
16 exhibits with respect to this pool?

17 A. I have.

18 MR. BRUCE: Mr. Chairman, I'd tender Mr. Williams
19 as an expert petroleum geologist.

20 CHAIRMAN LEMAY: His qualifications are
21 acceptable.

22 Q. (By Mr. Bruce) Mr. Williams, what is Exhibit 8?

23 A. Exhibit 8 is a small plat of the entire Catclaw
24 Draw Pool. The wells in yellow are wells that were
25 dedicated to the pool. The wells that have arrows pointing

1 to them are wells that do not fit the field rules.

2 Q. In other words, those wells are at unorthodox
3 locations?

4 A. Yes, sir.

5 Q. Okay.

6 A. They do not fit the 1650 setback rules.

7 Q. Would you please move on to your Exhibit 9 and
8 identify that for the Commission and discuss the
9 development history of the Catclaw Draw-Morrow Pool?

10 A. Exhibit 9 is a chronology of the different orders
11 and critical dates that have been issued in the course of
12 developing the pool. The initial well was drilled in
13 Section 11 in 1965, the discovery well.

14 In June of 1971, the NMOCD created the Catclaw
15 Draw-Morrow Pool, and it first determined 640-acre gas
16 proration units with 1650-foot setbacks from the outer
17 boundaries.

18 And in 1973 the Division just extended those pool
19 rules.

20 And in January of 1974 an order, R-4704, found
21 that there were two different gas purchasers in the pool,
22 being Southern Union and Llano Pipeline, and this was
23 causing violation of correlative rights by different
24 nominations of these two pipeline companies. And at that
25 time there were just 11 wells in the pool, and the capacity

1 of those 11 wells was about double that of the market gas
2 demand at that time.

3 So subsequent to that hearing, Order R-1670
4 prorated Catclaw Draw to protect against these uneven
5 pipeline takes.

6 And then in January of 1980, Order R-4157-C
7 supported technical testimony that the Morrow sand
8 continuity within the field would only support an average
9 well draining between 280 and 353 acres, and additional
10 wells were needed to recover gas that wasn't going to be
11 recovered by those existing wells. So that order
12 downspaced gas proration units to 320 acres and changed the
13 well setbacks to statewide 660 from the side and 1980 from
14 the end boundaries, more of a typical Morrow development
15 proration unit.

16 And then in August of 1981, the D order rescinded
17 the C order due to downspacing would have resulted in loss
18 of lease from those former communitized leases.

19 Q. Mr. Williams, it wasn't based on any drainage
20 factors; it was merely loss of leases?

21 A. Correct, it was not based on any technical
22 testimony in terms of the Morrow reservoirs. But it's --
23 that loss of lease would impact correlative rights so that
24 it returned it to 640 acres, and it provided for a second
25 well within that 640-acre proration unit. And during this

1 period between 1980 and 1982, about seven new wells were
2 completed in the pool.

3 Then in March of 1995, gas prorationing was
4 suspended in this pool.

5 And then October of 1995, Texaco drilled and
6 subsequently completed in January of 1996 their second well
7 on their lease.

8 Q. How many active producers are there in this pool?

9 A. Currently there are 16 out of the total of 30
10 that have been dedicated to the pool.

11 Q. What percentage of total pool production is
12 produced by the Texaco Levers Number 2 well?

13 A. For the first three months of this year that one
14 well has accounted for over 40 percent of the total pool
15 production.

16 Q. So the one well out of 16 accounts for 40 percent
17 of production?

18 A. Of current rate production, yes, sir.

19 Q. Looking back at your Exhibit 8, have two wells
20 generally been drilled per section?

21 A. They have.

22 Q. And what, approximately half of them are at
23 unorthodox locations?

24 A. Yes, sir, about roughly half.

25 Q. Okay. Were any of these unorthodox-location

1 wells assessed a penalty on production?

2 A. We only found one case in which a well was
3 assessed a penalty, and that's in Section 18 on the --
4 about the middle right-hand side of the plat, in the very
5 southwest quarter of Section 18, and that well was really
6 unorthodox by any Morrow proration unit standards. And it
7 was basically assessed a penalty on productive acres of 200
8 out of 320-acre.

9 Q. Now, because of the nonstandard well unit, can
10 there be orthodox well locations in Section 1?

11 A. Given that the available for lease is only less
12 than 300 acres, 1650 setbacks will be unorthodox at any
13 location on that lease. It will be unorthodox even from
14 the south line, it will be unorthodox to the north line.
15 So no, sir.

16 Q. Now, let's discuss the Morrow geology in this
17 area. Would you please refer to your Exhibit 10, identify
18 that for the Commission and go through that map by map.

19 A. Exhibit 10 is a montage of four different Morrow
20 maps. The map in the upper left-hand corner is a structure
21 map. It shows three major or key faults that control
22 production in the pool.

23 This map only covers the north part -- the very
24 north part of Catclaw Draw-Morrow. There's -- Much of the
25 field is to the south.

1 But basically, you see a regional northeast-to-
2 southwest-trending fault that separates the red producers,
3 being the Morrow producers in the area, from the
4 Cisco/Canyon producers northwest of that fault that were
5 essentially dry or noncommercial in the Morrow formation.
6 It shows pretty much dip to the east and into the Basin,
7 things getting structurally lower to the east.

8 The next upper map is the lowermost zone in the
9 area. It is the -- historically the big gas-producing zone
10 at the bottom of the Morrow section. And being a prorated
11 field, a lot of the wells were in this zone for the longest
12 amount of time, and therefore pressure depletion is likely
13 to be very high in this zone. We map 10 to 15 foot of it
14 at the Mewbourne location and don't show any to the
15 northwest.

16 Q. So at the Fasken location there wouldn't be any
17 lower Morrow sand?

18 A. No, sir. The bottom left-hand map is kind of our
19 key objective. This is the middle Morrow green sand. The
20 wells highlighted in red are the wells that have produced
21 and are producing out of this zone. The cums there are --
22 the best we can tell, engineeringwise, are attributed just
23 to this zone.

24 To the south in 11 you have a 2.6 BCF produced.

25 In the south of 12, 1.5.

1 The new Texaco well in the north half of 12 has
2 made about 2.2 BCF out of that middle Morrow zone.

3 And the old Fasken well to the north produced
4 from 1972 to 1991 and only made 322 million feet from the
5 middle Morrow -- or -- yeah, 322 million cubic feet from
6 the middle Morrow.

7 We have a thick mapped at a northeast-southwest
8 trend across the Mewbourne location that is our key zone.

9 The last map, in the bottom right-hand corner, is
10 the upper Morrow zone. It is the last in the series of
11 Morrow sands.

12 Most of the wells to the south in the field were
13 completed in this zone in 1990 and 1991. So it is likely
14 there would be decent pressure left in this upper zone, and
15 it's considered an objective.

16 Q. Now, overall is the entire south half of Section
17 1 prospective in the Morrow?

18 A. It is.

19 Q. Looking at the middle Morrow, your key zone from
20 a geological standpoint, is it wise to be moving quite a
21 ways north toward the abandoned -- plugged and abandoned
22 Fasken well?

23 A. When you look at the well in Section 2 and the
24 south part of Section 2, it is a very -- It's not a very
25 clean zone. It was tested, not productive, gave up a

1 marginal amount of gas.

2 And these in general are very narrow fairways,
3 and we just don't map it as being that wide to go all the
4 way over to the Fasken location.

5 Q. But -- So you don't want to be too far to the
6 west because of that well in the southeast quarter of
7 Section 2; is that correct?

8 A. Yes, sir.

9 Q. And the well in the middle third, if you will, of
10 Section 1 was a very poor producer, was it not?

11 A. Yes, sir. It was a noncommercial well.

12 Q. So from a geologic standpoint, you'd want to stay
13 away from those two wells?

14 A. Yes, sir.

15 Q. What is Exhibit 11?

16 A. Exhibit 11 is a publication from -- that was
17 published in the *American Association of Petroleum*
18 *Geologists Bulletin* in July of 1985 that talks about trends
19 and producing characteristics of lower and middle Morrow
20 sandstones in, specifically, Eddy County, New Mexico.

21 I've highlighted under the abstract a sentence
22 that supports the trend of our mapping in the middle Morrow
23 in this reservoir, which states that these sandstones are a
24 series of marine beaches and bars that are deposited in a
25 northeast-trending -- along a northeast-trending shoreline.

1 Q. And your mapping of the middle Morrow conforms
2 with this industry standard?

3 A. Yes, sir, it does.

4 The second page speaks to characteristics of
5 middle and lower Morrow sandstone production, and it states
6 that, "Gas production in the middle Morrow sands is related
7 not to structure but to porosity development. Areas with
8 approximately 10 or more net feet of effective porosity
9 should be productive. Producing wells in both lower and
10 middle...sandstones have porosities generally ranging
11 between 8 and 14 percent." And this is the key point: "In
12 contrast to lower Morrow sandstones, water production
13 rarely occurs from...middle Morrow sands."

14 Q. Okay. Looking at your Exhibit 10, of these wells
15 you have in the middle Morrow, do you know of any water
16 production or water problems with those wells?

17 A. No, sir. In researching the whole field, I've
18 found no Morrow -- no middle Morrow water production.

19 Q. Okay. Now, what about the lower Morrow? You've
20 got a location more or less in the center of the south half
21 of Section 1. Where is water production with respect to
22 your proposed well location?

23 A. On the --

24 Q. And maybe look at the structure maps to discuss
25 this.

1 A. Okay, on the upper two maps water was tested in
2 the lower Morrow in the well in Section 7, southwest
3 quarter of Section 7, at a subsea elevation of 7263, and
4 that pretty well holds for fieldwide gas-water contact in
5 the lower Morrow at about 7260.

6 Q. So --

7 A. We -- Our structural position is at least 160,
8 260 feet above that point.

9 Q. So you don't see water as a problem with your
10 well at the lower Morrow zone?

11 A. No, sir.

12 Q. Based on these maps, in your opinion is
13 Mewbourne's location the best location in Section 1 for a
14 Morrow well?

15 A. It is.

16 Q. Finally, Mr. Williams, what is Exhibit 12?

17 A. Exhibit 12 is a two-well cross-section that goes
18 from the left, being the south, to the right, being the
19 north. It goes from the new Texaco completion to the old
20 David Fasken completion on the north end, and it shows
21 pretty much -- It's a stratigraphic cross-section, hung on
22 the top of the lower Morrow.

23 The green sand correlation, which is our main
24 objective, shows to have two members in the new Texaco well
25 and two members in the old Fasken, David Fasken, well that

1 was noncommercial. The centerline there is our proposed
2 location.

3 Q. Are these the key wells in this area?

4 A. They are.

5 Q. Now, your map also contains a production map.
6 What has been production from Section 1, as opposed to the
7 offsetting section?

8 A. In the upper right-hand corner of the cross-
9 section is a production map. There are a series of small
10 crosses. In the upper left-hand corner is the potential of
11 the well. Next to that is the date the well was completed.
12 Below that is the abandonment date or the current rate for
13 a period of time. And then to the left on the bottom is
14 the cum.

15 This map was made for our original hearing back
16 in April. The only well that's really changed is the new
17 Texaco well, and it has produced about 2.2 BCF to date and
18 still produces about 4 million a day.

19 Q. Has it been producing 4 million at a steady pace
20 over the last 18 months?

21 A. It has.

22 Q. Without decline?

23 A. Yes, sir. So it basically shows that north of
24 Section 12 in the Morrow formation there are no commercial
25 completions.

1 The well information on the well in Section 2,
2 the northwest quarter, is for the Cisco. So that was a
3 Morrow dry hole.

4 Q. The well in the far north of Section 2 is a Cisco
5 completion?

6 A. Yes, that pertains to the -- that production
7 information pertains to the Cisco in that case. The rest
8 is Morrow.

9 Q. So again, there has been no commercial Morrow
10 completion to the north of the Texaco Levers Well Number 2;
11 is that correct?

12 A. That is correct.

13 Q. Mr. Williams, were Exhibits 8 through 12 prepared
14 by you or under your supervision or compiled from company
15 business records?

16 A. They were.

17 Q. In your opinion, is the granting of Mewbourne's
18 Application in the interest of conservation, the prevention
19 of waste and the protection of correlative rights?

20 A. Yes, sir, it is.

21 MR. BRUCE: Mr. Chairman, I'd move the admission
22 of Mewbourne's Exhibits 8 through 12.

23 CHAIRMAN LEMAY: Without objection, Exhibits 8
24 through 12 will be admitted into the record.

25 Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Williams, if you'll leave your cross-section out, please, sir, and fold it so that you have the Levers 2 well, which is the well at the A location, is it still your geologic strategy to find a location that accounts for both thickness and structure?

A. Yes, sir, it is.

Q. In some areas structure is not significant for you as a geologist, but it is so here; is that not true?

A. I believe Section -- I believe that Exhibit 11 shows that in the middle Morrow reservoir, which is the main objective, structure is not that critical.

In the lower Morrow reservoir structure is critical, because it has a definable gas-water contact.

Q. Okay. Let's start with the lowest interval, the brown sand. And when we look on the Levers 2 well, you have an area identified on the display as brown sand?

A. Yes, sir.

Q. Does that correspond to the interval that you put on your lower Morrow brown sand gross isopach?

A. Yes, sir.

Q. When we look at the lower Morrow brown sand and also look at your top of lower Morrow structure, am I correct in understanding there's a structural component to

1 this brown sand?

2 A. There is, on a fieldwide basis there is, yes,
3 sir.

4 Q. When we look at your structure map, what is the
5 lowest known producing gas?

6 A. From the lower Morrow?

7 Q. Yes, sir.

8 A. 7260.

9 Q. 7260?

10 A. Yes, sir.

11 Q. Okay. What is the highest known water produced
12 in the lower Morrow sand?

13 A. That would be about the same. That would be the
14 gas-water contact, 7260.

15 Q. You've determined that gas-water contact by
16 looking at the well in Section 7, in the southwest quarter?

17 A. Yes, sir, and farther south. Wells in 18, 23 and
18 25 on the -- fieldwide.

19 Q. Now, on the Levers 2 well on the cross-section,
20 was that zone tested by Texaco?

21 A. The brown sand?

22 Q. Yes, sir.

23 A. Yes, sir, I show perforations across that
24 interval.

25 Q. Yes, sir, with what result?

1 A. Gas production.

2 Q. Do you know what volume?

3 A. It's probably on the scout ticket. I know
4 overall the well has produced 4 million a day with the
5 green and the brown sand open, so --

6 Q. There's no separate volume associated with the
7 brown sand?

8 A. I think --

9 Q. It was produced in connection with the green; is
10 that not true?

11 A. I think there is, but I think that's our
12 engineering testimony.

13 Q. Do you remember Uhl's testimony, Texaco's
14 geologist, back at the April hearing, where he said that
15 his well did not have this brown sand?

16 A. I do not remember that, no, sir. My correlations
17 are my correlations.

18 Q. On this correlation, then, am I correct in
19 understanding that you get 16 feet of gross sand?

20 A. Yes, sir.

21 Q. You have not attempted to present a net-pay
22 isopach for the brown sand?

23 A. In the case of the brown sand, it's such a
24 prolific -- such a prolific zone historically that that
25 gross sand is fairly good as a net number as well. It's a

1 really nice, developed zone.

2 Q. Okay.

3 A. But no, for geometry and for mapping all these,
4 I've just mapped the gross sand.

5 Q. All right. And if I remember correctly, this
6 brown gross sand map you contend is your second-best
7 target?

8 A. Oh, second or third. It's probably about equal
9 to the upper Morrow "A".

10 Q. Do you remember your testimony in April where you
11 told me that this sand was your second-best sand?

12 A. Well, it's okay. It's second to third. There's
13 probably a real close race between second and third. I
14 think without the green sand and without the new pressure
15 information and rate information, nobody would care about
16 drilling additional wells out here.

17 Q. If we go up the Levers 2 wellbore, there's an
18 orange sand. I don't find an orange sand map.

19 A. No, sir, I've mapped all the sands and I've only
20 picked out those that I think are pertinent to the
21 Mewbourne location and the Fasken location.

22 Q. So you did not prepare an orange sand isopach
23 map?

24 A. I have one. I did not prepare multiple copies,
25 no, sir.

1 Q. Did the Levers 2 well produce out of the orange
2 sand?

3 A. Yes, sir, as did the Levers 1.

4 Q. What volume of gas was produced out of the orange
5 sand?

6 A. Well, the Levers Number 2, again, that's
7 engineering testimony as to what's separated out here. I
8 think they have subsequent pressure information from the
9 lower zones that differentiates from the upper zone.

10 Q. Mr. Williams, if you'll stay with my question,
11 sir, we can get through this a little quicker. All I asked
12 you was what volume of gas had produced out of the orange
13 sand?

14 A. That's our engineering testimony.

15 Q. So you don't know?

16 A. No, sir.

17 Q. And you didn't present an orange sand map?

18 A. No, sir.

19 Q. When I look at the brown sand map, then, that's
20 the map you present to us that is within the interval we
21 call the lower Morrow?

22 A. Yes, sir.

23 Q. Would you turn to your Exhibit Number 11 with me,
24 please? And let's look at your lower Morrow brown sand,
25 and then let's read the second paragraph of Exhibit 11.

1 It says, "The lower Morrow sand..." it gives you
2 an interval "...are interpreted to be a prograding fluvial-
3 deltaic sequence of channels and point bars with a
4 northwest source. They trend toward the southeast,
5 generally normal to the Morrowan paleoslope."

6 Is not your brown sand map oriented inconsistent
7 with the conclusion reached in this paragraph in Exhibit
8 11?

9 A. It's north, northeast, northwest, yes, sir, it's
10 a little bit different. But it -- In general, it's from
11 the north, yes, sir.

12 Q. When we go up to the green sand in the Levers 2
13 well, there's two sets of perforations within the green
14 sand interval. Do you see that?

15 A. Yes, sir.

16 Q. You have chosen to lump those sand lenses
17 collectively as a green sand package for isopach purposes,
18 have you not?

19 A. I have.

20 Q. Let's look at the green sand map. Am I correct
21 in understanding that you believe the middle Morrow is not
22 affected by a water risk associated with that sand?

23 A. Yes, sir, that's right.

24 Q. When I look at your green sand map, it was your
25 testimony before that that was your best prospect; is that

1 still your testimony?

2 A. Yes, sir.

3 Q. Am I correct in understanding that your
4 conclusion about the green sand is that you need somewhere
5 between 13 and 15 feet of net green sand to have a
6 commercial location?

7 A. Yes, sir.

8 Q. And that was your testimony back in April, and
9 that is still your testimony?

10 A. Yes, sir, based on the wells in this field it's
11 somewhere between 13 to 15 feet, that's right.

12 Q. Your green sand map back in April used a 50-API-
13 unit cutoff, and you had an 8-percent porosity cutoff?

14 A. Yes, sir.

15 Q. Did you continue to use those values when you
16 made the green map for today's presentation?

17 A. Yes, the values are the same.

18 Q. When we look at the green sand map, down below
19 where you have cut off, the contours continue in the
20 sections to the south, do they not, Mr. Williams?

21 A. Yes, sir.

22 Q. And there is a well in Section 14 to the south.
23 It's the Hallwood Petroleum Catclaw Draw? You can see
24 that?

25 A. Yes, sir.

1 Q. It's not included --

2 A. It's just --

3 Q. -- in your map?

4 A. It's just off this short map, yes, sir.

5 Q. Had you extended that map, would it have been
6 included within that sand package?

7 A. I believe so, yes.

8 Q. And how about the well in the northwest of
9 Section 13, this other --

10 A. Yes, sir.

11 Q. -- Morrow well?

12 A. I believe so, yes, sir.

13 Q. How about the well in the southeast of 14?

14 A. Are you -- You're asking if they had green sand
15 in them?

16 Q. Yes, sir, if you finished off your contour --

17 A. Yes, sir, they do have green sand.

18 Q. And if you finished off the contouring and showed
19 us the rest of the display, those wells would have been
20 within that presentation?

21 A. Yes, in general this northeast trend continues
22 southward through the field.

23 Q. Mr. Williams, I show you what I have distributed
24 as Mewbourne's Exhibit 9, which is your geologic montage
25 that you sponsored and testified from back in April.

1 A. Yes, sir.

2 Q. In the April map, when we look at the green sand,
3 the Mewbourne location is approximately -- well, I guess
4 it's exactly 660 from the common boundary with Texaco?

5 A. Yes, sir.

6 Q. Under this interpretation, that wellbore could
7 have been moved farther north and still be within the 25-
8 foot contour line under this interpretation?

9 A. Yes, sir, it could have.

10 Q. And using your criteria of a successful green-
11 sand Morrow well having at least 13 to 15 feet of net pay,
12 in fact, you could have moved the wellbore under this
13 interpretation back to a standard 1650 location from the
14 southern boundary and still satisfied that criteria?

15 A. Well, there's a lot of other testimony that says
16 we really couldn't move it --

17 Q. I understand. What I'm -- my purpose --

18 A. -- but this map was made and it shows the trend
19 going farther north than the current map. And the reason
20 that has changed --

21 Q. Mr. Williams, that's not my question, sir.
22 You're not responsive to my question.

23 MR. BRUCE: Let him answer the question, Mr.
24 Chairman.

25 MR. KELLAHIN: No, sir, that's not the question

1 asked.

2 Q. (By Mr. Kellahin) My question, sir, is, in
3 relation to the southern boundary of the spacing unit, if
4 you take that and move that location back to 1650, anywhere
5 along that line you're going to have points under the April
6 interpretation that satisfies the criteria of between 15
7 and 13 feet of net pay; is that not true?

8 A. Based on the old interpretation, and solely based
9 on this map and not anything else, that is correct.

10 Q. Okay. The data points on the April map in terms
11 of log information, was all the log information available
12 to you in April of 1997? Is that not true?

13 A. Yes, sir.

14 Q. And since then till now, there have been no new
15 wells drilled within the area shown on the green sand map
16 display? Is that not true?

17 A. That's correct.

18 Q. When we look at the green sand map for today's
19 hearing, we now find that the Fasken location has less net
20 sand than 10 feet on the new interpretation, right?

21 A. Yes, sir.

22 Q. On the old interpretation you had approximately
23 13 feet at the Fasken location; is that not true?

24 A. Yes, sir.

25 Q. Under the new interpretation, if you wanted

1 between 15 and 13 net feet of green sand, under this
2 interpretation you could still move back to a standard
3 location in the spacing unit, could you not, sir?

4 A. There is not a standard location in the spacing
5 unit.

6 Q. From the south boundary of the spacing unit,
7 moving back 1650 feet, that would put it standard as to
8 that boundary, would it not, sir?

9 A. Yes, it would.

10 Q. And under this interpretation you would have an
11 opportunity to place a well that distance from the southern
12 boundary and still meet the criteria of 13 to 15 net feet
13 of green sand; is that not true?

14 A. Yes, but there are other considerations.

15 Q. When we go to the structure map, the structure
16 map remains unchanged; is that not true?

17 A. That is correct.

18 Q. You're mapping the top of the lower Morrow
19 structure --

20 A. Yes, sir.

21 Q. -- right? I'm looking at the interpretation of a
22 fault, and of the two shown I want to focus your attention
23 on the fault that you have placed that runs just northwest
24 of the Fasken location. It has an orientation that is
25 northeast-southwest. Do you see that one?

1 A. Yes, sir.

2 Q. I'm not asking you about the one that runs north
3 and south through Sections 3 and 10, all right?

4 A. Right.

5 Q. When we look at that fault, am I correct in
6 understanding that your control was based upon what you saw
7 in the log information from the wells in the southwest of
8 11 and the southeast of 10?

9 A. From all the wells, yes, sir.

10 Q. From those two wells there is a displacement when
11 you map the structure for the top of the lower Morrow; is
12 that not true?

13 A. Well, that is not the only well. I see
14 displacement from the well in 2 to the well in 11.

15 Q. Yes, sir, we'll get to that in a minute.

16 A. Okay.

17 Q. Let's start with the control down in the
18 southeast of 11 and the southwest of -- sorry.

19 A. Yes.

20 Q. -- southwest of 11 and southeast of 10. Do you
21 see those two wells?

22 A. Yes, sir.

23 Q. All right. What is the difference in the top of
24 the Morrow structure between those two wells?

25 A. It's about 200 feet.

1 Q. Okay. Is that the placement of the lower Morrow
2 reservoir at that point?

3 A. That is the displacement of the top of the lower
4 Morrow structure marker.

5 Q. Okay. And as you take structure and interpret it
6 into the sand maps, would this be a sufficient enough
7 displacement to have separated the lower Morrow in this
8 particular area?

9 A. Yes, sir, it is.

10 Q. Is it sufficient of displacement to have
11 separated the middle Morrow?

12 A. Well, the combination of two faults are
13 sufficient to do that. You have the northeast-southwest
14 fault, and then you have the bounding fault on the west
15 side of the field, which is north-south. And those pretty
16 much break off brown sand production and what forms the
17 trap for the majority of the gas produced at Catclaw Draw.

18 Q. And it will also separate out the green sand?

19 A. Green sand is found productive just across
20 several faults in the field.

21 Q. That's not my question, though. The question is,
22 in the green sand, if I'm on the downthrown side of that
23 fault, my green sand production is going to be separated
24 from the green sand production that's on the upthrown side
25 of that fault?

1 A. Yes, it wouldn't be a common source of supply,
2 that's correct.

3 Q. And that's true for the upper Morrow as well?

4 A. Yes.

5 Q. Okay. Now, as we project this line to the
6 northeast, what's your next control point that tells you
7 it's going in that direction?

8 A. Along this northeast-southwest-striking fault?

9 Q. Yes, sir.

10 A. The well in Section 2, in the south half of 2,
11 south one-third of 2.

12 Q. Can you tell by that information what the
13 distance of separation, the magnitude of throw, if you
14 will, between the upthrown and downthrown side of the fault
15 is?

16 A. I have it mapped at about a hundred and fifty
17 feet, a hundred and -- just less than 150 feet from the
18 contours.

19 Q. And what contour line am I looking at to get that
20 displacement?

21 A. Well, you're -- Say the 7000-foot contour line in
22 Section 11, and then meeting up with the -- across the
23 fault with the 7150 contour line in Section 2. So it's
24 just -- as mapped at that point, just less than 150 feet.

25 Q. Can you tell me what the displacement of the

1 fault is in Section 1 when we get to the minus-7200 contour
2 line?

3 A. It's right at 100 feet.

4 Q. What have you used to control the orientation of
5 that northeast-southwest fault?

6 A. Pretty much just regional mapping and experience.
7 There are numerous northeast-southwest-striking faults.
8 Many of them appear to have lateral movement as well as
9 vertical movement on them. So basically it's well control
10 and the fact that it fits with the regional geology.

11 Q. You've constructed the interpretation of the
12 fault based upon regional trends and subsurface geology?

13 A. Yes, sir.

14 Q. You did not utilize any 3-D or 2-D seismic in
15 this interpretation?

16 A. No.

17 Q. Have you satisfied yourself that the northeast-
18 southwest-trending fault is west of the Fasken location?

19 A. It is real close to that fault by my map. I
20 don't have anything to say it's really east or west of that
21 fault. It could well be on the other side of that fault.

22 Q. But this is your best interpretation, and you
23 show the fault to the west of that well location?

24 A. I do.

25 Q. Now, the upper Morrow sand, this is the one with

1 the least potential of the three sands that you've mapped,
2 if I correctly understood you?

3 A. It runs a close second or third to the -- yes.

4 Q. Okay. Is the upper Morrow "A" and -- It has not
5 been perforated in the Levers 2 well at this point; is that
6 not true?

7 A. To the best of my knowledge, it has not.

8 Q. And when you look at this map, this is still the
9 same interpretation as you had back in April, is it not?

10 A. It is.

11 Q. In Section 2 in the southeast quarter, what's
12 that? The Conoco Levers well?

13 A. Yes, sir.

14 Q. That Conoco Levers well, you give it 21 feet of
15 net "A" sand; is that not true?

16 A. Yes, sir.

17 Q. And did you continue to use the 7-percent
18 porosity cutoff?

19 A. I believe that's correct.

20 Q. When I look at that well, then, with that cutoff,
21 you've got 21 feet of net pay in the Conoco Levers well,
22 true?

23 A. Yes, sir.

24 Q. And did it produce gas out of that interval?

25 A. It did not produce. It tested gas, and that's

1 why it's a half circle instead of a full circle. It
2 essentially had a show in that zone. Never produced out of
3 it.

4 Q. Was there any initial potential on that well?

5 A. It had an initial potential.

6 Q. That initial potential was 2.9 million a day, was
7 it not?

8 A. I believe that's true.

9 Q. When we look at your structure map, am I correct
10 in understanding that you're low to the Levers 2 well, the
11 Texaco Levers 2 well, you're low to that of about
12 approximately 50 feet?

13 A. Yes, sir, less -- probably less than 50 feet,
14 right at 50 feet.

15 Q. When you looked at the Conoco Levers well in the
16 southeast of 22, do you have an opinion as to why that well
17 has not produced?

18 A. My evaluation of that is that it is across the
19 downthrown side of the northeast-southwest-striking fault
20 which separates it from Catclaw Draw Pool, and therefore it
21 was -- it had a burp but did not produce.

22 Q. Other than being on the downthrown side of the
23 Catclaw Draw fault line, is there any other geologic
24 explanation that you have for the fact that the well did
25 not produce out of the Upper Morrow "A" sand?

1 Q. Prior to your employment by Mewbourne, you worked
2 for Texaco; is that correct?

3 A. I did.

4 Q. And while with Texaco, you actually mapped the
5 sand that we're talking about here today; is that right?

6 A. In 1990 and 1991 I did, yes, sir.

7 Q. So seven years ago you were working on this area?

8 A. Yes, sir.

9 Q. You left Texaco in August of 1996; is that
10 correct?

11 A. Yes, sir.

12 Q. And at that time you went to work for Mewbourne?

13 A. Yes, sir.

14 Q. And you, when you went to work for Mewbourne,
15 were aware that the Levers Number 2 well was a very good
16 well in Section 12; isn't that right?

17 A. I think I was aware they drilled the well. I had
18 not seen any production.

19 Q. You recommended, in fact, did you not, that this
20 was a good prospect for Mewbourne to look into?

21 A. Among many locations I recommended, yes.

22 Q. And then after you recommended the location, Mr.
23 Cobb went out and acquired the interest in Section 1 that
24 he's previously testified to?

25 A. Yes, sir.

1 Q. Now, in your work as a geologist, you have become
2 familiar with the rules which govern the development of the
3 Catclaw Draw Pool; isn't that right?

4 A. Yes, sir.

5 Q. And you would agree with me that they provide for
6 640-acre spacing at this time?

7 A. Yes, sir.

8 Q. And they require 1650-foot setbacks from the
9 outer boundary of the dedicated acreage; is that correct?

10 A. They have.

11 Q. You reviewed the history of the development of
12 these rules and indicated that at one time the pool rules
13 were -- provided for 320-acre spacing, and that after that
14 spacing was changed to 640 with at that time authorization
15 for an infill; is that correct?

16 A. Yes.

17 Q. When they changed back to 640-acre spacing and
18 authorized infills, they didn't change the requirements or
19 the setbacks from the outer boundary of the spacing unit,
20 did they?

21 A. No, sir.

22 Q. At all times since we moved from 320 spacing back
23 to 640-acre spacing, the rules have provided for setbacks
24 of 1650 feet from the outer boundary of the tract; that's
25 correct, is it not?

1 A. (Nods)

2 Q. Is that correct?

3 A. That is correct, although half the wells in the
4 pool are drilled closer than that.

5 Q. And we will get to that in a minute.

6 A. Okay.

7 Q. Now, the Levers Number 2, the well that Texaco
8 operates in the northern part of Section 12, that is at a
9 standard setback, is it not?

10 A. Yes, sir.

11 Q. And the nearest setback that would be standard on
12 your tract, at least standard from the south line, would
13 require that you move that well back to 1650 feet; isn't
14 that correct?

15 A. Yes, sir.

16 Q. Were you actually involved in the selection of
17 this particular location?

18 A. Yes, sir.

19 Q. In fact, the intent of this location is to drill
20 the well as close as possible to the offsetting Texaco
21 well; isn't that correct?

