

## 1 STATE OF NEW MEXICO

2 ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

3 OIL CONSERVATION COMMISSION

4 CASE 9797 AND CASE 9832, CONSOLIDATED

5  
6 COMMISSION HEARING

7 IN THE MATTER OF:

8 Application of Santa Fe Energy Operating Partners,

9 L.P., for Compulsory Pooling and a Non-Standard

10 Gas Proration Unit, Eddy County, New Mexico;

11 Application of Exxon Company, U.S.A., for

12 Compulsory Pooling, a Non-Standard Gas Proration

13 Unit, an Unorthodox Gas well Location, and an

14 Exemption to Special Rules and Regulations

15 Governing the Rock Tank-Upper and Lower Morrow Gas

16 Pools, Eddy County, New Mexico

17  
18 TRANSCRIPT OF PROCEEDINGS

19 BEFORE: WILLIAM J. LEMAY, CHAIRMAN

20 WILLIAM WEISS, COMMISSIONER

21 WILLIAM HUMPHRIES, COMMISSIONER

22  
23 STATE LAND OFFICE BUILDING

24 SANTA FE, NEW MEXICO

25 May 24, 1990

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1           WHEREUPON, the following proceedings were had  
2 at 1:38 p.m.:

3           CHAIRMAN LEMAY: We shall resume with Case  
4 Number 9797.

5           MR. STOVALL: The Application of Santa Fe  
6 Energy Operating Partners, L.P., for compulsory pooling  
7 in a non-standard gas proration unit, Eddy County, New  
8 Mexico.

9           CHAIRMAN LEMAY: Appearances in the case?

10          MR. PADILLA: Mr. Chairman, my name is Ernest  
11 L. Padilla. I represent Santa Fe Energy Operating  
12 Partners, L.P., and I would ask that Case 9832 be  
13 consolidated with this case, the Exxon Application.

14          CHAIRMAN LEMAY: Okay, Case Number 9832?

15          MR. STOVALL: Application of Exxon Company,  
16 U.S.A., for compulsory pooling, a non-standard gas  
17 proration unit, an unorthodox gas well location, and an  
18 exemption to Special rules and Regulations governing  
19 the Rock Tank-Upper and Lower Morrow Gas Pools, Eddy  
20 County, New Mexico.

21          CHAIRMAN LEMAY: Is there any objection to  
22 the cases being consolidated, Mr. Kellahin?

23          MR. KELLAHIN: No objection.

24          CHAIRMAN LEMAY: Mr. Padilla? Any other --

25          MR. PADILLA: No.

1 CHAIRMAN LEMAY: Well, without objection,  
2 Cases 9797 and 9832 will be consolidated.

3 Appearances in both cases, please?

4 MR. KELLAHIN: Mr. Chairman, I'm Tom Kellahin  
5 of the Santa Fe law firm of Kellahin, Kellahin and  
6 Aubrey, appearing today on behalf of Exxon Corporation.

7 MR. PADILLA: Mr. Chairman, I've already  
8 entered my appearance in Case 9797, and I enter my  
9 appearance in Case 9832.

10 CHAIRMAN LEMAY: All right. Additional  
11 appearances in Cases 9797, 9832?

12 Well, we shall proceed then. Are you going  
13 to give opening statements, or are you just going to  
14 get right into it?

15 MR. STOVALL: Swear the witnesses?

16 CHAIRMAN LEMAY: Well, yeah, if they're going  
17 to give opening statements, I was going to --

18 MR. KELLAHIN: We're going to give opening  
19 statements, Mr. Chairman.

20 CHAIRMAN LEMAY: You are?

21 MR. KELLAHIN: Yes, sir.

22 CHAIRMAN LEMAY: Okay, let's have those.  
23 Then after that, we'll swear in the witnesses.

24 MR. KELLAHIN: Gentlemen, Mr. Padilla and I  
25 are going to attempt to consolidate before you not all

1 the matters that we talked about in these consolidated  
2 cases before the Examiner, but rather to focus in on  
3 those issues that we would like you to resolve for us.

4 In order to do that, I would like to move  
5 that we incorporate by reference the Examiner record,  
6 which includes the transcript, exhibits and testimony  
7 before Examiner Stogner, so that both Mr. Padilla and I  
8 can have comfort in the fact that at least by  
9 incorporating the record, we've got the notices, the  
10 correspondence from the landmen and all the rest of  
11 this package that, in fact, would make a complete  
12 record, rather than sit here this afternoon and build a  
13 record and take time to hear those things which we  
14 don't need you to resolve.

15 So we would so move to incorporate the record  
16 from the Examiner proceeding before you.

17 CHAIRMAN LEMAY: Is there any objection to  
18 that, Mr. Padilla?

19 MR. PADILLA: No objection, Mr. Chairman.

20 CHAIRMAN LEMAY: The record of the Examiner  
21 hearing in these reference cases will be incorporated  
22 into the record of this de novo case.

23 MR. KELLAHIN: In our effort to try to focus  
24 your attention on problems remaining with regards to  
25 the context of this case, I need to tell you that when

1 you look at the docket and see these as compulsory-  
2 pooling cases, they're really not.

3 The issues involved here are simply  
4 masquerading as compulsory pooling. There are a great  
5 many things the parties agree about.

6 First of all, we have an agreement that Santa  
7 Fe should be the operator. That was never a dispute.

8 We have an agreement that this is going to be  
9 a highly risky Morrow gas well, for which, because of  
10 the need to have the mechanics of a pooling order  
11 entered, then the risk factor is going to be the  
12 maximum 200 percent. So you're not about to hear from  
13 us a dispute on the risk-factor penalty because I'm  
14 prepared to concede, as I did before Examiner Stogner,  
15 that the 200 percent is appropriate.

16 In addition, there's no dispute over the cost  
17 of the well. The AFE that was submitted by Santa Fe to  
18 Exxon and the one adopted by Examiner Stogner has --  
19 within reason, is acceptable to us. There's no dispute  
20 on that question.

21 There's no question about the overhead rates  
22 to apply. You can take those from the Examiner Order.  
23 They were fifteen -- They were \$5500 a month drilling-  
24 well rate, and \$550 a month producing-well rate.

25 This case started because there is an

1 administrative dilemma created by the location of the  
2 section that's in question. We have put before you  
3 what will be one of our exhibits. It's marked as Exxon  
4 Exhibit Number 1. And to simply reference you, we're  
5 looking at that portion of Eddy County, New Mexico, in  
6 which Section 20, identified with a red circle as to a  
7 well location, is in proximity to a number of other  
8 Morrow gas pools.

9           The one of significance to you is one that  
10 has been divided, whereby we have an Upper Morrow Gas  
11 Pool and a Lower Morrow Gas Pool, each of them called  
12 Rock Tank.

13           The problem here is, Rock Tank, both Upper  
14 and Lower, is based on 640 gas spacing.

15           It is our contention, and we believe our  
16 proof, that Section 20 is not in the same common source  
17 of supply with Rock Tank and that there is no logical  
18 scientific reason to extend Rock Tank into Section 20.

19           The other pools by reference on here,  
20 Baldridge Canyon will be discussed by the technical  
21 people. It's generally outlined on the display.  
22 That's 320 gas spacing. The conventional statewide gas  
23 spacing applies to that pool, as well as Dark Canyon  
24 Penn, and as well as all this area on the tier of  
25 sections from Section 20 on to the east.

1 In fact, Santa Fe agreed with that initially,  
2 because that's what they initially asked to do when  
3 they first proposed to the parties that Section 20 be  
4 developed for Morrow gas. The proposal was to dedicate  
5 the north half for a well in the north half.

6 Having done that, though, the district office  
7 of the Division, for reasons unknown to us, determined  
8 that Section 20, instead of being 320 gas spacing, was  
9 for some reason going to be an extension of Rock Tank.

10 Both the geologists for Exxon and the  
11 geologists for Santa Fe that testified before Mr.  
12 Stogner came to the ultimate conclusion -- and they got  
13 there from different reasons, or different ways,  
14 looking at the data, but their bottom-line conclusion  
15 is that Section 20 was not going to be part of Rock  
16 Tank.

17 Mr. Stogner, contrary to what I would contend  
18 is substantial evidence, of which there was no dispute,  
19 established 640 spacing for Section 20.

20 So that is one of the paramount reasons we're  
21 back today, is to ask you to review the question. We  
22 are convinced, and hopefully we can persuade you, that  
23 there is sufficient scientific information to space  
24 Section 20 on 320 gas spacing.

25 And that is the administrative dilemma that

1 the parties were in, because both parties initially  
2 tried to develop this on 320. The District Office says  
3 it's 640. We got flipped back and forth, and we need  
4 some choice, some decision by you as to what to do with  
5 the spacing.

6 The issue for which there is a dispute now  
7 is, what is the appropriate orientation for development  
8 of 320 -- of Section 20 -- if you reach the conclusion  
9 320 spacing is appropriate?

10 Now, for convenience we'll use 320 spacing,  
11 but remember within the details of the advertisement,  
12 your Section 20 is an oddball size. It's 600 acres.  
13 So you'll see on the docket call there's going to be a  
14 need to establish a nonstandard spacing unit.

15 It is undisputed geologically between both  
16 companies that the primary location for the well, the  
17 best location geologically is the northeast quarter of  
18 Section 20. Both geologists will show you today  
19 they've reached there in different ways.

20 Our primary geologic target will be the same  
21 formation, if you will, Upper and Lower Morrow. But we  
22 contend and hope we can prove to you that they're not  
23 connected with Rock Tank. But both geologists had  
24 picked their first, best location to be in the  
25 northeast quarter. We contend that you can still be

1 there.

2 Santa Fe, at the Examiner level, said that  
3 there were topographic problems. This is all federal  
4 acreage. It had to do with approvals of the use of the  
5 surface. So we have brought our supervisor that deals  
6 with the surface and can discuss that if it becomes an  
7 issue today.

8 If you'll look at Section 20, the ownership  
9 is divided in such a way that Amoco controls the south  
10 half, and they have simply sat on the sidelines,  
11 waiting the outcome of the resolution of this case.

12 When we started back in November of 1989,  
13 Santa Fe controlled what I will simply summarize as a  
14 40-acre tract. It's a little less than that. And  
15 Exxon had the balance of the north half.

16 What we believe we will show you and what the  
17 issue to resolve, then, is the appropriate orientation.  
18 We believe 320 gas spacing is appropriate. The  
19 orientation should be standups with the east half  
20 dedicated to the first well, to leave the west half,  
21 then, available for the next well. And that next well  
22 location would be the northwest quarter.

23 There are two items to correct between now  
24 and getting to a Commission hearing on this question.

25 First of all, the record, I think, is clear

1 at this point, and hopefully before you, that it's  
2 Exxon Corporation as opposed to Exxon Company, U.S.A.

3 But more importantly is the location  
4 advertised in the Exxon Application. The original  
5 location is advertised as an unorthodox location 660  
6 out of the north and east corner of Section 20. That  
7 was subsequently amended, and Examiner Stogner and Mr.  
8 Padilla and I discussed before him the merits of  
9 various locations.

10 The location that Exxon had proposed to the  
11 Examiner then and to you now is one that is more  
12 standard; it's 1500 feet from the north line. It's  
13 1100 feet from the east line.

14 If you follow the practice of the Division,  
15 there is no need to readvertise the case. We're moving  
16 to a more standard location. I believe between Santa  
17 Fe and Exxon we control the offsetting acreage anyway,  
18 and there's no further notices being provided.

19 What I want to present to you this afternoon  
20 are two technical witnesses. First, a geologist to  
21 discuss with you his mapping and conclusions with  
22 regards to the geology. And then second of all,  
23 Exxon's petroleum engineer to discuss the engineering  
24 aspects of his position.

25 And in that way I hope we can focus your

1 attention on those two major items and one minor item.  
2 The first major item is the spacing, the second is the  
3 orientation, and finally the appropriate well location.

4 And that's what we seek to accomplish.

5 CHAIRMAN LEMAY: Thank you, Mr. Kellahin.

6 Mr. Padilla?

7 MR. PADILLA: Mr. Chairman, members of the  
8 Commission, I basically agree with Mr. Kellahin with  
9 regard to the various stipulations that he has  
10 proposed, and I have no problems with those matters  
11 that are contained in the prior Order of the Division.

12 I do differ, and Santa Fe differs, in some  
13 respect with the characterization of the geology and  
14 with the information and findings made by the Division  
15 in its Order.

16 I want to be brief in my opening statement.  
17 I prefer to just put on my case when it's my turn.

18 I do want to emphasize two findings that the  
19 Division made in its ruling. Finding Number 8 -- and  
20 bear with me, I'll read that in full -- states, There  
21 is insufficient geological evidence available in this  
22 area at this time to justify any other spacing than  
23 what is allowed by the Division Rules applicable to  
24 this particular matter. Therefore, the one-mile  
25 extension to both the Rock Tank Upper and Lower Morrow

1 Gas Pools by which the Morrow Formation is governed  
2 should prevail, and Exxon's request for 320-acre  
3 spacing for said Morrow Formation in Section 20 should  
4 be denied.

5 Now, our geology and our geologist is going  
6 to testify there is -- there may be some separation but  
7 it certainly doesn't go to a fault, as Exxon will  
8 testify.

9 So in that respect, I think the Division's  
10 finding is going to be appropriate until such time as a  
11 well is drilled in the north half to determine whether  
12 or not it is actually within the boundary of the Rock  
13 Tank Upper or Lower Morrow Formation.

14 Therefore it's our testimony, or our  
15 testimony is going to be that there is still  
16 insufficient geological evidence to make a definitive  
17 statement as to whether or not 640-acre spacing or 320-  
18 acre spacing is appropriate.

19 It is our position that if 320-acre spacing  
20 is determined by the Commission to be appropriate, then  
21 we should be on laydown units. Our testimony will tell  
22 you why we should have laydown units instead of  
23 standups, as opposed to Exxon's position.

24 The second finding that I would point to the  
25 Commission is Finding Number 9, which we think has

1 considerable merit in choosing a surface location.

2 And that finding states: Because of  
3 topographical conditions within said Section 20 and a  
4 major draw feature versus the northeastern portion,  
5 there was considerable discussion about possible well  
6 relocations to minimize well-pad costs -- cost -- and  
7 to abide by the requirements of the U.S. Bureau of Land  
8 Management and the surface management agency in this  
9 area.

10 We think that for environmental reasons, the  
11 location chosen by Santa Fe should be -- be the  
12 appropriate location, and a considerable amount of our  
13 presentation this afternoon will be with regard to the  
14 surface location.

15 The rules of the Rock Tank Formation or Pool  
16 are special pool rules, and as far as we can determine  
17 today we have to abide by them. That is why Santa Fe  
18 changed its Application from 320 acres to 640 acres.

19 As explained by Mr. Kellahin, the nature of  
20 the non-standard proration unit as applied for by Santa  
21 Fe is determined by the 600-acre proration unit that is  
22 on this section.

23 For the benefit of the Commission, I've just  
24 handed you the copies of the special pool rules and --  
25 so that you can have those before you.

1           And that concludes my opening remarks, and  
2           you can listen to Mr. Kellahin now.

3           CHAIRMAN LEMAY: Thank you, Mr. Padilla.

4           Will those witnesses that will be giving  
5           testimony kindly stand and raise your right hand to be  
6           sworn in?

7           (Thereupon, the witnesses were sworn.)

8           CHAIRMAN LEMAY: Thank you.

9           Mr. Kellahin, you may proceed.

10                           JAMES M. KWOLEK,

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

13                           DIRECT EXAMINATION

14           BY MR. KELLAHIN:

15           Q. For the record, would you please state your  
16           name and occupation?

17           A. My name is James Michael Kwolek, and I am a  
18           geologist for Exxon Corporation.

19           Q. Let me put a microphone over there for you,  
20           Jim. It's going to be hard hearing you.

21                           How do you spell your last name?

22           A. It's spelled K-w-o-l-e-k.

23           Q. And it's pronounced Kwolek, right?

24           A. That's correct.

25           Q. Mr. Kwolek, would you summarize your

1 educational experience for us?

2 A. I graduated from the University of Illinois  
3 in 1972 with a bachelor of science degree in geology.

4 In 1985 I graduated with a master's degree  
5 from Indiana University, that degree being in geology  
6 also.

7 Q. Would you summarize for us what has been your  
8 employment experience as a petroleum geologist?

9 A. Following graduation, I hired on with Exxon  
10 Corporation in Midland, Texas, as a geologist.

11 At Exxon, the last four and a half years,  
12 I've been responsible for identifying prospects for  
13 Exxon to drill, as well as to optimize development of  
14 their units and where they have interest in other  
15 fields. That work has included studies of both  
16 carbonates and sandstone reservoirs, and it has  
17 included fields and units throughout the Rockies and  
18 down into the Permian Basin.

19 Within the last year and a half, the emphasis  
20 of my work has been on the Morrow play in southeastern  
21 New Mexico, specifically Eddy County, New Mexico.

22 Q. As part of your study in the Morrow play in  
23 Eddy County, New Mexico, did you participate in the  
24 development of the exhibits and the geologic evaluation  
25 and conclusions that were presented to the Examiner at

1 the hearing in November of last year?

2 A. Yes, I did.

3 Q. And have you continued in your involvement  
4 and study of the geology until the present day?

5 A. Yes, I have.

6 Q. Pursuant to your study of the Morrow, have  
7 you reached certain conclusions with regards to the  
8 Morrow that's shown on what is marked as Exhibit Number  
9 1, for Exxon Corporation?

10 A. I have reached several conclusions with  
11 respect to the Morrow.

12 MR. KELLAHIN: We tender at this time Mr.  
13 Kwolek as an expert petroleum geologist.

14 CHAIRMAN LEMAY: His qualifications are  
15 acceptable.

16 Q. (By Mr. Kellahin) Describe for me what you  
17 did, Mr. Kwolek, in order to study the geology.

18 A. In order to evaluate the Morrow geology, I  
19 was involved in the construction of a grid of cross-  
20 sections across the study area.

21 In addition to those -- Those cross-sections  
22 involved a correlation of the productive sands within  
23 the Morrow interval, as well as analysis of the  
24 production and all DST and production test data.

25 Q. Are you satisfied that you had sufficient

1 geologic information on which to base conclusions?

2 A. Yes, I am.

3 Q. What were you asked to determine?

4 A. My assignment was to consider whether or not  
5 Section 20, as indicated on Exhibit 1, is part -- If  
6 production were to be established, would it fall within  
7 the Rock Tank Pools?

8 If production -- If it was not within the  
9 Rock Tank Pools and it fell within either the Dark  
10 Canyon Penn Pool, the Baldrige Canyon Pool or was a  
11 wildcat pool and fell under statewide ruling -- spacing  
12 -- of 320 acres, I was then to consider what the best  
13 orientation within Section 20 would be to maximize the  
14 development of the section in question.

15 Q. On the first question, were you able to reach  
16 a conclusion?

17 A. I did.

18 Q. And what was that conclusion?

19 A. That conclusion was that Section 20 should  
20 not be put into the -- cannot be part of the Rock Tank  
21 Pool, and therefore should not be ruled at 640-acre  
22 spacing.

23 Q. For the information of the Commission, take a  
24 moment and identify the information shown on Exhibit  
25 Number 1.

1           A.   Exhibit Number 1 is a cumulative production  
2 map for the area in question, Section 20, locating  
3 here. Exxon's proposed location in the northeast  
4 quarter locates 1500 feet from the north line, 1100  
5 feet from the east line.

6           Within the mapped area I have shown all  
7 Morrow penetrations and have identified all producing  
8 gas -- Morrow gas wells -- by the standard gas symbol.

9           You'll note that the proposed location of  
10 Exxon's is in excess of one and a half miles from the  
11 closest producing Morrow well.

12           I have shown the generalized outline of the  
13 -- of three major -- or four major producing pools  
14 within the area: again, the Rock Tank Upper and Lower  
15 Morrow Pool, the Dark Canyon Pool and Baldrige Canyon  
16 Pool.

17           As previously noted, Rock Tank is on 640-acre  
18 spacing, the other pools within the area being on 320-  
19 acre spacing.

20           Q.   When we're looking at the Morrow exploration  
21 in this area, have you provided us with a type log so  
22 you can help us describe and understand the Morrow that  
23 you're looking for?

24           A.   I have, and I'd like to present that as the  
25 next exhibit.

1           Exhibit Number 2 is my type log. The type  
2 log is from the Rock Tank Unit Number 3 Well, located  
3 in Section 5 to the northeast of the Rock Tank Pools.

4           Q. Let's take a moment and find that. You're  
5 showing the location of the Number 3 well on Exhibit  
6 Number 1?

7           A. That is correct.

8           Q. Let me circle that for you. In Section 5,  
9 that is the well from which you've taken the type log?

10          A. That is correct.

11          Q. All right.

12          A. On this type log I've tried to identify those  
13 terms that will be used in my testimony.

14                 What we are concerned with here today is the  
15 Morrow section, in particular the Morrow Clastic  
16 section shown on top of the defined Morrow Clastics.

17                 In addition, I've shown two prominent  
18 markers, those being the base of the Upper Morrow shale  
19 marker and the more dominant mapping horizon, the base  
20 across southeastern New Mexico, base of the Middle  
21 Morrow shale.

22                 Finally, this type log, I have identified or  
23 I have shown on the type log the two dominant producing  
24 reservoirs in the Rock Tank and Baldrige Canyon Morrow  
25 Pools: the Upper Morrow Sandstone and the Lower Morrow

1 Sandstone.

2 Q. When you as a geologist have completed your  
3 study and begin to look, then, at what are to be the  
4 primary geologic objectives for Section 20, what did  
5 you find that you ought to be looking for?

6 A. What I found was that within the area under  
7 discussion, over 85 percent of the production is coming  
8 from the Upper Morrow and Lower Morrow sandstone.

9 Of those two producing horizons, over 75  
10 percent of the production in the Rock Tank Pool is  
11 coming from the Lower Morrow sandstone.

12 Q. Having completed your study, is there any  
13 doubt in your mind as a geologist that looking for the  
14 best well location or the orientation for development  
15 of Section 20, the target formations are the Upper and  
16 the Lower Morrow sandstones?

17 A. I believe in this area, consideration of  
18 Section 20, you have to consider the Upper Morrow,  
19 Lower Morrow sandstones; that's correct.

20 Q. At the Examiner hearing, Santa Fe's geologist  
21 talked about a Morrow interval that he identified as  
22 the second sequence?

23 A. Yes.

24 Q. So that the Commission can follow that  
25 discussion when it arises, would you help us understand

1 where you believe this second sequence is?

2 A. I believe -- I believe it's called Sequence  
3 2, occurs above the base of the Middle Morrow shale and  
4 below the Upper Morrow sandstone.