22 A. No closer than 660, no, sir -- yes, sir.

23 Q. It is your intent to drill the well as close as
24 possible to the offsetting Texaco tract?

25 A. Our intent is to protect our correlative rights,

1 yes, sir.

2 Q. Are you aware that a lawsuit has been filed
3 between Mewbourne and Fasken involving the development of
4 this acreage?

5 A. I am.

6 Q. And are you the geologist who was involved in
7 that decision process to bring this suit?

8 A. No, sir.

9 Q. Have you seen the complaint that was filed in
10 this case?

11 A. Yes, I believe I have.

12 Q. Paragraph 6 of that complaint provides, and I
13 quote, "to take advantage of this proven and prolific
14 formation, Mewbourne proposed drilling a well to the Morrow
15 formation as close to the south line of the operating unit
16 as possible." Is that a correct statement?

17 A. Yes, sir.

18 Q. So the objective is to get as close as possible
19 to the offsetting Texaco acreage to the south?

20 A. Yes, sir.

21 Q. If we go and look at the rules a little further,
22 you are aware that prorationing was suspended in March of
23 1995; is that correct?

24 A. Yes, sir.

25 Q. Are you aware that the Division, in the order

1 that was entered following the April hearing, referenced
2 the Catclaw Draw Pool as a pool that is a technically
3 prorated pool?

4 A. Yes, sir.

5 Q. Do you understand the difference between a
6 prorated pool and a technically prorated pool?

7 A. My understanding of that difference is the
8 difference in where gas purchasers and nominations have set
9 demands for prorated pools and for fields that are
10 technically prorated where that -- where wells are pretty
11 much produced at capacity.

12 Q. Do you understand how whether a pool is prorated
13 or technically prorated, how that would impact the -- Do
14 you understand what the one-well rule is?

15 A. Yes, sir.

16 Q. And do you understand the relationship between a
17 prorated pool and a technically prorated pool --

18 A. Yes, sir.

19 Q. -- as they relate to the one-well rule?

20 A. Yes, sir.

21 Q. And is it your understanding of these rules that
22 when a pool becomes technically prorated, all rules or
23 policies that relate to prorationing would no longer apply?

24 A. No, I'm not aware of that.

25 Q. Am I pushing you into an area you don't know --

1 A. A little bit far.

2 Q. All right. When we look at your geological work
3 on the Catclaw Draw-Morrow, I think you indicated to Mr.
4 Kellahin you had not integrated seismic into your work; is
5 that correct?

6 A. That's correct.

7 Q. If we look at your Exhibit Number 10, in
8 developing these isopach maps you relied strictly on well
9 control?

10 A. Yes, sir.

11 Q. If we compare your Exhibit 10 today with Exhibit
12 9 from the April hearing -- Mr. Kellahin brought that out a
13 few minutes ago --

14 A. Yes, sir.

15 Q. -- I'd like for you to look with me for a minute
16 at your mapping the Morrow green sand.

17 A. Yes, sir.

18 Q. If we look at the map you presented in April, the
19 date on it is 3-4-97.

20 A. Yes, sir.

21 Q. This map was developed using strictly well
22 control; is that correct?

23 A. It was.

24 Q. Did you use more than the four well spots that
25 are shaded showing pay in this zone?

1 A. Again, I've mapped the entire field, but for
2 purposes of hearing I have restricted just this area, yes,
3 that's --

4 Q. And this is your interpretation as of that date?

5 A. It is.

6 Q. And is it fair to say that with the data
7 available to you, this was at that time the most accurate
8 map you could draw of this zone?

9 A. Yes, sir.

10 Q. Now, if we go to the map you're presenting today
11 and we look at the Morrow green sand, is this the best
12 interpretation you can make today with the data available
13 to you?

14 A. It is.

15 Q. Has there been any additional well control since
16 you prepared your map in March?

17 A. No additional well control.

18 Q. What additional data have you obtained that has
19 enabled you to change your mapping of this reservoir?

20 A. Prior to our March -- or our April hearing,
21 Texaco was unwilling to release pressure data that has
22 really allowed us to make these pods more volumetrically
23 realistic in terms of how big this reservoir is. So
24 essentially the difference in the two maps is utilizing new
25 pressure data from Texaco.

1 Q. And so what you've done is, you've integrated
2 some engineering work based on pressure information into
3 this map.

4 A. That was unavailable at the time.

5 Q. And that pressure information is data on the
6 Levers Number 2 well in the north half of Section 12; isn't
7 that correct?

8 A. On the new well, yes, sir.

9 Q. And so isn't it fair to say that what you've done
10 is actually adjust your map to take into account production
11 from our well, instead of just mapping the extent of the
12 reservoir as you see it as a geologist?

13 A. Well, we attempted an integrated approach,
14 geologically and engineering, and we attempted to map the
15 extent of the reservoir with the well control and with the
16 newest pressure information, and this is our current view.

17 Q. Okay, and that's your current view based on new
18 pressure data from the Levers well, which you then have
19 used to modify your interpretation based on well control?

20 A. Yes, sir.

21 Q. And the pressure data that you've integrated
22 shows what the Levers well will produce; isn't that right?

23 A. It is integrated with our engineering testimony
24 that shows an ultimate for this zone from all the wells.

25 Q. If we look at your green sand map, the one you're

1 presenting today, you have expanded the reservoir on an
2 east-west axis, have you not?

3 A. East-west?

4 Q. It's a thicker deposit on an east-west axis than
5 you previously mapped?

6 A. Yeah, I don't really see that. I see the 15-foot
7 contour, which is kind of critical, cutting the same part
8 of the proration unit it does in that map, so -- I mean, it
9 may appear wider because it's shorter, it's not as long to
10 the north. But I don't believe it is.

11 Q. If we look at your current map and we look at
12 your proposed location, and we also look at the Levers
13 Number 2 well, from a geologic point of view, with those
14 two -- there's nothing that would prevent those two wells
15 from competing with one another for reserves, is there?

16 A. Not based on my work, no, not at this time.

17 Q. Now --

18 A. There may be, but --

19 Q. But you -- Can you see as a geologist --

20 A. I'm sorry?

21 Q. Can you see anything as a geologist that would
22 prevent those two wells from competing for the same
23 reserves in the northern part of Section 12?

24 A. Well, in our last hearing Fasken presented
25 seismic that shows a fault that puts Mewbourne on the

1 downthrown side of the fault that might be interpreted to
2 separate sources of gas production.

3 Q. And do you accept the positioning of that fault
4 as presented by Fasken?

5 A. We haven't really been allowed to see enough of
6 the data. We accept the position based on that one line.

7 Q. And so is it your testimony that there is a fault
8 in there that separates the two wells?

9 A. Just based on Fasken's testimony in the April
10 4th --

11 Q. I'm asking you for your testimony. Is it your
12 opinion that there is a fault that separates those two
13 wells?

14 A. Mewbourne doesn't really control the data to see
15 that support, so this is Mewbourne's interpretation, based
16 on what I have.

17 Q. And based on your interpretation, can you see
18 anything that would prevent a well at your proposed
19 location from competing with the Levers Number 2 for
20 reserves in this green sand?

21 A. No, sir, I don't. That's why we're attempting to
22 protect our correlative rights.

23 Q. If I look at your map, the brown sand, and I look
24 at Exhibit Number 11, I believe in Number 11 it indicates
25 that what we have is a northeast-trending ancient shore

1 land in the middle Morrow sandstones in this area; is that
2 right?

3 A. Are you -- Brown or green?

4 Q. I'm talking about -- Excuse me --

5 A. You said brown?

6 Q. Yes, sir.

7 A. Okay.

8 Q. Is that applicable, that we should expect a
9 northeast-trending shoreline in the area?

10 A. In the lower Morrow?

11 Q. Brown sand, yes.

12 A. The lower Morrow is a series of distributed area
13 channels, and it's pretty much nonmarine, and it can vary
14 from northwest to north to northeast. In this local area I
15 show a northeast striking.

16 Q. Is this based on any regional mapping, or just on
17 mapping in this particular area?

18 A. It's regional in this area.

19 Q. And if you have a northeast-trending shore
20 through here, wouldn't you expect these fluvial sands to be
21 perpendicular to that shoreline?

22 A. This is not a shoreline deposit. Again, this is
23 a deltaic-type --

24 Q. All right.

25 A. -- braided-stream-type --

1 Q. And so you're orienting the brown sand basically
2 in this northeast-southwest-trending fashion, as opposed to
3 the northwest-southeast trend?

4 A. Yes, sir.

5 Q. And you're basing that on regional mapping?

6 A. I am.

7 Q. Okay. When we look at the brown sand, we look at
8 your cross-section, are you aware that when Texaco drilled
9 the Levers well, that the brown sand was, in their opinion,
10 not present?

11 A. Again, we may be talking differences in
12 nomenclature, but I correlate the lowestmost lower Morrow
13 sand to be the brown, and it produced a large part of the
14 6.5 BCF produced in the Levers Number 1 in the south half
15 of 12. And when you correlate that well to the north well,
16 they have that basal brown sand.

17 Q. You were advised last spring by Texaco that they
18 saw no gas show in the brown sand in this well; isn't that
19 right?

20 A. They perforated it.

21 Q. And they saw no gas show. They did tell you
22 that, didn't they?

23 A. The data I have says the well -- the zone is
24 open.

25 Q. Did they not talk to you about this and tell you

1 that they found no brown sand in the well?

2 A. Again, I don't remember any discussion with
3 Texaco on brown sand.

4 Q. You don't remember them saying that they didn't
5 see it in the mudlogging?

6 A. No, sir, I don't.

7 Q. You didn't see it on --

8 A. I'm sorry, I --

9 Q. -- the neutron log? Okay.

10 A. Again, it's not a key objective as far as -- It
11 is a sand that we believe will be in a location drilled on
12 the east half of this gas proration unit and not likely in
13 the west half. But it's likely to have suffered fairly
14 significant fieldwide depletion.

15 Q. And that just happens when you develop a field,
16 correct? The zones get depleted?

17 A. Yes, since 1972 that zone has been producing.

18 Q. And it's up to the operators in tracts to drill
19 wells to produce their share; isn't that correct?

20 A. That is correct.

21 Q. And there's nothing wrong with somebody drilling
22 and producing their reserves in an offset and letting that
23 depletion occur, correct?

24 A. Correct.

25 Q. Now, when you work with the Morrow and -- You

1 have worked with the Morrow for how many years, Mr.
2 Williams?

3 A. On and off for about 17 years.

4 Q. It's fair to say it's a complex formation, is it
5 not?

6 A. It is very complex.

7 Q. And when we look at your proposed location, we're
8 really not going to know the thickness of, say, the green
9 sand until you actually drill a well there; isn't that fair
10 to say?

11 A. That is most likely correct, yes, sir.

12 Q. And if we drill a well there, we may discover
13 that your interpretation in March is confirmed; isn't that
14 possible?

15 A. It may be.

16 Q. Now, you're not going to know the porosity at
17 that location until you actually drill a well there; isn't
18 that also correct?

19 A. That's correct.

20 Q. And it's your -- It's possible that you could
21 drill a well there that is comparable to the Levers Number
22 2. Fair to say?

23 A. That's possible.

24 Q. You could even drill a better well if you get
25 lucky, correct?

1 A. Possibly.

2 Q. And if you're able to drill a well that's
3 comparable or better it would, in fact, then -- could be
4 competing with the Levers Number 2 for the reserves in that
5 portion of the Catclaw Draw-Morrow Pool, could it not?

6 A. Well, at this point of pressure depletion from
7 the Levers Number 2 well, I'm not sure that we could likely
8 drill a better well. That well has made a significant
9 amount of gas and, as our engineering testimony has shown,
10 has drawn down the reservoir pressure fairly significantly.

11 So to compete with that well is going to be
12 rather tough if -- certainly if something isn't done fairly
13 quickly.

14 Q. You could drill a well, though, that would
15 encounter comparable reservoir, correct?

16 A. Yes.

17 Q. And geologically, they then would -- we would
18 have two wells competing for the reserves in that area at
19 today's pressure?

20 A. Yes, at today's pressure.

21 Q. Bottom line is, though, we're not really going to
22 know what we have here until you actually drill a well in
23 the south half of Section 1; isn't that fair to say?

24 A. That's in all cases, yes, sir.

25 Q. Before that, we're working with geologic

1 interpretations?

2 A. That's right, that's correct.

3 MR. CARR: That's all I have.

4 CHAIRMAN LEMAY: Thank you, Mr. Carr.

5 Commissioner Bailey?

6 EXAMINATION

7 BY COMMISSIONER BAILEY:

8 Q. Well, all my questions were answered, except I
9 did miss the gas-water contact.

10 A. Okay. Again, the only zone that I think critical
11 is -- for the gas-water contact, is the lower Morrow, and
12 from the wells that I've found in the field -- and I
13 believe there were three of them, of which this Number 7
14 well is one of them -- there's a gas contact at
15 approximately 7260 subsea.

16 MR. BRUCE: You mean the well in Section 7?

17 THE WITNESS: Seven, southwest quarter of 7. The
18 TW on the isopach on the top right-hand refers to the
19 "tested wet", and it's at a subsea of 7263.

20 COMMISSIONER BAILEY: That's all I have.

21 CHAIRMAN LEMAY: Commissioner Weiss?

22 EXAMINATION

23 BY COMMISSIONER WEISS:

24 Q. How do you draw the contours on your exhibits?

25 A. Well, on the structure map, pretty much pick the

1 tops, incorporate -- try to incorporate a lot of the shows
2 and a lot of the production, and really separate things
3 with faults to make it all make sense.

4 Q. So they're drawn by hand?

5 A. Oh, yes, sir. Yes, sir, they're by hand.

6 Q. Yeah, I didn't understand. So you're looking
7 at --

8 A. Yes, they are all interpreted and contoured by
9 hand.

10 Q. And then the next -- You mentioned you had some
11 pressure information to support your placement of the
12 faults, and then you said it was integrated into the green
13 sand. How did you do that?

14 A. Well, our engineer, working with our engineer.

15 Q. He'll explain that?

16 A. Yes, sir, with the reserves and the drainage
17 areas.

18 COMMISSIONER WEISS: That's the only questions I
19 had. Thank you.

20 EXAMINATION

21 BY CHAIRMAN LEMAY:

22 Q. Mr. Williams, was it your recommendation to
23 locate this well 660?

24 A. Yes, sir, it is. It was.

25 Q. Why didn't you pick 330?

1 A. Well, I really, I guess, didn't -- I just work
2 the Morrow, and typically statewide rules are 660 and 1980.
3 When you look at the field on a fieldwide basis, yes, the
4 field rules have been 640 acres. But it's effectively
5 developed on 320 acres, and that is a 320-acre setback, 660
6 and 1980.

7 Q. So 330 would give you -- Assuming just geologic
8 testimony, assessing risk --

9 A. Uh-huh.

10 Q. -- 330 is a lower risk than 660 would be if you
11 had a fieldwide rule that said you could drill 330?

12 A. Possibly, yes, sir.

13 Q. Or how about 990?

14 A. Possibly, yes, sir. That could be -- Again, with
15 the uncertainties, that could be fine.

16 Q. Assuming relative risk in proximity to the south
17 line --

18 A. Yes.

19 Q. -- is it your geological testimony that the
20 further you go north from the south line, the higher the
21 risk becomes?

22 A. Yes, sir, it is.

23 Q. Is there a cutoff of which going north you would
24 not recommend drilling the well?

25 A. It's likely at that 990 point, 660 to 990,

1 somewhere in there. I mean, there are other considerations
2 as far as topography and such out here, and this location
3 stakes out relatively well. Going north, I believe there's
4 a draw in there.

5 Q. But assuming you could -- you drilled the draw,
6 or assuming topography was not a factor, just assessing
7 geologic risk, would you recommend your client drill a 990
8 location?

9 A. Without a penalty, absolutely, yes, sir.

10 Q. How would you assess a 990 location without a
11 penalty, compared to a 660 location with a penalty?

12 A. Well, I guess it just depends on what the penalty
13 was. But ultimately, the data is not good enough to
14 discern that much difference in location. There's not that
15 -- You know, it's all subsurface control and trends, and
16 it's -- 330 feet of difference is a margin of change.

17 CHAIRMAN LEMAY: That's the only question I had.

18 Any additional questions of the witness.

19 MR. BRUCE: I had some follow-up questions.

20 CHAIRMAN LEMAY: Mr. Bruce?

21 FURTHER EXAMINATION

22 BY MR. BRUCE:

23 Q. Mr. Williams, looking at your Exhibit 10, the
24 lower Morrow isopach, you've trended that northeast-
25 southwest, correct?

1 A. Yes, sir.

2 Q. Mr. Kellahin asked you a question about why you
3 didn't trend it northwest like the article you submitted as
4 Exhibit 11 says. Looking at this map, I notice the Fasken
5 well in Unit P of Section 1 is zero feet in this sand, the
6 well in the southeast quarter of Section 3 -- Section 2, is
7 zero feet. The well in the southwest quarter of Section 11
8 is zero feet in the sand.

9 Could you drill this in a northwest trend and
10 still honor the well data up there?

11 A. I don't believe so. There are -- The brown sand
12 is such a prolific zone. There's virtually no brown
13 production northwest of this field for quite a ways, and I
14 think that has to do with the trend of the reservoir, as
15 well, with the faults that separate this major field.
16 Catclaw has produced over 108 BCF. It is a major Morrow
17 field, and that's essentially why it was prorated. And
18 going north, there's virtually no commercial Morrow
19 production for quite a ways.

20 Q. Okay. Now, looking at -- Well, what was your
21 Exhibit 9 at the original hearing, the one Mr. Kellahin
22 handed to you?

23 A. Uh-huh.

24 Q. In looking at your middle Morrow map, now, this
25 interpretation -- When you made this, you did not have any

1 data from the Texaco Levers Number 2 well in Section 12,
2 did you?

3 A. Just the log and scout-ticket information.

4 Q. Now, even under this interpretation, if you moved
5 the well to the north, would you increase the risk in the
6 lower Morrow and the upper Morrow?

7 A. Yes, it appears from those isopachs you would
8 increase the risk a little bit.

9 Q. Okay.

10 A. Especially the lower Morrow. I guess you might
11 get to a feather edge, possibly. It's hard to say.

12 Q. And even under this interpretation, would you
13 want to be very close to that Fasken well in Unit P of
14 Section 1?

15 A. No, sir, that well is a -- was pretty much a
16 noncommercial producer. It produced from 1972 to 1992 and
17 only made 300 million cubic feet. And we think the zone is
18 there; the permeability is really lacking in that well as a
19 result.

20 Q. So even if you moved north and you might have 20
21 feet of net sand, you could have permeability and porosity
22 problems?

23 A. Yes, sir.

24 Q. Looking at this, immediately to the south of the
25 Fasken well in Unit P, Unit Q, did Texaco at one time own

1 that lease on that Unit Q of Section 1?

2 A. Yes, sir, back in, I believe, 1991, Texaco owned
3 the acreage in Section 1 that was subsequently dropped.

4 Q. They sold that acreage?

5 A. They sold that, yes, sir.

6 Q. And one final thing. You stated that you've
7 mapped -- You've mapped pretty much the whole pool, not
8 what's just on this Exhibit 10; is that correct?

9 A. Yes, sir.

10 Q. And I think you said there is substantial well
11 control in the area?

12 A. There is.

13 Q. And you were asked questions about seismic.
14 What's the quality of seismic in the Morrow, generally?

15 A. In these areas it's pretty questionable. There's
16 a lot of topography, and some of it -- some of the uses of
17 it is somewhat -- The majority of the sands are too thin to
18 see seismically. In places it helps with faults, and
19 that's about it. It's tough -- It's a tough sell with the
20 seismic. Even 3-D seismic, major companies have drilled a
21 lot of wells, and success rates, from discussions with
22 people working those things, it's questionable if they're
23 doing any better than just regular Morrow exploration
24 without 3-D.

25 Q. Was this pool developed based on 3-D seismic?

1 A. Yes, this pool --

2 Q. Was *this* pool developed based on 3-D seismic?

3 A. Oh, no, sir, this pool was developed in 1972,
4 primarily off of subsurface control.

5 MR. BRUCE: Okay. Thank you, Mr. Chairman. I
6 have nothing further at this time.

7 FURTHER EXAMINATION

8 BY CHAIRMAN LEMAY:

9 Q. I have one quick question. Maybe I was
10 misunderstanding you. Do you think, or did you state that
11 because this field was so prolific, it was prorated?

12 A. Yes, sir, given gas prices and market demand at
13 the time, from my research in the orders, it appears that
14 there were two purchasers in here. Everybody had
15 essentially one well, and the only way to keep correlative
16 rights was to prorate it and give everybody an allowable.

17 Q. Are you familiar with our concept of rateable
18 takes --

19 A. Yes, sir. Yes, sir.

20 Q. -- and generally to divide up a reservoir where
21 there's limited market demand, proration is necessary with
22 limited purchasers in the field, not necessarily the
23 prolific --

24 A. Right, well --

25 Q. -- nature of the field?

1 A. -- when I said that I mean relative to gas
2 market --

3 Q. Yeah.

4 A. -- at that time.

5 CHAIRMAN LEMAY: Thank you. I just wanted to
6 clarify some of that testimony.

7 Any other questions of the witness? If not, he
8 may be excused.

9 We can probably have another witness here.

10 MR. BRUCE: One more witness.

11 CHAIRMAN LEMAY: Is someone going to submit a --
12 Any of your exhibits a topo map of the area?

13 MR. BRUCE: We can probably get one if we don't
14 have one now.

15 CHAIRMAN LEMAY: It would be nice to have one in
16 the record.

17 MR. BRUCE: We'll get one, Mr. Chairman.

18 CHAIRMAN LEMAY: Thank you.

19 Before we start, Tom, was it your -- wanting to
20 introduce that previous map into the record, the one from
21 the Examiner's hearing?

22 MR. KELLAHIN: Perhaps it would be a convenient
23 time to do that while we're housekeeping. If it doesn't
24 confuse the record, I'd simply refer to it by the Division
25 exhibit number, as opposed to having to re-number it.

1 CHAIRMAN LEMAY: Again, with housecleaning, was
2 it your intention to admit into the record the transcript
3 and the exhibits of the previous hearing?

4 MR. KELLAHIN: No, sir, I think this case can
5 stand alone.

6 CHAIRMAN LEMAY: Okay. Well then, do you want to
7 call that whatever -- it stands alone if we don't refer to
8 the other case, carry it separate.

9 MR. KELLAHIN: I would suggest we refer to it the
10 way it's identified, as the Mewbourne Exhibit Number 9 to
11 the Division Examiner Hearing.

12 CHAIRMAN LEMAY: Will that work? Okay. Let the
13 record show that particular exhibit is referenced.

14 MR. BRUCE: Are you ready?

15 CHAIRMAN LEMAY: Yes. You may continue, Mr.
16 Bruce.

17 BRYAN M. MONTGOMERY,
18 the witness herein, after having been first duly sworn upon
19 his oath, was examined and testified as follows:

20 DIRECT EXAMINATION

21 BY MR. BRUCE:

22 Q. Would you please state your name and city of
23 residence?

24 A. My name is Bryan Michael Montgomery, and I live
25 in Tyler, Texas.

1 Q. Who do you work for?

2 A. I work for Mewbourne Oil Company.

3 Q. And what is your job there?

4 A. My job is manager of reservoir engineering and
5 economics.

6 Q. Have you previously testified before the Division
7 or the Commission as a reservoir engineer?

8 A. Yes, I have.

9 Q. And were your credentials accepted as an expert,
10 accepted as a matter of record?

11 A. Yes, they were.

12 Q. And are you familiar with the engineering matters
13 and the reservoir matters involved in the competing
14 Applications today?

15 A. Very much so.

16 MR. BRUCE: Mr. Chairman, I'd tender Mr.
17 Montgomery as an expert reservoir engineer.

18 CHAIRMAN LEMAY: His qualifications are
19 acceptable.

20 Q. (By Mr. Bruce) Mr. Montgomery, what materials
21 have you studied on this prospect?

22 A. Well, this prospect was first brought to me
23 through our management by Keith Williams, and I worked with
24 him initially as a loose team, and we tried to develop a
25 review of the prospect on its merits on drilling a Morrow

1 test in Section 1. And so I'm very much familiar with it,
2 have worked on it for quite some time.

3 This, by the way, is an exciting and excellent
4 prospect that we thought we had in our company quite some
5 time ago, and here we are today.

6 Q. Now, when you studied this, have you gotten any
7 recent data which you've incorporated into your study since
8 the last hearing?

9 A. Yes, originally we had all the public data, well
10 logs and scout tickets and production data. The new well
11 that I call 12F, the north half of Section 12, the Levers
12 Number 2 well, was a well that was producing at a constant
13 rate, 4 million a day, and had done so since inception at 4
14 of 1996.

15 What we needed was the pressure decline on that
16 well. Something has to be declining in a volumetric
17 reservoir to calculate reserves, and so we have since the
18 last hearing obtained several pieces of data. The most
19 important to me, I suppose, is pressure data and other data
20 on the well at 12F.

21 Q. Okay. Now, what general statements can you make
22 about drainage in the Catclaw Draw-Morrow Pool?

23 A. Well, it's my opinion that in this pool there are
24 different Morrow sections that produce, the lower Morrow,
25 the middle Morrow and the upper Morrow. And as was stated

1 before, the lower Morrow has predominantly produced, in the
2 early years, the wells that have then been infill drilled
3 to the lower Morrow and recompleted on up to the middle
4 Morrow and now the upper Morrow, and that this formation,
5 this group of Morrow reservoirs, are discontinuous
6 stringers to some degree.

7 To some degree they have some lateral continuity
8 but many times they do not, as evidenced by, I think, some
9 exhibits we're going to show that you find high pressure a
10 short distance away from a well that has produced quite an
11 amount of gas, that doesn't fit that they're in any strong
12 communication.

13 So in general, it's a field of Morrow production,
14 prolific production, that is varied in areal extent,
15 permeability and producing characteristics, et cetera.
16 There's some complexity to this group of reservoirs.

17 Q. And you stated that the key well in this
18 immediate area is the Texaco Levers Number 2 well in Unit F
19 of Section 12?

20 A. Yes, this is the well that has given us all the
21 interest for this prospect. Before this well was drilled,
22 there were two other wells to the north in this field --
23 well, one other in the field -- but two others that were
24 tested, that were very poor. Nobody had any had any idea
25 or any hope, that I can see, to drill in Section 1 until

1 this well, this prolific well in Section 12 was drilled.

2 So certainly this is a key well.

3 Q. Development in this pool had been dormant since
4 what? The early 1980s?

5 A. That's correct. And then in 1996 the Texaco well
6 was drilled, completed.

7 Q. Okay. Let's start off with your first exhibit,
8 Exhibit 13. Just very briefly, what is it?

9 A. This exhibit is just an AFE, a cost that we
10 expect to incur to drill and complete this well. It's
11 approximately \$750,000 to a depth of 10,700 feet at our
12 proposed location to encounter the Morrow sands.

13 It's basically, to me, a non-issue right now, but
14 we do want to show that it's very expensive to drill this
15 well and that you need to minimize your dryhole risk when
16 you're spending three-quarters of a million dollars. You
17 need to choose your best location. You certainly don't
18 want to drill multiple holes to find Morrow reserves.

19 Q. Okay. What is Exhibit 14?

20 A. Exhibit 14 is a two-page exhibit, and it
21 represents a summary and analysis of the new data that I
22 talked about with the Levers Number 2 well.

23 The Levers Number 2 well, which I call 12F a lot,
24 as you can see, maybe, on the second page there's a table
25 of pressures and dates and cumulative productions, and on

1 the first page is a plot of those in a material balance
2 expression, which is what we call a P/Z plot.

3 This plot is used to determine the original gas
4 in place felt by this wellbore, these perforations, and
5 also potentially recoverable gas and what type of drive
6 mechanism exists and some other things.

7 But in general, and specifically, I suppose, what
8 I want to point out are a few things.

9 First of all, if you look at the second page you
10 see that the well is perforated 10,236 to 10,272, which is
11 what we talk about as the middle Morrow. There are also
12 perforations in the lower Morrow, but there is a valve that
13 has been set to keep that from producing until a certain
14 pressure is reached at the bottom hole, which I believe is
15 still not reached at this time.

16 So to back up a little bit, this well was
17 perforated in the lower Morrow. In fact, it was DST'd in
18 the lower Morrow, and showed significant depletion but good
19 productivity.

20 So when I talk about 12F, I'm really limiting
21 myself to the middle Morrow. This is where the big
22 reserves are. This is where the big pressure is, this is
23 where the big rates are, this is where the bulk of the
24 drainage will come from.

25 So as we go through this table real quickly --

1 Yes, this is middle Morrow green sand data, strictly middle
2 Morrow green sand data. We have the initial pressure of
3 3686. You can see, "Measured SIBHP", shut-in bottomhole
4 pressure. That was the initial pressure of this well that
5 was completed and had very good flow characteristics, very
6 high permeability.

7 We've seen subsequent buildup data on this well
8 from Texaco also that shows 5 to 10 millidarcy of rock,
9 which is very good productivity characteristics for gas.

10 And what I'd like to make sure we realize is that
11 this 3686 initial pressure is a very slight reduction from
12 the original pressure of all the other Morrow production
13 out here. In other words, this well was only slightly
14 impacted by other middle Morrow production. Very
15 insignificant impact.

16 So I think we've found a new compartment here, a
17 new drainage compartment, which supports the idea that this
18 field needs to be on 320s. The stringers do exist.

19 As you go through the rest of these pressures
20 they're not that important, except for the fact that if you
21 plot them versus -- or divide by Z, which is a
22 compressibility factor, and plot them versus cumulative
23 production, you can see a trend that is exemplified in
24 volumetric reservoirs to show the original gas in place
25 after you do some calculations.

1 And the plot on the first page shows that result.
2 If you look back on the first page, now, with me, you see
3 these four points on this plot. The initial point was the
4 January, 1996, initial date. The second point is the
5 second date, 8 of 1996. Then the last two points.

6 And let me say, the 8 of 1996 point is a state
7 shut-in test that we have recently found out that the
8 pressure data in New Mexico is not being keyed in the
9 system, and so I've gathered that.

10 But the last two points, 12 of 1996 and 1 of
11 1997, are from the operator's own records. What we have
12 done is got all the gauge records from Texaco. I've got
13 the flowing tubing pressure and rate for every day since
14 inception.

15 And let me say a little about that. The flowing
16 tubing pressure came on near 2500 pounds in this well where
17 the shut-in pressure was 2900 pounds at the surface. Very
18 small drawdown, very big rates.

19 The rates then remained constant for 18 months,
20 and the flowing tubing pressure dropped from approximately
21 2500 pounds to a current of 900 pounds, where the line
22 pressure is close to 800 pounds, 600 pounds, something like
23 that. So this well is going to experience some production-
24 rate decline in the near future.

25 There is a limited amount of gas that this well

1 is feeling, and what I'm trying to show on this first page
2 is, it's about 6 BCF. My number for original gas in place
3 that you'll see in other exhibits is 5.75 million cubic
4 feet, which would simply be the intersection of that line
5 projected down to zero pressure.

6 You won't recover all the way to zero pressure,
7 and I've estimated about 5.5 BCF recoverable gas for this
8 well. And that does match well with the flowing tubing
9 pressure declines and everything else I see with the
10 surrounding wells.

11 Q. It's a heck of a well?

12 A. It's a great well, and it -- It's a 6-BCF well
13 that we think actually spills over into our section, a
14 significant portion of that 6 BCF.

15 Q. Well, let's discuss that. Would you move on to
16 your Exhibit 15, identify that for the Commission, and why
17 don't you go through it pretty slow because --

18 A. This --

19 Q. -- there's quite a bit of data to look at.

20 A. This is the bulk of my reservoir engineering work
21 in this area, and it has been supplemented by this new data
22 on the well at 12F that we had previously very little
23 information on the ultimate reserves of this well.

24 What I've done is used Keith Williams' geologic
25 net isopach, and superimpose volumetric compartments, if

1 you will, of drainage areas that I feel exist right now, in
2 a pattern that goes along the trend of the net pay, it is
3 elliptical like I believe the deposits are being deposited,
4 and that are based on constant thicknesses, relative to
5 what the well's encountering and what Steve's -- I mean
6 Keith's net isopach thicknesses show.

7 So what I'd like to do is go through these wells,
8 and I won't dwell too much on the new well in 12F because
9 I've already discussed it. But I'd like to talk about
10 these other three wells and, in particular, maybe one more
11 well that's not on my table below or with a red circle, and
12 that's the well in Section 2.

13 Q. Okay, Mr. Montgomery --

14 A. Yes.

15 Q. -- before you do that, you know, you've driven
16 all these drainage circles -- they're not circles; they're
17 more ellipses. In your opinion, would drainage be radial
18 in this reservoir?

19 A. Not but for the very first few time increments.
20 Eventually it would become elliptical as the deposits are.

21 Q. It would follow the shape of the deposit --

22 A. That's correct.

23 Q. -- the shape of the deposition?

24 A. That's correct.

25 Q. Okay.

1 A. That's consistent with the field development, the
2 drilling we see, the mapping we see and all -- I think all
3 the maps we see, whether they trend north, south, east,
4 west, they're typically elongated.

5 Q. Okay, go ahead.

6 A. First of all, let's look at -- And I'll call the
7 well 1P. That's the top well up there with the red circle
8 around that has a little "10" underneath it, and that
9 results in the 10 feet of pay that goes along with Keith's
10 net map. And I've used 10 feet as an average thickness for
11 the drainage area of calculation for that well.

12 Upon reviewing the scout ticket data and well
13 files from Fasken, it's my understanding that that well had
14 good producing characteristics initially, produced at high
15 rates and in the first month was at a billion a day but
16 declined rapidly and, in my opinion, is due to a small
17 areal extent of the sand reservoir. It made 322 million,
18 it was drilled in 1972. Initial pressure was 4322 pounds,
19 and that calculates to 54 acres drainage area.

20 What I'm trying to show is, there's just no
21 reason to go toward that well when trying to drill for more
22 reserves with response -- other data like the well at 12F.

23 Secondly, I think I want to talk about the well
24 at 2R, which is the one that's not colored and not in the
25 table. I apologize for that, but I know we've talked about

1 this well already at this hearing, and so I'd like to say
2 what I know about this well.

3 This well is in the south half of Section 2. It
4 has a little "6" underneath it, and that's the middle
5 Morrow thickness that our geologist attributes to this
6 well. I've reviewed the scout tickets and the completion
7 history of this well. I may have to refer to my notes,
8 because several zones were tested.

9 But I'd like to say that, bottom line, what I
10 believe is this well also, is of limited areal extent, such
11 that they actually tested all Morrow zones, lower, middle
12 and, I believe, upper, and squeezed the perforations with
13 cement and moved on to a Cisco attempt. Now, there's a big
14 Cisco field just a mile or so to the northwest here.

15 But I think what they saw, from the scout ticket
16 data that I have, is that this was poorer than the well in
17 1P, the well testing. They did not get a big Catclaw Draw-
18 Morrow well, by any means, or they would have been in that
19 zone.

20 They tried the lower Morrow, orange. They
21 acidized it, they frac'd it, they got 670 MCF a day with
22 only 100 pounds flowing tubing pressure. They frac'd it
23 again. They put a bridge plug.

24 They tried the middle Morrow, a stray sand. It's
25 not the sand represented here. Got 1.8 million a day out

1 of that sand at 600 pounds, but then reperf'd it. Don't
2 say why, but I believe it depleted rather rapidly.
3 Acidized it.

4 Then went back and reperf'd the lower Morrow,
5 then tried to produce one up the tubing, one up the casing.
6 This is all in the same month now. Then they frac'd the
7 lower Morrow, potentially with the middle Morrow. No test
8 reported.

9 And then they finally showed perforations in what
10 we consider a correlative middle Morrow green interval, but
11 only at 800 MCF a day, with 100 pounds flowing tubing
12 pressure, but subsequently squeezed those perforations off.
13 I believe when they drilled this well and tested these
14 Morrow zones they found them to be noncommercial, period.

15 They then moved up the hole to the Cisco, which
16 tested extremely wet.

17 The final result of this well was an injection
18 well for Cisco production. It's very productive in the
19 Cisco, makes a lot of water. So they may use it as a
20 disposal well from the Spring field, which produced about
21 15 million barrels of water with a lot of gas, and they
22 stuck 6 million barrels of water from that field into this
23 wellbore in the Cisco.

24 But back to the Morrow, it's just a complete
25 zero. We don't want to move that way either, and before we

1 had the data on -- the new data on 12F, what we had was
2 these poor wells to the north and this good well to the
3 south. And we can talk about how far south do you want to
4 go, but yes, we did want to stay south to help compete for
5 what we thought was drainage that was occurring in Section
6 1.

7 The last two wells that I want to talk about here
8 on this exhibit are, first, 12N, and that's the southerly
9 Levers Number 1 well in Section 12. It was initially
10 completed in both the lower Morrow and the middle Morrow,
11 at initial pressure of 4300 pounds, 4350 estimated, in
12 1973, with what I believe to be 13 feet of pay in the
13 middle Morrow.

14 Now, it was commingled with the lower Morrow all
15 those years, and so I did my best to split out the total
16 production which, to date, has cum'd approximately 5 BCF.
17 Incidentally, this is the well that's now shut in by Texaco
18 because of simultaneous-dedication problems.

19 But I decided from log analysis that I could
20 attribute of the 5.1 BCF approximately 1.5 BCF in the
21 middle Morrow and subsequently calculated 135 acres
22 drainage and drew in my drainage area. Those two wells, 1P
23 and 12N, were 1970s wells, as was 2R.

24 Then we moved into the first infill wave, or
25 really the only infill wave until this new well. And I

1 want to show that 11P was completed in 1981 in the middle
2 Morrow only, 15 feet of pay.

3 But look at the pressure: 4170 pounds. Very
4 little depletion, sort of like we talked about at 12F,
5 showing again that 320-acre development is reasonable.
6 These do have compartmentalization problems, and getting
7 the complete amount of gas out of the Morrow, you simply
8 cannot drill one well per 640. You also may have to drill
9 too close to a lease line.

10 Well, that well has produced 2.6 BCF, still
11 producing. It's my estimate that it may ultimately recover
12 3.6 BCF. And the drainage area is shown at 306 acres.

13 Now, to finish up the new Texaco well, what I've
14 done is taken the data from the previous exhibit, this 5.5
15 BCF of ultimate recovery, and said, well, the well has 26
16 feet of perforated interval, but it overlaps contouring
17 that goes from 25 to 15. So I used 20 feet average, and
18 calculated a 320-acre drainage.

19 When I orient that ellipse like I think it really
20 is, it produces from the north. If it was producing from
21 the south, those other wells would have been much better
22 wells; they would have had some of this 6 BCF. Remember,
23 the initial pressure in this well was only slightly
24 depleted. The production is coming from Section 12 for
25 certain, but also, if it has more area than 12 can support,

1 it's coming from the north, which we believe Section 1.

2 So in a nutshell, this is a reservoir engineering
3 history matching of the geology, the pressure and the
4 production to try to depict these compartments that we
5 believe exist in the middle Morrow, which is really the
6 primary zone of interest at this point. This is the
7 competitive zone, this is the one we're being drained in.

8 As I said before, this well has produced 2.2 BCF
9 out of the 6 BCF. If we don't get started pretty quick,
10 there's going to be less and less to split. If we get a
11 severe penalty, we're not going to originally -- we're not
12 going to get what was under our section.

13 So that sort of sums it up.

14 Q. Okay. Now, looking at this kind of summary, Mr.
15 Montgomery, looking at the Levers Number 2 well, it's not
16 going to drain from too far north because you've got that
17 very poor Fasken well in Unit P of Section 1; is that
18 correct?

19 A. That's correct. You have to think of stopping it
20 in that direction.

21 Q. Okay. And to the northwest, there's just no
22 reservoir much over to the west of Section 12, is there?

23 A. They start -- Our geologic interpretation, these
24 trend to the northeast, so you wouldn't want to go
25 northwest, and we see the well at 2R that is so poor.

1 Q. And so finally you're not going to drain from the
2 south or southwest; there's already very good wells in
3 those directions, aren't there?

4 A. Well, that's correct. And one of them is --
5 They're both still producing. The other one is shut in
6 temporarily, I suppose.

7 Q. So primarily production from the Levers Number 2
8 is going to come from the north, including Section 1?

9 A. That's correct.

10 Q. And in your opinion, do you need to drill in
11 Section 1 to recover Section 1's fair share of reserves in
12 the middle Morrow?

13 A. We do, and we need to do it quick.

14 Q. Well, let's move on to your final exhibit,
15 Exhibit 16, and discuss reserves under Section 1.

16 A. 16 is best looked at by keeping both 15 and 16
17 out because Exhibit 16 is a -- what I call a volumetric gas
18 allocation estimate.

19 And really what I'm trying to do here is, I'm
20 trying to take the total amount of reserves, this 5.75 BCF
21 in place that I think overlaps both sections, and using the
22 larger volume you see in Section 12 and the smaller volume
23 in Section 1, find out what that percentage is, find out
24 what was originally in place, find out how much it's
25 produced, where do we stand, what has happened with this

1 illegal production that has gone on in Section 12 that has
2 kept us from competing for the reserves that were
3 originally there?

4 At the beginning of the table -- At the top of
5 the exhibit you see a table and at the bottom you see some
6 of my conclusions. The table shows first productive acres.
7 This is simply Section 12 planimeters 320 [sic] approximate
8 acres, Section 1 100, to give the total 320 that I showed
9 on the previous exhibit.

10 Using constant thickness, this means that 69
11 percent, 220 over 320, of the gas was originally in Section
12 12, and 31 -- approximately 31 percent in Section 1.

13 When you multiply those percentages you get to
14 line 3 and you multiply the total in-place gas, 5.75 BCF.
15 You see there at the end, total. You get the numbers, 3950
16 and 1800, representing the million of cubic feet that were
17 originally in place under these two sections at the
18 beginning --

19 Q. And that's the date that Levers Number 2 was
20 completed?

21 A. That's correct, that's at the date that the
22 Levers Number 2 was completed at that slightly reduced
23 pressure.

24 So the last line shows, well, what do we think is
25 there now? Well, we know 2.2 BCF has been produced,

1 approximately. When you subtract that from the 5750, you
2 see the total number, 3550 is now remaining. Again, you
3 just use the percentages of the 69 and the 31 percent, and
4 you see now that we only have a little over 1 BCF remaining
5 under our section. They have 2.4 BCF. This is my
6 interpretation of what I think this volume compartment
7 looks like.

8 And the pressure, if you were to shut these wells
9 in -- this is a high-perm well; this well is going to
10 equalize quite quickly over 320 acres -- you'd see this is
11 a good representation, using my analysis, of the amount of
12 gas in place in total and allocated.

13 What does that tell us? When I get down to the
14 bottom, I see -- I made a note, "Well at 12F has produced
15 2200 million cubic feet between 1/13/96 and 10/1/97".

16 Well, we now find out this has been produced
17 illegally. If this has been produced without simultaneous
18 dedication, a hearing where the owners in Section 1 can
19 respond effectively to protecting their correlative rights,
20 then there's been some wrong done, there's been some
21 drainage occur. Now, there's no doubt the drainage
22 occurred. The question is, has there maybe been some wrong
23 done? And we think so.

24 So if you look at the first conclusion, "Section
25 1 has been drained an estimated 690 million cubic feet".

1 That's simply the 1800 that was originally there, minus the
2 1110 that we say is there now at this pressure. So 700
3 million cubic feet has already been produced and sold to
4 the profit of Texaco from Mewbourne -- or the owners of
5 Section 1, excuse me -- because of this illegal production.

6 Now, Section 12 has remaining reserves -- not
7 currently, but if you look at from original, you see my
8 parenthetical, Section 12 has remaining reserves (from
9 original) of 1.75 BCF.

10 And the way I come up with that is to say from
11 original they have 3950. They got to sell the whole 2200.
12 Therefore, if we were just to go back from original, they
13 should only be allocated 1750 left of the remaining to get
14 to the full 6 BCF or so.

15 Accordingly, Section 1, the same calculation.
16 Section 1 has from original the same 1800. We had original
17 1800, we haven't got to produce any. So 1750 and 1800, if
18 you add those together, you do get what I show as the total
19 remaining.

20 And note that those are fairly equal. They're
21 not equal, they weren't meant to come out equal. But
22 certainly if we drill a well, we think no penalty should be
23 assessed, because we think we need to compete equally to
24 gain back the disadvantage we had from improper hearing,
25 simultaneous dedication, improper production from Texaco

1 from this well. They shut in the wrong well, I'll tell you
2 that. We're still getting drained.

3 And anyway -- so it -- This is a table that sets
4 up an argument from the previous exhibit of just what gas
5 is where now, and how was it produced up till now.

6 Q. Now, if a well was not drilled in Section 1, will
7 Section 1 continue to be drained by the Levers Number 2?

8 A. It's being drained as we speak. We need to drill
9 a well -- that's the only way -- or to shut the Texaco well
10 in right now.

11 Q. And if a Morrow well is not drilled soon in
12 Section 1, might the well become uneconomic due to
13 drainage?

14 A. That's correct, you see my analysis as 1.1 BCF.
15 We're at a critical point. Would we drill a \$750,000 well
16 for 1.1 BCF? I think we're still ready to do that. But if
17 this moves on and we continue to get drained and we have to
18 rely on others that are very risky other zones, this
19 prospect begins to lose its luster.

20 Q. Mr. Montgomery, were Exhibits 13 through 16
21 prepared by you or under your supervision?

22 A. They were.

23 Q. In your opinion, is the granting of Mewbourne's
24 Application in the interest of conservation and the
25 prevention of waste?

1 A. It is, and correlative rights.

2 MR. BRUCE: Mr. Chairman, I'd move the admission
3 of Mewbourne Exhibits 13 through 16 at this time.

4 CHAIRMAN LEMAY: Without objection Exhibits 13
5 through 16 will be admitted into the record.

6 Mr. Kellahin?

7 MR. KELLAHIN: Thank you, Mr. Chairman.

8 CROSS-EXAMINATION

9 BY MR. KELLAHIN:

10 Q. Mr. Montgomery, would you turn with me to your
11 Exhibit 15, please?

12 A. Okay.

13 Q. These red football-shaped drainage patterns,
14 about four of them on the display?

15 A. That's correct.

16 Q. When I look at the drainage football that
17 contains the Levers 2 and the proposed Mewbourne location,
18 you have made assumptions about the thickness in order to
19 come up with a volumetric calculation?

20 A. The volumetric, I didn't have to use a thickness,
21 but I used a thickness to come up with the area.

22 Q. All right. And the assumption made for the red
23 football is a uniform 20 feet of thickness for the drainage
24 area?

25 A. That's correct.

1 Q. If we were to put this in a shape, we'd have to
2 decide what shape to put it in. You've built a container,
3 now, that has how much gas?

4 A. Originally, when the Levers Number 2 was
5 completed, this container held 5.75 BCF.

6 Q. Okay. Now, that container had already been
7 partially depleted by the Levers 1 well, had it not?

8 A. It's my opinion that some middle Morrow
9 production -- more likely from, not the Levers Number 1,
10 but from the well at 11P -- had some slight, very slight,
11 20 percent or less, pressure-depletion effect upon the
12 Levers Number 2. But yes, there was some.

13 Q. All right. Have you calculated what you think is
14 the remaining recoverable gas in the Levers 2 football?

15 A. Yes, I have.

16 Q. And what is that number?

17 A. That is shown on Exhibit 16 to be 3.55 BCF, as of
18 10-1-97.

19 Q. I'm looking at Exhibit 16 --

20 A. Do you see the 10-1-97 gas-in-place total?

21 Q. Yes, sir.

22 A. 3.55 BCF --

23 Q. All right.

24 A. -- because of the current pressure, and the 2.2
25 BCF that's been produced from my original 5.75. So excuse

1 me, that would be original gas in place. There would be
2 some recovery factor. It's quite high with this
3 permeability, that it may be as high as 95 percent. So it
4 would be very close to that number and slightly less.

5 Q. Well, we won't worry about that.

6 A. Okay.

7 Q. When you're deciding what shape the drainage
8 football takes, you've chosen to estimate a shape that's
9 inconsistent with Mr. Williams' geologic map, which is
10 underneath the red football; is that not true?

11 A. That's incorrect.

12 Q. All right, sir. Tell me how you're going to get
13 a 20-foot drainage radius in a net thickness map which has
14 less than 20 feet.

15 A. The net thickness map that is shown has some
16 significant area with 25 feet, significant area with 20
17 feet, significant area with 15 feet. And when I do the
18 best I can -- there's no absolute -- I decided to use 20
19 feet, not 26 feet, not 10 feet, but 20 feet for the area
20 for this particular drainage compartment.

21 Q. Did you think that you could planimeter each of
22 those drainage contours or contours on the isopach and to
23 know with more certainty what the remaining gas in place
24 was and how it was distributed?

25 A. Well, I did planimeter those contours, and there

1 was too much gas in place.

2 Q. Based upon the P/Z plot for the Levers 2, if you
3 made that plot, you've got too much gas in Mr. Williams'
4 container?

5 A. Yes. Not to a great degree, but too much gas.
6 And the map -- the contours that he provided --

7 Q. Yes, sir.

8 A. -- were in response to some of my work, to show
9 that there was as much area as we originally thought.

10 Q. Let's take the revised map that he's given you,
11 that net pay in the green sand. What's the gas in place if
12 you planimeter his isopach?

13 A. I don't have that with me.

14 Q. How much different is it than the gas in place
15 you've calculated using your P/Z methodology?

16 A. I don't remember exactly, but let me remind you,
17 we see separation, strong separation, between 11P and 12N
18 and 12F. So just using his map would be, in a sense,
19 erroneous. They're not connected quite this way. It's
20 better to start growing outward with reservoir pods to
21 perform the calculations that I'm called to perform, to
22 further refine a net-pay map into a compartment-type map.

23 Q. All right. You've used your discipline to give
24 us what you think is recoverable gas, you have a volume,
25 and you have no idea of the shape until you talk to Mr.

1 Williams?

2 A. He helps me quite a bit with the trend the
3 thicknesses, the log interpretation, the deposition, which
4 does help me with the shape, yes.

5 Q. And that's what the geologist does, he --

6 A. Right --

7 Q. -- gives you a shape?

8 A. -- very important. That's correct.

9 Q. And your red football here is not consistent with
10 Mr. Williams' shape of that reservoir?

11 A. I disagree, completely.

12 Q. All right. Let's look at the football in the
13 southeast of 11. What is the assumption of the thickness
14 of that drainage football? Is that 20 feet again?

15 A. No. That one, if you could see in the table --

16 Q. Yes, sir.

17 A. -- every well except for 12F -- I thought I
18 brought this out in my direct -- I went ahead and used the
19 average thickness that you see in the table. So that well
20 is 15 feet.

21 Q. All right. So we're using 15 feet for the --

22 A. For the 11P drainage.

23 Q. -- for the 11P well?

24 A. Right.

25 Q. And the shape of a football, when we move to the

1 southwest quarter, has made an assumption of a drainage
2 area five feet greater than his isopach shows?

3 A. Well, you're trading off the thicker in the
4 northwest with the thinner in the south- -- I mean,
5 northeast and southwest. Yes, I had to in use some
6 interpretive license on top of his trend to come out with
7 some constant thickness that represented the weighting of
8 the pluses and the minuses.

9 Q. All right. Let me show your Exhibit 11 from the
10 Examiner hearing, Mr. Montgomery.

11 A. Okay.

12 Q. When we compare your Exhibit 15 to your former
13 Exhibit 11, the wells are in a different order on the
14 display so you have to make sure you're looking at the
15 right well, but it looks to me like you have not changed
16 the net-pay thickness between the first work and this work?

17 A. That's correct.

18 Q. Dates, no question. Pressure, you've changed
19 some pressures?

20 A. That's correct.

21 Q. Look at the Levers 2. You had estimated 4100
22 pounds, and we didn't have pressure till you got it from
23 Texaco, and you got 3685?

24 A. That's correct.

25 Q. And you think that's a good number?

1 A. Yes, I do.

2 Q. Okay. Now, that number shows some depletion of
3 the green sand reservoir, does it not?

4 A. It does.

5 Q. You would expect that if it had not been
6 depleted, it would be up in that 4400 range, 4300 maybe?

7 A. I believe in 1972 it would have been in that
8 range, and subsequent to that the pressure has depleted to
9 3700 pounds or so.

10 Q. All right. And to what do you attribute the
11 depletion of that Levers 2 well?

12 A. Production from other wells in the middle Morrow
13 green sand.

14 Q. When we go to the Levers 1 -- which is what,
15 12N? --

16 A. Okay.

17 Q. -- 12N, you didn't have an initial pressure.
18 Where did you get the pressure for today's work?

19 A. I got that through discovery of Fasken files,
20 based on well files from the NMOCD in Artesia, based on a
21 commingled estimate of 4350, and even now it's an estimate,
22 I believe.

23 Q. And that's what the "e" means? "e" means
24 estimate?

25 A. Right, yes. Yeah, but it's a -- but I do have a

1 better number.

2 Q. All right. And 4350 is your better number?

3 A. Yes, and that's consistent with the original
4 pressure out there.

5 Q. All right. 1P, now 1P is which well?

6 A. 1P is located in Section 1, unit designation P,
7 which is the old Fasken well up in Section 1.

8 Q. All right. That was --

9 A. That was the well --

10 Q. -- 1972?

11 A. Right.

12 Q. You were using 4000 as an initial pressure.
13 Where did the 4000 number come from?

14 A. That was based on scout ticket data estimating
15 static tubing pressures down to bottomhole with some
16 engineering calculations, the old number was.

17 Q. So why did you drop it 700 pounds for the new
18 data?

19 A. The new data was dropped from 45- --

20 Q. From 4000 --

21 A. -- from 4000. And it went up 300 pounds, it
22 didn't drop 700.

23 Q. I'm sorry, I said it wrong.

24 A. It went up to 4300 because I have also gotten
25 data, extensive data, from that well, from the operator,

1 through discovery. I've got pressure buildup tests, I've
2 got bottomhole data. I know a lot more about that well now
3 than I did at the first hearing.

4 Q. All right. When we look at 11P, that well over
5 there, in the original presentation you had 4500 pounds.
6 Now 11P is down to 4170.

7 A. That's correct. Again, I have new data.

8 Q. That's information that was available prior to
9 the last hearing, was it not?

10 A. That may have been and I may not have obtained it
11 upon my own efforts. I did subsequently. Yes, the well
12 was drilled way back in 1981. I think you could have had
13 that data as early as 1981, and I did not get that data and
14 should have.

15 Q. All right. For the 11P well, now, we've got 4170
16 for a bottomhole pressure. You've got an estimated EUR of
17 1.5 BCF, right, on today's work?

18 A. No -- 11P? Which well now?

19 Q. Well, I've lost track here.

20 A. Yeah, it's hard.

21 Q. 11P.

22 A. 11P.

23 Q. 11P is 4170?

24 A. Right.

25 Q. And you've got a drainage -- I mean, I'm sorry,

1 you've got an EUR of 3.6 BCF?

2 A. That's correct.

3 Q. Okay. In the work back in March, with a higher
4 pressure you had an EUR of only 1.2 BCF?

5 A. That's correct.

6 Q. Where did you get the extra gas?

7 A. Okay, that was obtained with additional
8 information. And what I found out there is, this is a
9 Devon well that has been completed in the middle Morrow
10 green sand the whole time.

11 After looking at the decline curves, before the
12 first hearing, I saw an abrupt shutdown and abrupt
13 production increase around 1990. After talking with our
14 geologist, we assumed this was the upper Morrow being
15 recompleted, and that assumption was wrong. I subsequently
16 found out that the well was shut in because of proration.
17 It was ten times overproduced. It's a strong well.

18 And what had happened was, all they did was get
19 back in balance and then they did a little acid job, and it
20 went back to just middle Morrow production. So again, it's
21 my fault that the earlier exhibit was inaccurate. And I
22 obtained new information that I believe now is correct.

23 Q. All right. On the new work, what have you used
24 for your porosity number?

25 A. Eleven-percent throughout all wells.

1 Q. Eleven-percent porosity throughout all wells?

2 A. I believe that's correct, yes.

3 Q. Mr. Williams was using 7-percent porosity.

4 A. He was doing something completely different --

5 Q. All right.

6 A. -- from what I was doing.

7 Q. What did you use for water saturation?

8 A. Twenty percent.

9 Q. And what about temperature?

10 A. The bottomhole temperature here, I believe, is
11 150 degrees. I'd have to look at my notes, but I think
12 that we would all agree on temperature. No, it's 175, I'm
13 sorry.

14 Q. All right.

15 A. 175.

16 Q. What did you use for an abandonment pressure?

17 A. Typically, the good wells, a well with good perm
18 will abandon at 500 pounds, I think, by looking at
19 combining decline curves with P/Z data and projecting those
20 out. Unfortunately, very poor wells may have some other
21 different number, but 500 is a good estimate.

22 Q. How many data points did you have on the P/Z plot
23 for the Levers 2 well?

24 A. It's on the previous exhibit. I believe four?

25 Q. I think there were four.

1 A. Yeah, it had the initial tests where they
2 perforated that zone, and calculated open flow was 10
3 million, 9.8 million a day, I think, shut-in tubing
4 pressure 2900 pounds, very little depletion effect from all
5 the other production.

6 The well did have a bottomhole buildup run at
7 that time -- I've gained that knowledge -- showing high
8 permeability with respect to gas. It built up in 12 hours
9 to its bottomhole pressure.

10 Subsequent shut-ins were -- one-day shut ins, one
11 by the State, two by the operator, were 24 hours, and I
12 believe completely built up, shut-in tubing pressures that
13 I then estimated bottomhole pressure with and a straight
14 line formed which gave me confidence.

15 Q. That buildup on the Levers 2 well was not run for
16 a long enough period to get you to a boundary, did it?

17 A. To get me to a boundary?

18 Q. Yeah. That pressure buildup will show you a
19 distance of radius of investigation, if you will?

20 A. That's correct, I looked -- Looking at that
21 buildup, what we saw was, there are diagnostic plots that
22 you can form that help you show permeability, the type of
23 geologic model, which include inner near wellbore, like the
24 skin effects --

25 Q. And the permeability was 5 --

1 A. -- permeability and outer -- It was anywhere
2 between 5 and 12 millidarcies. There are two zones open
3 there, and we probably were measuring one of each of the
4 zones.

5 Q. A little skin damage, right?

6 A. Slight skin damage. No effect of any boundary
7 condition up to, you know, 72 hours' worth of data --

8 Q. Well, what my point is --

9 A. -- which may very well be in 1000, 1500 feet.

10 Q. Yeah, my point is, that wasn't run long enough to
11 get you a radius of investigation of more than maybe 1000
12 feet?

13 A. Maybe a little more, yeah, depending on -- There
14 are a lot of assumptions, but yes, several hundreds of
15 feet.

16 Q. Okay. Now, when we look at that P/Z plot, that's
17 going to give us 5.5 BCF EUR for that well, by that
18 analysis?

19 A. Right, that's correct.

20 Q. Okay. That's going to be a minimum number, is it
21 not?

22 A. That's my best estimate, and I have a high
23 confidence in that estimate.

24 Q. As a minimum?

25 A. No, no, not a minimum. I mean, things could

1 happen, anything could happen to that wellbore. You know,
2 you could have a casing leak and it could be down tomorrow.
3 But my best estimate is 5.5 BCF.

4 Q. All right. Have you seen P/Z plots that will
5 have a rate of decline different than this straight-line
6 decline that you've projected?

7 A. Oh, yes, tight wells will do that quite often.
8 So -- but this --

9 Q. This time they built a curve and they flatten out
10 a little bit, and you might get a little higher EUR than
11 the P/Z plot would show you now?

12 A. For a completely different well you can. This
13 well, I feel like there's almost no chance of that.

14 Q. So the remaining gas in place that Texaco and
15 Mewbourne's location would compete for is 3.5 BCF?

16 A. That's my analysis, yes, sir.

17 Q. Okay. What --

18 A. In the middle Morrow green.

19 Q. Yes, sir. In the middle Morrow green, what
20 portion of the 3.5 BCF is still in place over the south
21 half of 1?

22 A. That, in my table shows 1.11 BCF.

23 Q. 1.11 BCF. That's just about enough gas at
24 today's price to pay for the well one time, right?

25 A. Well, at today's price I think we can do a little

1 better. But it is getting to a critical point -- and I
2 think I made that clear -- where it's getting to a point
3 where there's maybe not going to be enough gas to drill for
4 if we don't resolve this quickly.

5 Q. So your remaining share at this point is only 1.1
6 BCF of gas?

7 A. I don't believe so. I believe there was illegal
8 production, and that we should be able to compete equally
9 with Texaco, which would give us 1.75 BCF, much more
10 economic well, and get us back to what we would have had
11 prior to the illegal production.

12 Q. But for that illegal production argument, that
13 would be past production, and as we look at today's term of
14 gas in place, we only have 3.5?

15 A. Total to share, right, between the two.

16 Q. Now, as these wells compete for the remaining
17 gas, there's going to be an area in which they create what
18 I call a no-flow boundary?

19 A. That's correct, if they're in the same tank like
20 I have depicted here -- it's my analysis that they are --
21 there will be a no-flow barrier.

22 Q. And based upon what we seek here, is it fair to
23 assume that no-flow boundary is going to be an equal
24 distance between the two well locations?

25 A. Yes, with the constant-thickness theory, but you

1 have to assume constant permeability, several other things.
2 But you could make the case, assuming all that, they would
3 be equally productive and it would meet halfway in between.

4 Q. And those assumptions of uniform thickness are
5 all the assumptions that you made to give you this
6 football?

7 A. That's correct.

8 Q. Okay. The Levers well is 2448 from the common
9 line, right?

10 A. I believe that might be right. That sounds
11 right.

12 Q. And you're going to be 660 north of the line?

13 A. A slanted line, but that's correct.

14 Q. Well, you know, it's off just a little bit. The
15 footage is a little bit different.

16 A. Yeah, you could draw the triangle, it would be a
17 little different.

18 Q. All right.

19 A. But you're right, that's a good approximation.

20 Q. 3100 feet apart --

21 A. Okay.

22 Q. -- give or take?

23 And if that no-flow boundary is halfway distance,
24 that's 1544?

25 A. Between thirty-one hundred and thirty -- halfway

1 between 3100, 1500. 1550, okay.

2 Q. And let's take 660 setback, is what you have.

3 A. Right.

4 Q. Subtract that from the 1544 --

5 A. Right.

6 Q. -- and you're going to get about 890 feet of
7 encroachment into the Texaco spacing unit by the --

8 A. The overlap?

9 Q. Yeah, the overlap?

10 A. I follow that argument, but --

11 Q. That's what happens, right?

12 A. Not necessarily. It depends how much reserve is
13 behind the 660 line. You see, if all you do is say two
14 plus three equals six, you're using the right numbers and
15 the wrong equation.

16 What happens is, if it's productive above 660 but
17 too risky to drill for up there, when you do the volumetric
18 calculation of encroachment, you can't just use 660 divided
19 by 1650 to figure out the encroachment penalty. You just
20 don't --

21 Q. I'm not worried about the penalty. I'm worried
22 about the distance of overlap in which your wellbore is
23 taking gas from the container.

24 A. Yes, the number distance is correct. The overlap
25 is the 800 or so feet.

1 Q. Now, the Levers 1 well, the 11P well --

2 A. 12N?

3 Q. I'm sorry, 12N well, the production data is not
4 exclusive to the green sand; is that not true?

5 A. That's correct, it's commingled --

6 Q. It's commingled with the lower Morrow?

7 A. That's correct.

8 Q. How did you make the allocation between the green
9 sand and the lower Morrow to come up with your EUR that's
10 specific as to the green sand?

11 A. I took the DST data --

12 Q. Yes, sir.

13 A. -- and the log data, well log, porosity
14 thickness, and used my engineering judgment to find that
15 that 30 percent or so would be a reasonable split between
16 the total production splitting out between the lower Morrow
17 and middle Morrow.