5 More specifically, it occurs approximately in  
6 the middle -- I believe on the type log it will be from  
7 the thin shale marker approximately 10,465 feet up  
8 through that thin shale marker identified on the gamma  
9 ray at 10,414 feet.

10 Q. Mr. Kwolek, you were at the prior Examiner  
11 hearing and certainly have had enough time between the  
12 two hearings that you could have redone your study, if  
13 you will, and used the second sequence as the target  
14 sand by which to determine the location and development  
15 of Section 20?

16 A. That's correct.

17 Q. Why didn't you do that?

18 A. What I found within the area, and as  
19 identified on the Santa Fe geologic exhibits, is that  
20 there is no significant production coming from the  
21 sequence to reser- -- or objective across the mapped  
22 area.

23 Q. Having completed your study, then, using the  
24 upper Morrow and the lower Morrow, are those the same  
25 formations that are productive in Rock Tank?

1 A. Yes, they are.

2 Q. Have you concluded that you're in the same  
3 pool or in the same common source of supply?

4 A. With respect to Section 20?

5 Q. Section 20?

6 A. With respect to Section 20, produc- -- Would  
7 you --

8 Q. Yes, sir.

9 A. -- rephrase the question?

10 Q. We're looking at the same formation?

11 A. That is correct.

12 Q. The next question, geologically, are you  
13 looking at the same pool?

14 A. We are not looking at the same -- If  
15 production is established in Section 20 in either the  
16 Upper Morrow sandstone or the Lower Morrow sandstone,  
17 it would not be in the same pool, because I believe I  
18 can show evidence that shows either a stratigraphic or  
19 a structural separation of Section 20 from the Rock  
20 Tank Pools.

21 Q. As part of your geologic investigation, were  
22 you provided any engineering conclusions?

23 A. Yes, I was.

24 Q. What were you provided by your engineering  
25 staff?

1           A. I worked with the engineering staff to  
2 support and to analyze the geologic data, and to  
3 perhaps identify other areas that I could consider  
4 geologically. What I found --

5           Q. What did they tell you?

6           A. The main conclusion that I would bring to the  
7 attention is that if you look at pressure data from the  
8 Rock Tank Upper and Lower Pools and the production --  
9 or the pressure data from Baldrige Canyon Pool, they  
10 are not of the same reservoir. There is -- They are in  
11 discontinuity.

12                   That suggests that there is a geologic  
13 barrier to explain that reservoir discon- -- the  
14 pressure differences between the two fields.

15           Q. Were you asked, then, to see if there was a  
16 geologic explanation that could account for the  
17 engineering's finding the pressure differential that  
18 existed between the two pools?

19           A. I did.

20           Q. As part of your study, did you prepare a  
21 structure map?

22           A. Yes, I did, and that would be my next exhibit  
23 I'd like to show, Exhibit Number 3.

24                   I believe if I work from Exhibit Number 3 --  
25 I step back and look at the question before me with

1 respect to Section 20.

2           How does Section 20 fit into the geologic  
3 barrier, if it fits in at all, between the Baldrige  
4 Canyon field and the Rock Tank producing wells? And I  
5 have to conclude that either the geologic barrier that  
6 has been supported by engineering data either exists to  
7 the north of Section 20 or it exists to the south of  
8 Section 20.

9           Now, if we look at that, that point, if it  
10 occurs to the north of Section 20, because of that  
11 geologic barrier, whether it be stratigraphic or  
12 structural, then Section 20, if production is  
13 established in a drill well, it will either fall into  
14 the Dark Canyon field or the Baldrige Canyon Morrow  
15 Pool, or it could exist as a separate wildcat pool.

16           If, on the other hand, the geologic barrier  
17 separating Rock Tank and Baldrige Pools occurs to the  
18 south of Section 20, then Section 20 will be part of  
19 the Rock Tank Pool, unless there is some kind of  
20 geologic separation -- or -- Section 20 -- will be part  
21 of Section 20, unless there is a second geologic  
22 barrier.

23           And my conclusion is that, yes, there is.  
24 And what I've highlighted on the map is two small water  
25 zones. Those water zones are based on DST's within our

1 type log or within the Rock Tank Unit Number 3 Well.

2 The DST in the -- There were DST's in both  
3 the Upper and Lower Morrow sandstones.

4 To phrase it a different way, if Section 20  
5 is not in pressure -- If Section 20 is in section --  
6 Sorry.

7 Q. (By Mr. Kellahin) If Section 20 is in Rock  
8 Tank --

9 A. If Section 20 --

10 Q. -- is it going to be gas-productive?

11 A. -- is in communication with Rock Tank, and it  
12 is productive, I have to conclude that it will be  
13 productive, but it will be wet, because of the  
14 existence of several data points.

15 And the first data point I'd like to point  
16 out is DST tests in the Rock Tank Unit Number 5 --  
17 Number 3, located in Section 5.

18 The DST in the Upper Morrow sandstone in  
19 Section 5 resulted in 580 feet of formation water-cut  
20 mud, and it had a moderate show of gas.

21 In the DST of the Lower Morrow sandstone, the  
22 DST recovered 1000 feet, a foot water blanket, and 1650  
23 feet of formation water plus 375 feet of slightly gas-  
24 cut mud.

25 Q. Put that in English for me as a layman, Mr.

1 Kwolek. If you'll look at those kind of drill stem  
2 test results for the Number 3 Well in Section 5, what  
3 does that tell you?

4 A. What it's telling you is that you have water  
5 at a structural contour of approximately 600 -- or 6650  
6 feet. And if you corre- -- or follow that structural  
7 contour down between the Rock Tank field and Section  
8 20, then there exists a water column between -- or that  
9 separates Rock Tank from Section 20.

10 Q. Let's talk a minute about the structure, all  
11 right? Explain to me how confident you are that you  
12 have correctly mapped the structure.

13 A. The structure map is based primarily on  
14 subsurface control. The structure map itself has a  
15 contour interval of 100 feet. As indicated by all the  
16 well spots, the control is significant or is  
17 significant enough to give a structural picture across  
18 the mapped area.

19 Q. When I look at the orange line, what is that?

20 A. That will be a structural contour -- or a  
21 structural cross-section which follows through all of  
22 the wells at Rock Tank, follows through the wet test in  
23 the Rock Tank Unit Number 3, goes down across Section  
24 20 and down to a dry and abandoned well in Section 29.

25 In addition to the subsurface data in this

1 immediate area, this structural configuration, the dip,  
2 fits into a more regional structural interp- -- or  
3 structural mapping of southeastern Eddy County.

4 Q. When we look, then, at the structure, do you  
5 have an opinion as to whether or not you have found  
6 substantial geologic evidence to justify the structural  
7 interpretation that you have made?

8 A. Yes, I have.

9 Q. Within the range of reason, if you will, of a  
10 geologist's ability to take certain data points and  
11 contour that information, I have often seen geologists  
12 have slightly different interpretations.

13 Can you get a materially different  
14 interpretation of the information by which to draw the  
15 structure so that the structure in Section 20 is going  
16 to be above the water in the Upper and Lower Morrow?

17 A. In order to recontour significantly the  
18 structure shown across Section 20, I would have to  
19 disregard, in particular, the control point in Section  
20 29, Section -- the two control points at Section 30,  
21 and those up at Rock Tank, that's correct. I have  
22 confidence in this structure map.

23 Q. The distance vertically from the highest  
24 structural position in Section 20 to the lowest known  
25 water in the Upper and Lower Morrow in the Rock tank is

1 what distance?

2 A. That distance would go from a contour of  
3 approximately 6770 subsea up to the contour of  
4 approximately 6650, with a -- based on the DST in  
5 Section 5.

6 However, there are two additional tests --

7 Q. Well, what's that footage? Approximately  
8 what's the vertical separation, then?

9 A. That is approximately 80 feet from the  
10 northwest corner of Section 20.

11 Down across Section 20, though, you are  
12 dropping an additional 350 feet. So you have the  
13 potential for dropping from the highest proven water to  
14 a second well in Section 20, dropping down structurally  
15 approx- -- in excess of 400 feet.

16 Q. Just for reference, show us the lowest  
17 producing gas in the Lower Morrow in Rock Tank.

18 A. Okay, the lowest proven gas would be in the  
19 WG Fed Com Number 1, which is located in Section 13 at  
20 approximately 6356, this structure map again being  
21 based on the Middle Morrow shale.

22 Now, this lowest proven gas was based on the  
23 early tests within the field, and I think there's two  
24 significant tests that I should bring to your  
25 attention, however.

1           The first would be in Section 13. The well  
2           in the northwest corner was drilled in 1985 by  
3           Mewbourne and was DST'd in early 1986. That DST in the  
4           Lower Morrow sandstone recovered 370 feet of heavy gas-  
5           cut mud in addition to 630 feet of gas-cut water.

6           What this suggests to me is that we may have  
7           had some movement of our gas-water contact.

8           In addition to that well spot, let me note  
9           that up in Section 31, which occurs at a subsea depth  
10          on the datum of negative 6426, there was a DST in the  
11          Upper Morrow sandstone which produced -- which  
12          recovered 270 feet of heavy gas- and water-cut mud.

13          So what we're seeing is, we have now three  
14          wells to the northwest of Section 20 that have had  
15          either significant water tests or have had a less  
16          significant test: The Rock Tank Unit Number 3, the  
17          well in the northwest -- northeast quarter of Section  
18          31, and the most recent well in the northwest quarter  
19          of Section 13.

20          Q. When we examine Section 20, can you conclude,  
21          based upon that geology, that Section 20 will be in a  
22          separate pool, not in Rock Tank, if you delete the  
23          fault that you have projected between Section 20 and --  
24          What is it? 18? 19?

25          A. Nineteen.

1 Q. Okay. Is your evaluation -- Let me say it  
2 again. Is your geologic conclusion, evaluation,  
3 predicated specifically upon the presence of the fault  
4 as you've depicted it?

5 A. No, it is not, and let me discuss that point  
6 for a moment.

7 As I stated earlier, in order to set up a  
8 productive pool in Section 20, we need either a  
9 structural or a stratigraphic trapping mechanism across  
10 this area.

11 I believe the water tests show that there is  
12 in fact a trapping mechanism in -- within this area.  
13 Or, if there is not, then everything south of wherever  
14 your true oil-gas contact, whether it now be up at 6279  
15 or whether it be further downdip where we had the two  
16 other DST's, everything to the south of that contour,  
17 as you go downdip, is going to be water-wet.

18 Q. What does the projection of the fault, then,  
19 do to the analysis?

20 A. The reason I put in the fault was because it  
21 can be mapped in based on the structural -- the data  
22 control.

23 In addition, I have -- Since the last  
24 hearing, I have reviewed Exxon's seismic in the  
25 immediate area and found a seismic line that cut -- it

1 identified and supported the subsurface interpretation  
2 that there was a fault, or cutting across the northwest  
3 boundary of Section 30 and 31.

4           What the existence of this fault does is, it  
5 may simply give us an explanation for how we could set  
6 up a trapping mechanism and therefore postulate that  
7 Section 20 is in fact productive.

8           Q. In order to have gas production--

9           A. Yes.

10          Q. -- from the geologic perspective, in order to  
11 have gas production in Section 20, in either the Upper  
12 or the Lower Morrow, what's going to have to happen to  
13 separate you out from Rock Tank?

14          A. In order for there to be production in  
15 Section 20, again, we have to have either a  
16 stratigraphic trap or a structural trap. And a  
17 structural trap could be explained by the fault as  
18 shown.