18 Q. Well, did you do it on a net-pay-thickness basis?

19 A. Partially.

20 Q. So how many total feet did you have to allocate
21 between the lower Morrow --

22 A. I'd have to get my log -- the log out. If you'd
23 like to go through that, that would be fine.

24 Q. But part of that allocation is a division of net
25 pay between the two sands?

1 A. Yes. Yes --

2 Q. What else did you do to factor in any other
3 parameters to make the allocation?

4 A. The DST information was important, to see what
5 the lower Morrow DST'd all by itself --

6 Q. To get rate?

7 A. Excuse me, to get the lower Morrow DST'd all by
8 itself, I believe is what happened, and the total
9 calculated open flow, if you will, of all zones to see that
10 it was significant that the middle Morrow did contribute.
11 And then --

12 Q. That gives you a rate?

13 A. Yes, it's sort of a rate and a log analysis,
14 combination.

15 Q. Okay, what else did you use?

16 A. I did use in general the total concept of what's
17 going on in the field, that they're both productive. You
18 see 12F is a very good well in the middle Morrow, 11P is a
19 good well in the middle Morrow, 1P is not so good. You see
20 lower Morrow production. So some subjective, just in
21 general, field knowledge, I'm sure, came into play.

22 Q. Of the other three wells remaining on the
23 display, did any others require allocation?

24 A. No. At one time I thought 11P did, and that's
25 why there's a difference from the first exhibit, but now I

1 know it was producing solely from the middle Morrow green.

2 MR. KELLAHIN: Thank you, Mr. Chairman.

3 CHAIRMAN LEMAY: Mr. Carr?

4 CROSS-EXAMINATION

5 BY MR. CARR:

6 Q. Mr. Montgomery, the primary concern here today is
7 the "B" sand or the green sand; is that not correct?

8 A. It is what Mewbourne calls the middle Morrow
9 green sand, which is a couple members in the 12F well, two
10 little layers, that's correct.

11 Q. Okay.

12 A. Green sand.

13 Q. And in proposing your well location, you are
14 attempting to locate that well as close to the Texaco
15 property as possible; isn't that correct?

16 A. I think that's overstating it. To be as close,
17 we would be one foot. What we wanted to be was away from
18 the poor production to the north and closer to the good
19 production to the south. So yes, you have -- A component
20 of that is true.

21 Q. And you picked this location before you did any
22 of the volumetric work that you've been reviewing here
23 today; isn't that right?

24 A. That's correct. We picked a range of locations,
25 and this is the one we ended up with.

1 Q. And so the work you've done today has been to
2 support that location that you picked, in fact, before you
3 had this data?

4 A. The work that I've done since then has been to
5 find out what the heck we know about this new data. We've
6 tried to work out with Fasken and Texaco, even though they
7 didn't participate, alternate locations.

8 But after I got this new data, it gave me a
9 quantitative confirmation of the qualitative idea that the
10 north up there is just too risky. You've got poor wells,
11 you don't want to be up there.

12 Now, how far south do you go below 1650? That's
13 the rub. That's what we're here today to talk about.

14 Q. And we really are not going to know what the best
15 location would be until somebody drills a well up in the
16 south half of 1?

17 A. That's correct.

18 Q. Okay. When I look at your Exhibit Number 15,
19 this is the heart of your volumetric work; is it not?

20 A. That's correct.

21 Q. And initially we start with the container, we
22 look at the size of the container, your geology; isn't that
23 correct?

24 A. Initially we look at the geology, you mean?

25 Q. Yes.

1 A. The overall net mapping?

2 Q. Yes.

3 A. That's correct.

4 Q. And so when you start your work you first go to
5 the area, and you're relying on the geologic mapping as a
6 starting point?

7 A. It's a history matching of the geology, that's
8 correct, that's the starting point.

9 Q. And we look at the mapping that's been done here,
10 and we see that the way it is mapped is, it pulls slightly
11 to the east of the Fasken location in the south half of
12 Section 1, correct?

13 A. The trend, yes, is more northeasterly, and so it
14 is east of the Fasken location, the heart of the trend.

15 Q. If we go west of there into Section 2 and we look
16 at the Number 6 well --

17 A. Yes.

18 Q. -- have you seen the initial test information in
19 the green sand on that well?

20 A. Yes, I think I went through that just a little
21 while ago.

22 Q. And didn't you see initially on the test 800 MCF?

23 A. With a very low flowing tubing pressure, they --

24 Q. About a hundred pounds?

25 A. -- immediately squeezed it, that's right.

1 Q. Now, doesn't that tell you that you're on the
2 edge of the reservoir? You're not in it, but you're close?

3 A. No, I think what that tells you is, you have
4 something that has very limited drainage and producing
5 capabilities. It's up to question just why, but it's -- So
6 you couldn't just make that statement that you made. But
7 that would be one interpretation, that it's on the western
8 edge of a general trend, and it's poor over there.

9 Q. And it's possible that the mapping as it is shown
10 on this exhibit going off to the northeast might, in fact,
11 be in a more north-south orientation?

12 A. I don't think so.

13 Q. When we drill a well we might discover, in fact,
14 that it is more that way; isn't that correct?

15 A. You drill one well, you still won't know.

16 Q. But you will have more information; isn't that
17 fair to say?

18 A. You will have a lot of information right there
19 where you drill that one well, wherever that may be, and it
20 may influence your trend.

21 Q. But you'll have information right at that well,
22 and from that well it's going to be difficult to generalize
23 from that particular data point; is that what you're
24 talking about?

25 A. No, it's not ever difficult to generalize; that's

1 what we're called to do. But it does give you one more
2 point. And my point is, it doesn't answer all the
3 questions. But it does give you one more point.

4 Q. But it will give you additional information?

5 A. Absolutely.

6 Q. And it will tell you what the porosity is in the
7 south half of Section 1 at that location, correct?

8 A. At that location.

9 Q. And it will show you what the thickness is; isn't
10 that correct?

11 A. At that location.

12 Q. And it will show you the producing capability of
13 a well at that location in the south half of Section 1?

14 A. Sure, that's right.

15 Q. And you don't know those today?

16 A. That's correct.

17 Q. And what you're working with, as we look at this
18 one pod, the pod that includes -- or this drainage area
19 that includes the Levers 2 and your proposed location, what
20 we're looking at is data that's drawn, by and large, from
21 one point, the Levers 2?

22 A. No, I would disagree with that. It's
23 incorporating all the geology, and it's incorporating the
24 pressure and production data from that one well, and there
25 is a hard waiting to that.

1 But also you're looking at the other production
2 and pressure data, to see if -- If these things overlapped,
3 I'd be doing something wrong, if these things didn't fit
4 the whole picture. So there is a strong weighting toward
5 that well, I will agree, but there's much more that goes
6 into this map.

7 Q. But that is your primary data point; is that not
8 true?

9 A. We -- We're going to hear lots of theories about
10 geology, seismic, faulting. We put extreme amount of
11 weight in this reservoir-engineering data. We weight this
12 heavily. We think that it will dominate some of the other
13 data. It might persuade us to have other conclusions. So
14 yes, we quite heavily weigh the data from the 12F well.

15 Q. But we're still stuck with just a lot of theories
16 on what is actually happening in the south of that section?

17 A. Certainly, everybody has to make their own
18 analysis.

19 Q. Okay. Now, when we look at the boundary that you
20 have drawn for this drainage area around the Levers Number
21 2, is that red circle the area that includes 320 acres?

22 A. Yes, approximately so.

23 Q. And when we look at this map, isn't it fair to
24 say that the Levers 2 and the well that would be drilled at
25 the location you're -- they're going to be competing for

1 those reserves in that --

2 A. Based on my analysis, they very well -- If we get
3 to drill, you know, near our location somewhere there.

4 Q. Now, you have used an average thickness in the
5 area of 20 feet or 22 feet. Which was it?

6 A. Twenty.

7 Q. Twenty feet?

8 A. For this pod, that's correct, for this area.

9 Q. And you have used that, really, based on the
10 geologic interpretation --

11 A. That's correct.

12 Q. -- and the one data point on the Levers Number 2?

13 A. Yeah, and all the data points to geology. I've
14 tried to overlay this area in an iterative fashion. Twenty
15 feet seemed to be the right average area if I had to pick a
16 constant thickness.

17 Q. And again, we're just best guess until we get a
18 well up in the south half of Section 1?

19 A. Right, you might change your idea of the isopach,
20 certainly.

21 Q. Now, when you made your best guess on the area
22 that was going to be drained by the well in the southeast
23 of Section 11, that red circle is what you believe is the
24 area that that well will drain?

25 A. That's my most likely representation of 306 acres

1 at 15 feet, fitting the 3.6 BCF I think that may recover.

2 Q. And that well appears to be draining some
3 distance off to the west from the actual wellbore; is
4 that -- That's right, is it not?

5 A. Off to the west?

6 Q. Yes, as we --

7 A. Yeah, right --

8 Q. -- move into the --

9 A. -- because of the general geologic trend, I tried
10 to lay that -- I basically have a clear football that I
11 move around and try to find how this all works. Yes, it
12 does go a little west.

13 Q. And when you moved the clear football around the
14 Levers Number 2, you didn't pull it very far to the west,
15 did you?

16 A. No, we had a control point that didn't turn west.
17 The geology precluded me from saying the most probable
18 representation is to continue northeast toward a producer
19 of some -- you know, very poor capability but of some
20 moderate capability.

21 Q. And that's based on your just general northeast
22 orientation of the geologic information?

23 A. Right, it just wouldn't look right to turn that
24 thing 180 degrees, or even to even tweak it a little. I
25 just don't have any data that shows I shouldn't just

1 maintain that general direction. And that's what we've
2 always said, from when we first looked at the prospect.

3 Q. When I look at your map and I look at the 320-
4 acre circle that includes the Levers Number 2 in your
5 location --

6 A. Yes.

7 Q. -- that's the 320 acres that if I look down at
8 the bottom that the Levers Number 2 is going to -- That's
9 the drainage area for that well, right?

10 A. In the middle Morrow green sand, that's my
11 analysis.

12 Q. And when we look at this circle, you are not
13 factoring in any additional production or any new reserves
14 that might be added by a well that you're going to drill in
15 the south of 1?

16 A. That's correct. This would be if there were no
17 incremental reserves recovered by having two wells instead
18 of one. With a high permeability reservoir it's likely
19 there's not. It could be just sharing.

20 There's always the chance that with two wells
21 you'll do two things. One, drain a larger area than the
22 first well. We just can't show that there's any proof to
23 that now. And two, abandon at a lower pressure than one
24 well would do.

25 So, you know, there are some -- there's always

1 some fuzzy line there when you talk about the final
2 numbers. But it's my best analysis that the two wells, I'm
3 afraid, will share reserves and have very little
4 significant incremental reserves --

5 Q. So you're not seeing --

6 A. -- in the middle Morrow.

7 Q. -- any incremental reserves? We're not going to
8 know that again until we drill the well?

9 A. Right. Part of the reason is, you see these
10 other wells being drilled and produced, and all of a sudden
11 a new well shows up with very good pressure. There was
12 some pressure, but it was insignificant. So I'm afraid
13 that what we're trying to do is just recover our
14 correlative rights in the same zone and share reserves.

15 Q. When we look at the way you've drawn the drainage
16 area for the Levers Number 1, it does go basically due
17 north of the well and into Section -- for the Levers Number
18 2, I'm sorry. The drainage area for the Levers Number 2,
19 when you map that, you take it generally north into the
20 south half of Section 1?

21 A. Oh, yes, yes.

22 Q. And one of the reasons you do that is because the
23 Levers Number 1 in the south half of this section, you've
24 already got an area that's being drained in the green sand
25 by that, correct?

1 A. Let me clarify that. If there were strong
2 connection between those two wells, I believe the Levers
3 Number 1 would have been a much better middle-Morrow
4 producer and you would have found much lower reservoir
5 pressure in the Levers Number 2. So I show some separation
6 between those, if that answers your question.

7 Q. You talked about allocating production between
8 the B and the C zones in that Levers Number 1 to do this
9 mapping.

10 A. I don't believe I follow that question.

11 Q. Well, both zones, the B and the C, were open in
12 the Levers Number 1?

13 A. Oh, okay, Texaco's terminology is B, middle
14 Morrow; C, lower Morrow. I'm sorry.

15 Q. And you're talking about --

16 A. I see.

17 Q. -- green and orange?

18 A. Yeah, or middle Morrow, lower Morrow.

19 Q. Okay.

20 A. Okay. Yes, we allocated that. I allocated it.

21 Q. And when you did that, you allocated 1.5, plus or
22 minus, BCF to the green; is that correct?

23 A. That's correct.

24 Q. That's about a third of the total production --

25 A. That's correct.

1 Q. -- isn't that right?

2 A. Uh-huh.

3 Q. You've looked at the pressure drawdown in the
4 middle and the lower zones, have you not?

5 A. In which well?

6 Q. In the Levers Number 2 and the Levers Number 1.

7 A. I've looked at a lot of pressure data in the
8 Levers Number 2. In the Levers Number 1 I have information
9 with respect to some DSTs, some total combined completion,
10 calculated open flow, let's say, and then at subsequent
11 shut-in, if that answers your question. I have looked at a
12 lot of pressure data.

13 Q. When we look at the pressure drawdown that has
14 been experienced in the lower or the orange sand, between
15 the Levers 1 and the Levers 2 --

16 A. Okay, I think I follow that.

17 Q. Okay. -- How much pressure drawdown did you
18 actually see? Approximately 3000 pounds?

19 A. Yes. I think, to expound on that, what happened
20 was, back in 1972, the initial pressure in the lower
21 Morrow, in the southerly well, the Levers Number 1, 12N,
22 was near 4300 pounds.

23 In the Levers Number 2, when they drilled it --
24 and it's a middle Morrow prolific producer -- they also
25 DST'd the lower Morrow, which I believe orange plus a

1 little tip of brown, maybe, was included. And what they
2 found was, there was only 1370 pounds of bottomhole
3 pressure. Severe depletion compared to slight depletion
4 that we've been talking about before in the middle Morrow.

5 So the lower Morrow has been in good
6 communication with another well. This well probably -- 12N
7 being the one that it would be in communication with. And
8 that's why you saw no gas shows. It was depleted. You're
9 not going to get a gas show. When you drill through a
10 depleted zone, there's just not going to be a gas show.

11 Q. And my question was, when you look at the
12 pressure drawdown in the orange sand, you see about a 3000-
13 pound drawdown, do you not?

14 A. That would work out about right.

15 Q. And when we look at the pressure drawdown in the
16 green or the middle Morrow, we see it's something in the
17 neighborhood of 800 pounds; isn't that right?

18 A. I think it's 600, something like that.

19 Q. Okay.

20 A. 600 pounds.

21 Q. So when we have a 600-pound drawdown in one zone
22 and a 3000-pound drawdown in the other, isn't it hard to
23 allocate a third of the production to the green zone?
24 You've only had a 600-pound drawdown.

25 A. No, because that 600 pounds, in another well

1 that's not very well connected -- I believe that in the
2 lower Morrow and the middle Morrow, due to commingling of
3 those two zones in 12N, the pressures are equal. The
4 pressure is about 400 or 500 pounds in that -- in both
5 zones.

6 So you have the green sand in 12N at 400 or 500
7 pounds, and the new well at 3700 pounds. Very poor
8 communication there.

9 Q. If you have overallocated production to the
10 green, the middle or the B zone, in fact, you'd have a
11 smaller drainage around that well, correct?

12 A. If I had -- If I attribute more reserves to
13 the --

14 Q. To the orange, to the lower.

15 A. -- to the orange, I would make this, the green,
16 smaller, because I have only so much total to work with.

17 Q. And that, in effect, could allow the drainage
18 area around the Levers Number 1 to extend farther to the
19 south; isn't that right?

20 A. Well, except the problem is 11P, the dominant
21 production, the 3.6 BCF of middle Morrow green, is not
22 coming from 12N to the due south. Notice it's coming from
23 the southwest. This is our southwest-northeast trend.
24 That's the one that bucks the southern boundary, more so
25 than 12N --

1 Q. And that is --

2 A. -- on my little football at 12N.

3 Q. All right. And that is if that trend is as
4 drawn?

5 A. Right, exactly.

6 Q. When we look at the contour to the western edge
7 of the area drained by the Levers Number 2, why did you
8 pull it in where you did and not extend it out farther to
9 the west, toward the end of the reservoir?

10 A. Are you talking about my 20-foot constant
11 drainage area --

12 Q. Yes.

13 A. -- contour --

14 Q. Yes, yes.

15 A. -- on the western edge --

16 Q. Yes.

17 A. -- of that pod? That position was in -- It was
18 congruent with this trend, southwest to northeast, and with
19 the general thinning of the reservoir, and so it just
20 naturally had that end point there at the west end point.

21 Q. Mr. Kellahin talked with you a few minutes ago
22 about no-flow boundaries --

23 A. Yes.

24 Q. -- and if I understand the testimony, your
25 testimony, you did agree with Mr. Kellahin that with a well

1 660 from the common boundary in Section 1, where you're
2 proposing, and an offsetting well over 2448 from the common
3 boundary in the section south of there, that if you get a
4 comparable well you'll have a no-flow boundary that extends
5 substantially on to Section 12. Was that your testimony?

6 A. No.

7 Q. Okay. Well then, let me ask you some questions.

8 A. Okay.

9 Q. Let's suppose that there are two wells being
10 drilled -- that there are going to be two wells in this pod
11 that you've indicated on Exhibit 15, both of them 1650 from
12 the common boundary, all right?

13 A. Okay.

14 Q. And let's suppose that when you drill the well
15 north of the boundary you get reservoir that is comparable
16 to the reservoir at the well 1650 feet south of the
17 boundary.

18 A. I understand.

19 Q. in that circumstance, where would you anticipate
20 the no-flow boundary to be?

21 A. Making a few more assumptions, everything else
22 being equal, it would be right on the boundary line,
23 halfway between the two wells.

24 Q. All right. And then if we take one of those
25 wells and we move it 60 percent closer, the north well 60

1 percent closer to the line, we go 660 like you're
2 proposing, and again we assume that you drill a well and
3 you get comparable reservoir at both locations, that no-
4 flow boundary would still be midway between the wells,
5 would it not?

6 A. Exactly, under the same assumptions.

7 Q. And it would extend, then, farther on to -- It
8 would extend on to, in this case, Section 12?

9 A. Right, it would overlap. There's nothing keeping
10 us from draining that way, because we think Texaco has been
11 draining our way illegally all these months.

12 Q. Well, now, we're going to talk about this illegal
13 stuff in a minute, but if you'd answer the question we will
14 get lunch sometime --

15 A. Okay.

16 Q. -- before four o'clock.

17 Basically we are looking at a situation where if
18 you get comparable reservoir and you've moved 60 percent
19 closer, the no-flow boundary's going to be on our acreage,
20 correct?

21 A. It's going to overlap on to the southern acreage,
22 yes, in this instance.

23 Q. And we're not going to know what you get until
24 you drill the well; isn't that fair to say?

25 A. Yes.

1 Q. Okay. And so what we have is a situation where
2 until we drill, we really aren't going to be able to
3 evaluate what your well can do. Fair to say?

4 A. That's correct.

5 Q. And without any real data on the well, don't we
6 have to, in terms of evaluating the advantage, look at
7 things like footage encroachment on your neighbor? Isn't
8 that --

9 A. Oh, I think footage encroachment is important,
10 yes.

11 Q. What about the number of acres that are available
12 to a well? Is that a valid kind of assumption when you
13 don't have a well?

14 A. Yeah, areal extensive -- right, 320 acre, both
15 wells seem to be draining, you know, approximately 320
16 acre, even though the shapes I show don't cover the full
17 320 acre.

18 Q. Mr. Montgomery, when you testified a few minutes
19 ago -- and correct me if I'm wrong. I thought you said you
20 would anticipate that the bulk of the drainage from your
21 well, to be north of it. Is that what you said?

22 A. No, what I anticipate is that -- following,
23 maybe, your line of questioning, that there will be some
24 no-flow boundary between the two wells. Until we drill it,
25 we don't know. We could hit the big, thick sand and have

1 all the volume under our section, and I could be wrong.

2 But I believe, using this interpretation, that
3 there's volume behind our well. And you can't discount
4 that volume in any penalty calculation. Maybe I was
5 getting ahead of myself.

6 Q. The volume behind your well being north of your
7 well, is that what you --

8 A. Right. Not that it would dominate but that it
9 would important and that would be the Section 1 gas; that
10 should go to Section 1.

11 Q. And if when you drill a well at that location you
12 find, in fact, it's -- the new data tends to extend the
13 well farther to the north and perhaps the northwest, any
14 additional reserves up to the north and northwest would,
15 again, be behind your well, right?

16 A. That's correct.

17 Q. They'd be available to you, and you alone, right?

18 A. If no other well was drilled, right. They would
19 probably not go around and produce --

20 Q. Okay.

21 A. -- to the south.

22 Q. And if I understood Mr. Cobb's testimony, there
23 are -- the middle portion of this section can't be leased
24 by anyone else right now because of federal regulations,
25 correct?

1 A. That's my understanding also.

2 Q. And so if there are wells, reserves behind your
3 well in that direction, nobody else is going to drill a
4 well, correct?

5 A. Well, I doubt that.

6 Q. Okay --

7 A. I won't make that -- It's the same royalty --

8 Q. Okay.

9 A. -- and I won't -- I can't conjecture who might
10 drill up there, when the lease might come available.

11 Q. If there isn't any drilling up there and there
12 are reserves, they are available to your well, not to
13 anything south of it?

14 A. If we're connected to that, certainly.

15 Q. Okay. If I recall your testimony from April, you
16 basically stated that you thought north was bad and south
17 was good. Do you remember --

18 A. Yes, I --

19 Q. -- that comment?

20 A. Yes, I made that comment.

21 Q. And we talked about, at that time, the drainage
22 in this area not really being radial drainage. I think
23 you've agreed that it's probably elliptical.

24 A. It's elongated. Elliptical is a good shape, I
25 think.

1 Q. And If we have a well location, and you would
2 agree with me based on this mapping and your drainage
3 estimates, that the better part of the reservoir is toward
4 the Texaco tract?

5 A. That's what it looks like here, yes, that's a
6 strong well.

7 Q. And wouldn't you agree with me that a well at
8 that location is going to tend to drain from the better
9 portions of the reservoir more than from the poorer
10 portions of the reservoir to the north?

11 A. No. You know, I've made the assumption it's
12 equal reservoir quality. What it tells you is that of the
13 6 BCF you have, the bulk was in Section 12. What that
14 tells you is, how much further north can you go? You just
15 can't get to 1650. There's not enough in that 6 BCF number
16 to get you past a choke point, that somewhere you say,
17 There's just too much risk, the reservoir doesn't prove to
18 go there.

19 So there's significant reserves in Section 12,
20 and you see I've given it two-thirds/one-third or 70-30-
21 type split with this approach.

22 Q. Basically, though, the problem is that you can't
23 be a standard setback; isn't that right? From the -- or
24 1650 feet from the south line, based on your
25 interpretation?

1 A. Yes, it's my recommendation that we do not drill
2 a 1650 setback, that it's very possible you'll be outside
3 this main objective, and you'll drill a well similar to the
4 well they drilled at 1P and be sorely disappointed and not
5 protect correlative rights and do all the owners in Section
6 1 a great disservice.

7 And yes, I very much concur that 1650 would -- I
8 don't think we should drill that location.

9 Q. And so as you move from that 1650 toward the
10 south line --

11 A. Okay.

12 Q. -- not knowing what your well may be when you
13 drill it --

14 A. Right.

15 Q. -- we continue to run the possibility of the no-
16 flow boundary extending into Section 12?

17 A. But once you get in this reservoir, the further
18 south you go, the further that overlap is, that's correct.

19 Q. Now, you have talked -- You're familiar with the
20 rules that govern the development of this area, are you
21 not?

22 A. To some degree, yes, I am.

23 Q. And you are familiar with what is meant by
24 correlative rights --

25 A. Yes, I am.

1 Q. -- are you not?

2 And you know that it means the opportunity to
3 produce reserves, not that you're guaranteed any volume
4 from the reservoir?

5 A. Yes, you've read that to me once, I think.

6 Q. In April, I think I did.

7 A. Yes --

8 Q. And --

9 A. -- I remember.

10 Q. And so what we're talking about here is
11 Mewbourne's opportunity, or the owners in the south half of
12 1, their opportunity, to produce reserves from this
13 reservoir, correct?

14 A. I'll yield to your expertise on that. I think I
15 would agree with you. I'm not a --

16 Q. And that's what you're trying to do, right --

17 A. Absolutely.

18 Q. -- drill a well?

19 Now, you understand that the definition of
20 correlative rights says that you are entitled to produce
21 your fair share of the reserves in the pool?

22 A. I remember that clause.

23 Q. And are you aware that it also says the fair
24 share is the percentage of the reserves under your tract
25 compared to the reserves in the pool as whole?

1 A. Yeah, you're pushing my recollection now, but I
2 follow your line, I would yield to your expertise on that.

3 Q. Now, when you come in to avail yourself of an
4 opportunity to produce your share of the reserves in the
5 pool, you're not trying to produce your neighbor's
6 reserves, correct? You're trying to get what's under your
7 tract?

8 A. That's correct, in general.

9 Q. In general?

10 A. Yes.

11 Q. And so to the extent that by moving a well you're
12 actually taking reserves from the neighboring property,
13 that would give you an advantage if you were able to do
14 that; isn't that fair to say?

15 A. The further south you move to that line, I
16 believe I've said already once before, answered that
17 question, yes, you'd have a better advantage.

18 You know, the problem is, I don't know if I agree
19 that this case is like the other cases where we were given
20 our fair right by proper notification of the section -- The
21 owners of Section 1 didn't have a good chance, an equal
22 chance, a fair chance to compete with the reserves in their
23 section.

24 Q. And why is that? You didn't have notice of the
25 Texaco well?

1 A. What -- the reason I -- You know, I'm not an
2 expert on this, but the reason I see is that during
3 proration the Commission can set up rules and acreage
4 factors, and you can drill these increased density and help
5 protect correlative rights.

6 When proration ends, the simultaneous-dedication
7 factor kicks in. And I'm sure I won't say this right but
8 in my way of thinking, that is now the mechanism to help
9 protect correlative rights. That mechanism was denied the
10 owners of Section 1. The result illegal production is a
11 damage and a drainage to the owners of Section 1, and
12 that -- the Commission should take that into account in
13 this hearing, to try to help right that wrong.

14 Q. Now, when the Levers well was -- Number 2, was
15 drilled --

16 A. All right.

17 Q. -- first of all, Mewbourne didn't own anything in
18 the offsetting acreage, correct?

19 A. That's correct.

20 Q. And you knew the Levers well had been drilled
21 when you decided to go forward and acquire interest in this
22 acreage; isn't that right?

23 A. That's correct.

24 Q. Because you were trying to get close to that
25 well; isn't that right?

1 A. That may not be the right way to put it, but we
2 were trying to offset it, that's correct.

3 Q. All right. And so, now we have a situation where
4 you're sitting here, you're declaring that the production
5 from that well has been illegal; is that -- and that is
6 your testimony --

7 A. That's my --

8 Q. -- right?

9 A. Yeah, that's --

10 Q. All right.

11 A. -- my take on it.

12 Q. Now, when we look at the rules for this pool, you
13 know the pool is prorated?

14 A. That's correct.

15 Q. You know that -- Do you know that the
16 prorationing rules were recodified back in the late 18- --
17 late 1980s by and Order R-8170?

18 A. That number strikes a bell, but I don't have a
19 recollection of what was said there.

20 Q. Are you aware that at that time they dropped out
21 of the special pool rules authority for a second well on a
22 spacing unit?

23 A. No, I can't remember exactly the language. If
24 you could read it to me maybe I could remember it.

25 Q. Are you aware that after that provision fell out

1 of the rules, other operators drilled second wells on
2 spacing units?

3 A. I'm beginning to remember now what -- the history
4 you're talking about, the early 1980s.

5 Q. Yeah.

6 A. Right.

7 Q. Are you attempting to render an opinion on
8 whether or not any of that production would be illegal or
9 not, by other operators?

10 A. Well, it seems to me that there were statewide
11 rules at that point, and they were 320. You didn't have to
12 have simultaneous dedication. They were still being
13 prorated accordingly, I suppose. The new distance to the
14 lines were now 660 in one direction --

15 Q. Just a minute. Now --

16 A. -- so there was no reason to penalize.

17 Q. -- has there at any time been a rule, since, say,
18 1980 -- we -- you know, since we readopted 640 for the pool
19 and the --

20 A. Okay.

21 Q. Has there been any time during that period when
22 320-acre spacing was authorized for this pool?

23 A. I don't think so.

24 Q. Was there any time during that period when there
25 was a closer setoff than 1650 feet to the outer boundary of

1 your tract authorized for this pool?

2 A. I don't have any knowledge of it.

3 Q. And when the prorationing rules dropped out any
4 provision for a second well on the spacing unit --

5 A. Any provision?

6 Q. When they were silent --

7 A. Okay.

8 Q. -- the rules at one point in time became silent
9 on authorization for a second well, in your opinion -- do
10 you know, was there anything that would justify somebody
11 drilling a second well on the unit after that date?

12 A. I'm not sure I follow your exact question, but
13 let me answer it this way. This history of the field had
14 been, up to that point, on 320s effectively, even though
15 the field rules had gone back and forth.

16 I believe operators would have attempted to
17 continue to drill on 320, but using mechanisms like
18 simultaneous dedication to obtain that or try to change the
19 field rules back, or -- and I just don't know the history,
20 but I think that 320-acre development would still have been
21 something that people would agree has happened in the past
22 and that there are means to accomplish that, like the
23 Levers Number 2 well, you know, should have followed. They
24 just didn't do it.

25 Q. Through all of this history, though, you're aware

1 of nothing that ever would have authorized a well closer
2 than 1650 feet to the outer boundary, correct?

3 A. I don't remember any ruling -- seeing any ruling
4 that ever authorized that, that's correct.

5 Q. And you're aware --

6 A. I haven't studied it.

7 Q. You're aware that prorationing was suspended in
8 this pool back in 1995.

9 A. Vaguely, in the Nineties, yes.

10 Q. Are you -- Did you read the order that was
11 entered following the hearing in the spring of this year?

12 A. The order for this --

13 Q. From the Division.

14 A. Yes, yes, I did.

15 Q. And are you aware that they refer to the Catclaw
16 Draw-Morrow pool as a, quote, unquote, technically prorated
17 pool?

18 A. Yes.

19 Q. Do you have any independent knowledge of what is
20 meant by the term "technically prorated"?

21 A. No, I do not.

22 Q. Do you know how that relates to "prorated"?

23 A. No, I do not.

24 Q. Are you aware of the one-well rule?

25 A. I don't think so.

1 Q. So what are you basing your conclusion on, that
2 the production from this well is illegal?

3 A. Well, again, it's maybe my take, and it seems
4 that the mechanism prior to this change that has been
5 explained to me by our legal counsel, that proration would
6 help protect correlative rights, but then when it went to
7 this new -- I think, you know, Mr. Stogner is the one you
8 need to ask, I suppose, but this new method, then
9 simultaneous dedication would be the mechanism to help
10 protect correlative rights, to be the right way to get that
11 extra 320, that second well, however you want to call it.

12 And that just wasn't done, and that -- Maybe I
13 jumped to conclusions, but that tells me that there was no
14 notice given. You're impeding the owners of Section 1 from
15 doing their job to protect their correlative rights. It
16 just seems that is unfair, and that the rules were not
17 followed. But I'm not an expert.

18 Q. When you say -- I just want -- You've reached
19 that conclusion. I'm just trying to explore your
20 understanding.

21 A. Okay.

22 Q. And when you said that prior to the change you
23 could have two wells and after that change you couldn't,
24 you needed to simultaneously dedicate, what change are you
25 talking about? Wasn't this --

1 A. Maybe I misspoke or you misunderstood. Let me go
2 over that again.

3 When it's a 640 field, you need simultaneous
4 dedication to get a second well drilled on your --

5 Q. And has that always been the case?

6 A. No, there was a time --

7 Q. And my question is -- You've talked about a
8 change. What changed that? Do you know?

9 A. The change was, when proration was lifted -- when
10 proration was lifted, the mechanism, in my opinion, the
11 mechanism for helping protect correlative rights, which is
12 help prorating -- You know, you'd split, everybody would
13 have a factor. You'd be able to -- This well is making 40
14 percent of the total field now. Under proration it
15 wouldn't be doing that.