19          Q. Because you are downstructure in Section 20  
20 from the production in Rock Tank and you have the water  
21 contact established on the structure, you can conclude,  
22 then, geologically that if you're in the same common  
23 source of supply with Rock Tank, you're going to be  
24 below the water content?

25          A. If we are in communication in Section 20 --

1 If Section 20 is in communication with Rock Tank, the  
2 Upper or Lower Morrow sandstones, you will be water-  
3 wet; that is correct.

4 Q. Do you see any other way that you can draw  
5 the structure map and honor the data --

6 A. Not --

7 Q. -- to resolve that?

8 A. No, I would have to disregard data.

9 Q. Let's go to the cross-section, then, and see  
10 how it -- how the data is displayed in that fashion.

11 A. To renote, the structural cross-section,  
12 C-C prime, again goes through all of the wells within  
13 the Rock Tank Upper and Lower Morrow Pool. It also  
14 goes through the wet well in Section 5, down across the  
15 subject acreage to the south in Section 29 where there  
16 is a dry and abandoned well.

17 Q. Explain the mechanics of the three panels  
18 now. I think the display was put together in three  
19 separate sections.

20 A. What I wanted to do was more visually  
21 illustrate what the structure map -- what I've just  
22 said from the structure map, and that is to show that  
23 there is going to be separation of Exxon's proposed  
24 location for any well drilled in Section 20 from the  
25 Morrow -- or the Rock Tank Pools -- in order for there

1 to be production established. The --

2 Q. Let me make sure I understand. You've  
3 labeled it for convenience, Exxon Proposed Location.  
4 But is it -- Am I correct in understanding that  
5 wherever you move that line on the display, still  
6 staying in Section 20, you're still going to come to  
7 the same conclusion?

8 A. That is correct.

9 Q. All right. Start from left to right and give  
10 us an interpretation of the structural conclusions you  
11 see on the display.

12 First of all, help us find and track, then,  
13 the Upper Morrow and the Lower Morrow.

14 A. The Upper Morrow -- The horizons that I am  
15 showing you, or the intervals, are once again the  
16 bases, the Upper Morrow shale marker and the Middle  
17 Morrow shale marker.

18 In addition, we have the Lower Morrow  
19 sandstone as well as the Upper Morrow sandstone.

20 For convenience I have had colored in -- used  
21 the following color codes: Red for gas, orange for  
22 mud, and blue for water.

23 What I am trying to illustrate -- Well, I  
24 will walk from the Rock Tank field proper down into  
25 Section 20 and make a few observations.

1           As we walk -- As we start from the  
2           structurally low end of the Rock Tank field, we see  
3           that we have a general anticlinal feature in which  
4           production is well established on the crest, with all  
5           the wells on the crest being productive except for,  
6           again, the late well in Section 13, as I previously  
7           pointed out.

8           Moving further to the -- Moving closer to  
9           Section 20, we start -- we are no longer gaining  
10          structure; we begin to lose it, starting with the Rock  
11          Tank Unit Number 4 in Section 1, down into Section 7 in  
12          which production was still established both in the  
13          Upper and Lower Morrow Pools.

14          Going to Section 6, there was a tight test  
15          which recovered mud in the Upper Morrow Sandstone,  
16          still production in the lower sandstone, although there  
17          was minor production of water.

18          And then finally we get down into Section 5  
19          where we had our two wet DST tests. Now, you might  
20          observe that these tests, once again, fall over 200  
21          feet structurally from our last proven gas production.

22          I then cross over the interpreted -- the  
23          fault that I have mapped on the structure, contour map,  
24          and into the general area of Section 20 as indicated by  
25          Exxon's proposed location, and continue down into

1 Section 29.

2 Q. Again, demonstrating your position on Exhibit  
3 Number 4, show us what happens if you simply take the  
4 fault out.

5 A. Once again, if you take the fault out and  
6 correlate together the sandstones on the downside of  
7 the fault and the upper sides of the fault, what  
8 happens is, you see that Section 20 is going to  
9 penetrate sandstones that are producing downdip from  
10 water, and it is in fact going to produce water, unless  
11 there is either this type -- a type of structural  
12 trapping mechanism or stratigraphic trapping mechanism.

13 What I've done is, several of the panels have  
14 been put together so that for convenience' sake here,  
15 several of the panels have been left as separate  
16 sections for convenience of manipulation.

17 Q. Let's turn now to an examination of what the  
18 isopachs look like when you isopach the Lower and then  
19 the Upper Morrow.

20 A. Okay, and those will be -- start with Exhibit  
21 Number 5, I believe.

22 Q. Let's turn to Exhibit Number 5, Mr. Kwolek,  
23 and have you identify and describe your Lower Morrow  
24 sandstone.

25 A. Exhibit Number 5 is a gross sandstone isolith

1 of the Lower Morrow sandstone. It has a contour  
2 interval of ten feet. I have used all the available  
3 subsurface data within the mapped area.

4 Q. Just for clarification, Mr. Tate is another  
5 geologist with Exxon?

6 A. That is correct.

7 Q. Did you and he work in conjunction in  
8 preparing all of these displays?

9 A. We did, and I have -- Several of the exhibits  
10 were previously used in the last hearing, and I have  
11 either -- I have reviewed all of the data and made  
12 those minor changes that I felt were necessary such  
13 as -- There was on one example moving a well spot  
14 several hundred feet, minor correction.

15 Q. So the end result of all the displays is it  
16 represents your opinions and conclusions with regards  
17 to the geology?

18 A. It does.

19 Q. Describe for us what you see as a geologist,  
20 having mapped the Lower Morrow sandstone in this area.

21 A. What I see and is -- illustrated on the Lower  
22 Morrow sandstone isolith -- is that we have a  
23 northwest-southeast orientation of channel sands.

24 That is my interpretation of the Lower  
25 Morrow, as well as the Upper Morrow sandstones. They

1 are effluvial in nature in this area.

2 When I speak of effluvial, I'm talking about  
3 river system, talking about river, you're talking about  
4 sandbars, predominantly sandbars, filled in a river  
5 channel.

6 Q. Do you find that the mapping of the Lower  
7 Morrow isolith for this sand is consistent with  
8 regional mapping of this effluvial channel?

9 A. One of the things I like about my  
10 interpretation of the subsurface in this immediate area  
11 is, it fits in very well with the regional data.

12 Q. What does this tell you as a geologist, if  
13 anything, about whether or not Section 20 is separated  
14 from Rock Tank?

15 A. What it tells me is that the deposition --  
16 the sand that was deposited at Sec- -- within the Rock  
17 Tank Morrow field or pools is the same sand that will  
18 exist in Sec- -- or will exist in Section 20.

19 The -- now, again, you don't -- the -- The  
20 sand deposition at Rock Tank is not going to stop,  
21 whether or not you have that fault there. This trend  
22 in particular of sand continues both beyond to the  
23 northwest as well as at least several miles to the  
24 southeast.

25 Q. What does this tell you about how to best

1 locate the first well for exploration of Section 20 and  
2 how to orient the spacing units?

3 A. What I had to look at was, where was the sand  
4 in Section 20, and if more than one well is necessary,  
5 I'd like to penetrate the thickest sand. The Morrow,  
6 particularly on a wildcat well or on a very rankish  
7 well, you want to -- you want to target sand thickness.

8 Q. When we integrate, looking at Section 20,  
9 then, integrate the structure with the thickness of the  
10 Lower Morrow, what do you find in the section?

11 A. What I find is that the northwest -- that  
12 there are -- First off, there is enough sand across  
13 Section 20 to locate two wells. Second off, that the  
14 northeast quarter of Section 20 is the most favorable  
15 with respect to sand thickness.

16 Q. In order to develop, then, the full section  
17 on 320 gas spacing, where would you place the second  
18 well?

19 A. The second well in Section 20 I would place  
20 in the northwest quarter. And that second location is  
21 based on both stratigraphy and structure.

22 With a -- As I previously noted, with a  
23 wildcat or rankish well in the Morrow, you want to get  
24 your sand thickness. But then you have to start  
25 worrying about how close are you to the downdip

1 productive limits of the gas? How soon are you going  
2 to get into a gas-water contact?

3 And with respect to Section 20, it was  
4 fortunate that the sandstone thickness was greatest in  
5 the northwest quarter versus the southeast quarter, as  
6 well as the most structurally favorable position.

7 Q. Why have you opposed the Santa Fe proposal to  
8 have laydown spacing units with the well, the second  
9 well, if you will, located in the southeast quarter?

10 A. I'm afraid that if we -- that if a north-half  
11 proration unit is established, that no second well is  
12 going to be drilled in Section 20 because of the  
13 structural risk.

14 You are -- You will have to drop down about a  
15 hundred -- over a hundred feet in order to put a test  
16 in the south-half proration unit. And that is a  
17 geologic risk that I don't think anyone is willing to  
18 take when they could have -- they have a viable geologic  
19 prospect of, in this case, equal in the northwest as  
20 the southeast.

21 Q. Santa Fe's proposed location for the well is  
22 in the northwest quarter, is it not?

23 A. The current -- The original proposed location  
24 was in the northeast quarter. But because of the --  
25 their contention that topographically you could not put

1 a well in the northeast quarter as well as the  
2 direction that they received, that it must be 640, they  
3 moved it over to the northwest quarter of Section 20.

4 I have never heard that they moved -- or put  
5 it in Section 20 for geologic reasons.

6 Q. Their proposed location is 1980 from the  
7 north and 1980 from the west. Approximately where does  
8 that put you on your isopach for the Lower Morrow?

9 A. What that does is, we would lose  
10 approximately ten feet of gross sand isolith from a  
11 stratigraphic standpoint.

12 Q. From a structural point of view, do you gain  
13 sufficient structure over your location to make a  
14 difference?

15 A. No, you do not. Again, you would -- I  
16 believe you would gain approximately 50 feet moving  
17 from the northeast to the northwest.

18 And as I previously stated, on that first  
19 well I'm going to want to go after sand thickness  
20 rather than structure.

21 Q. Let's take a look at the Upper Morrow  
22 Sandstone. Have you mapped that one?

23 A. Yes, I have, and that would be Exhibit Number  
24 6.

25 Q. Identify and describe for us Exhibit Number

1 6, Mr. Kwolek.

2 A. Exhibit Number 6 is a gross sandstone isolith  
3 of the Upper Morrow sandstone.

4 Q. What does it tell you?

5 A. Once again, using all the control data within  
6 the immediate area, it's telling me that Section 20 is  
7 prospective in -- Section 20 is prospective because of  
8 the existence of the Upper Morrow sandstone, which I  
9 know is productive up in the Rock Tank Upper Morrow  
10 Sandstone Pool.

11 Q. Explain for us the orientation and the well  
12 location as it applies, then, to the Upper Morrow, your  
13 preference for an east-half versus the north half.

14 A. Once again, the isopach supports my  
15 contention that standups would be in everyone's best  
16 interest, because the northeast location will -- An  
17 east-half proration unit would orient with respect to  
18 the thick of the Upper Morrow sandstone.

19 In addition, a location in the northwest  
20 quarter will locate still within the Upper Morrow  
21 sandstone, although it's not as thick as in the  
22 northeast quarter.

23 Q. Do you have any geologic reservations that  
24 there is insufficient evidence to separate Section 20  
25 and put that in a separate pool from Rock Tank?

1           A.    Again, and this -- There's a couple of things  
2   to note.   First off, we go back to that test in Section  
3   5, which was water-productive, as well as the test in  
4   Section 31 that recovered -- I'm sorry, previously I  
5   said a hundred -- 270.   It was 170 feet of heavy gas-  
6   and water-cut mud.

7                   I stated earlier, though, in order for gas  
8   production to be established in Section 20 we were  
9   going to have to have either a stratigraphic or a  
10  structural barrier in this immediate area.

11                   And what the subsurface data has suggested  
12  from a stratigraphic standpoint is, there may be that  
13  barrier, at least partially, of Section 20 from the  
14  Rock Tank field.

15                   And this also illustrates the separation that  
16  evidently exists between Rock Tank and the Baldrige  
17  Canyon field.

18           Q.    Let's go back for a final question to the  
19  structure map, Mr. Kwolek.

20                   In looking at the structure, do you find any  
21  tilt or difference in the plane of the structure so  
22  that the water that you find in the well in Section 5  
23  is not going to be representative of the existence of  
24  water in a similar structural position on the  
25  structure?

1           A.    For this water that was found in Section 5 to  
2 exist and not exist down in this part of the field, I  
3 suspect you could have that occur if in fact you had a  
4 sealing fault, for example.

5                    But aside from that, from what I can  
6 interpret is that water below approximately 6650 in the  
7 Rock Tank Number 3 Well is going to give you water  
8 throughout this area unless there is structural or  
9 stratigraphic separation.

10           Q.    Are you satisfied, then, that the information  
11 available from that well is sufficient data by which to  
12 project the geologic conclusion in this Section 20 that  
13 you are in fact separate?

14           A.    I believe the data in Section 5 -- or for the  
15 Rock Tank Unit Number 3 -- best supports it with  
16 supporting evidence from the DST in Section 31, as well  
17 as the water production or the DST that recovered 630  
18 feet of water, gas-cut water, in Section 13, which is  
19 some 600 feet above Section 20.

20                   MR. KELLAHIN: That concludes my direct  
21 examination of Mr. Kwolek. We would move the  
22 introduction of his Exhibits 1 through 6.

23                   CHAIRMAN LEMAY: Without objection, Exhibits  
24 1 through 6 will be admitted into the record.

25                   Mr. Padilla?

## CROSS-EXAMINATION

1  
2 BY MR. PADILLA:

3 Q. Mr. Kwolek, does Exxon want to drill a well  
4 in Section 20?

5 A. Does Exxon want to?

6 Q. Yes, sir.

7 A. I believe, yes, it does.

8 Q. Does Exxon have any plans to drill a well  
9 independently, on its own, in Section 20?

10 MR. KELLAHIN: Excuse me. I'm confused, Mr.  
11 Chairman. I thought we stipulated that Santa Fe was  
12 going to operate the property, and we're not contesting  
13 operations with them, if that's the point of the  
14 question.

15 MR. LEMAY: I have a hard time hearing you,  
16 Mr. Padilla. If you could, speak up. What was your  
17 question?

18 Q. (By Mr. Padilla) My question was -- Well,  
19 let me rephrase the question.

20 Let me rephrase. The question is this: Is  
21 Exxon willing to invest in -- with money to drill -- in  
22 drilling any well in Section 20?

23 A. My understanding is, not within the next  
24 three to six months.

25 However, we have -- I personally have

1 recommended that we contribute acreage to a test -- any  
2 test that Santa Fe is willing to drill, provided that  
3 they develop Section 20, that will lead to the best  
4 development of Section 20, and we stand by that in  
5 order to do that you need your standup orientation of  
6 proration units.

7 Q. And you have -- Exxon has consistently  
8 required a standup proration dedicating the east-half  
9 proration unit; is that correct?

10 A. My understanding would be yes --

11 Q. And --

12 A. -- that's geologically supported.

13 Q. -- Exxon has consistently rejected any kind  
14 of a laydown proration unit for the north half or the  
15 south half of Section 20?

16 A. I believe our perspective has always been  
17 that laydowns will not lead to the best development of  
18 Section 20, and therefore we have not supported  
19 laydowns, that's correct.

20 CHAIRMAN LEMAY: Mr. Padilla, may I just  
21 interrupt just for a minute, just for clarification.

22 Was it your testimony, you said Exxon would  
23 contribute acreage but not money to a test, but they  
24 wanted still the standup 320's? Or was I confused on  
25 your answer?

1 THE WITNESS: We have agreed to farm out  
2 acreage to Santa Fe.

3 CHAIRMAN LEMAY: So your position is one of  
4 farming out acreage to --

5 THE WITNESS: I believe that would be --

6 CHAIRMAN LEMAY: Okay, thank you.

7 THE WITNESS: -- a correct statement.

8 CHAIRMAN LEMAY: Thank you.

9 MR. KELLAHIN: Our position -- let me correct  
10 the witness -- is, we have not made a business decision  
11 on whether to participate with Santa Fe in the well.

12 We've got the issue of spacing and  
13 orientation to resolve, and until the Commission does  
14 that for us, then we do not yet know whether we will  
15 take our rights under the Pooling Order to send them a  
16 check and participate or whether we'll go nonconsent.

17 If that's the topic of conversation, this  
18 witness can't answer that question.

19 CHAIRMAN LEMAY: Fine. I was just trying to  
20 clarify that issue. Thank you, Mr. Kellahin.

21 You'll have additional witnesses to put that  
22 in the record, or can I accept your --

23 MR. KELLAHIN: I can make that statement for  
24 you now --

25 CHAIRMAN LEMAY: Okay.

1 MR. KELLAHIN: -- on behalf of my company  
2 that we have not made that decision, and we just need  
3 to wait for the decision of the Commission to tell us  
4 what you're going to provide for us, and then we'll  
5 make our choice on participating in the well. But that  
6 decision has not yet been made.

7 CHAIRMAN LEMAY: So that the option of  
8 participating is still one Exxon is considering?

9 MR. KELLAHIN: Oh, yes, and we'd like to have  
10 that option in the --

11 CHAIRMAN LEMAY: Okay, well, fine. That  
12 helps us, thank you.

13 Excuse me for the interruption.

14 MR. PADILLA: Mr. Chairman, that clarifies my  
15 point.

16 Q. (By Mr. Padilla) Let me refer you, Mr.  
17 Kwolek, to this exhibit. Is that Number 1?

18 A. We have that right here. That is correct,  
19 that is Exhibit Number 1.

20 Q. Mr. Kwolek, let's look at what you have drawn  
21 as the limits of the Rock Tank Upper Morrow and the  
22 Rock Tank Lower Morrow.

23 A. Well -- What do you mean by limits? Are you  
24 asking for an interpretation of those dashed lines?

25 Q. Yes, sir.

1           A.    Okay.

2           Q.    How did you arrive at those dashed lines?

3           A.    Okay, these lines do not define the geologic  
4 limits, the productive limits of any of the fields  
5 represented.

6                    What these dashed lines represent is simply  
7 an encirclement approximately one inch away from any  
8 producing wells in any of the producing pools. So it  
9 is not saying anything geologic about the limits.

10           Q.    By definition, you would take, say, Section 6  
11 and would have to include all of Section 6 in the  
12 limits of the pool, right?

13           A.    From a spacing unit consideration, I think  
14 that is a fair statement.

15           Q.    And you could go on down to each of those  
16 wells and have to include the entire section; is that  
17 correct?

18           A.    Well, technically yes. But there's something  
19 that stands out from my perspective about this, and  
20 that is why several of the wells are so close together.

21                    Do we have -- You know, are we developing on  
22 640, or are we really developing on 320's? But you're  
23 right, from a regulatory standpoint I suppose you would  
24 say that you are looking at 640's for each of these  
25 wells.

1           Q.    Mr. Kwolek, do you know how many times you  
2           used the word "if" here in your presentation? You said  
3           if production is established in Section 20, for  
4           example, and you used certain if's. Why do you premise  
5           your presentation with the word "if" --

6           A.    I'm trying --

7           Q.    -- in a number of instances.

8           A.    I'm trying to put everyone's frame of  
9           reference to go back to what I was looking at when I  
10          first started looking at Section 20. How do we analyze  
11          the question of is Section 20 -- Should Section 20 be  
12          put in the Rock Tank Upper and Lower Morrow sandstone?  
13          There's a big "if" if production is established.

14                 But, let us assume that production is  
15          established. If it is, if it's wet, I don't have any  
16          problem with saying that it is in fact part of Rock  
17          Tank.

18                 However, if gas production is established,  
19          you're going to have a very difficult time to explain  
20          how we had wet tests in three wells.

21          Q.    Now, exactly in how many wells did you have  
22          wet tests? Isn't it -- Isn't it a fact that you only  
23          had a wet test in this particular -- in this well in  
24          Section 5?

25                 MR. KELLAHIN: He's given the witness a

1 compound question, Mr. Chairman. The first question  
2 was as to one test. Can we break that down into  
3 separate questions?

4 MR. PADILLA: Sure.

5 CHAIRMAN LEMAY: Let's break them up, that's  
6 all. First question.

7 Q. (By Mr. Padilla) Isn't it true that you only  
8 measured water in the well in Section 5?

9 A. The well in Section 5 recovered a water or  
10 water-cut substance in both the Upper and Lower Morrow  
11 sandstone.

12 In addition, though, you have the heavy gas  
13 and water-cut mud recovered in the Upper Morrow in  
14 Section 31, as well as 630 feet of -- I believe it was  
15 gas-cut water in Section 13, one of the, again, latest  
16 wells -- Well, the latest well, I believe, at Rock  
17 Tank.

18 So you're really looking at three wells --

19 Q. But in terms of structure --

20 A. -- for your revenue.

21 Q. -- and in terms of the analogy that you made,  
22 the well in Section 13 really doesn't play into that,  
23 does it?

24 A. Well, I'm not sure. What -- Rephrase your  
25 statement, because if there is water production in that

1 -- in that Lower Morrow sandstone, and yet it's the  
2 latest well, the well that was drilled 15, 16 years  
3 after production was established earlier, one could  
4 speculate -- one would have to speculate that with  
5 water testing those two, has the gas-water contact  
6 moved upward?

7 And I'm not saying it hasn't. I'm just  
8 trying to show all the evidence out there that suggests  
9 that there is, in fact, a gas-water contact somewhere  
10 between Sec- -- the Rock Tank Pools and Section 20.  
11 There is separation, and therefore Section 20 --

12 Q. Mr. Kwolek, I'm trying to be fair with you  
13 and not interrupt you. But you don't know for sure;  
14 isn't that correct? as to whether or not the water  
15 contact, gas-water contact has moved in the last 16  
16 years? That's speculation on your part, isn't it?

17 A. Okay, I'm not sure -- It certainly raises the  
18 question, though.

19 Q. Okay. Now, in this first fault that's shown  
20 on this structure map here, is that shown on regional  
21 geology of published maps for that area of southeast  
22 New Mexico?

23 A. I'm not sure whether they would be public  
24 maps, but let me -- Would you like some clarification  
25 as to what control I'm using for that?

1 Q. Yes.

2 A. Okay. If we look at our structure map, it is  
3 again based on the datum of the Middle Morrow shale,  
4 and as you look at the subsurface control, you see that  
5 you go from negative 6185 down to negative 6641, within  
6 essentially a half a mile.

7 In addition, you have Morrow penetrated in  
8 all these wells, which had the Upper and/or Lower  
9 Morrow sandstone, which was nonproductive.

10 I believe the literature will support a  
11 western boundary for Rock Tank, and the subsurface data  
12 would support that there is a structural feature, most  
13 likely a fault in that area.