16 So we're not in that field, so we need a
17 simultaneous-dedication hearing to discuss these things, to
18 alert these offset operators.

19 Q. When you say when prorationing was lifted --

20 A. Uh-huh.

21 Q. -- does that mean when it was suspended?

22 A. I think so.

23 Q. Has it been lifted in a technically prorated
24 pool, do you know?

25 A. You're getting beyond what I really probably

1 know.

2 Q. Aren't these the kinds of questions that we
3 should leave to the Division to --

4 A. Absolutely.

5 Q. And shouldn't we let the OCD decide, or the
6 Commission decide, if production is illegal or not?

7 A. After giving all the facts and opinions of
8 ourselves, they certainly will make that decision, I'm
9 sure.

10 Q. And they're the ones who will be able to decide
11 if, in fact, someone has acted illegally; isn't that right?

12 A. Yes, sir.

13 Q. And that's not something one operator -- a
14 decision one operator gets to make about the --

15 A. No, it's just my opinion.

16 Q. Okay. And at this point in time you're proposing
17 a well on a tract where you have less than 320 acres; isn't
18 that right?

19 A. That's correct, an irregular section.

20 Q. And you're opposing two wells on a 640-acre
21 section; isn't that right?

22 A. I'm not here to -- We are opposing the fact that
23 the Texaco well needed to get simultaneous dedication, they
24 either need to shut in -- We'd like the Commission to look
25 at that.

1 But what we do think is that all we have the
2 ability to get is the 320 acres. So we'd like for them to
3 also look at our position and say, Well, we can't get 640,
4 and yet we're being drained. Help us, protect correlative
5 rights.

6 Q. And when Texaco came in and said, They're
7 drilling 660 from our lease line, the no-flow boundary is
8 going to be on our acreage, that's the kind of question,
9 again, we bring to the Commission, correct?

10 A. Sure, we should show all our different ideas on
11 how that affects each of the two parties, and they need to
12 rule on that too.

13 Q. And they'll finally decide whether or not
14 anything illegal has happened out here or not, right?

15 A. Absolutely.

16 MR. CARR: That's all I have.

17 CHAIRMAN LEMAY: Commissioner Bailey?

18 COMMISSIONER BAILEY: I don't have any questions.

19 CHAIRMAN LEMAY: Commissioner Weiss?

20 COMMISSIONER WEISS: Yeah, I have a couple.

21 EXAMINATION

22 BY COMMISSIONER WEISS:

23 Q. I'm not clear on the chronology of the Levers 2
24 and 1, when one was shut in after one was drilled and why.

25 A. Okay.

1 Q. And -- Go ahead with that.

2 A. Okay, I probably should have -- I'll get these
3 dates as close as I can.

4 The Levers Number 1 was drilled in the early
5 1970s and produced up until -- a month ago, maybe? Two
6 months ago? Whenever it was shut in by Texaco after the
7 Commission order. So very recently that well was shut in.

8 But what had happened is, that whole time it had
9 been commingled in the lower Morrow and middle Morrow and
10 was still making -- I think they said they're losing \$1000
11 a day, so it was still making a lot of gas out of those two
12 zones to some degree.

13 The Levers Number 2 was completed --

14 Q. It was shut in two months ago?

15 A. Yes, just very recently, after Mr. Stogner's
16 order. I think two months ago, I think. Is it -- You
17 might be able to ask someone else too. The Texaco guys
18 will know for sure. I just know it's very recently been
19 shut in.

20 Q. Okay. So Number 2 was put on --

21 A. In April of 1996, 18 months ago or so. The well
22 was completed in January and put on production in April and
23 has produced basically 4 million a day, constant, for those
24 18, 19 months.

25 Q. And it produces only from the middle Morrow?

1 A. Right. What has happened is, they've perforated
2 both the middle Morrow and the lower Morrow, but after
3 knowing that DST in the lower Morrow was only 1370 pounds
4 and their flowing tubing pressure was 2500, they knew the
5 lower Morrow wasn't even producing. But it was quite
6 prolific, 10 million a day.

7 So I think subsequently they went in and put a
8 valve that would allow -- not allow gas to cross-flow back
9 into that lower-pressured lower Morrow, and they've been in
10 the middle Morrow ever since, to the best of my knowledge.

11 Q. Do you know what happened to the Number 2 when
12 they shut in the Number 1, the rate and pressure?

13 A. No, I haven't got that. The data I was able to
14 get is up through September of 1997, and it showed a
15 general flowing tubing pressure decline of 50 pounds a
16 months in those few months before that. No abrupt -- no --
17 Maybe it happened after that, I'm not sure. So I have no
18 knowledge of any interference.

19 Q. And who brought the fact that -- Who brought to
20 whose attention in order to get Number 1 shut in?

21 A. I don't know. I think Mr. Stogner had more to do
22 with that than anybody.

23 Q. Okay.

24 A. But I don't know. Maybe I'm putting words in
25 someone's mouth.

1 Q. And then on this issue of commingling, I listened
2 to your testimony. Is it fair to say that that's
3 subjective?

4 A. The split in the commingling?

5 Q. The allocation.

6 A. Absolutely, that had to be my best analysis. And
7 as you know, when you commingle zones it's not a simple
8 thing to figure out what's flowing out of what. But I
9 looked at the other wells, what looked prolific, what logs
10 looked good.

11 What I had, actually -- I'll just go through it
12 real quickly -- was a DST in the lower Morrow orange flowed
13 3.4 million a day with a very small drawdown. Its flowing
14 pressures were 3800 pounds, and remember, initial pressure
15 is 4300.

16 They DST'd what I think is the lower Morrow
17 brown, 7.2 million a day, with a little more of a drawdown,
18 3000 pounds.

19 Then they just perforated the middle Morrow
20 green. They didn't DST it to help me allocate. But the
21 total calculated on flow for the two good, strong zones
22 plus this one was 29 million a day.

23 And so based on that, and based on just looking
24 at the thicknesses and the porosities and the offsetting
25 production, I did some work, some calculations, some

1 subjective -- yes, 30 percent of the lower Morrow --
2 there's two zones -- would be -- the middle Morrow would be
3 30 percent and the lower Morrow 70 percent.

4 So out of the 5.1 B that that well has produced,
5 I gave it a cumulative of 1500 million in the middle
6 Morrow.

7 Q. And on your ellipse surrounding the --

8 A. Yes.

9 Q. -- well, where you used 20 feet --

10 A. Yes, sir.

11 Q. -- what would that look like with 26 feet?

12 A. It would be smaller by that ratio, because it was
13 a constant thickness. Twenty over 26, 80 percent. It
14 would be 80-percent smaller if you just shrunk it down. We
15 don't see any control points higher than 26 --

16 Q. Does that take your location out of --

17 A. No, it would still be slightly in the Section 1.
18 Or maybe not slightly. You know, it's only 80-percent
19 smaller. It would be hard to picture. It doesn't -- In an
20 ellipse it doesn't take much to get a small percent. It
21 looks like it's not hardly different at all, and it's quite
22 a bit less. So it would still be significantly overlapping
23 Section 1.

24 MR. BRUCE: Twenty percent smaller, Mr.
25 Montgomery?

1 THE WITNESS: Is that -- I didn't have my
2 calculator handy.

3 Q. (By Commissioner Weiss) -- use that backwards,
4 but --

5 A. Oh, I'm sorry.

6 Q. -- but then the other three other wells, by the
7 same token, if you reduced their thickness 20 percent, they
8 would be larger?

9 A. Accordingly, yes, sir.

10 Q. You would have no -- You would have an overlap on
11 those, I guess?

12 A. Right. And then -- Right.

13 COMMISSIONER WEISS: Okay, we can't see that,
14 so...

15 No, those are the questions I had. Thank you.

16 THE WITNESS: Okay, thank you.

17 EXAMINATION

18 BY CHAIRMAN LEMAY:

19 Q. What would you guess the 12F, for a September
20 bottomhole pressure, would be today? About 2500 pounds?

21 A. Yes, sir, very good. The P/Z plot would be the
22 one to use --

23 Q. And it keeps extrapolating --

24 A. Okay, then I -- I would yield to that.

25 Q. So assuming that's 2500 pounds today, did I hear

1 you say early on in your testimony you were excited about
2 this prospect?

3 A. I was when I first saw it, extremely excited.
4 This was a strong prospect.

5 New production in a prolific field that extends
6 it further north than people thought, we've worked hard and
7 we're very excited about it. I have worn weary over the
8 months.

9 Q. Yeah, I was wondering about getting over a
10 \$750,000 --

11 A. I --

12 Q. -- investment for a BCF of gas.

13 A. I -- As I said, I'm very concerned about that
14 now. I think that if we -- You know, I wish we could have
15 worked things out quicker. Between ourselves and at the
16 Commission, both, it has drug on, and it is -- They are
17 draining our section as we speak, I think.

18 Q. Well, I just want to ask you something --

19 A. Yes.

20 Q. -- off the record, kind of. Not off the record;
21 it's on the record. But Mr. Montgomery, are you --

22 A. Yes, sir.

23 Q. -- a gambling man at all?

24 A. Certainly.

25 Q. Do you ever gamble?

1 A. Certainly.

2 Q. Do you ever figure odds?

3 A. Yes.

4 Q. Okay. Let's change the paradigm here in your
5 Exhibit Number 15 a minute --

6 A. Okay.

7 Q. -- on a couple assumptions. Do you think every
8 one of these wells, when they were drilled, were kind of
9 looking for that same reservoir, that green middle sand
10 reservoir, and --

11 A. As one objective.

12 Q. As the main objective?

13 A. No, not the --

14 Q. No?

15 A. -- main objective. In the Seventies the lower
16 Morrow was --

17 Q. Lower --

18 A. -- certainly the main objective.

19 Q. Okay.

20 A. Yeah. And it was prolific.

21 Q. And it was prolific. So what happens is, you end
22 up -- What I'm looking at is four wells that have produced
23 some gas from the green sand.

24 A. Yes, quite a bit, actually.

25 Q. Do you think -- What are the odds? I mean, with

1 each one of these wells --

2 A. Uh-huh.

3 Q. -- try and follow me on this because maybe my
4 reasoning is wrong.

5 A. Uh-huh.

6 Q. Each one of these wells, when it's drilled,
7 either uncovered a kind of a compartmentalized reservoir or
8 an imperfectly communicated reservoir with the other wells,
9 because we're coming in with bottomhole pressure that's
10 higher than we would anticipate?

11 A. That's exactly my conclusion.

12 Q. Why would you think, with the record being four
13 out of four, that when you drilled the fifth well you would
14 finally connect with a reservoir that you could predict the
15 pressure on, you would not get a compartmentalized
16 reservoir here too?

17 A. There's --

18 Q. Doesn't that defy the odds, historical odds in
19 the field?

20 A. Well, that's a good point. What we at Mewbourne
21 like to pursue are lower risk Morrow development, lower
22 risk meaning if we can see that a well looks like it's
23 producing outside its section and there's enough reserves,
24 if you can get in that other section and make an economic
25 well, to go in and compete with the same reserves, we like

1 that if it's a good prospect.

2 There's certainly -- Four out of four, there's
3 certainly good odds that you might -- that I'm wrong.
4 There could be another good, big compartment, or nothing,
5 up there.

6 But it's our strategy as a company to say, If
7 there's enough reserves, you know, why not get in there and
8 do development geology and exploration or exploitation,
9 instead of a higher risk exploration type of play?

10 And so when we saw this we said, There's just too
11 much gas, that's a strong well, that's got to be in Section
12 1, let's go look at some acreage. And as we further got
13 the data recently, we now have a quantitative way to say,
14 even though we're getting there to 1 BCF that -- you know,
15 that even in this one zone there's a much lower risk. We
16 like that. We think our location is extremely superior to
17 any other location, based on risk. We do that with all the
18 data.

19 And so I hope that answers your question. I see
20 your point on the odds.

21 Q. Well, if I'm a gambling man --

22 A. You could be wrong, that's right.

23 Q. -- and I look at four times we get one thing,
24 expect to drill the next one and connect, I'd say that's
25 about a 20- --

1 A. Right.

2 Q. -- percent risk of -- historical of finding what
3 I want --

4 A. That --

5 Q. -- one out of five, rather than --

6 A. Right. But what we'd like to do is change those
7 odds by doing some scientific work that says, We think --
8 we're not sure -- that we can increase those odds. And
9 yes, get in the same pod, and we've got to, you know, work
10 with the rules, and there are a lot of other things you
11 have to do. We're not drilling wildcats in this company,
12 we're trying to find our niche as a lower risk development.

13 Q. They look like they're kind of wildcats to me,
14 cover the --

15 A. We're at the north end of a very good field that
16 we are very concerned about dryhole. We -- I agree with
17 you, there are some serious risks. We just think it's much
18 lower to our location than at 1650 or certainly at 20- --
19 whatever the Fasken location, 2000 feet. You're really
20 pushing on -- of the data you know. Why stare at the data
21 you know and -- that help you lower risk, and fly in the
22 face of that and not use that to your advantage?

23 But there is some risk that we'd find no sand at
24 all in between compartments, or a new compartment that
25 would fit in there, be a small compartment or something.

1 Q. It's Curtis's money, he can put it where he
2 wants.

3 A. Right, right. Yeah, this is what he -- He's
4 excited about this. He's not so much anymore, I'll tell
5 you that.

6 CHAIRMAN LEMAY: Okay, that's the only question I
7 had.

8 THE WITNESS: Okay.

9 CHAIRMAN LEMAY: Is there anything else of the
10 witness?

11 If not, let's break and come back from lunch --

12 MR. BRUCE: Mr. Chairman --

13 CHAIRMAN LEMAY: Yes.

14 MR. BRUCE: -- one housekeeping matter. I do
15 have a topographic map, and if I could just submit that
16 into the evidence --

17 CHAIRMAN LEMAY: You bet.

18 MR. BRUCE: -- as Mewbourne Exhibit 17.

19 CHAIRMAN LEMAY: Without objection, we'll have
20 that in the record.

21 Did we have this Exhibit 11 introduced? Did we
22 have --

23 THE WITNESS: That was, again, from the previous
24 testimony, the tables I had made previously, that he showed
25 to me. He didn't enter --

1 CHAIRMAN LEMAY: Want to just reference it, then?

2 THE WITNESS: That's Fasken's idea. I don't care
3 to reference it. I think I have better data now.

4 CHAIRMAN LEMAY: Okay, better data. It's up to
5 you.

6 Let's break and come back at -- Do you all eat
7 quick? Do it at 1:30?

8 MR. CARR: What time is it?

9 CHAIRMAN LEMAY: Have you got time to eat? Huh?
10 No? How about 1:45? I'm just looking for consensus.
11 Let's do it at 1:45, we'll be back. Give you a chance to
12 get downtown real quick.

13 (Thereupon, a recess was taken at 12:58 p.m.)

14 (The following proceedings had at 1:53 p.m.)

15 CHAIRMAN LEMAY: We shall continue with the
16 presentation of Fasken. Mr. Kellahin?

17 MR. KELLAHIN: Thank you, Mr. Chairman.

18 Mr. Chairman, my first witness is Dexter Harmon.
19 Mr. Harmon is a petroleum geologist.

20 DEXTER HARMON,

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

23 DIRECT EXAMINATION

24 BY MR. KELLAHIN:

25 Q. For the record, sir, would you please state your

1 name and occupation?

2 A. My name is Dexter Harmon. I'm the exploration
3 manager for Fasken Oil and Ranch, Limited.

4 Q. And where do you reside, sir?

5 A. Midland, Texas.

6 Q. Your degree is in petroleum geology?

7 A. Yes.

8 Q. And have you on prior occasions testified as an
9 expert in petroleum geology before the Oil Conservation
10 Division?

11 A. Yes.

12 Q. And you were the witness that testified on behalf
13 of Fasken before Examiner Stogner when he heard this case
14 back on April 3rd and 4th of this year?

15 A. Yes.

16 MR. KELLAHIN: Mr. Chairman, I tender Mr. Harmon
17 as an expert petroleum geologist.

18 CHAIRMAN LEMAY: His qualifications are
19 acceptable.

20 Q. (By Mr. Kellahin) Mr. Harmon, have you made a
21 geologic study of this particular area?

22 A. Yes, I have.

23 Q. As part of that study have you made a comparison
24 of what we've called the Fasken-proposed location versus
25 the Mewbourne-proposed location?

1 A. Yes, I have.

2 Q. In addition, have you compared those two
3 locations to the geology available in the immediate
4 vicinity?

5 A. Yes.

6 Q. Has that geologic work included the Levers 1 and
7 2 wells operated by Texaco?

8 A. Yes, it has.

9 Q. Have you had access to and have you utilized the
10 same type of geologic data that Mr. Williams had access to?

11 A. Yes, I've used the same data Mr. Williams had,
12 plus we had some 3-D seismic in the area we also utilized.

13 Q. In addition to the log data available to all the
14 geologists, you've used seismic data?

15 A. Correct.

16 Q. Describe for me the kinds of seismic data that
17 you used.

18 A. We used a three-dimensional seismic survey that
19 was about seven square miles in extent.

20 Q. That seismic data was the property of Matador
21 Petroleum Corporation?

22 A. It is.

23 Q. In fact, it still is their property?

24 A. It is.

25 Q. You've had an arrangement with Matador by which

1 you and Mr. Lou Lint, our consulting geophysicist, had
2 access to that information?

3 A. That's right.

4 Q. Was that information, to the best of your
5 knowledge -- Was Mewbourne afforded an opportunity to have
6 access to the same information you had access to?

7 A. Matador has always had that seismic for sale, and
8 they could buy it at any time.

9 Q. All right. Your location is obviously different
10 than the Mewbourne location?

11 A. Yes, it is.

12 Q. Can you summarize for me what the significance is
13 of the seismic data insofar as you're comparing the
14 Mewbourne location to the Fasken location?

15 A. The 3-D seismic data shows a major north-south
16 Morrow cutting fault separating the Fasken and Texaco
17 wells, the Fasken location and the Texaco wells, from the
18 Mewbourne location.

19 Mewbourne's location is on the downthrown side of
20 that fault, and we don't feel like any Morrow sands will
21 communicate or drain across that fault, because it's a
22 significant throw on it.

23 Q. Is there -- When you compare the Texaco location
24 to the Mewbourne location, is there any structural
25 component by which you can make a comparison based upon

1 structure?

2 A. Yes, we've made a structure map.

3 Q. And what is your conclusion about the structural
4 advantage or disadvantage of the two proposed locations in
5 relation to the Texaco well?

6 A. We think the Mewbourne location is at a
7 structural disadvantage in the Morrow because both the
8 upper and the lower Morrow sands become wet in lower
9 structural positions, and the Mewbourne location is on the
10 downthrown of this fault -- side of this fault, and it's
11 much lower.

12 Q. When we look at the way you have analyzed the
13 different portions of the Morrow, how have you generally
14 subdivided the Morrow?

15 A. We also subdivide it into three different
16 depositional packages, the lower Morrow being the channel
17 sands that trend in a north to northwest, south to
18 southeast trend. They have good permeability for the most
19 part, tend to drain long distances, become wet in downdip
20 positions, and we feel they're more productive and have
21 more potential farther away from areas older wells have
22 drained.

23 Q. When we begin to look at the middle Morrow, is
24 the middle Morrow -- does it have the same depositional
25 environment as the lower Morrow?

1 A. The middle Morrow is a marine-influence sand
2 trends that trend more east northeast to west southwest.
3 They range from very good to very poor permeability. They
4 really don't correlate very well in the north-south
5 direction for very far.

6 And just from the Texaco Levers 1 and 2 wells,
7 you can see they don't communicate very well in a north-
8 south direction, because the 1 was pulled down to 450
9 pounds bottomhole pressure, and when they drilled the
10 Number 2 it was almost virgin.

11 Q. When we --

12 A. That's just a half-mile distance in a north-south
13 direction.

14 Q. When you move up into the upper Morrow, is that
15 the same depositional environment, then, as the middle
16 Morrow?

17 A. Testimony from the last hearing from Texaco was
18 that they did some sidewall cores out of the upper Morrow,
19 and they felt it was a channel sand and it had the same
20 depositional strike as the lower Morrows.

21 And that's basically how Keith Williams with
22 Mewbourne has mapped it, and I agree with that. There's
23 probably some sort of a channel sand with the same type
24 depositional strike.

25 Q. When we look at your structure map and your

1 isopach maps of the various Morrow opportunities in the
2 south half of Section 1, are you able to conclude that you
3 can develop the south half of Section 1 without encroaching
4 on the Texaco spacing unit?

5 A. Yes, and that's what we propose to do.

6 Q. In addition to the Morrow opportunity, do you see
7 any other opportunity for deep gas production in any other
8 formation?

9 A. We think the Cisco has productive potential at
10 the Fasken location because our 3-D seismic shows us that
11 we have a time structure there, with four-way closure. We
12 have an isochron thin from the third Bone Springs sand down
13 to the top of the Cisco, which shows us there's a bump
14 there. And we also have an isochron thick from the top of
15 the Cisco down to the middle Morrow shale, another marker
16 that we -- So it shows a thick. And that's all -- That all
17 goes together to show the Cisco potential.

18 Q. Have you made your geologic study in association
19 with Mr. Lou Lint, a consulting geophysicist?

20 A. Yes.

21 Q. As part of that work, have you been able to
22 integrate into your structure map conclusions concerning
23 about the location and magnitude of throw of various faults
24 in this area?

25 A. Yes, we have.

1 Q. When we look at the way you've subdivided the
2 Morrow, have you used the same isopach'd intervals as Mr.
3 Williams used?

4 A. He doesn't correlate the sands the same way that
5 I do.

6 Q. So when we present your isopachs, the Commission
7 needs to be aware that your correlation markers are going
8 to be different than what Mr. Williams used; is that true?

9 A. That's true.

10 Q. Exhibit 1, Mr. Harmon, would you identify it?
11 It's a production map, I believe. Take a moment and
12 identify that for us.

13 A. Exhibit 1 is a production map in the area that
14 identifies all the wells by the operator and the well name
15 and number. And then the legend shows you which field each
16 well is put in, and then next to the well in red is the
17 cumulative gas, oil, and how many years it's been. And
18 then the second line is the current status of the well,
19 whether it's plugged or what it's producing.

20 So you can get a quick look at what zones
21 produced out of each well and how much and what field they
22 were --

23 Q. Let's set that aside as a map to help us locate
24 the wells as you begin to describe them, and let me have
25 you turn to the next display. It's identified as a top of

1 lower Morrow, and it's a structure map, is it not?

2 A. Yes, this is our structure map of the top of the
3 lower Morrow. This is the same structural pick that Mr.
4 Williams picked on his structure map.

5 And what you can see on this map is, in the blue
6 outlined area, inside that box, is where the 3-D seismic
7 was shot, and all the structure inside that box, it comes
8 from the 3-D seismic interpretation.

9 And then the structural ticks and contour lines
10 outside of the blue box are strictly a geologic
11 interpretation.

12 Q. All right. Let me show you Mr. Williams'
13 montage, his Exhibit 9. It has his structure map on it.
14 With the integration of the seismic data and when we look
15 at the structural position of the Mewbourne location, are
16 you finding the proposed Mewbourne location at the same
17 structural position as Mr. Williams forecasts it to be?

18 A. Mewbourne location on his map is at almost minus
19 7100, be it 7080 or -85, something like that.

20 Q. And where do you find it?

21 A. We find it about minus 7150.

22 Q. When you look at the Texaco Levers 2 well, are
23 you in agreement or disagreement about the structural
24 position of that well?

25 A. We have them the same, essentially. There's two

1 foot different. It's probably KB versus derrick bore or
2 something.

3 Q. And finally the Fasken location on structure, as
4 Mr. Williams compares it to your location?

5 A. Mr. Williams, it looks like he has our location
6 at minus 7050, and we also have it at minus 7050.

7 Q. The way the lines are contoured on your structure
8 map, is there a structural advantage to your location in
9 relation to the Mewbourne location?

10 A. Yes, on our map that we've got from the 3-D
11 seismic, we will be a hundred foot high structurally to the
12 Mewbourne location, and they will be on the other side of a
13 major fault.

14 Q. Just to the west of the Mewbourne location,
15 following the minus 7100 contour line, there's a dark
16 S-shaped, curved line. To the west it says "U", to the
17 east it says "D". I'm going to identify that as fault line
18 one so we can keep them straight.

19 A. Okay.

20 COMMISSIONER WEISS: That's the top half of the
21 blue area?

22 MR. KELLAHIN: No, sir, it's down at the Fasken
23 location.

24 THE WITNESS: This little S-shaped thing, kind of
25 in the center of the blue area.

1 Q. (By Mr. Kellahin) Do you have an opinion as to
2 what the magnitude of throw is along that fault?

3 A. I think the maximum throw is about 150 feet, but
4 the average throw is about 100.

5 Q. Is that sufficient displacement of a fault to
6 separate the Mewbourne location and the various Morrow sand
7 channels or sand depositions from those Morrow sands being
8 produced at the Texaco well location?

9 A. Yes, I think it is.

10 Q. How do you compare the Fasken location, then,
11 based upon this fault, fault line one, in relation to the
12 Texaco Levers 1 well?

13 A. To the Levers Number 1?

14 Q. Yes, sir. You're on the same side of the fault,
15 aren't you?

16 A. Yes, we are.

17 Q. And as to the Levers 2?

18 A. We're on the same side of the fault.

19 Q. Does the location and position of this fault have
20 any significance to you when you're making decisions about
21 what your preference is for a well location when you have a
22 choice between Fasken and Mewbourne?

23 A. Yes, we would rather be on the upthrown side of a
24 fault and be high, because the upper Morrow sands and the
25 lower Morrow sands get wet in lower structural positions.

1 Q. Do you have an approximation of what you believe
2 to be the gas-water content in this area?

3 A. I don't have a single gas-water contact.

4 Q. All right, sir. When we look at the next fault I
5 want to direct your attention to, it's the one I discussed
6 with Mr. Williams, and it's the one that goes from the
7 northeast corner to the southwest corner of Section 11. Do
8 you see that one?

9 A. Yes.

10 Q. Let's mark that fault line 2, okay? Describe for
11 me why you have concluded this fault to be where it is.

12 A. We get that directly from the 3-D seismic survey.
13 It's real apparent on the survey where these faults are.

14 Q. Are you able to integrate or validate the seismic
15 information with any subsurface geology?

16 A. Yes, it matches the subsurface geology as far as
17 where the wells come in and the tops and whatnot.

18 Q. Can you approximate for us the magnitude of throw
19 along that fault?

20 A. It varies quite a bit, but in most places it's
21 over 100 foot.

22 Q. When we look at that fault, do you have an
23 opinion as to whether or not that fault would extend
24 northward in such a way to separate out the Fasken location
25 from the Levers 2 well?

1 A. We followed the fault on the 3-D seismic and it's
2 dying out in that direction, and we think it does die out.

3 Q. Are there any other faults -- You've shown other
4 faults on the display. Are any of those others of
5 significance in terms of the Commission making a decision
6 about these well locations they're addressing today?

7 A. No.

8 Q. Okay. Let's turn to your cross-section, Exhibit
9 Number 3.

10 Mr. Harmon, I'm also going to give you a copy of
11 Mr. Williams' cross-section, and I'm going to fold it in
12 such a way that you have access to the Levers Number 2
13 well. Do you have those before you, Mr. Harmon?

14 A. Yes, I do.

15 Q. Let's go through that display that Mr. Williams
16 presented, and your display, so that we can make a
17 comparison of the isopach'd intervals, because the two of
18 you occasionally have used a color code for these
19 intervals, and the color code doesn't match consistently
20 between the two geologists.

21 Let's start at the base of the Levers 2 well and
22 look at what Mr. Williams identifies as the brown sand.
23 Did you map what he has called the brown sand?

24 A. I did map a brown sand.

25 Q. Is it the same brown sand that Mr. Williams

1 mapped?

2 A. No, it's not.

3 Q. Why the difference? What's the explanation?

4 A. At the last hearing, Texaco testified that they
5 had no brown sand in this well, and so I did not give the
6 well any brown sand.

7 Q. When we look at your isopach of the brown sand,
8 then, we're looking at a different isopach'd interval than
9 what Mr. Williams showed?

10 A. Yes.

11 Q. Going vertically, you have on your display an
12 orange interval in the lower Morrow, and you have
13 identified that as the orange sand?

14 A. Yes, I have.

15 Q. How does that compare to what Mr. Williams did?

16 A. We both called that sand the orange sand in that
17 particular wellbore.

18 Q. Okay. Once we move above the orange sand, then,
19 we're moving out of the lower Morrow?

20 A. That's correct.

21 Q. As we go into the middle Morrow, what is the next
22 interval that you isopach'd, and how have you identified
23 it?

24 A. The next interval that I isopach'd, I call the
25 middle Morrow purple sand. You can see it colored in

1 purple. Mr. Williams did not isopach that particular sand.

2 Q. When we look at Mr. Williams' green sand, he's
3 packaged two of the sands together which you have isopached
4 separately; is that correct?

5 A. That's correct.

6 Q. And how are you identifying those two sand
7 intervals by color?

8 A. The green sand is the upper sand interval, and
9 the blue sand is the one just below it.

10 Q. And finally, if we leave the middle Morrow, we
11 move up into the upper Morrow?

12 A. Right.

13 Q. Mr. Williams has identified a Morrow "A" sand?

14 A. Yes, and I've got a little bit of yellow color on
15 mine.

16 Q. All right. Is there a difference in the vertical
17 interval correlated and mapped on the sand maps?

18 A. No.

19 Q. Yours is the yellow map and his is the Morrow "A"
20 sand map?

21 A. I did not provide a yellow sand map.

22 Q. All right, why did you not do so?

23 A. I just didn't provide one. I wasn't sure what
24 the environment of deposition was. But at the last hearing
25 Texaco said they took sidewall cores from that, and that it

1 was a fluvial channel sandstone and that they felt like it
2 went in the same direction as the lower Morrow sands, and I
3 agree with that.

4 Q. Let's talk about this depositional environment,
5 Mr. Harmon. If you will, in combination, refer to what's
6 marked as Exhibit 4, which is a technical paper and Exhibit
7 5, which is a display that's been enlarged out of that
8 technical paper. Do you have those?

9 A. Yes, I do. Exhibit 4 was a paper that was
10 published in the Southwest Section of *AAPG Transactions*
11 from their convention in 1984, and it's titled Lower
12 Morrow -- excuse me, "Lower Pennsylvanian Reservoirs of the
13 Parkway-Empire South Field Area, Eddy County, New Mexico."
14 And then the bigger map display is just a map out of this
15 paper.

16 Q. Is Figure 3 taken out of the paper, which is the
17 third page back of the paper?

18 A. Right.

19 Q. All right. Let's use the blow-up of Figure 3
20 from the paper and have you take us through your
21 conclusions about the depositional environment of the
22 lower, the middle and the upper Morrow.

23 A. Okay. According to the paper, where it says
24 "Morrow Stratigraphy" and it's highlighted on the front
25 page, Morrow sedimentation consists "of limestones,

1 sandstones, shales and siltstones. These sediments can be
2 divided in three correlatable units. The lower Morrow
3 consists of fluvial-deltaic sequences of sandstones and
4 shales which rest unconformably on the Mississippian. The
5 middle Morrow consists of primarily marine sandstones and
6 shales with" minor amounts "of interbedded limestone. The
7 middle Morrow unit is defined in this paper as occurring
8 from the base of a" distinctive "shale, called the Morrow
9 shale, to the top of the Morrow clastics."

10 When you look at the map that they provide in
11 this paper, the lower Morrow channels are colored in orange
12 here, or -- and these are fairways. And you can see that
13 they have a general trend from the northwest to the
14 southeast.

15 And then you look at the bottom of the map, and
16 what I've got colored green is the middle Morrow sediments.
17 And after these channels were deposited in that direction,
18 we had a marine transgression in this area, and these
19 middle Morrow sands moved up and covered the lower Morrow
20 channel. And you can see that the depositional direction
21 of the middle Morrow marine sediments during the time of
22 the transgression are perpendicular to the channel.

23 That's the basic point I wanted to make.

24 Q. What happens in the upper Morrow?

25 A. The upper Morrow, if it's a channel sand like

1 Texaco says, and I believe it is, it would be the same
2 source area, in the same direction as the lower Morrows.

3 Q. Okay, let's go back to Mr. Williams' montage now,
4 his Exhibit -- What is it, 10? Help me out, Mr. Harmon.
5 You have my copy of that exhibit. What's the number?

6 A. Exhibit 9. This is from the first hearing.

7 MR. KELLAHIN: Yeah, we want the one for today.
8 So I think it was Exhibit 11; isn't that right, Jim? 10,
9 all right.

10 COMMISSIONER WEISS: What are you talking about,
11 this one?

12 MR. KELLAHIN: Yes, sir, Exhibit 10.

13 Q. (By Mr. Kellahin) All right. Let's look at his
14 lower Morrow brown sand, which is the sand that he maps in
15 the lower Morrow. Is that interpretation consistent with
16 or in disagreement to the technical paper you just
17 described?

18 A. It's at a 90-degree angle to the technical
19 paper --

20 Q. Yes, sir.

21 A. -- turned 90 degrees to that.

22 Q. It's inconsistent, then?

23 A. Yes.

24 Q. Following the April hearing, Mr. Harmon, you had
25 additional opinions and information from Mr. Williams and

1 from Mr. Uhl, the Texaco geologist. Did you and Mr. Lint
2 then go back and re-examine all of your data and all of
3 your conclusions?

4 A. Yes, we did.

5 Q. As a result of that re-examination of all your
6 data, did you alter the structure map that you presented as
7 Exhibit Number 2 in any way?

8 A. Yes, sir, there are a few alterations. They
9 don't occur in fault 1 and 2.

10 Q. There's no change to fault 1 and 2?

11 A. Right, but --

12 Q. After re-examining all that information,
13 including the 3-D seismic and the 2-D seismic, you made no
14 alterations in fault lines one and two?

15 A. That's right.

16 Q. All right. The others were adjusted in some way?

17 A. A little bit.

18 Q. Anything of significance with regards to how
19 those were readjusted in terms of the decision to be made
20 by the Commission here today?

21 A. No, I don't think so.

22 Q. Let's start working through your sand maps.
23 We're going to start with the lowest interval, again using
24 our color code, and the cross-section 3, which has the
25 Levers 2 well on it. Let's start with the lowest sand map

1 that you have, and it's -- you call it the brown sand.

2 Without explaining all the details on the map,
3 give us a general conclusion about the relationship of the
4 Fasken location to the Mewbourne location.

5 A. We see the brown channels trending as you see
6 them, and we think the Mewbourne location will hit a brown
7 channel, and the -- The Fasken location will hit a brown
8 channel, and the Mewbourne location will miss this sand and
9 also be on the downthrown side of the fault.

10 Q. Let's leave Exhibit 6 and go to the next map up,
11 which is Exhibit 7, and it's the zone that you have called
12 the orange sand producer. We'll take a minute and let
13 everybody unfold their display, and we'll move up to that
14 sand.

15 Is there an opportunity, in your opinion, to
16 produce this sand in the south half of 1?

17 A. Yes.

18 Q. Is there -- Setting aside for a moment the
19 structural fault issue, is there a material difference
20 between the Mewbourne and the Fasken location concerning
21 this sand?

22 A. I give them both thickness credit and 20 feet.

23 Q. The decision to be made with regards to the two
24 locations concerning this sand package is controlled by
25 other information?

1 A. Yes.

2 Q. And what is that?

3 A. Structural information.

4 Q. In the presence of the fault?

5 A. Right.

6 Q. All right. Let's go up to the next sand package.

7 It's the purple one. And now we have left the lower Morrow
8 and we're moving into the middle Morrow. This is one of
9 the sands that Mr. Williams did not map; is that not true?

10 A. That's right.

11 Q. Now, you're displaying here a different
12 depositional environment than the lower Morrow deposition;
13 is that not true?

14 A. Yes, these are marine-influenced sands, and we
15 project, you know, from the literature and our work through
16 the years that they will be perpendicular to the Morrow
17 channels.

18 Q. Okay, the -- Rank or evaluate the two locations
19 with regards to the purple sand.

20 A. On my map it looks like the Mewbourne location
21 has a better shot at getting the purple sand than the
22 Fasken location. The purple sand produces in a trend south
23 of there, and it's pretty good production and really hasn't
24 been established in this sandbar up here. But we would
25 hope that it would be productive.

1 Q. Now, let's go to the lower of the two sands that
2 were packaged together by Mr. Williams and look first at
3 the blue sand. That's going to be Exhibit Number 9. On
4 the color code, why have you colored certain of these wells
5 blue?

6 A. The blue indicates that the well produced out of
7 that sand. It was perforated and produced out of that
8 sand.

9 Q. Again, you have a different interpretation than
10 Mr. Williams concerning the depositional environment for
11 this sand?

12 A. Yes, I believe it's a marine-influenced sand, and
13 it trends more east northeast direction.

14 Q. The original Fasken 1 well, which was discussed
15 earlier today -- It's in Unit Letter P. And because of the
16 irregular-size Section 1, it appears north of the subject
17 spacing unit. Do you see that one?

18 A. Yes.

19 Q. Okay, you have -- You've got a net map here, so
20 you have nine feet of net and ten feet of gross?

21 A. This is a gross sand isopach.

22 Q. I'm sorry, I misread your map.

23 Identify for us the geologic components or data
24 here that you used to reach your conclusion about how to
25 map this interval.

1 A. Well, I looked at each of the wells in this area
2 and correlated them and picked the net and the gross
3 numbers off the logs and used the published data to isopach
4 them.

5 Q. When you compare the two locations, independent
6 of the fault, is there an advantage to one location over
7 the other?

8 A. On this map, the Fasken location is predicted to
9 hit a middle Morrow blue sand, whereas the Mewbourne
10 location is not.

11 Q. There's a well in Section 2 which is -- That's
12 the Conoco Levers well?

13 A. Yes.

14 Q. Which sand intervals in that well have influenced
15 your decision about the location of the Fasken well in
16 proximity to that Conoco well?

17 A. Well, I've looked at all the sands in that well,
18 and this blue sand was not tested in that well.

19 Q. Let's go and look at the green map, then, which
20 is Exhibit 10, and have you identify and describe this
21 display and the conclusions in relation to the two proposed
22 locations.

23 A. The green map is mapped along the same trend as
24 the blue and the purple. It goes from the east northeast
25 to a west southwest direction.

1 The old Fasken well had nine foot of net porosity
2 over 12 foot of gross, so project that Fasken Number 2
3 location would hit about 10 foot of net sand.

4 And I also see that sand in the Continental
5 Levers Number 2 well in Section 2, and it was not tested in
6 that wellbore.

7 Q. Does your review of the data for the Conoco
8 Levers well indicate to you why they failed to test this
9 zone?

10 A. When you calculate the water saturation in the
11 green zone you come up with about 40 percent, and I guess
12 they just thought it was wet. And they had tried what I
13 call a middle Morrow purple striped sand, which is about 25
14 foot below the purple sand. I haven't mapped it either.
15 They didn't get good results from that test, and I guess
16 they just thought that wouldn't be any better.

17 Q. What if any effect does that have on your
18 proposed location?

19 A. We don't feel the middle Morrow sands are wet,
20 and we think that gives us some good potential.

21 Q. When we compare Mr. Williams' combination of
22 those two sands which he calls the green sand and look at
23 your green and blue sand maps, there is a substantial
24 difference in the interpretation, is there not?

25 A. Yes, there is.

1 Q. You've had an opportunity to hear Mr. Williams
2 testify on this subject twice now. Has he persuaded you to
3 change your mind about your conclusions?

4 A. No, he has not.

5 Q. Based upon all this information in the Morrow,
6 Mr. Harmon, summarize for us your geologic conclusions
7 concerning the opportunity that you believe is afforded
8 Fasken at its location, versus the one being advanced by
9 Mewbourne at their proposed location.

10 A. We believe the Fasken location will be in a
11 structurally superior spot, being on the upthrown side of a
12 major fault. This is important in the upper Morrow sand
13 that gets wet in low structural positions, and it's also
14 important for the same reason in the lower Morrow sand.

15 We also feel like we can access the middle Morrow
16 green and middle Morrow blue sands, which weren't tested in
17 the Continental Levers Number 2 well and did produce in the
18 first Fasken well that was drilled back in 1970 in Section
19 1.

20 Q. Have you proposed this well to the other interest
21 owners in this spacing unit?

22 A. Yes, we have.

23 Q. And with the exception of Mewbourne, have the
24 other interest owners proposed to participate in the Fasken
25 well?

1 A. I think that's true for the most part. I'm not
2 sure about that small interest.

3 Q. In addition to the Morrow, is there yet another
4 reservoir that provides an opportunity at your location?

5 A. Yes, we feel like we have a good shot at the
6 Cisco.

7 Q. Let's look at your Cisco cross-section. It's
8 cross-section 11. It probably is not necessary to unfold
9 any more of them than the one I'm about to do now.

10 Your line of cross-section is what, sir? You're
11 going which direction?

12 A. Let me just grab a --

13 Q. Have you got a locator? Can you see that far
14 away?

15 A. Yeah, I can. It starts up in -- It starts up in
16 Section 3, in the northeast corner, goes to the northwest
17 corner of Section 2, down to the southwest corner of
18 Section 2, in the Continental well, through the Fasken
19 location, over to the Fasken Number 1 well in Section 1.

20 Q. If you're using conventional log data, trying to
21 find Cisco in this area, are you going to be able to
22 identify any type of feature that might contain gas that
23 could be produced out of the Cisco?

24 A. I don't feel like you could.

25 Q. What is the exploration strategy, then, for the

1 Cisco, and what kind of trap do you think you're trying to
2 find?

3 A. Well, the exploration strategy is to use the 3-D
4 seismic to identify Cisco reefing that has closure. And at
5 our location we think we see about 60 foot of closure in
6 the Cisco, in four directions. So a closed high and about
7 90 acres big.

8 Q. What does that information afford you the
9 opportunity to do at your location that does not exist at
10 the Mewbourne location?

11 A. Access the Cisco potential under Section 1.

12 Q. Have both Penwell to the west and Texaco to the
13 south waived any objection about the unorthodox location of
14 the Fasken well?

15 A. Yes, they have.

16 Q. Would you be able to access the Cisco in this
17 exploration effort if you were required to be 1650 from the
18 western boundary?

19 A. We really need to be exactly where we put our
20 well to access the Cisco.

21 Q. The Morrow in this area constitutes a substantial
22 geologic risk, does it not?

23 A. It does.

24 Q. And the Cisco also provides that same substantial
25 risk, does it not?

1 A. It does.

2 Q. What do you hope to achieve by having both those
3 risks packaged together in one wellbore attempt?

4 A. We think we're reducing our risk by stacking
5 potential pay zones.

6 Q. Do you ask the Commission to approve the Fasken
7 Application and to do so without any penalty?

8 A. Yes, we do.

9 MR. KELLAHIN: That concludes my examination of
10 Mr. Harmon. We move the introduction of his Exhibits 1
11 through 11.

12 CHAIRMAN LEMAY: Without objection, Exhibits 1
13 through 11 will be admitted into the record.

14 Mr. Bruce?

15 CROSS-EXAMINATION

16 BY MR. BRUCE:

17 Q. Mr. Harmon, what do you see as the main Morrow
18 pay zone in the south half of Section 1?

19 A. What is the main Morrow pay zone? I think we
20 will hit all three Morrow objectives, the upper, middle and
21 lower Morrows.

22 Q. You don't weight one as better than the other?

23 A. I think they've all got a lot of potential.

24 Q. Looking first at your Cisco/Canyon, how far is it
25 to the nearest commercial producer from Fasken's proposed

1 location?

2 A. On the cross-section, the well in the northwest
3 quarter of Section 2 looks like it cum'd 9 BCF out of the
4 Cisco, so that would be a commercial Cisco at a --

5 Q. About a mile and a quarter, plus, away?

6 A. It looks like something like that.

7 Q. Is your Cisco/Canyon a stand-alone prospect?

8 Would you drill merely to go to the Cisco?

9 A. No, we feel like that's too risky.

10 Q. Has Fasken calculated the Cisco reserves?

11 A. Yes, we have.

12 Q. And what are they?

13 A. Our engineer will go into that with you, but I
14 think he's going to say 3.8 BCF.

15 Q. Is that risked or unrisked?

16 A. It's just calculated.

17 Q. And you wouldn't drill for 3.8 BCF alone?

18 A. We'd like to reduce our risk as much as possible
19 and stack these pays and --

20 Q. You just told me that the Cisco/Canyon is not a
21 stand-alone prospect, yet you say you have 3.8 BCF.

22 A. That's what we've calculated if the Cisco is
23 there like we think it might be. That's what the potential
24 is.

25 Q. And what are the risks -- What is the risk that

1 it won't be there?

2 A. The risks, as I understand them, is, all these
3 Cisco fields out here have a time structure high on them,
4 but not all the time structure highs are Cisco fields. So
5 there's a little bit of risk there.

6 Q. What type of percentage has Fasken put on getting
7 3.8 BCF of Cisco reserves?

8 A. What kind of percentage?

9 Q. Yeah. I mean, do you think it's a one-in-four
10 chance, a three-in-four chance?

11 A. I think it's about a one-in-ten chance.

12 Q. A one-in-ten?

13 Mr. Harmon, let's go through your isopachs,
14 starting -- Let's make sure I've got them in order here.
15 6, 7, 8, 9 and 10, I believe, are all of them. And
16 starting with Exhibit 6.

17 A. Which one is that?

18 Q. The brown sand.

19 A. Okay.

20 Q. We'll start at the bottom and move up. Is
21 there -- First, looking overall at the Morrow, north of
22 Section 12 is there a commercial Morrow completion?

23 A. Not on this map.

24 Q. In any Morrow zone, I'm talking about. So on
25 this map --

1 A. Do you want to go to the production map?

2 Q. -- there is no Morrow completion in any zone?

3 A. All the production is on this Exhibit 1.

4 Q. Okay, so there is no commercial Morrow production
5 north of Section 12 where the Texaco wells are on this map.

6 Looking at -- a little bit to the north of
7 Section 1, in Section 36, you have a lower Morrow brown
8 well there with 40 feet of sand. Why was that one dry?

9 A. It was either tight or wet.

10 Q. Okay. Same thing over in Section 34. Apparently
11 the well in the southwest quarter of Section 34 has 36
12 feet, and that was noncommercial?

13 A. That well has got a lot of porosity in it, and
14 the lower part of the sand is wet, and they just perf'd the
15 very top of it, and that well cum'd .7 of a BCF in two
16 years, and it was plugged in 1979.

17 Q. Let's move on to your Exhibit 7, the orange sand.
18 In just looking at Section 1 and 12, how do you resolve the
19 amount of orange sand to the north of Section 12 with lack
20 of production?

21 A. It doesn't have any porosity greater than 8
22 percent --

23 Q. So as you're --

24 A. -- the Fasken well in Section 1.

25 Q. So as you're moving north from the Texaco Levers

1 Number 2, you're losing porosity?

2 A. You do at that location.

3 Q. So the further north you move, the less porosity
4 you have in this sand?

5 A. You see six over eight feet of -- six feet of
6 porosity over eight feet, up in Section 34 in the east
7 half, some porosity up there.

8 Q. And the Levers Number 2 well, what was the
9 pressure in that well in this zone? Do you know?

10 A. Texaco testified that they drill-stem tested that
11 well, and it flowed 2 million a day on a drill stem test.
12 And I just heard Brian said the pressure was 1370. Now, I
13 thought they said 1350, and when I first talked to them
14 they said 1300, so it's in that range.

15 Q. Are you worried about depletion of the pressure
16 to the north of that zone?

17 A. I think as you move north, you move away from the
18 depletion.

19 Q. Well, if there's this much reservoir, miles and
20 miles of it to the north, wouldn't that help sustain the
21 pressure?

22 A. You'd have more pressure as you move north.

23 Q. Well, shouldn't that show up in the Levers Number
24 2, the northernmost producer in this pool?

25 A. The Levers Number 1's pressure is 450 pounds.

1 And then as you move north to the Number 2, you're up to
2 1300. So I would suspect as you move even further north,
3 you have more pressure.

4 Q. Has Fasken done any volumetric calculations to
5 prove that?

6 A. Go ahead and ask the engineer.

7 Q. The next one, Exhibit 8, the purple sand. A
8 simple question. I mean, you have it east-west here.
9 Isn't that contrary to the trend you show on your Exhibit
10 5?

11 A. No, I think it parallels it pretty well.

12 Q. Is that east-west or is that northeast-southwest?

13 A. Which one is Exhibit 5?

14 Q. Exhibit 5, your blow up from the article --

15 A. Okay.

16 Q. -- that states that the middle Morrow trend is --
17 or the lower Morrow trend is northwest-southeast, middle
18 Morrow trend is northeast-southwest. How come this is just
19 straight east-west?

20 A. It's pretty much east-west.

21 Q. Why?

22 A. That's how the sand is mapped out.

23 Q. So everything doesn't accord with this map; is
24 that correct? Exhibit 5?

25 A. I think this is pretty close, yeah.

1 Q. So sometimes there's a little reversal of
2 direction on some of these sands, as far as their
3 depositional trend?

4 A. You mean is it perfect? No, I wouldn't say it's
5 perfect.

6 Q. Okay, it might waver a little bit?

7 A. Sure.

8 Q. Finally, let's go to your Exhibits 9 and 10
9 together. I believe they're both the -- the two middle
10 Morrow maps.

11 Looking at Fasken's proposed location on either
12 map, why does Fasken want to drill in a noncommercial trend
13 in the middle Morrow?

14 A. We think we'll access middle Morrow sands there,
15 and we think they do have potential.

16 Q. Based on the Fasken well in Section 1?

17 A. Partly on that. It's got both sands in that
18 well.

19 Q. Why was that well a poor producer?

20 A. Well, that's a good question, and I think it's
21 mostly a permeability thing.

22 Q. Well, based on what you've got here, looking at
23 the blue map, you know, there's really very little
24 difference in sand thickness between the Fasken well in
25 Section 1 and the Texaco Levers Number 2 in Section 12.

1 What accounts for that?

2 A. Why don't you say that again?

3 Q. Well, look at your blue map. You've got nine
4 feet of sand in the Fasken well in Section 1 and 10 feet in
5 the Levers Number 2 well in Section 12.

6 A. Okay.

7 Q. What -- Roughly the same values. Why the big
8 difference in productivity?

9 A. It's probably -- I'd have to speculate, but
10 the -- You know, the Fasken well was drilled by Monsanto
11 back in 1970, and that was 27 years ago, and I think we've
12 learned a lot about the Morrow and how to produce it in
13 that amount of time, and...

14 These middle Morrow sands have a lot of chloride
15 clay in them. That well was acidized, and acid is not the
16 best thing to put on a middle Morrow sand. That chloride
17 clay tends to plug up your permeability. And I think we've
18 got a lot better completion techniques these days, and I
19 think that probably would have been a better well today
20 than it was back in 1970.

21 Q. Looking at your sand maps, overall, one question
22 comes to mind. Other than the purple sand, you basically
23 show that Mewbourne's Morrow location has no Morrow sand.
24 Why did Fasken elect to participate in the well?

25 A. If you don't elect to participate, you're out of

1 the well.

2 Q. What's that again?

3 A. If you don't elect to participate, then you're
4 not in the well. And we wanted to participate in the
5 drilling of a Morrow well out here.

6 Q. Based on your maps, there's very little chance of
7 getting anything. Why throw the money away?

8 A. We don't feel like we'd be throwing money away.

9 Q. So Mewbourne's location isn't as poor as you map
10 it in the Morrow?

11 A. We think they have potential there. I haven't
12 mapped all the sands in the Morrow, and they're --

13 Q. All right, Mr. Harmon, when did you first start
14 looking at the Morrow in this area?

15 A. In January.

16 Q. After Fasken received Mewbourne's proposal
17 letter?

18 A. Yes.

19 Q. Now, looking at your Exhibit 2, Mr. Harmon, the
20 structure map, first, do you think structure is critical in
21 the middle Morrow?

22 A. No, we don't think the middle Morrow sands are
23 wet.

24 Q. In looking at -- and I forget how Mr. Kellahin
25 referred to it. He might have referred to it as fault line

1 number 1, I think, the S-shaped one in the middle of the
2 map; is that correct?

3 A. Yes.

4 Q. Do you think that fault will separate the
5 Mewbourne location from the Levers Number 2 location in
6 Section 12?

7 A. Yes, I do.

8 Q. In your opinion, would that mean that any effect
9 of the Mewbourne well would be -- on the Levers Number 2
10 well, would be minimal?

11 A. Say again?

12 Q. Would that severely reduce any effect of the
13 Mewbourne location on the Levers Number 2 well?

14 A. As far as drainage? Yes.

15 Q. Would it also mean that these Morrow wells are
16 draining significantly less acreage, perhaps, than 320
17 acres?

18 A. I don't know about that, but maybe different
19 acreage than you guys have been circling on your maps.

20 Q. Do you consider that S-shaped curve a major fault
21 line?

22 A. Yes, it's got significant throw to it.

23 Q. Why? What moves it into major, in your mind?

24 A. When you get up to 100, 150 foot of throw on a
25 fault that -- I would consider it major.

1 Q. Okay. But it stars and ends. I presume it's not
2 all 100 feet, all the way along this fault line; is that
3 correct?

4 A. That's correct.

5 Q. How -- You know, where would it be 100 feet,
6 where would it be 50 feet and where would it be 25 feet?

7 A. I'll just leave that to Lou Lint. He can go into
8 that with you. He's got estimates of that.

9 Q. Was your location picked solely by you?

10 A. No, it was in conjunction with --

11 Q. -- Mr. Lint?

12 A. Yes.

13 Q. Does Fasken have any reserve estimates on the
14 various Morrow sands?

15 A. Yes, and you can go into that with our engineer.

16 Q. With the engineer?

17 Finally, back to the Cisco, you talked about --
18 How many feet of closure in the Cisco?

19 A. Sixty feet.

20 Q. Is that 60 feet a maximum?

21 A. Yes.

22 Q. Okay. And what is the minimum closure?

23 A. Why don't you ask Lou? He did that work.

24 Q. The last thing is the -- Looking at the Cisco
25 again, the Continental Levers Number 2 in the southeast

1 quarter of Section 2, that was a disposal well; is that
2 correct?

3 A. That's right.

4 Q. Why would Fasken want to drill so close to that
5 well?

6 A. We're going to be updip and we've got a closure
7 that we feel like has some gas in it. It would be kind of
8 nice to have a disposal well close by too, that we could
9 put water in it.

10 Q. What? About 6 million barrels were injected into
11 that well?

12 A. Yeah, and we get some water in our well, we'll
13 put some more in there.

14 Q. Is that well owned by Penwell?

15 A. I think it is.

16 Q. Did Fasken trade any data with Penwell?

17 A. Trade data?

18 Q. Trade data? For -- Penwell waived objection to
19 your location; is that correct?

20 A. Yes, they did.

21 Q. Did Fasken or Matador provide any seismic data to
22 Penwell in exchange?

23 A. We let Penwell look at our Cisco interpretation.
24 We did not give them any data.

25 MR. BRUCE: I pass the witness, Mr. Chairman.

1 CHAIRMAN LEMAY: Mr. Carr?

2 MR. CARR: I have no questions.

3 CHAIRMAN LEMAY: Commissioner Bailey?

4 EXAMINATION

5 BY COMMISSIONER BAILEY:

6 Q. Exhibit 2 that shows the fault lines at the top
7 of the lower Morrow, do those fault lines extend up into
8 the middle and upper Morrow?

9 A. Yes, they go all the way up into the Strawn
10 formation.

11 Q. Okay. Should I see some impact of those fault
12 lines on your isopachs for the middle and upper?

13 A. No, they were post-depositional faults. It
14 happened after the deposition of the Morrow.

15 Q. It's been intriguing me all along, and I've been
16 trying to find this answer, to the exclusion of some other
17 topics.

18 A. Mr. Lint will address that, but on the -- Well,
19 I'll just let him address that. But we don't see any
20 isopach differences on each side of them, and they go way
21 up into the Strawn. So they're much later than the Morrow.

22 Q. Did you see deltaic influence in your lower
23 Morrow interpretation as the Mewbourne geologist testified?

24 A. Yes, those are channel sands.

25 COMMISSIONER BAILEY: Okay. That's all I have.

1 CHAIRMAN LEMAY: Commissioner Weiss?

2 EXAMINATION

3 BY COMMISSIONER WEISS:

4 Q. Maybe somebody else will answer this, but how do
5 I judge the goodness of your seismic maps here?

6 A. Our geophysicist will go into it.

7 COMMISSIONER WEISS: Thank you. That's the only
8 question I had.

9 EXAMINATION

10 BY CHAIRMAN LEMAY:

11 Q. You have line 70, line 84. Your interpretation
12 is based on those two lines, basically?

13 A. No, this is 3-D seismic. It covers the entire
14 area, and these are just some displays that we pulled out
15 of the 3-D, and he'll show them to you.

16 So those are lines out of the -- kind of the
17 entire volume. 3-D seismic has a point every 110 foot
18 inside this blue box, and we've got four lines on here, one
19 north-south going through the Fasken location, and an east-
20 west one going through there, so you can see the rollover
21 in all directions on the Cisco. And we'll show you line 70
22 that goes through the Mewbourne location, and it will
23 clearly show you that fault that we've been talking about,
24 separates Mewbourne from Texaco and Fasken.

25 And then we've got another line called "ARB

1 line". You can see it over here to the southwest of the
2 display. And we brought that to show you that major fault
3 over there, and everyone agrees that fault's there. And
4 when you compare it with this one over here, you'll be
5 comfortable with that fault being there.

6 Q. I guess this -- I don't have the benefit of the
7 seismic. I could take that northeast-southwest-trending
8 fault, fault line 2, that you brought over there, bring
9 that just to the -- or splitting the Fasken/Mewbourne
10 locations, and following your fault trace on line 70, I
11 wouldn't need that other fault.

12 A. Say that again?

13 Q. Well, what you're showing, as I understand it, is
14 the -- Your location would be on the upthrown side of the
15 fault, structurally higher.

16 A. Yes, sir.

17 Q. Fasken's higher than Mewbourne. You have this
18 fault down here, this fault, trace line 2, dying out before
19 it reaches the relationship of those other two wells, and
20 you put in another fault in close proximity to what looks
21 like the Mewbourne location.

22 In the absence of that could you not, for an
23 interpretation, erase your fault line 1 and extend fault
24 line 2 through that -- or just to the west of the
25 Mewbourne-proposed location, thus giving you the same

1 relationship of Fasken upthrown, Mewbourne downthrown?

2 A. No. You know, we have a data point every 110
3 foot, and so when you look at line 70, you know, you'll see
4 the fault right there, and you can follow it across, and
5 you won't pick up the other fault, fault number two. And
6 then we have a north-south display we'll show you that
7 neither fault is on.

8 So if they connected, it would be on that line,
9 and it's not there.

10 Q. Okay. Obviously I don't have the data. I'm just
11 looking at --

12 A. Well, we're going to present that.

13 Q. Yeah, okay, good, I'll --

14 A. We'll present that.

15 Q. Is it fair to characterize, maybe, your location
16 as a kind of a wildcat, the way you presented it, in terms
17 of risk and objectives, than the other location, higher
18 risk, maybe higher potential?

19 A. You could consider it that.

20 Q. Would you consider it that?

21 A. Yes.

22 CHAIRMAN LEMAY: Okay, that's all I have.

23 Additional questions?

24 You may be excused.

25 COMMISSIONER WEISS: Are we done with these

1 exhibits?

2 MR. KELLAHIN: Everything except the structure
3 map. It's got fault lines. If you'll save that one --

4 CHAIRMAN LEMAY: Okay.

5 MR. KELLAHIN: -- we'll go into that some more.

6 CHAIRMAN LEMAY: What do you have, a geologist, a
7 geophysicist, an engineer, and no landman?

8 MR. KELLAHIN: (Nods)

9 CHAIRMAN LEMAY: Okay. Might ask some land
10 questions here, just to get some information.

11 LOUIS LINT,

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

14 DIRECT EXAMINATION

15 BY MR. KELLAHIN:

16 Q. Mr. Lint, for the record, sir, would you please
17 state your name and occupation?

18 A. My name is Louis Lint. I'm a geophysical
19 consultant.

20 Q. Mr. Lint, did you testify before the Division
21 Examiner in this case?

22 A. Yes, I did.

23 Q. You are a consultant to Fasken in this matter?

24 A. That's right.

25 Q. As part of your work as a consulting

1 geophysicist, do you provide consulting information to
2 companies like Fasken?

3 A. That's right.

4 Q. When and where did you obtain you degree?

5 A. I have two separate BS degrees. I have a BS in
6 geology and a BS in geophysics from the University of
7 Kansas, 1978.

8 Q. Summarize for us your employment experience as a
9 geophysicist.

10 A. I have 19 years as a practicing geophysicist.
11 I've worked for major oil companies, large independents,
12 very small independents, and presently am consulting on my
13 own.

14 Q. In order to come to your geophysical conclusions
15 concerning the subject matter here, did you have available
16 to you 3-D seismic data?

17 A. Yes, I did.

18 Q. In addition to that data, did you also have two-
19 dimensional seismic data?

20 A. Yes, I did.

21 Q. In addition to that, you had the conventional log
22 information that all the other geologists had?

23 A. That's right.

24 Q. Were you able to utilize the seismic data, or was
25 it of such a quality that it was not usable?

1 A. It was a very good quality for the area.

2 MR. KELLAHIN: We tender Mr. Lint as an expert
3 geophysicist.

4 CHAIRMAN LEMAY: His qualifications are
5 acceptable.

6 Q. (By Mr. Kellahin) Mr. Lint, let's take Exhibit
7 12 and have you give us a quick review of how the data is
8 generated, how it's stored and how you're able to retrieve
9 and use it to pull these trace lines, or any other
10 combination of trace lines that you desire to examine.

11 A. Exhibit 12 is a close-in reference map of the
12 area in question. You can see the north part of Section 12
13 and the south half of Section 1.

14 I'd like to refer to Exhibit 2 as we're talking
15 about this. This is a 1-to-1000 close-in shot of the area
16 inside the blue on Exhibit 2. The blue outline in Exhibit
17 2 is the limits of the entire 3-D survey. I made Exhibit
18 12 focus in with more clarity on the area in question.

19 3-D data, when you acquire 3-D data, you are
20 basically -- You are very familiar with the old 2-D display
21 lines. Two-dimensional data is a line of data underneath
22 where you shot your line. 3-D data, you're looking in
23 three dimensions. Not only are you collecting data in this
24 direction, you're collecting it in a very large number of
25 locations.

1 Inside this blue area, I have approximately
2 12,000 data points, separate, discrete data points derived
3 from the 3-D. Every 110-foot square I have a data point in
4 here. That was the way the 3-D was designed.

5 Q. By the fact I have those discrete 110-foot bin
6 spacings, is the technical term, I can connect those dots
7 in any fashion I want to produce 2-D-appearing seismic
8 displays.

9 Q. Subsequent to the last hearing, did you and Mr.
10 Harmon go back and re-examine the seismic information
11 insofar as it is involved with any of these fault lines?

12 A. Yes, we did.

13 Q. And as a result of reworking, re-examination and
14 re-evaluation of all that data, did you make any
15 adjustments or change to what I've called fault line 1?

16 A. No, I did not.

17 Q. With regards to fault line 2?

18 A. No, I did not.

19 Q. The changes were made to the other three fault
20 lines?

21 A. That's correct.

22 Q. Are there any changes made to any of those that
23 would materially affect your opinions or conclusions from
24 last hearing?

25 A. No.

1 Q. And any of your opinions and conclusions for
2 today's hearing?

3 A. No.

4 Q. Let's start with the Cisco. Let's go back and
5 have you tell me how you are exploring for a Cisco
6 opportunity here using 3-D seismic data.