14 Q. But that's well known, as far as the general  
15 geology of this area is concerned?

16 A. Yes.

17 Q. Okay. How about the second fault that you've  
18 shown? Is that -- Does that have the same general --  
19 Is that the general knowledge --

20 A. Okay.

21 Q. -- in that area?

22 A. The -- As you look at the contours, what you  
23 see is that the difference between the uplifted block  
24 and the downthrown block is about a hundred feet, in  
25 contrast to the 500 feet you see here. As I

1 previous- -- And that is based primarily on -- It was  
2 originally based on subsurface well data. And what I  
3 did was, I found support for that fault on a seismic  
4 line that Exxon had, which I did not bring. I was not  
5 going to make that open material.

6 But I raised the point with Mr. Kellahin and  
7 the Commission that whether or not this fault exists  
8 doesn't play -- It is not that necessary to figure out  
9 whether or not Section 20 is part of Rock Tank.

10 What we're doing is, I've mapped the fault  
11 in. And Mr. Seiler may come back and say, Well, we do  
12 not map in that fault.

13 But from my earlier position, somehow you've  
14 got to explain this water production. And one way  
15 would be to accept subsurface data and put in that  
16 structural fault.

17 Or you could come back and look at the -- a  
18 stratigraphic trap also. In this case, I'm doing a --  
19 a fault.

20 Q. Now, where did you see a fault in your  
21 seismic information?

22 A. I believe the line was oriented approximately  
23 here, so I saw it in this area.

24 MR. KELLAHIN: You have to describe for the  
25 record where that is.

1 THE WITNESS: Okay. I believe the seismic  
2 line ran in a northwest-southeast orientation,  
3 approximately from the southeast quarter of Section 32  
4 upwards of the northwest quarter of Section 35, with  
5 the fault being found in the extreme western -- the  
6 western half of the southwestern quarter.

7 Q. (By Mr. Padilla) When did -- Did Exxon make  
8 this seismic -- conduct this seismic information -- or  
9 obtain this seismic information at some time?

10 A. At some time, yes.

11 Q. Did you do seismic work in this area?

12 A. Since the last hearing or --

13 Q. Well, at any time.

14 A. I -- Could you rephrase the question?

15 Q. Well, do you have any seismic information,  
16 other than the one that you have mentioned, that is  
17 relevant to this hearing insofar as Section 20 is  
18 concerned?

19 A. Okay, what I -- From the last hearing, we  
20 have the fault placed in, based on subsurface data.

21 Then what we did was, the subsurface data  
22 controls it not only in Baldrige Canyon but up into  
23 the northeast. What I wanted to do was simply go  
24 through Exxon's records and just see whether there was  
25 a seismic line that says, yes, there is a fault

1 across --

2 Q. How many seismic lines do you have in this  
3 area?

4 A. Across the entire map here? Well --

5 Q. Well, let's take --

6 A. -- within the immediate area of Section 20,  
7 we do not have -- I do not believe we have any lines  
8 coming across Section 20.

9 Q. Do you have any information regarding -- that  
10 would shed some light on Section 20, that is, east of  
11 Section 20?

12 MR. KELLAHIN: Mr. Chairman, I'm going to  
13 object to the continuing inquiry about seismic  
14 information. Mr. Kwolek has not used seismic. This is  
15 entirely subsurface geology, and that's the predicate  
16 for his conclusions, and we're fishing around for  
17 seismic that Mr. Kwolek says doesn't exist through  
18 Section 20. It's not relevant.

19 CHAIRMAN LEMAY: It's not. He mentioned a  
20 seismic line, however, to pin the fault down.

21 MR. KELLAHIN: I understand.

22 CHAIRMAN LEMAY: But as far as going beyond  
23 that, you can simplify your question if you want and  
24 get a simplified answer, whether or not we --

25 Q. (By Mr. Padilla) Well, I'm trying to find

1 out, Mr. Chairman, what kind of seismic information Mr.  
2 Kwolek has used in making his mapping. I suppose I'll  
3 ask you that.

4 A. Okay, once again, all that I wanted to do was  
5 confirm in my mind that a fault is one possible  
6 explanation for separation of Section 20 from the Rock  
7 Tank because of this water production.

8 Q. And you limited your investigation to the  
9 southern portion of that exhibit, which is the sub- --  
10 or the structure map, as you identified it before,  
11 correct?

12 A. I believe so.

13 Q. And is it your testimony that Exxon has other  
14 seismic information that would -- Well, let me rephrase  
15 the question.

16 Did you use any seismic information to  
17 determine the correctness of your position with regard  
18 to the drilling of the well in Section 20?

19 A. I did not.

20 Q. You did not?

21 A. Well, we don't have anything close enough  
22 that is going to direct the orientation, per se, of --  
23 you know, do you move a hundred feet this way, a  
24 hundred feet that way?

25 It establishes that we have this fault in the

1 general area northwest of Section 20, but it doesn't  
2 pinpoint where that fault is with respect to Section  
3 20.

4 Q. Now, when did you conduct the seismic work in  
5 this area? Since the last hearing?

6 A. Since the last hearing, yes.

7 Q. Does that seismic work confirm the  
8 correctness of your position in any way?

9 A. Because the seismic was far enough to the --  
10 was approximately two miles from the proposed location,  
11 what I was looking for was a confirmation that, yes,  
12 there is fault to north, east, south, west, faults in  
13 the immediate area, and therefore in this area we can  
14 set up a faulting mechanism that will explain the  
15 water.

16 Q. And you can -- You're saying that you didn't  
17 do any seismic that cuts across the Section 20 or any  
18 adjoining sections where Exxon has acreage?

19 A. I did not. We -- My understanding, we do not  
20 have any seismic lines across Section 20.

21 Q. How about the section to the north of Section  
22 20?

23 A. My understanding is, we do not have at the  
24 current time seismic in Section 17.

25 Q. Let me ask you, why did you cut your exhibit

1 right at Section 20 on the --

2 A. The eastern boundary?

3 Q. -- the eastern boundary of Section 20?

4 A. The question before us today is, should  
5 Section 20 be placed in the Rock Tank Pool? And so  
6 what I'm interested in is, what is the stratigraphic  
7 and structural relationships between Rock Tank Pools  
8 and Section 20?

9 And I believe the data I have used -- or I  
10 have shown on the map -- illustrates what I'm trying to  
11 show everyone in this room with respect --

12 Q. Are the --

13 A. -- with respect to additional that I may have  
14 used, these just -- There is additional data that is  
15 part of this interpretation.

16 The -- For example, in Section 34, there is,  
17 which would -- excuse me -- essentially be the closest  
18 Morrow producing well, the Upper and Lower Morrow  
19 sandstones exist, which firmed up the earlier  
20 orientation of the sandstone -- these channel trends  
21 that -- In nature, you go out and see they run for many  
22 miles, and that's -- Yes, I used an east -- But what  
23 you're seeing is what I believe is the most relevant  
24 data for the case before us today.

25 Q. Did you use any wells in your cross-section

1 east of Section 20?

2 A. In the gridded cross-sections that were  
3 constructed to look at the correlativeness of sands and  
4 to -- Yes, yes.

5 Q. In your cross-section you used a well east of  
6 Section 20?

7 A. That's correct. Well, not in this cross-  
8 section. But in cross-sections -- The grids of cross-  
9 sections that were made within the local area, yes,  
10 there were wells that were used.

11 Q. Where are those cross-sections?

12 A. They're back at the office.

13 MR. PADILLA: I have no further questions.

14 CHAIRMAN LEMAY: Thank you, Mr. Padilla.

15 Additional questions of the witness?

16 Commissioner Weiss?

17 EXAMINATION

18 BY COMMISSIONER WEISS:

19 Q. What kind of rock is the reservoir?

20 A. Okay, the primary production, both in the  
21 Upper and Lower Morrow Pools, is a sandstone generally  
22 showing -- Well, the log character, for example, shows  
23 that we have some fining upwards, which would be  
24 characteristic of your channel sand.

25 You have characteristic -- It generally

1 lacked cements and clay matrixes up in the Rock Tank  
2 Pools, whereas down in the Baldrige Canyon area the  
3 sandstones might have been characterized as being a  
4 little dirtier, as well as perhaps a little thinner.

5           The sandstones that are productive, the Upper  
6 and Lower Morrow sandstones at Rock Tank, are somewhat  
7 unique. And then that uniqueness in, I guess, perhaps  
8 quality is mirrored by the fact that they're such good  
9 producers.

10           The fact that this is on a major anticlinal  
11 feature, though, may have led to secondary porosity.  
12 Maybe there's some fracture porosity. I'm not real  
13 clear on that.

14           Q.    What do you think the matrix permeability is?

15           A.    I would estimate somewhere in the upper tens  
16 to low hundreds of millidarcies.

17           Q.    And that would --

18           A.    And there are several -- And there are  
19 definitely some wells that were your most prolific  
20 wells up there that the permeability was probably  
21 exceptional -- exceptionally high -- because the  
22 quality of the sand on the logs, although it somewhat  
23 reflects the production, you have to almost say that  
24 the permeability is also there.

25           Unfortunately, I don't get a good handle just

1 looking at the logs.

2 Q. Okay. Well, I was thinking, you know,  
3 sometimes you see capillary forces trap water like  
4 that --

5 A. Okay.

6 Q. -- above or below. You don't have a water --  
7 gas-water contact?

8 A. Right. And that's certainly a concern,  
9 although I would reason that the amounts may be  
10 sufficient enough to establish that, yes, you have --  
11 The water is in fact there. And luckily, because of  
12 the fact that you have the three wells, that had some  
13 kind of water or water content.

14 COMMISSIONER WEISS: I don't have any more  
15 questions. Thank you.

16 EXAMINATION

17 BY COMMISSIONER LEMAY:

18 Q. Mr. Kwolek --

19 A. Yes, sir.

20 Q. -- would you recommend this prospect, if you  
21 owned all the acreage, to your management to drill?

22 A. If I owned all the acreage within Section 20  
23 I would probably recommend to my management, as in fact  
24 I have as a geologist for Exxon, and we don't own all  
25 the acreage, to run additional seismic.

1 I'd like to get a little better handle on  
2 what is the trapping mechanism that in fact may set up  
3 a pool there?

4 Q. I guess that's what I was trying to focus on.  
5 What's your prospect in there? You have -- You're  
6 downdip from water. It looks like your well in Section  
7 -- Correct me if I'm wrong, but in Section 29 was tight  
8 in the lower sandstone and basically had some untested  
9 porosity in the upper sandstone?

10 A. That's correct.

11 Q. Although the drill stem tests seemed to  
12 recover water from the shale section, that you call  
13 shale.

14 A. In the upper -- Well, the two DST's that were  
15 run in Section 29, one was partially within that Upper  
16 Morrow sandstone, and it recovered -- I believe it was  
17 120 feet of fluid, but there was no documentation what  
18 that fluid was.

19 Then there was the test above the two primary  
20 sands that we're talking about, or I have exhibited  
21 here, and that recovered water, and that was from a  
22 shale sandstone interval, yes.

23 Q. But that's your other well for well control,  
24 the closest well to your prospect?

25 A. That's correct. You're -- okay, you're going

1 -- The biggest risk out here in Section 20 is going to  
2 be, do you have a trap?

3 I believe that the regional control that I  
4 have on the Upper and Lower Morrow sandstones,  
5 including the wells up at Rock Tank which show the  
6 northwest-to-southeast pattern, and that -- Let's see.  
7 The trend continues down across Section 29 -- You do  
8 not have the Lower Morrow sandstone present, but you do  
9 have the Upper Morrow sandstone -- and then continuing  
10 down into section 34.