7 A. Exhibit 13 illustrates the methodology I used for
8 my Cisco seismic interpretation. I used three separate
9 approaches to confirm the presence of a Cisco reef buildup.

10 I made a time structure on top of the reflector I
11 identified as the Cisco reef. That would represent your
12 blue horizon here. And basically, you just pick the times
13 off your seismic data and make a map similar to a
14 subsurface map, only it's a time map.

15 The second criteria, the third Bone Springs sand
16 is another seismic reflector that's reliable to carry
17 across the area. I make an isochron -- in effect, a
18 geophysical isopach -- between that Bone Springs sand and
19 the top of the Cisco. I should see thinning between that
20 sand and the reef whenever I cross the top of a reef.

21 Then as a third check I made an isochron from the
22 top of the Cisco to the top of my lower Morrow marker. If
23 I'm actually crossing reefal buildups I should see some
24 thickening there. So I map that isochron thickening also.

25 Q. Let's leave the illustration in front of us so we

1 can follow your presentation, and let's look at the Exhibit
2 14, which is a depiction of the blue line on the
3 illustration, and it shows top of Cisco.

4 A. That's correct.

5 Q. Let's look at 14, and before you reach your
6 conclusions give us an understanding of our perspective and
7 how to read the color code.

8 A. First, Exhibit 14 is the same scale and area as
9 Exhibit 12. The dashed line you see and the heavy black
10 lines show you the 320-acre unit in question, and the color
11 bars are equal-time contours from the actual time mapping
12 of the top-of-Cisco event, with the red colors being the
13 highest points and the blue colors being the lowest points
14 on the map.

15 Q. When you're looking for a Cisco opportunity, what
16 is the seismic data allowing you to see?

17 A. With the frequencies and the velocities we have
18 here, the resolution of the data here is roughly about 60
19 feet.

20 Q. You're attempting to identify a structure?
21 You're looking at the top of the Cisco?

22 A. That's correct.

23 Q. And as you move through your data, you can see
24 that from the surface to the top of the Cisco is a lesser
25 distance at the Fasken location --

1 A. That's correct.

2 Q. -- than it is at the Mewbourne location?

3 A. That's correct.

4 Q. How do we see that depicted in the color code?

5 A. The red color is a time of about .942 seconds.

6 The Mewbourne location is down at around one-point --
7 something below one second. The exact number is written on
8 here.

9 Q. Okay. With the time structure map, now, you can
10 see the change in the top of the Cisco structure?

11 A. That's correct.

12 Q. The next thing to look is to find a marker so
13 that you can judge the relative distance in the top of the
14 Cisco feature to some control point?

15 A. That's right.

16 Q. Let's look at Exhibit 15 and have you describe
17 for us how you do that.

18 A. Well, after I had established a four-way time
19 closure for mapping straight time, then I went through and
20 picked the third Bone Springs sand seismic event and
21 compared it down to this Cisco map that I previously made.
22 I have observed an isochron thinning between those
23 intervals at the same location, which adds credence to the
24 fact that we do have a Cisco reef buildup due to the
25 thinning of the sand over the top.

1 Q. With the top-of-Cisco time structure map by
2 itself -- What can you do with that?

3 A. I've done quite a bit of regional work in the
4 Cisco out here. There are three very prolific Cisco fields
5 in the immediate area. All three fields I've had a chance
6 to look at. All three exhibit 10 to 15 milliseconds of
7 time closure over the top of them.

8 So every Cisco field, proven Cisco field, has a
9 time high over it. But every time high out here does not
10 necessarily have a Cisco-producing field under it.

11 Q. Okay.

12 A. So I used separate -- these other methodologies
13 to convince myself more that there is the possibility of a
14 Cisco reef buildup.

15 Q. Once you have the time structure map on the top
16 of the Cisco, then, and look at the isochron on the third
17 Bone Springs sand, what does that let you do?

18 A. When I see that thinning, that adds some credence
19 to the fact that there is actually a Cisco high under here.

20 Q. Okay. When we look at the third display, it's
21 another isochron, and you're looking at the top of the
22 lower Morrow?

23 A. Correct.

24 Q. Describe for me why you do this and what it
25 means.

1 A. The Cisco reef has some significant thickening
2 when you climb on the shelf, and it changes very rapidly
3 through this area. I was looking for some verification
4 that I actually have reefal buildup, some kind of
5 thickening within the Cisco unit.

6 Since I've already picked the lower Morrow, I use
7 that as my base, isochron between the top of the Cisco,
8 exceptionally thick areas should show areas where I have
9 the potential to have a Cisco buildup. And on this map of
10 Exhibit 16 the dark purple and dark blue areas represent
11 areas of thick isochron interval, therefore again trying to
12 confirm the presence of a Cisco reef.

13 Q. Is this the first application of -- first attempt
14 to drill a well under this Application in this study area?

15 A. In this particular 3-D area?

16 Q. Yes, in this 3-D area.

17 A. That's right, that's correct.

18 Q. Have you come to any conclusions concerning the
19 size and the shape of the Cisco structure feature?

20 A. Yes, I have. As I mentioned, I've done quite a
21 bit of regional work on the Cisco out here. The known
22 producing fields have very low relief, but very prolific.
23 The time structures and time isochrons that I see at this
24 location are very similar to the ones I have seen at the
25 other three producing fields.

1 Q. Let's look at that comparison, Mr. Lint. If
2 you'll turn to Exhibit 17, would you identify and describe
3 what we're looking at here?

4 A. This is a top-of-Cisco map that compiles all the
5 3-D data available, which is shown in that small blue
6 outline, a 2-D line that I had access to that cuts
7 diagonally northwest to southeast through the entire area,
8 and the subsurface control outside of those two spots. And
9 all of it was utilized to compile this map.

10 Q. Okay. When we look at the opportunity to
11 determine the size and the shape of the Cisco structure to
12 be accessed at the Fasken location, describe for us what
13 that size and shape would be.

14 A. At the Fasken location I see a confirmed 10-
15 millisecond closure over about 90 acres. Ten milliseconds
16 would translate to roughly 75 feet, but I know there was
17 only a 60-foot oil -- or a gas column that springs. I
18 decided that 60 feet was an acceptable number to run on the
19 Fasken well location.

20 Q. Okay. Applying your knowledge and expertise, can
21 you identify for us any potential issues or concern about
22 the seismic data and how you have resolved those concerns?

23 A. I think some of the displays will speak for
24 themselves. When they get that, you can see the quality of
25 the data out here.

1 I have done velocity analysis to see which things
2 can be velocity-induced, and I am comfortable with all the
3 maps that I have produced.

4 Q. Okay. Let's turn back to Exhibit Number 2, which
5 is our structure map that's got the faults on it. Let's
6 start with fault line number 2. Have you reconfirmed to
7 your satisfaction the orientation, the magnitude of throw
8 and the terminus of both ends of the fault?

9 A. Yes, I have.

10 Q. Let's look to see how you've made that study. If
11 we'll start with the next exhibit, it's Exhibit 19. It's
12 the ARB-line. Do you have that before you?

13 A. Yes, I do.

14 Q. This line runs perpendicular to the fault?

15 A. that is correct. It is shown in that location in
16 the red line on Exhibit 2.

17 Q. So when I look at Exhibit 19 and I look down on
18 the left vertical scale, there's some codes there. Bone
19 Springs, Cisco, what else?

20 A. Lower Morrow and Mississippian lime.

21 Q. All right. Let's start with the Bone Springs.
22 How is that color-coded?

23 A. The orange color represents the third Bone
24 Springs sand interval.

25 Q. The Cisco?

1 A. The blue peak represents the Cisco interface.

2 Q. And what does the yellow indicate?

3 A. The yellow, with the red line on top of that, is
4 the lower Morrow section, the base of that lower Morrow
5 shale that everyone correlates against.

6 Q. Okay. When we look at ARB-line, it's got a
7 certain trace and line code on the top so that when you
8 look at this display you can find your position on Exhibit
9 Number 2, can you not?

10 A. Yes, if we had the line and trace numbers around
11 the edges we could, yes.

12 Q. All right, sir. But you've done that
13 independently and --

14 A. Yes.

15 Q. Okay. What is the purpose of the red vertical
16 line, then, on the bottom of Exhibit 19?

17 A. That shows the fault that's been identified in
18 the southwest corner of the area.

19 Q. Describe for us that fault.

20 A. It appears to be a post-Morrow fault, breaks
21 through the entire Morrow-Mississippian section, has about
22 200 feet of throw -- that's estimated from a little over 20
23 milliseconds of throw I see here on that location.

24 Q. Okay. As we move along the fault going to the
25 northeast, can you tell us what happens to the fault?

1 A. The throw begins to die as we go to the
2 northeast.

3 Q. Let's look at seismic line 70, which is your
4 Exhibit Number 20. Again, you've used the same color code?

5 A. That's correct.

6 Q. On the bottom of the display, you've shown two
7 vertical lines at this point, and then between those lines
8 is a vertical line?

9 A. That's correct.

10 Q. Describe for us what we're seeing.

11 A. This is an east-west line pulled out of the 3-D
12 data set, as I was speaking. I've just simply connected
13 the dots in a straight line at the location shown on this
14 index map.

15 This line runs east-west directly through the
16 proposed Mewbourne location, which is shown by the green
17 line. It shows the presence of another fault I've
18 identified, a post-Morrow fault, that is down to the east,
19 with the Mewbourne well on the east side of that fault. I
20 see no other significant faults going west from there.

21 The southwest corner fault, number 2 fault, if it
22 was present within seismic resolution, it would project
23 into that line.

24 Q. Okay. Let's move over to fault line 1, which is
25 the one just west of the Mewbourne location. You have

1 found it on line 70, but that's not the only -- that's not
2 the exclusive data point to determine the length and the
3 location of that fault; is that right?

4 A. No, it is not. I base -- In fact, what I have
5 is, every 110 foot I have one of these profiles. So in
6 essence I have 160 lines that look like this, that run
7 parallel 110 foot apart, through the whole data sheet.

8 Q. Okay. Is there any reason that the fault appears
9 to follow the minus-71-foot contour line on the structure
10 map? Or is that simply a coincidence?

11 A. I'm going to have to have you rephrase that.

12 Q. Yes, sir. It has a shape to it, and the shape
13 appears to follow the contour line of the minus-71-foot --

14 A. No, that is just where the fault trace -- the
15 fault trace is found on each seismic line --

16 Q. Okay.

17 A. -- in the data set.

18 Q. When you look at that fault, the fault line 1,
19 what's the maximum displacement of the fault?

20 A. The maximum displacement is at the Mewbourne
21 location and slightly south of there. And again, it's
22 pushing 20 mils of throw, and I would equate that 250 feet.

23 Q. As we move south from the Mewbourne location
24 following that fault line, does it continue to maintain
25 that magnitude of throw?

1 A. Toward the southern end of the black line it
2 starts to lose that throw and ends up dying fairly rapidly
3 toward the end.

4 Q. And how do you know that?

5 A. As I walk through these profiles every 110 feet I
6 can see this fault healing itself, and eventually I get to
7 a point south of here where I see no evidence of faulting.

8 Q. Can you apply your expertise and come up with a
9 rate of diminishing displacement over a certain lateral
10 distance?

11 A. I believe I can. I can measure -- Within the
12 resolution of the data I can tell from 150 feet down to 50
13 feet how much distance it's taken for that fault to die.

14 Then to go below the resolution of the seismic, I
15 simply project that predictable rate, and that would
16 translate to about -- to go from the 50 feet -- Then these
17 black lines probably represent where the fault has 50 feet
18 of throw, where they terminate. To see past that, I will
19 predict it on the observed rate of decline I've seen on the
20 throw. And to lose that remaining 50 feet of throw, it's
21 going to take me just under another 1000 feet of linear
22 distance.

23 Q. Let's use Exhibit 20, now, to move over to fault
24 line 2. I'm going to use the same exhibit that you're on.
25 That's a line that's projected east-west, and it's at the

1 approximate end point, the northeast end point, of fault 2.

2 A. That's correct.

3 Q. Do you see fault 2 on line 70?

4 A. Just a very slight indication, and that would
5 tell me that, as I have terminated it just short of that,
6 that we're looking at something less than 50 feet of throw
7 there.

8 Q. The Chairman was suggesting to Mr. Harmon it
9 might be possible to connect fault line 2 on the north with
10 the other line up there in Section 2 and make some kind of
11 connection.

12 A. If that was true, we would be able to see that
13 fault on this display, and on the roughly 20 lines -- or 20
14 to 30 lines I would have between those faults. I see no
15 evidence of those faults connecting.

16 Q. Okay. When we look at the data and the
17 resolution falls below 60 feet, then you have to apply your
18 experience and expertise to determine how far the fault
19 then extends beyond the point at which you can see it with
20 the data?

21 A. That would be correct.

22 Q. Does this fault line 2 display a similar
23 lessening of fault displacement?

24 A. It does, similar to the south end of number 1.
25 So roughly within 1000 feet of the end of that line, you're

1 at zero throw.

2 Q. Is there any reasonable probability under your
3 analysis that fault line 2 would isolate out the Fasken
4 location from the feature in which the Texaco Levers 2 well
5 is being produced?

6 A. In my opinion of this data, I would say the
7 Fasken well is not separated from the Texaco well.

8 Q. In your opinion, then, the Fasken location is in
9 the same fault block, if you will, with the Levers 2 well?

10 A. I believe so.

11 Q. Let's look at Exhibit 21, which is seismic line
12 80. This is the one that runs north and south, and it runs
13 right through the Fasken location?

14 A. That's correct.

15 Q. What's the purpose of showing us this line?

16 A. This line has two purposes. The first purpose
17 was to show the north-south time rollover the Cisco event.
18 You can see there's a very prominent north-south rollover.
19 It also illustrates how quickly the Cisco shelf builds into
20 the reef.

21 The second --

22 Q. You're looking in the blue-shaded interval?

23 A. Yes, sir, at the blue interval.

24 Q. And what are you seeing that you're describing to
25 us?

1 A. The north-south rollover, the rollover of that
2 seismic event to show time closure on the top of the Cisco
3 reef, with the very steep dip toward the front, which we
4 know is the geologic model out here for the Cisco shelf
5 edge.

6 Q. Okay.

7 A. And then the second thing this line helps to show
8 is running north-south directly through the Fasken
9 location, like it does, if the number 2 fault was to come
10 through with any significant throw, it should be obvious on
11 this line. And I see no indications of that fault on this
12 line.

13 Q. And you're looking at the point of the display
14 where we have the vertical green line?

15 A. That's correct.

16 Q. And that's the Fasken location projected on this
17 display?

18 A. That's correct.

19 Q. To the left of the green line are two vertical
20 red lines. What are those?

21 A. Those are some pre-Morrow faulting. In this
22 case, the faults do not break through the lower Morrow
23 section and just break the Mississippian, as opposed to the
24 post-Morrow faulting we see on this map.

25 Q. You've shown us a fourth illustration, and it is

1 line 84. It's marked as Fasken Exhibit 22. Let's turn
2 your attention to that line. This runs through the Fasken
3 location, and it's running east-west?

4 A. That's correct.

5 Q. What's the point, and what's the purpose of the
6 illustration?

7 A. The main purpose of this line is to show the
8 east-west time rollover at the Cisco for the Fasken
9 location, which -- At the top of the blue you can see the
10 obvious time rollover at the Fasken location.

11 It also, again, helps to illustrate the faults
12 not continuing across. Again, if the number 2 fault went
13 on past the east of the Fasken location, I would expect to
14 see some obvious break here. I don't. And if the number 1
15 fault continued with some significant throw to the north, I
16 would expect to see it on this line, and I do not see that
17 one either.

18 Q. When we look at fault line 2, there's some
19 subsurface geology that Mr. Harmon and Mr. Williams have
20 looked at that convinces them that there is, in fact, a
21 significant fault at fault line 2?

22 A. That's correct.

23 Q. And you have used your information to confirm
24 that fault?

25 A. That's correct.

1 Q. With that verification by the subsurface geology
2 for that fault line, it gives you a certain character and
3 depiction of the fault line on your 3-D seismic data, does
4 it not?

5 Q. Is that a signature such that you can look to see
6 if that signature is repeated elsewhere in your database?

7 A. Yes, it is.

8 Q. And how do you make the comparison between fault
9 line 1 and fault line 2 with that type of methodology?

10 A. I have some blown-up displays of the seismic
11 lines you have. The two large-scale exhibits you see are
12 basically the same blown-up displays of some exhibits you
13 already have.

14 The line on the right is Exhibit 19. Now, the
15 only difference between the blown-up exhibit you see and
16 the one in your hands is, I have taken that one and just
17 reversed it, so that we're looking at it from the different
18 direction. I did that so that both vaults are now facing
19 the same direction.

20 As you can see on the exhibit on your right
21 there, Exhibit 19, that is the proven fault, the fault that
22 everyone seems to accept, based on the subsurface control.
23 You can see the yellow and green intervals are definitely
24 broken, with up being to your left. And you'll notice
25 highlighted in the hot pink color there, various events

1 that are associated with faulting.

2 The one above, you see some significant drape in
3 that one high reflector I've highlighted. And then you see
4 some random events which are diffraction artifacts due to a
5 process we use to collapse a physical phenomenon known as
6 diffractions. It requires knowing accurate velocities to
7 correct those completely. They are a very indicative
8 signature for fault traces.

9 If you move over to the display on the left, that
10 is a duplicate of line 70, Exhibit Number 20 in your
11 package. The fault in question is where the highlighting
12 is again. The Mewbourne location is that faint green line.
13 You see the exact same character that I see at the
14 undisputed fault.

15 With those two looking so similar, with the
16 diffraction artifacts I see in there, I see no reason to
17 dispute the validity of that fault, and for all practical
18 purposes they're identical.

19 Q. Summarize for us your conclusions, Mr. Lint.

20 A. In the process of analyzing the 3-D data here, on
21 the Cisco horizon I see a 10-millisecond time closure on
22 top of the Cisco reef at the Fasken locations. That is the
23 only four-way time closure on the unit in question. All
24 the known Cisco fields have a similar signature.

25 As to the Morrow, I see a reliably mappable

1 interface in the lower Morrow to make a structure map,
2 which has located several post-Morrow faults that will
3 affect the questions we have here today.

4 MR. KELLAHIN: Thank you, Mr. Lint.

5 Mr. Chairman, we move the introduction of Mr.
6 Lint's Exhibits 12 through 22.

7 CHAIRMAN LEMAY: Without objection, those
8 exhibits will be entered into the record.

9 Mr. Bruce?

10 CROSS-EXAMINATION

11 BY MR. BRUCE:

12 Q. Are these faults you show, are they always
13 sealing faults?

14 A. I would expect a fault with those kind of throws
15 to be sealing. I have not done any specific analysis of
16 fault-sealing in the Morrow.

17 Q. Could the lower Morrow connect to the middle
18 Morrow?

19 A. If the juxtaposition is absolutely correct.
20 We're talking about sands that are 20 to 30 feet thick. If
21 they happen to line up exactly, maybe.

22 Q. Some of these faults are pretty short. Could
23 there be drainage around the ends of the faults?

24 A. The sand would have to go around the edge of the
25 fault.

1 Q. Now, which map was used to determine the size of
2 the vertical closure?

3 A. For the Cisco?

4 Q. Yes, yes.

5 A. Which map?

6 Q. Which exhibit?

7 A. Exhibit -- Well, a combination of Exhibits 14, 15
8 and 16. But those exhibits were derived from -- partly by
9 Exhibits 19 through 22.

10 Q. What -- I mean, what -- I believe you said, or
11 maybe Mr. Harmon said, that you expect a 90-acre area?

12 A. That is the 10-millisecond closing contour.

13 Q. Where do you -- Can you show me where that is on
14 the map?

15 A. It extends slightly off the map to the northwest,
16 out of the area in question.

17 Q. I'm to --

18 A. When you look at Exhibit 17, it exhibits the
19 entire closure, as derived from the 3-D and the 2-D and the
20 subsurface.

21 Q. Is Exhibit --

22 A. This is a piece of that. This is just a
23 southeast segment of the entire closure.

24 Q. Is Exhibit 17 -- I mean, is this a seismic map,
25 or --

1 A. That is derived from --

2 Q. -- is this a structure map?

3 A. Yes, that is a seismic-derived structure map,
4 smoothed considerably to take out all the little bitty
5 wrinkles.

6 Q. And what is the maximum height here again?

7 A. I feel the realistic maximum height is probably
8 75 feet.

9 Q. And what range of error do you have in that?

10 A. Considering the velocity problems I could have
11 out here, considerable. I think there is a Wolfcamp high-
12 speed carbonate that can develop in here. This may be a
13 false time structure. That's what makes the Cisco such a
14 high-risk prospect. We're looking for 50 to 75 feet of
15 closure. It wouldn't take much to make that go away.

16 Q. You could have a range of error here of what?
17 Sixty to 90 feet?

18 A. That's correct.

19 Q. There's often significant Wolfcamp velocity
20 problems between the third Bone Spring and the top of the
21 Cisco?

22 A. I wouldn't call it significant from the
23 standpoint of -- You're adding 200 feet of extra Wolfcamp.
24 That would make a 5-millisecond pull-up, as opposed to a
25 section without that. Five milliseconds is roughly 35

1 feet.

2 Q. So that would cut the closure in half?

3 A. It could.

4 Q. Okay. So you're looking at a 75-foot map with a
5 70-foot range of error?

6 A. That is correct. That is what makes the Cisco
7 high risk. But there are no fields without time highs that
8 have been established at present. The only place you could
9 possibly have a cisco would be where you do have a time
10 high.

11 Q. I'm looking at Exhibit 17. Is this based on 2-D
12 or 3-D seismic?

13 A. The outline marked "3-D outline" -- There's a box
14 on there; it may or may not be highlighted blue on your
15 exhibit. Inside that is derived from the 3-D data.

16 There's also a diagonal straight line you'll see.
17 That is derived from 2-D data that I have examined. The
18 rest is derived from subsurface.

19 Q. Well, I mean, can you fabricate a northwest-
20 southeast 3-D line?

21 A. I could, that would parallel that 2-D line
22 exactly.

23 Q. Have you?

24 A. Yes, I've made hundreds of ARB lines through
25 here.

1 Q. Do you have that with you?

2 A. No, I do not.

3 Q. Wouldn't that be the critical line to show the
4 separation between your hypothetical seismic event at the
5 Fasken location and the Springs pool?

6 A. It would be off of the area in starting and
7 starting to release proprietary data, or proprietary
8 information.

9 Q. So you're not going to show that line today?

10 A. No.

11 Q. Now, referring to your Exhibit 22, how did you
12 identify the Cisco seismic event that's mapped on Exhibit
13 22?

14 A. On Exhibit 2, you'll notice some of the wells
15 have triangles around them. Those are wells where I took
16 sonic logs and converted them to synthetic seismographs,
17 which is a standard geophysical method to identify events
18 on a seismic data set, correlated directly to a sonic log
19 in a well.

20 And I had -- As you can see, I had three
21 synthetics directly within the 3-D shoot and several near
22 the edges. All tied the data quite well.

23 Q. I'm just looking at this. I mean, you could just
24 -- To my untrained eye you could say that this seismic
25 event just continues, looks like a pretty thick line

1 heading -- just continuing to trend upward from your --

2 A. If you did not have access to the other 10,000
3 data points to the northwest of it, yes. But I do, and
4 that cannot be -- It would be a bust in your correlation,
5 something we all take care of when we analyze 3-D data.

6 Q. Well, do you have any immediate well control to
7 the west to verify this purported Cisco/Canyon seismic
8 event?

9 A. You mean west outside of the 3-D shoot?

10 Q. You don't have a sonic log on that well in the
11 southeast quarter of Section 2, do you?

12 A. I have identified it -- Maybe some methodology
13 here is in order. Since I have the three triangle spots as
14 synthetics within the 3-D data cell, from those I identify,
15 tied to sonic logs where I know exactly what even I'm
16 mapping, I get a seismic signature. That is laid on here
17 and looked for a best-fit match. Those three synthetics,
18 at the points they tie the 3-D data set, tie very, very
19 well on those three parts.

20 From those three starting points, I then
21 interpret the whole data set. And in order to stay on the
22 same reflectors, this is the interpretation, and these are
23 just panels that are drawn out of that, yes. If you have
24 only -- If this was just a 2-D line, you would make a
25 misinterpretation. This is a good example to show the

1 value of 3-D seismic.

2 Q. Is there a chance that your proposed location is
3 connected to the Springs field to the northwest?

4 A. Very good chance that that time closure could go
5 away, and it could be just a nose coming off the Springs.

6 Q. Okay.

7 A. But we do know we have a strong nose identified
8 coming down from Springs. Any pimple on that should be
9 productive.

10 Q. And the Springs field is updip from this
11 location?

12 A. Yes, it is.

13 Q. And if there is no closure, then the gas would
14 migrate updip to the Springs pool and already been
15 produced?

16 A. Yes, just like it does.

17 Q. Your maps, your exhibits, are in time. What type
18 of velocity function are you using to convert the time
19 values to?

20 A. At every well-control point -- Now, seismic is
21 measured in time. You see seconds on the side of my
22 displays. Logs are measured in depth; you see feet. The
23 connection between feet to seconds is feet per second;
24 that's velocity.

25 A standard geophysical technique -- At every well

1 point I know the subsurface point. I also know the time
2 point. I can calculate a very accurate velocity point for
3 any particular horizon at that well tie point. For the
4 rest of the data -- I know the time values for the rest of
5 the data. So I contour a velocity gradient, simply as I
6 would contour any other surface map.

7 I then take that and extrapolate it through every
8 time data point within the 3-D. I multiply velocity by
9 time, I get feet. That gives me a subsurface control point
10 at each one of these 12,000 points, which I then contour as
11 Exhibit 17.

12 Q. And in the Cisco/Canyon, what are you using to
13 convert time values to feet, just roughly?

14 A. It's roughly a little -- Two-way time is about
15 16,000 feet per second. It's about 8000 half-velocity
16 time.

17 Q. Now, there is a small amount of time closure at
18 this Fasken location, is there not?

19 A. There is a closure within the closure at the
20 Fasken location, yes, a smaller closure within a larger
21 closure.

22 Q. But with these small figures we're talking about,
23 it could eliminate the structural closure at the Fasken
24 location?

25 A. Excuse me?

1 Q. If velocity changes, could velocity changes
2 eliminate --

3 A. Oh, yes. That is our problem. That's what makes
4 this Cisco high risk. That's why it cannot stand alone as
5 a primary objective.

6 Q. Does 3-D seismic work in finding -- Well, let's
7 look at your Exhibit 17 again, this, I guess, potential
8 structure map. What you're showing here is a little event,
9 kind of a satellite to a major field?

10 A. That's correct.

11 Q. Does 3-D seismic work in finding these low-relief
12 satellite features around major fields?

13 A. Are you talking about just Cisco fields or --

14 Q. Cisco.

15 A. -- exploration in general?

16 Q. Cisco.

17 A. As far as I know, I'm one of the first ones to
18 try Cisco exploration with 3-D, and as far as I know, to my
19 personal knowledge, there's only been two 3-Ds done looking
20 for Cisco.

21 Q. So you're saying it hasn't been successful yet?

22 A. Not yet.

23 Q. Do you agree with Mr. Harmon that this prospect
24 is too risky to drill solely as a Cisco/Canyon?

25 A. Yes, and I would back him on that. Yes, I back

1 him on that.

2 Q. Now, when you get down to this, this is your
3 interpretation of the seismic, right?

4 A. That's correct.

5 Q. Could two geophysicists looking at this data come
6 up with two different results?

7 A. Yes, they could, just like two geologists.

8 Q. There's no guarantee on results, is there?

9 A. Never on wildcatting in the oil business.

10 Q. Do you agree this is a wildcat prospect?

11 A. For the Cisco, yes.

12 Q. Have you looked at the Morrow at all?

13 A. I mapped the lower Morrow shale for a structural
14 component. That's the only extent I have evaluated Morrow,
15 identified faults and structure.

16 Q. Can you see the Morrow sand seismically? Is it
17 difficult?

18 A. Not in this area, you cannot see individual
19 sands. And I did not even try to do individual sands. We
20 solely used the seismic as a structural tool for Morrow
21 analysis.

22 Q. Now, this seismic was acquired or shot by, or on
23 behalf of, Matador; is that correct?

24 A. That's correct.

25 Q. Matador Petroleum?

1 A. That's correct.

2 Q. And when was that?

3 A. In August of 1994.

4 Q. Why didn't they develop this prospect?

5 A. I was an employee of Matador at that time. I
6 designed this shoot, I supervised this shoot and
7 interpreted it for them. We were not pursuing Morrow. The
8 Texaco well had not been drilled at that time. We were
9 approaching this as a pure Cisco prospect.

10 And because I thought it was too high a risk, I
11 recommended that they not drill a Cisco wildcat here, just
12 for Cisco. It did not meet the internal risk criteria of
13 Matador.

14 Q. In the surrounding township or two, has Matador
15 or other operators drilled any Cisco wells based on this
16 seismic?

17 A. I've shot another 3-D when I was with Matador, in
18 conjunction with this 3-D. They were shot within months of
19 each other, or within weeks of each other.

20 Q. Where was that? North, south, east, west?

21 A. It would have been the next township northeast.

22 Q. Northeast. What was -- Was a well drilled based
23 on that seismic?

24 A. Yes, it was.

25 Q. What was the result of that well?

1 A. That well was plugged and abandoned. However, it
2 did confirm structure, it did encounter noncommercial shows
3 of gas, it was also an alternative location, not the
4 preferred location, and it did support we should have
5 drilled where we thought in the first place.

6 Q. And you didn't drill a second location?

7 A. Due to land and legal and political problems, not
8 to do with science.

9 Q. Do you know of any other 90-acre Cisco pools in
10 this immediate area?

11 A. I know of a 200-acre pool seven miles southwest
12 of us, the McKittrick Hills field, which has one well
13 that's made 15 BCF of gas out of 53 feet of column over 200
14 acres. That would be the smallest one I know of to date.

15 MR. BRUCE: Mr. Chairman, I pass the witness.

16 CHAIRMAN LEMAY: Thank you.

17 Mr. Carr?

18 MR. CARR: No questions.

19 CHAIRMAN LEMAY: Redirect?

20 MR. KELLAHIN: Yes, sir, two points.

21 REDIRECT EXAMINATION

22 BY MR. KELLAHIN:

23 Q. Mr. Lint, I'm not sure it's clear -- It's
24 certainly not clear to me. You take Exhibit 17 and I'll
25 give you my red pen, and would you show me the Cisco

1 feature that you think contributes to the size and the
2 shape of the Cisco opportunity?

3 COMMISSIONER WEISS: Put it on this one too,
4 would you?

5 MR. KELLAHIN: Yes, sir, I'd be happy to.

6 CHAIRMAN LEMAY: Minus 4800?

7 THE WITNESS: Actually, I was being conservative.
8 I took the minus 4750. I do feel there's some risk as to
9 how much true northwest dip we have.

10 Q. (By Mr. Kellahin) I'll give you a copy of Mr.
11 Williams' montage and have you look at the structure map.
12 Looking at fault line number 2, Mr. Lint, Mr. Williams has
13 projected a fault here that, when it's down in the control
14 point in the southwest corner of Section 11, has more than
15 200 feet of displacement.

16 As you follow his structure map and follow his
17 fault line 2 to the northeast, it continues to maintain
18 under his interpretation a fault displacement of more than
19 100 feet as you move to the northeast.

20 When you look at your 3-D seismic data, can you
21 confirm or reject his opinion with regards to both the
22 location and the magnitude of throw of fault line 2?

23 A. In Section 11, the orientation is close, the
24 throws are close in the very far southwest end. Seismic
25 shows the throw rapidly dying. He's showing 100 foot of

1 throw north of the Fasken location. The data does not
2 support a fault going that far.

3 MR. KELLAHIN: That concludes my redirect, Mr.
4 Chairman.

5 CHAIRMAN LEMAY: Thank you.

6 Commissioner Bailey?

7 EXAMINATION

8 BY COMMISSIONER BAILEY:

9 Q. In 2-D seismic often the gas effect can be seen?

10 A. I have not had any success using gas effect in
11 the Permian Basin. The velocities in the carbonate rocks
12 are not as conducive to that as they are in the Gulf Coast
13 examples where you'll see that more often. They have a
14 nice sand-shale sequence down there with more
15 predictability, so they can see that effect there. And
16 there are other basins in the world where it does work, but
17 not with much effect out here.

18 Q. No formations in the Permian Basin?

19 A. Not that I have had any experience with.

20 COMMISSIONER BAILEY: That's all.

21 CHAIRMAN LEMAY: Commissioner Weiss?

22 EXAMINATION

23 BY COMMISSIONER WEISS:

24 Q. Man, you went awful fast for this old man, I'll
25 tell you what. A couple of questions, though.

1 I can't see on Exhibits 14, 15 and 16 this red
2 circle.

3 A. These exhibits are a segment out of Section 17.
4 The very southwest -- or northwest corner of 14 is at about
5 the section line of Section 1 out of Exhibit 17. The
6 closure you see on the Cisco extends off of this map area.
7 In effect, the closure actually ends just outside the data
8 set here.

9 Q. That's not here?

10 A. No, that's just the northwest edge of your red
11 outline.

12 Q. Ah.

13 A. These are different scales. This is 1 to 3000,
14 this is 1 to 1000.

15 CHAIRMAN LEMAY: Mr. Lint, let me ask you to take
16 Exhibit 14 and my red pen and define --

17 THE WITNESS: There's a hint on Exhibit 14 of
18 where this 5 millisecond closure comes across. I will
19 connect it. And I will also connect what is the true,
20 final closing contour.

21 MR. KELLAHIN: Commissioner Weiss, I've had him
22 project on Exhibit 14 -- you're welcome to keep his copy --
23 what he sees as the Cisco.

24 Q. (By Commissioner Weiss) Okay, now, that's it?

25 A. That's it.

1 Q. Okay, that helped a lot.

2 Now, on these areal views, can you identify on
3 the Morrow shale a fault?

4 A. Yes, I can. In effect, Exhibit 2 is traced from
5 one of these brightly colored displays to represent the
6 structure. Yes, that structure inside the blue outline of
7 Exhibit 2 is taken directly from one of these where I just
8 traced every hundred-foot contour.

9 Q. I can't see it. How --

10 A. These are all Cisco-related. None of the color
11 displays should be linked to the Morrow.

12 Q. Shouldn't I see it on the Morrow shale?

13 A. No, you should not. They are all Cisco. I
14 identified no faults that go up into the Cisco.

15 Q. And then I wasn't paying attention when you said
16 the Texaco well, the Levers 2, is in the same block as
17 which well?

18 A. The Fasken location does not appear to be fault-
19 separated from the Texaco locations. The Mewbourne
20 location does.

21 Q. And then -- And how come you deal in time, rather
22 than making the conversion, which would be, certainly,
23 clearer to me?

24 A. Yes, I do have the depth conversion, but at this
25 different scale in order to incorporate my known producing

1 field. In the Cisco, because of the high risk of this
2 particular horizon -- and I will rely on comparing what
3 known fields look like.

4 The three known fields, I've had an opportunity
5 to look at one with 3-D/2-D, and the other two I've had the
6 opportunity to use 2-D on those. They exhibited the same
7 amount of time rollover.

8 Considering the risk factor involved, we thought
9 since we have a similar time structure as known producing
10 fields, that was sufficient work to establish the validity
11 of --

12 Q. When you mix the transform, that adds to the
13 risk?

14 A. It adds to the risk because we do have a
15 subsurface closure, yes.

16 Q. And then I --

17 A. All of the northwest dip could go away that we
18 have represented on this smaller map.

19 Q. It could, if the time conversion --

20 A. Yes, it could.

21 Q. Some of your squiggles on here are black and some
22 of them are open. Those to the left appear open, and those
23 to the right appear black, or blue, whatever that is.
24 What's that mean?

25 A. Is that on the seismic?

1 Q. Yeah.

2 A. Yes.

3 Q. Anyplace on --

4 A. All seismic data will look like there's 2-D or
5 3-D, and seismic is basically a wave going down. Every
6 time it hits a velocity change, i.e., rock change, some of
7 that energy will go back up to the surface.

8 By convention -- And there are geophones at the
9 surface that record the reliability of that data. So every
10 time it hits something and goes back up, I know what it
11 looked like when it went down, I know what it looks like
12 when it comes back up. I catch it, and I put it on a piece
13 of paper.

14 Each one of the black peaks, by convention, just
15 so everybody was doing this the same -- and it was
16 established, you know, in the 1950s that this would be the
17 convention. That was called normal polarity. When I hit,
18 I'm going through slow rocks, and I hit a fast rock, and I
19 come back up. By convention, those would be colored black
20 as peaks. A trough will be when I go from a fast rock to a
21 slow rock and come back out. And that was just a
22 convention that was established back in the history of
23 geophysics so we wouldn't be mixing apples and oranges all
24 the time.

25 Q. And that's where the density gas enters into it,

1 huh?

2 A. That's where some of the questions -- yes, where
3 you can address the gas issues.

4 Q. And to the left would be --

5 A. Actually, it would be changing of the amplitude
6 of either the peak or the trough themselves, not
7 necessarily the relationship of the peak to trough.

8 But if you have a bright -- You've all heard of
9 bright spots in the Gulf of Mexico. That -- A bright spot
10 is a peak coming across on a known sand zone. When it
11 fills up with gas, there is a significant change in the
12 velocity of that sand from here where it's wet to here
13 where it has gas. Well, that is a larger contrast. And
14 when those waves hit a bed and come back up, the magnitude
15 of the difference between the rock above and the rock below
16 gives you an amplitude character. The more contrast, the
17 brighter the amplitude.

18 So you will see a peak come across, and all of a
19 sudden it will get very bright and very black on these gas
20 zones in the Gulf of Mexico. And those were identified as
21 bright spots.

22 Q. Okay. So the black is gas that --

23 A. Yes, yes.

24 COMMISSIONER WEISS: Thank you. That's all the
25 questions I have.

EXAMINATION

BY CHAIRMAN LEMAY:

Q. Mr. Lint, what's the reason for Exhibit -- Is it 18, I guess, I have, or...

A. We did not address that initially. I touched on it. That is the McKittrick Hills Cisco field that was referenced to, and Exhibit 18 is a subsurface map to confirm the prolific nature of these Cisco fields.

The well inside that 4000-foot contour, the minus 3960 well -- and proven by well control, I didn't even try to use seismic to bias this. I took the known well control around here. You establish that there's only a 53-foot gas column on that, with about 200 -- a little more than 200 acres of closure, and it's made over 15 BCF -- almost 16 BCF of gas, and it's still making almost 2.5 million cubic feet of gas a day today, and over 1000 barrels of water. The Cisco does move a lot of water.

Q. I thought that was your production on that. So you've got the Springs field in that and -- didn't -- something to the north, didn't Enfield drill something up there --

A. Yes, the McMillan --

Q. -- at the north end of the lake that had similar characteristics?

A. Yes, that's the third field that I've been

1 referring to that I did the study on. It's the McMillan
2 field.

3 Q. McMillan field.

4 A. Yeah, and it has six or seven wells in it, and it
5 was a Bob Enfield did discover that one.

6 Q. And that's similar to this?

7 A. Very similar to the Springs. It's a similar
8 size, similar closure. But I have not studied it in as
9 detail [sic] as I did Springs and McKittrick Hills.

10 Q. Are these on 320s, these -- is this --

11 A. I can't answer that question, I'm not --

12 Q. Not sure either.

13 A. I'm not sure on that.

14 Q. It looks like one well will drain them, though.

15 A. Properly positioned, I think one well would drain
16 one of these.

17 Q. Is that the reason why -- is it -- Who's your
18 east offset over there on 2 again? Acreage ownership?
19 Does Matador own that in 2? No. Penwell?

20 MR. KELLAHIN: Oh, the west offset, that's --

21 CHAIRMAN LEMAY: Or --

22 MR. KELLAHIN: -- Penwell.

23 CHAIRMAN LEMAY: -- Penwell.

24 Q. (By Chairman LeMay) The reason why they didn't
25 object to crowding it, because you could get a Cisco well,

1 they got themselves a location too on the seismic?

2 A. It's also why we don't take the exhibits
3 considerably northwest. No sense doing other people's
4 interpretation for them.

5 CHAIRMAN LEMAY: That's very interesting. I
6 appreciate the information.

7 No more questions.

8 Let's take a break.

9 You've got one more, you've got an engineer, Tom?

10 MR. KELLAHIN: Yes, sir.

11 CHAIRMAN LEMAY: Want to start him after we get
12 back?

13 MR. KELLAHIN: Yes, sir. Yeah, I think we can
14 probably finish.

15 CHAIRMAN LEMAY: Well, we'll see.

16 For those of you -- We're going to continue
17 tomorrow, obviously. We'll do it in the Secretary's
18 conference room. This is going to be a Hallowe'en party in
19 here.

20 MR. CARR: Unlike today.

21 CHAIRMAN LEMAY: Given this spooky stuff and the
22 nature of these things, I don't know. Don't confuse them.

23 (Thereupon, a recess was taken at 4:15 p.m.)

24 (The following proceedings had at 4:28 p.m.)

25 CHAIRMAN LEMAY: Okay, you may continue. Mr.

1 Kellahin?

2 MR. KELLAHIN: Thank you, Mr. Chairman. My last
3 witness is Mr. Carl Brown. Mr. Brown is a petroleum
4 engineer.

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

8 DIRECT EXAMINATION

9 BY MR. KELLAHIN:

10 Q. For the record sir, would you please state your
11 name and occupation?

12 A. My name is Carl Brown. I work as a petroleum
13 engineer.

14 Q. Carl, you're going to have to speak up. That
15 microphone won't help you at all. It's for the court
16 reporter.

17 A. Sorry.

18 Q. Mr. Brown on prior occasions you've testified
19 before the Division as a petroleum engineer, have you not?

20 A. Yes, I have.

21 Q. You reside in Midland, Texas?

22 A. I do.

23 Q. As part of your engineering work for Fasken, have
24 you prepared engineering calculations concerning the gas in
25 place using Mr. Harmon's geologic interpretation for this

1 particular area?

2 A. Yes, I have.

3 Q. Let's go through some of that information. Have
4 you satisfied yourself that you have the necessary data to
5 determine what, in your opinion, is the estimated ultimate
6 recovery for the Levers Number 2 well?

7 A. Yes, I have.

8 Q. And you have used standard engineering
9 methodology and practices to come up with volumetric
10 calculations concerning the area of review, have you not?

11 A. Yes, I have.

12 MR. KELLAHIN: Mr. Chairman, we tender Mr. Brown
13 as an expert petroleum engineer.

14 CHAIRMAN LEMAY: His qualifications are
15 acceptable.

16 Q. (By Mr. Kellahin) Let's look at what is marked
17 as Exhibit 23, Mr. Brown, and have you identify what we are
18 looking at.

19 A. This is an exhibit of the pressure data provided
20 to me from Mewbourne, and it is the Texaco information, and
21 it is for the Texaco E.J. Levers Number 2 well. I've noted
22 there, it says 12k. That should be 12F. That's the only
23 correction on that.

24 Q. You're using the same pressure data that Mr.
25 Montgomery used in his calculations; is that not true?

1 A. That's correct.

2 Q. All right, let's turn to the plot of that data.
3 If you'll turn to the next page, it is not numbered; it is
4 stapled together as part of Exhibit 23, and it is, in fact,
5 the second page. Describe for us what you're showing us.

6 A. This is a plot of the bottomhole pressure over Z
7 factor versus cumulative production, and Mr. Montgomery's
8 interpretation and I agree that about 5.7 BCF of gas is in
9 place from this particular data, and that ultimate recovery
10 on that at 500 p.s.i. abandonment pressure is about 5.0.

11 Q. I believe Mr. Montgomery had 5.5, if I'm not
12 mistaken, EUR, in the Levers 2?

13 A. I think he took it to 250-pound abandonment, but
14 we're very simil- --

15 Q. If he stopped at 500 pounds, then, your estimate
16 for total recovered gas for the Levers 2 is 5 BCF?

17 A. That's correct.

18 Q. Now that is a test based upon pressure of the
19 middle Morrow, the green sand in the package, if you will?

20 A. That's correct. As we -- As the testimony has
21 shown this, this pressure data is just for the middle
22 Morrow zone, which Mewbourne calls the green sand, Fasken
23 calls the green plus blue sand.

24 Q. And we are able to get pressure data on that
25 perforated interval, separate and apart from the lower

1 perforations in the lower Morrow in that wellbore?

2 A. That's correct, because of a bridge plug with a
3 valve in place to separate the lower Morrow in this Levers
4 Number 2 from the middle Morrow.

5 Q. All right. Were you able to take your
6 engineering skills and the reservoir data available to you
7 to determine whether or not you could validate
8 volumetrically the size and shape of the green and blue
9 sand packages that Mr. Harmon had presented to the
10 Commission earlier?

11 A. Yes, I have.

12 Q. To what degree of agreement do you have?

13 A. That agrees very closely, within ten percent or
14 so.

15 Q. All right, let's see how you did that. If you'll
16 turn to the next display, it's a portion of Mr. Harmon's
17 green sand map, and you have identified in a green shading
18 a certain portion of that sand package?

19 A. Yes, what I've shown here is the four wells that
20 are colored in green that have produced from the green
21 sand. And this is -- The extent of the green color would
22 be the total reservoir volume that the four wells are
23 producing from.

24 Q. You have inferred Mr. Lint's fault within Section
25 1, have you not?

1 A. Yes, the --

2 Q. And you have --

3 A. -- S-shaped fault, number -- what we've referred
4 to as Number 1.

5 Q. And you have found a point on the structure map
6 in which you believe you would not get contribution to the
7 area being developed by these four wells east of that line?

8 A. That's correct.

9 Q. Okay. We turn to the next display, you're
10 looking at the Morrow blue sand interval that Mr. Harmon
11 mapped?

12 A. Yes, this shows the total reservoir volume of the
13 blue sand, and it's -- the three wells that are perforated
14 and have produced in the blue sand are colored in blue
15 there.

16 Q. Okay. When taken together, we have characterized
17 those as the middle Morrow?

18 A. Yes, that's correct.

19 Q. All right. If you'll turn to the next summary
20 display, describe for us what you have concluded to be the
21 ultimate gas production for each of the four wells,
22 starting with the Levers Federal 1.

23 A. Okay, the Levers -- in the little table there,
24 the Levers Federal Number 1 -- the well had accumulated a
25 total of 6.5 BCF. That's the middle Morrow plus the lower

1 Morrow together.

2 It's commingled, and it was commingled as a
3 production, so I used a net pay as the split, 14 feet of
4 net pay in the middle Morrow, compared to 30 feet of the
5 total. That gives me an estimated middle Morrow production
6 -- or ultimate cumulative out of the middle Morrow of 3.0
7 BCF for the Federal -- Levers Federal Number 1.

8 And then the Levers Federal Number 2, of course,
9 we've established 5.0 BCF from the middle Morrow.

10 The Pure Federal Number 2, which is Section 11,
11 Unit P, I have made an estimate of 1.1 BCF of middle Morrow
12 production.

13 And the well in Section 14, Unit B, 0.8 BCF.

14 Which totals 9.8 BCF of ultimate recoverable
15 production from the four wells in the green plus the blue,
16 the middle Morrow sands.

17 Q. How did you establish an EUR for the wells other
18 than the Levers Federal 2? By decline curve, or P/Z, or
19 how did you do it?

20 A. Well, other than the -- Well, the Levers Number
21 1, of course, is plugged back, the middle Morrow and the
22 lower Morrow are below a bridge plug, so the 6.5 is actual.

23 Q. All right.

24 A. The Pure Federal Number 2, Mr. Montgomery
25 mentioned he had thought the "A" zone, or the Morrow "A"

1 zone, was perforated in that, and the middle Morrow was not
2 producing any longer, and that's what I thought also.

3 However, the well may be producing from a portion
4 of the middle Morrow zone.

5 Q. All right. So you made the same assumption he
6 did?

7 A. Yes.

8 Q. The next well, please?

9 A. And the -- it's producing -- the 2.1 BCF is its
10 estimated ultimate.

11 Q. Okay. When you sum all those EURs together, what
12 number do you get?

13 A. 9.8.

14 Q. Will that fit within the container that Mr.
15 Harmon built for you in the middle Morrow?

16 A. Yes, I looked at the area, planimetered the area,
17 and calculated a total recoverable volume in the area of
18 10.9 BCF.

19 Q. That's the sum of the blue and green map, will
20 give you volumetrically 10.9?

21 A. That's correct?

22 Q. All right. What's your conclusion?

23 A. And my conclusion, of course, would be that the
24 reservoir volume in the middle Morrow is sufficient to
25 contain the estimated production from the four wells in

1 that total reservoir.

2 Q. Let me turn your attention to the volumetrics on
3 the Cisco portion of the case. Okay, identify for us, Mr.
4 Brown, what Exhibit 24 is.

5 A. Exhibit 24 is a table of the Cisco field
6 analogies that I've looked at to calculate Cisco reserve
7 potential.

8 Q. Your strategy here is to use conventional
9 engineering methodology calculations to come up with gas in
10 place per acre foot?

11 A. That's correct.

12 Q. All right. And how do you do that?

13 A. Well, we have an estimated ultimate production
14 for each field. Mr. Lint, his areal extents, as was
15 testified before, used his map for areal extent and
16 closure. And then we calculated a volume inside that area
17 enclosure, and that was reported here as acre-feet.

18 You divide your ultimate recovery by the number
19 of acre-feet, and you get 1000 or MCF-per-acre-foot number.
20 And applying that to the Fasken location of 90 acres area
21 and 60 foot of closure, we calculate a 3.8 BCF potential.

22 Q. So you could take Mr. Lint's Cisco structure and
23 use this methodology to estimate that if that feature is
24 there and has the size and the shape he's estimated for
25 you, it could contain 3.8 BCF of gas?

1 A. That's correct.

2 Q. Summarize for us what you see as an engineer to
3 be the opportunity for your company if it's allowed to
4 drill the well at its proposed location, versus the
5 corresponding opportunity of the Mewbourne location.

6 A. Well, the Mewbourne location does not afford an
7 opportunity to test the Cisco zone. The Cisco potential is
8 substantial, and we would like to reduce our risk by
9 stacking the pay, so to speak, and have a Morrow potential
10 as well as the Cisco potential.

11 MR. KELLAHIN: Mr. Chairman, that concludes my
12 examination of Mr. Brown.

13 We move the introduction of his Exhibits 23 and
14 24.

15 CHAIRMAN LEMAY: Without objection, Exhibits 23
16 and 24 will be admitted into the record.

17 Mr. Bruce?

18 CROSS-EXAMINATION

19 BY MR. BRUCE:

20 Q. When did you first start looking at this, Mr.
21 Brown?

22 A. Sometime in January, 1997.

23 Q. And when did you do these specific calculations
24 on Exhibit 23?

25 A. These were done in the last month.

1 Q. Did you have any input on picking the -- Fasken's
2 proposed well location?

3 A. No.

4 Q. Looking at -- Well, let's start with the third
5 page of your Exhibit 23.

6 A. Okay.

7 Q. That's the middle Morrow green sand. From what
8 you're saying, if a well is drilled at Mewbourne's proposed
9 location, it won't compete with the Levers Number 2 for
10 reserves; is that correct?

11 A. That's correct, as far as the eastern boundary of
12 the -- or northeastern boundary of that green sand body.
13 It's bounded by that fault.

14 Q. And Fasken's proposed location won't compete with
15 the Texaco Levers Number 2 well, will it?

16 A. In that particular zone? Well, there's not a
17 zero contour between the green sand where -- the green
18 color shaded area and the north Fasken zone.

19 Q. There is not zero line?

20 A. No, this is the green sand map, isopach, from Mr.
21 Harmon's --

22 Q. Well, then why do you have the green sand
23 coloring stop at -- what is that? -- the five foot line?

24 A. It's a convenient place to locate it there. It
25 could spill over a little further. But since we're only

1 talking about a five-foot contour, it may not go very far.

2 Q. Do you see five feet as being productive?

3 A. Potentially.

4 Q. Now, have you calculated the drainage areas of
5 any of these wells in the green or the blue sand?

6 A. Well, it would be difficult to tie down the areas
7 that each one drained. It's more correct to look at the
8 whole sandbody and see how much is produced, how much --
9 and whether the sandbody can contain all the gas that could
10 be produced from that. Very difficult to find the no-flow
11 boundaries, if you will, between the wells.

12 Q. Have you seen any evidence of no-flow boundaries
13 between the wells?

14 A. I wouldn't say no-flow boundaries, no. There's,
15 of course, some pressure difference.

16 Q. Looking at your green sand map, are these wells
17 in communication?

18 A. Some. Some are better in communication than
19 others.

20 Q. So looking at the Levers Number 1, you estimate
21 that that will recover 3 BCF from the green sand?

22 A. Yes, that was my -- the green and blue, combined.

23 Q. Did your estimated recoveries go down with the
24 completion of the Number 2 well?

25 A. I'm sorry? What was the question?

1 Q. What is the effect of completing the Number 2
2 well on the reserves of the Number 1 well?

3 A. It would have competed a little bit. There was
4 obviously some pressure depletion. The Number 2 well in
5 the upper sand had 3686 p.s.i. bottomhole pressure, where
6 the field or the zone originally contained 4400 p.s.i.

7 Q. But don't you anticipate that most of -- looking
8 at this green area, most of it would have been drained by
9 the Levers Number 1 in the well in Unit P of Section 11 and
10 the well in the northeast quarter of Section 14?

11 A. Not according to how I estimated the production
12 split between the middle Morrow and the lower zone, which I
13 used a net pay split.

14 Q. You're going to have to speak up, Mr. Brown, I'm
15 having a tough time hearing you from over here.

16 A. I'm sorry. The question was again -- ?

17 Q. Let's start over. How would -- You're
18 attributing, once again to the Levers Number 1, 3 BCF; to
19 the Pure Federal Number 2 you attribute 1.1 BCF. Did you
20 take that from Mr. Montgomery's original exhibit?

21 A. No, I did not. I had originally thought the Pure
22 Federal Number 2 was plugged back and completed now in the
23 middle -- Morrow "A" zone, so that the 2.5 BCF was middle
24 and lower zones together. But it's not. It's evident-- --
25 obviously -- There's a green zone produced in the Pure

1 Federal Number 2, and there's also a -- what Dexter would
2 call a purple zone.

3 So still the split between the green zone, middle
4 Morrow, and the total production is less than its total, so
5 I came up with a 1.1.

6 Q. Have you done any volumetric calculations on
7 these wells?

8 A. Other than just that -- just what I've got right
9 here, no.

10 Q. If the Pure Federal Number 2 is going to recover
11 3.5 BCF, would that change your conclusions?

12 A. The -- Mr. Montgomery's testimony was that the
13 well could ultimately recover 3.6 BCF, and if indeed it is
14 still producing from the green zone, I would concur that it
15 would add from 2.5 to 3.6 BCF, total.

16 I still have a -- eight feet of green zone
17 compared to the 19 feet of total, and I've got -- 46
18 percent of that is attributable to the middle Morrow. And
19 so add another 1 BCF, I'm still adding -- I'll only add
20 another half a BCF to my middle Morrow zone calculation
21 here.

22 Q. Has the Pure Federal Number 2 ever produced out
23 of the lower Morrow?

24 A. I don't believe it has the sand, no, it didn't
25 produce out of the lower.

1 Q. Okay. So it's primarily a middle Morrow
2 producer?

3 A. It's a green sand middle Morrow producer, plus
4 the purple zone, and we have not called the purple zone
5 middle Morrow here. So the green plus blue --

6 Q. Okay, well, let's --

7 A. The green plus blue zone is --

8 Q. So you said it hasn't produced --

9 A. -- the middle Morrow.

10 Q. -- out of the middle -- it hasn't produced out of
11 the lower Morrow?

12 A. That's right.

13 Q. Okay. Then turn to the final page of your
14 Exhibit 23. Looking at the Pure Federal, you have your
15 middle Morrow estimated ultimate production at 1.1 BCF, yet
16 you have middle plus lower Morrow estimated ultimate
17 production at 2.5 BCF.

18 A. That's correct, because there's eight feet of
19 green zone perforations, and there's 11 feet of purple
20 zone. That's a total of 19 feet.

21 Q. You just told me it didn't produce out of the
22 lower Morrow.

23 A. I'm sorry, the purple zone, nomenclaturewise, has
24 not been called middle Morrow, and it hasn't been called
25 lower Morrow, and we have not talked about it, other than

1 the isopachs that Mr. Harmon presented.

2 Q. On the Cisco Canyon, do you -- your Exhibit 24,
3 is that for the -- your reserves, or potential reserves, is
4 that for this entire 90-acre area that you're looking at?
5 Or is it only for the portion of that that's on the south
6 half of Section 1?

7 A. No, that's the entire 90 acres.

8 Q. Okay. And I think Mr. Harmon said that there was
9 maybe a 10-percent chance of getting this. Do you agree
10 with that figure?

11 A. That's -- I don't disagree with it. That's
12 reasonable.

13 Q. Well, getting back to my last question, Mr.
14 Harmon maps the purple sand as a middle Morrow sand, so I'm
15 still confused about your estimated ultimate recoveries on
16 the Pure Fed Number 2.

17 A. Okay. As far as I can tell, the green zone or
18 green sand that Mewbourne's called the middle Morrow does
19 not include the purple, and the green and blue that we've
20 called the middle Morrow, that we're talking about on this
21 volume, comparing apples to apples, I believe I have to
22 exclude the purple sand.

23 Q. Have you calculated any estimated reserves in the
24 Morrow at the Fasken location?

25 A. I've attempted that. If you looked at every

1 horizon, the potential in every horizon at some drainage
2 area up to 320 acres, it could be substantial if every zone
3 had gas in it.

4 Q. From an engineering standpoint, do you have any
5 idea why the other middle Morrow green sands mapped on Mr.
6 Harmon's map are poor producers, the Fasken Avalon well in
7 Unit P of Section 1 and the well in the southeast quarter
8 of Section 2?

9 A. No, other than just permeability differences,
10 variations in the --

11 Q. Okay.

12 A. -- in the area.

13 Q. So couldn't you expect -- You've got a well
14 placed midway between those two poorer wells. Couldn't you
15 expect something similar at Fasken's location?

16 A. Well, for every horizon there could be gas
17 present, or it could be too tight to produce. But there
18 are so many -- up to six or seven horizons, that it's a
19 worthwhile target for the Morrow, even at our Fasken
20 location.

21 Q. One final thing. If your well is drilled, how do
22 you intend to produce those?

23 A. From which zone?

24 Q. Are you going to -- If you hit the Cisco, would
25 you first produce the Cisco? Would you complete --

1 A. If the Morrow is productive and the Cisco is
2 productive, of course, we would have to produce the Morrow
3 first. The Cisco would have water associated with it. If
4 the Cisco was 3.8 or better potential, it could be twinned.
5 I don't know if we'd produce it concurrently or not, but
6 not together in the same wellbore.

7 MR. BRUCE: I have nothing further, Mr. Chairman.

8 CHAIRMAN LEMAY: Okay. Commissioner Bailey? I'm
9 sorry, I didn't -- I was going to ask if --

10 MR. CARR: I have no questions.

11 CHAIRMAN LEMAY: -- Mr. Carr had any questions.
12 I didn't mean to cut him off. We don't want to do that,
13 no, I agree.

14 EXAMINATION

15 BY COMMISSIONER BAILEY:

16 Q. Your green sand map indicates the fault lines
17 through 12 connect up northeast of Levers Number 2.

18 A. Okay, the north-south S-shaped line is what we've
19 been calling fault 1. And the other line is simply a
20 contour line extending on down to the zero sand isopach
21 line.

22 The fault line ends there on the seismic. It may
23 extend or it may not. If it doesn't extend further south,
24 the gas can come around the end there. So I thought it was
25 reasonable to -- I just moved to a -- like a minus-7200-

1 foot contour, and that's what that line to the south and
2 east is.

3 Q. Run that by me again, please. The extension to
4 the S-shaped fault line is a contour line based on what?

5 A. It's the minus-7200-foot contour line.

6 Q. But it's not showing anywhere else on this map?

7 A. No, it does -- Whatever exhibit that was, Number
8 2, I believe. Somewhere to the east the drainage would
9 end, and that would be a convenient contour line to
10 estimate the west -- eastern boundary of that drainage area
11 as we go south of the fault, where the fault ends.

12 Q. Okay, and that also holds true for your blue sand
13 map on the next page?

14 A. That's correct.

15 COMMISSIONER BAILEY: That's all I have.

16 CHAIRMAN LEMAY: Commissioner Weiss?

17 EXAMINATION

18 BY COMMISSIONER WEISS:

19 Q. There's no green zone production to the right of
20 your boundaries there, is there?

21 A. That's correct. In fact, that well in Section 7
22 is the well that had the gas-oil -- gas-water contact at
23 minus 7263. So that would be a western -- eastern
24 boundary, of course, at that level.

25 COMMISSIONER WEISS: I have no other questions.

1 Thank you.

2 EXAMINATION

3 BY CHAIRMAN LEMAY:

4 Q. You're showing the faults -- You're honoring the
5 seismic faults as boundary limits to the gas accumulation;
6 is that correct?

7 A. Yes, to the eastern boundary. Yes, the eastern
8 boundary of the --

9 Q. And then --

10 A. -- northeastern boundary.

11 Q. -- both your exhibits, I guess, fail to -- I'll
12 use the word "honor", not in any derogatory sense, but the
13 Monsanto well in Section 1, which is a green sand producer,
14 it's not colored in on your green sand map, but you kind of
15 show that as almost a separate accumulation and a different
16 sandbar?

17 A. Yes, according to the seismic -- or the
18 geological interpretation, it is a marine -- not a channel
19 sand, so it doesn't necessarily have to be connected to
20 this southern green reservoir.

21 Q. No, it doesn't, but what relationship do you show
22 engineeringwise for that well to your proposed location, or
23 to the Fasken proposed location?

24 A. That would be a -- Well, it's on a strike,
25 almost, with the green sand and the blue sand. It was a

1 poor or marginal produced, cum'd .3 BCF. And so it would
2 be hoped that the permeability may improve as you go to the
3 west, where our location is.

4 Q. It's another wildcat for the green sand, is it?

5 A. Well, there -- it's -- There's six or seven
6 zones, and I don't believe every one will hit, but I think
7 it's a good chance that one, two or more, and that we'll
8 have a commercial Morrow zone at our -- or producer at our
9 location.

10 CHAIRMAN LEMAY: That's all I have.

11 Additional questions? Okay, you may be excused.
12 Thank you, appreciate your testimony.

13 Reconvene tomorrow -- Is that all you have, Tom,
14 or --

15 MR. KELLAHIN: I'm going to introduce Exhibit 25,
16 which is our notice of hearing that completes the
17 presentation. And with that, that concludes our direct
18 case, Mr. Chairman.

19 CHAIRMAN LEMAY: Okay, thank you.

20 We can convene tomorrow at 8:30 in the
21 Secretary's conference room, where we can -- If you want to
22 leave stuff here and take it over tomorrow, you can do it,
23 or do it now, whatever you prefer. Do you all know where
24 the Secretary's conference is, up in the front of the
25 building? It's this floor. I can take you on back there

1 if you want to see it.

2 COMMISSIONER WEISS: 8:30?

3 CHAIRMAN LEMAY: Either way, you can get there
4 either way. 8:30 tomorrow? It will take a little bit of
5 arrangement of the stuff there, maybe, to accommodate you
6 all in one form or fashion. You may be kind of sitting
7 around the room, but we'll accommodate you.

8 (Thereupon, evening recess was taken at 5:00
9 p.m.)

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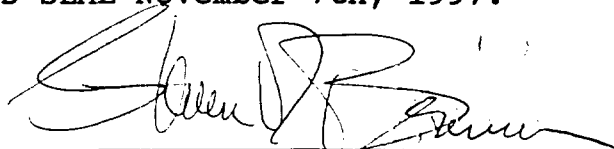
CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission (Volume I) was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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

WITNESS MY HAND AND SEAL November 7th, 1997.



STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998