11 So you probably have enough control to  
12 propose a risky prospect to your management with saying  
13 that you have faith in your orientation of your  
14 channel, and you probably do have sands across Section  
15 20.

16 The question then is going to be, though, do  
17 you want to take the risk of whether or not you have  
18 some kind of trapping mechanism?

19 Q. When you say "trap," are you talking about  
20 structural trap or stratigraphic or both?

21 A. Either one.

22 Q. It looks to me like Baldrige Canyon and Dark  
23 Canyon don't have structural traps; they're  
24 stratigraphic.

25 A. Right. The fault which the well control

1 suggests stems from Baldrige Canyon up into the field  
2 to the north has production on both sides of the fault,  
3 and evidently you have a leaky fault if you believe  
4 that the well control is correct and the identification  
5 on the seismic line.

6 With respect to continuing up, though, into  
7 this area, it would be possible for a leaky fault to  
8 exist down here and yet have a tight fault northwest of  
9 Section 20 and set up that trapping mechanism.

10 Q. In regard to that fault -- I'm not going to  
11 beat the seismic to death, though -- but couldn't you  
12 contour that area down there without a fault at all?  
13 It doesn't look you have much vertical displacement.

14 A. Down in this area?

15 Q. Yes.

16 A. Yes, you could. But it's part of -- I think  
17 the fault fits in well with the regional mapping of the  
18 area that shows numerous down-to-the-basin faults.

19 It's not surprising. The interpretation in  
20 the literature is that you do in fact have many of  
21 these 100-, 200-foot steps.

22 And these 500-foot faults are more unique.  
23 And they, in fact, set up some of your best production  
24 out here.

25 Q. 500, I can see -- seismic -- Can you pick up

1 a 100-foot displacement in the Penn with seismic  
2 records?

3 A. That's a difficult call, and we would  
4 certainly have some contestants to that interpretation.

5 CHAIRMAN LEMAY: I have no additional  
6 questions.

7 Additional questions of the witness?

8 MR. PADILLA: No, sir.

9 CHAIRMAN LEMAY: If not, he may be excused.  
10 Thank you, Mr. Kwolek.

11 Take about a 15-minute break here. You have  
12 one more or two more?

13 MR. KELLAHIN: Just one more.

14 CHAIRMAN LEMAY: Okay, thank you.

15  
16 (Thereupon, a recess was taken at 3:17 p.m.)

17  
18 (The following proceedings had at 3:38 p.m.)

19  
20 CHAIRMAN LEMAY: We'll resume the hearing.

21 MR. KELLAHIN: I'd like to call at this time  
22 Mr. Bill Duncan. Mr. Duncan is a petroleum engineer  
23 with Exxon.

24

25

1                                    WILLIAM T. DUNCAN, JR.,

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

4                                    DIRECT EXAMINATION

5        BY MR. KELLAHIN:

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

8                    A.     William T. Duncan, Jr., and I'm a senior  
9        engineer with Exxon Corporation.

10                  Q.     Have you on prior occasions testified before  
11        this Commission with regards to the subject of  
12        petroleum engineering?

13                  A.     Yes, I have.

14                  Q.     And did you testify before Examiner Stogner  
15        in the consolidated cases that are now before this  
16        Commission?

17                  A.     Yes, I did.

18                  MR. KELLAHIN:    We tender Mr. Duncan as an  
19        expert --

20                  CHAIRMAN LEMAY:    Qualifications are  
21        acceptable.

22                  Q.     (By Mr. Kellahin)    Mr. Duncan, let me direct  
23        you, sir, to what was introduced as Exxon Exhibit  
24        Number 1 and ask you what part you played in the  
25        investigation, from an engineering aspect, of the

1 questions involved before the Commission.

2 A. I reviewed the pressure information that was  
3 available from public sources for the wells in the area  
4 of Rock Tank and of Baldrige Canyon, and from that  
5 pressure information I made conclusions.

6 Q. Describe for us how you went about your  
7 investigation.

8 A. I collected data from the Baldrige Canyon  
9 Morrow and the Rock Tank Morrow fields. From each of  
10 the wells, I collected -- What is shown on Exhibit  
11 Number 7 are data points which represent each of the  
12 P-over-Z, bottomhole-pressure-over-Z, measurements  
13 reported in Dwight's Data for Wells in those two  
14 fields.

15 Q. What were you trying to investigate?

16 A. I was trying to determine whether there is  
17 any separation between the Baldrige Canyon Morrow and  
18 the Rock Tank Morrow Pools.

19 Q. And based upon your studies of the pressure  
20 information available from those two pools, what did  
21 you conclude?

22 A. Those two pools are not in pressure  
23 communication.

24 Q. Can you demonstrate that for us by looking at  
25 Exhibit Number 7?

1           A.    Yes, Exhibit Number 7 shows the Rock Tank  
2 Upper Morrow data points plotted with a closed square  
3 and the Rock Tank Lower Morrow pressure measurements  
4 plotted with an open square. The Baldrige Canyon  
5 Morrow pressure data points are plotted with a closed  
6 circle.

7                    The plot that you're looking at, on the Y  
8 axis is the bottomhole-pressure-over-Z measurements --  
9 It says initial or I, but it is not initial; it's just  
10 bottomhole pressure over Z -- plotted against the date  
11 on which those pressure measurements were recorded, or  
12 the date of the test.

13                   Now, these pressure measurements for the most  
14 part are shut-in wellhead pressures that have been  
15 extrapolated to bottomhole by Dwight's.

16           Q.    What -- Give us a range of the pressure  
17 differentials that exist between the two pools, on  
18 average.

19           A.    Well, the main thing that you would get from  
20 Exhibit Number 7 is that the Rock Tank Upper Morrow  
21 pressures declined from essentially 4500 p.s.i. down  
22 through 500 p.s.i., over a period of time from the mid-  
23 -- or the late 1960's -- through the late 1970's.

24                   The Baldrige Canyon Morrow Pool came on  
25 production in about 1980, and it came on production at

1 pressures about the same or higher than the initial  
2 pressures in the Rock Tank Pools. This shows that  
3 production, the extensive production in the Rock Tank  
4 Pools, has had no effect on the accumulation of gas in  
5 the Baldrige Canyon Morrow Pool.

6 In addition --

7 Q. There are a couple of small anomalies on  
8 here. Would you explain those to us?

9 A. Well, they're very small.

10 You'll see these closed squares at the lower  
11 portion of the exhibit which tend to line up with the  
12 later pressure measurements in the Baldrige Canyon  
13 Morrow Pool. If those squares are correct, they are  
14 later pressure measurements from a well that was shut  
15 in and had not produced since 1974.

16 Indistinctly you can see the line, the  
17 horizontal line that's created by those pressure  
18 measurements in that one well, which was not producing  
19 over that ten-year period.

20 So it appears to be an anomaly, however it's  
21 just the pressure which stayed the same in a well that  
22 was not producing.

23 Q. If Baldrige Canyon is in pressure  
24 communication with Rock Tank, with the Upper or the  
25 Lower Morrow, how would this information be displayed

1 on our Exhibit Number 7? What would you see?

2 A. Well, I would expect to see that the initial  
3 pressures found in wells in the Baldrige Canyon Morrow  
4 Pool would be drawn down somewhat from what they were.

5 In addition, since the vast majority of the  
6 Rock Tank production occurred prior to the discovery of  
7 Baldrige Canyon, it's really almost inconceivable that  
8 you wouldn't see some effect.

9 Q. Based upon your engineering conclusions,  
10 then, did you ask the geologic staff of Exxon to map  
11 the geology, take the available geologic information  
12 and help determine the relationship of Section 20, as  
13 it might be interpreted, either to Rock Tank or to  
14 Baldrige Canyon?

15 A. Yes, I did.

16 MR. KELLAHIN: That concludes my examination  
17 of Mr. Duncan. We move the introduction of his Exhibit  
18 Number 7.

19 CHAIRMAN LEMAY: Exhibit 7 into the record  
20 without objection.

21 Mr. Padilla?

22 EXAMINATION

23 BY MR. PADILLA:

24 Q. Mr. Duncan, does Exhibit 7 show in any way  
25 what kind of pressure will be encountered by a well

1 drilled in Section 20?

2 A. No, it does not.

3 Q. This merely shows that the Baldrige Canyon  
4 Morrow Pool and the Rock Tank Upper and Lower Morrow  
5 Pools are two different pools; is that correct?

6 A. Well, that is the main conclusion.

7 If you want to make -- If you want to assume  
8 certain things, you can assume or use those assumptions  
9 and use Exhibit 7 to come to a conclusion about what  
10 pressure you would see in Section 20.

11 For instance, if you assume that Section 20  
12 was in communication with Rock Tank Upper Morrow and  
13 Lower Morrow, you can use Exhibit 7 to determine that  
14 Section 20 is likely to be depleted. That's one way to  
15 use it.

16 Q. Isn't the Baldrige Canyon Morrow Pool  
17 further away from Section 20 than the Rock Tank Upper  
18 and Lower Morrow Pools?

19 A. Yes, it is. At least as far as the nearest  
20 well completed in each of those pools.

21 MR. PADILLA: I have no further questions.

22 CHAIRMAN LEMAY: Thank you, Mr. Padilla.

23 Commissioner Weiss?

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25

## EXAMINATION

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BY COMMISSIONER WEISS:

Q. Did you do a material balance on the Rock Tank Pool?

A. No, I did not.

COMMISSIONER WEISS: I have no other questions.

CHAIRMAN LEMAY: Any more questions of the witness?

You may be excused. Thank you, Mr. Duncan.

MR. KELLAHIN: That concludes our direct presentation.

CHAIRMAN LEMAY: Thank you, Mr. Kellahin. Mr. Padilla?

MR. PADILLA: Mr. Chairman, we'll call Mr. Mike Burton for our portion of the case at this time.

MICHAEL R. BURTON,

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

## EXAMINATION

BY MR. PADILLA:

Q. Mr. Burton, for the record would you please state your full name?

A. My name is Michael Ramsey Burton.

Q. You work for Santa Fe Energy Operating

1 Partners, L.P.?

2 A. Yes, sir.

3 Q. And what do you do for them?

4 A. I'm the Permian Basin district drilling  
5 engineer.

6 Q. And what are your duties as a drilling  
7 engineer?

8 A. I have several duties. I develop well plans  
9 to drill the wells that the geologists propose, oversee  
10 location construction, oversee the actual drilling  
11 operations of the well, supervise field people in their  
12 operations.

13 Q. Mr. Burton, have you previously testified  
14 before the Oil Conservation Division and had your  
15 credentials accepted as a matter of record as a  
16 drilling engineer?

17 A. Yes, sir, I have.

18 Q. Have you made a study of the drilling  
19 locations in Section 20, as proposed by Santa Fe?

20 A. Yes, sir, I was asked to stake a well in  
21 Section 20 last October and went out with a survey crew  
22 and a person from the Bureau of Land Management and  
23 staked several locations.

24 MR. PADILLA: Mr. Chairman, we tender Mr.  
25 Burton as an expert drilling engineer.

1                   CHAIRMAN LEMAY:  Qualifications are  
2 acceptable.

3           Q.    (By Mr. Padilla)  Mr. Burton, first I'd like  
4 for you to generally describe for me what trips you  
5 have made to Section 20 and on what occasions and for  
6 what purpose.

7           A.    Okay.  Last October, after receiving a  
8 request to stake a well 660 from the north line and  
9 1980 from the east line in Section 20, I accompanied a  
10 survey crew from John West Engineering and a  
11 representative from the Bureau of Land Management into  
12 that general vicinity, and we staked several sites.

13           Q.    Who was the person from the Bureau of Land  
14 Management that went out there with you?

15           A.    Mr. Barry Hunt.

16           Q.    Okay, and you went to Section 20 a second  
17 time?

18           A.    Yes, sir, I went to Section 20 last Friday.

19           Q.    And what was the reason you went to Section  
20 20 last Friday?

21           A.    To take some photographs of the general area.

22           Q.    And was anyone with you when you went to  
23 Section 20 last week?

24           A.    Yes, sir, Mr. David Maley with M and M  
25 Construction Company of Carlsbad, New Mexico.

1 Q. Why did you take Mr. Maley to Section 20?

2 A. Well, it was my feeling that there would be a  
3 tremendous difference in cost to build a location at  
4 the various sites that we had staked, and since he's in  
5 that business of building locations, I thought his  
6 opinion would be valuable.

7 MR. PADILLA: Mr. Chairman, I only have one  
8 set of these pictures. I'd like to introduce them and  
9 then give them to the Commission.

10 CHAIRMAN LEMAY: All right.

11 Q. (By Mr. Padilla) Mr. Burton, I hand you what  
12 we have marked as Exhibits 1-A through 1-G and ask you  
13 what those are.

14 A. 1-A shows a picture --

15 Q. Generally, what is the -- Exhibits 1-A  
16 through 1-G?

17 A. Okay, these are -- This is photographs of the  
18 topography in Section 20.

19 Q. Are those the photographs you took last  
20 week --

21 A. Yes.

22 Q. -- of the area?

23 A. Yes.

24 Q. And are those fair and accurate rep- -- or do  
25 those photographs show accurately and fairly the

1 topography of that area?

2 A. Yes, sir.

3 Q. Okay. Let me show you what we have marked as  
4 Exhibit Number 2 and ask you to identify this exhibit.

5 A. This is a copy of the topographic map of the  
6 area that includes Section 20.

7 Q. Okay. Would you explain what the legend on  
8 that exhibit indicates on the upper right-hand corner?

9 A. The closed circles are representatives of  
10 locations either staked or marked on this map by Santa  
11 Fe Energy Operating Partners, L.P., and gives the  
12 distances from the north and east lines or north and  
13 west lines, as the case may be, of Section 20.

14 The closed triangles indicate -- Well,  
15 they're labeled Exxon, and they give distances from the  
16 north and east line -- or north and west line, as the  
17 case may be -- of those locations.

18 The closed square is a location in Section 16  
19 by Siete Oil Company.

20 Q. Okay. Now, I notice on that legend, on the  
21 Exxon portion of the legend, there are some penciled-in  
22 footages. When was that -- When were those footages  
23 penciled in?

24 A. I think they were penciled in yesterday.

25 Q. Now, let's start off with the Santa Fe Number

1 1 location and have you explain that, please.

2 A. The Number 1 location is the location I was  
3 instructed to stake.

4 Q. And when you -- What did you find when you  
5 staked that location?

6 A. I found that in my opinion that was not a  
7 suitable drill site, whereupon we began searching for a  
8 suitable drill site.

9 Q. How about the Number 1 Exxon location? Tell  
10 us where that is.

11 A. That's on a point in the northeast corner of  
12 the section, 660 from the north and east.

13 Q. And how about the Exxon Number 2 position?  
14 Where is that located?

15 A. That's approximately -- Well, that's a  
16 hundred feet south of our Number 1 location.

17 Q. Is that number -- Exxon Number 2 position a  
18 suitable location, in your opinion?

19 A. No, sir.

20 Q. Do you have any photographs which would show  
21 the terrain of -- that would represent the Exxon Number  
22 1, the Santa Fe Number 1, and the Exxon Number 2  
23 locations?

24 A. Yes, sir, I think I do.

25 Q. Can you identify the exhibits that you have

1 identified that would show those locations and would  
2 represent that area?

3 A. Yes, sir. Exhibit 1-B is representative of  
4 the Santa Fe location Number 1, 660 from the north  
5 line, 1980 from the east line.

6 Q. Okay.

7 A. And that specific location is indicated by  
8 the pile of rocks in the lower right-hand corner of  
9 that number picture.

10 Q. Why isn't that location suitable, in your  
11 opinion, Mr. Burton?

12 A. Well, it's -- It's too close, in my opinion,  
13 to this -- It's right virtually in the river bottom.

14 Q. Do you have -- Okay. What's wrong with the  
15 river bottom? Why can't a location be built on that?

16 A. Well, when it rains, this area becomes  
17 flooded with water, and you could destroy the  
18 production facilities that might be in place, should  
19 the well be a producer.

20 Q. Let me ask you -- I have also asked you about  
21 the Number 1 Exxon location. Do you have anything that  
22 would show approximately in that area where the Exxon  
23 Number 1 location would have been located?

24 A. Yes, sir, it's this Exhibit Number 1-C.

25 Q. And what kind of terrain do you encounter in

1 that location?

2 A. It's virtually the same. It's very hard rock  
3 near the bottom of this river.

4 Q. Now, let me -- What does this Exhibit 1-C  
5 also show?

6 A. Well, it shows the very hard cemented-  
7 together rock that makes up this general area that,  
8 according to David Maley, could not be moved with a  
9 bulldozer prior to being blasted with dynamite.

10 Q. Okay.

11 A. And that indicates to me that it's a very  
12 expensive location to build.

13 Q. Let me show you one of these photographs and  
14 have you identify that as -- ask you what this 1-E  
15 contains, please.

16 A. 1-E is looking northeasterly across this  
17 riverbed. If you look closely, you can make out the  
18 road intersection of these two jeep trails that are in  
19 the bottom of the riverbed.

20 Q. Does that show fairly the location, more or  
21 less, of the Exxon Number 1 location in the northeast  
22 quarter?

23 A. Well, yes, I think you can make it out as  
24 this little nose in the upper left-hand part of the  
25 picture.

1 Q. Can you point that out for the Commission,  
2 please? Step down and show them where that nose is  
3 located?

4 A. I think it's -- I think it's that bit of  
5 relief about one inch from the top left.

6 CHAIRMAN LEMAY: Uh-huh.

7 THE WITNESS: Yes.

8 COMMISSIONER WEISS: Running downhill there?

9 THE WITNESS: Pardon me, sir? Yes.

10 Q. (By Mr. Padilla) Mr. Burton, let me address  
11 your attention to what are marked on Exhibit Number 2  
12 as Santa Fe locations 2 and 4 and the Exxon Number 3  
13 location and ask you what is wrong with those  
14 locations, from your standpoint.

15 A. Well, in my opinion, there's the possibility  
16 that during a heavy rain the water that drains into  
17 this river bottom from the surrounding area could  
18 destroy or could accumulate, and the fast-moving water  
19 destroy the production facilities that might be in  
20 place.

21 Q. Does that -- Do those locations, in your  
22 opinion, have the same problem as the Santa Fe Number 1  
23 and the Exxon Number 2 locations?

24 A. Yes, sir.

25 Q. Do you have any photograph that would

1 identify the location of the -- these three locations?

2 A. Well, yes, sir. The Santa Fe Number 1, as I  
3 said, I believe that photograph is going around, and --

4 Q. Is that --

5 A. -- and then --

6 Q. -- Number 1-A that you identified earlier?

7 A. I'm sorry --

8 Q. Is that --

9 A. -- I don't recall --

10 Q. -- the river bottom that you identified, the  
11 picture with the river bottom?

12 A. That was the picture with the flags broken  
13 and the pile of rocks in the lower right-hand corner.

14 Q. Okay.

15 A. The picture that shows 2 and 3 is the one  
16 that also shows the Exxon, the general area of Exxon  
17 Number 1. It's the one looking across the river  
18 bottom, southwest.

19 Q. Now, do you have any pictures that would  
20 represent the area by the Santa Fe Number 3, Number 5  
21 and Number 6, or even the Exxon Number 4 locations?

22 A. Yes, sir, I do. I think these two  
23 locations -- or these two exhibits, 1-G and 1-F, are  
24 indicative of the topography around 3, 5 and 6.  
25 They're up on high ground, relatively flat.

1 Q. Do you have the kind of rock that you  
2 identified as being -- Would you have to dynamite up  
3 there?

4 A. No, sir.

5 Q. Okay. Let me show you, sir, what we have  
6 marked as exhibits 1-B and 1-A and have you identify  
7 those, please.

8 A. These are more pictures of the dry  
9 riverbed --

10 Q. Which one?

11 A. -- Section 20. This Exhibit 1-A.

12 Q. And what does Exhibit 1-D represent?

13 A. It's taken from this dry riverbed and looking  
14 back in a southerly direction. It shows the slopes of  
15 the ground.

16 Q. Would this indicate, on Exhibit 1-D, that  
17 dynamiting would be necessary on this?

18 A. Yes, sir.

19 Q. And Exhibit 1-A is the bottom of the  
20 riverbed?

21 A. Yes, sir.

22 Q. Last week when you went out there, Mr.  
23 Burton, did you receive some idea of how much it would  
24 cost to drill a well -- to build a location at the top  
25 of the rim or at the bottom of the canyon?

1           A.    Yes, sir.  If we built a location on top,  
2           around our location 5, 6, 3, that estimate from M and M  
3           Construction Company is about \$20,000.

4                    If we built a location around Santa Fe's  
5           Number 2, Exxon's Number 3, that location, construction  
6           cost will be about \$69,000.

7           Q.    Is that reflected in the AFE's that you have  
8           prepared for the Division hearing and for this hearing?

9           A.    I received that estimate later, but I -- But  
10          the costs are in there.

11                   And the first one I prepared, the location  
12          construction costs are about \$25,000, if I recall, and  
13          the second one, the location construction costs are  
14          \$75,000.

15          Q.    But that \$50,000 extra is reflected in there;  
16          is that correct?

17          A.    Yes, sir.

18                   MR. PADILLA:  Mr. Chairman, I think Mr.  
19          Kellahin and I have stipulated as to the reasonableness  
20          of the AFE's -- or the one showing the higher figure  
21          and the one showing the lower figure.

22                   CHAIRMAN LEMAY:  Correct, Mr. Kellahin?

23                   MR. KELLAHIN:  Mr. Chairman, we've so  
24          stipulated that the revised AFE showing the additional  
25          surface work is fair and reasonable.

1 CHAIRMAN LEMAY: Fine, thank you.

2 Q. (By Mr. Padilla) Mr. Burton, given your --

3 Well, let me ask you this: What did the BLM person

4 tell you when you went out there with him?

5 MR. KELLAHIN: Could we establish a time

6 frame?

7 MR. PADILLA: Well, it would be --

8 THE WITNESS: This was about October 10th or

9 11th.

10 MR. KELLAHIN: And this was Mr. Hunt?

11 THE WITNESS: Yes, sir.

12 Q. (By Mr. Padilla) What did he tell you?

13 A. He said that the location that -- To build a  
14 location on -- in the river bottom would require much  
15 more environmental impact. We'd have to do, you know,  
16 more work to build a location down there.

17 Q. Did Mr. Hunt prohibit a location down at the  
18 bottom of the canyon?

19 A. No, sir, that's not his specific job. That  
20 would be -- The acceptance of that location would be  
21 decided upon after the submission of an application to  
22 drill that shows the exact location and maps and things  
23 of that nature.

24 Q. Did he make any suggestion to you as to where  
25 to locate the well?

1           A.    Yes, sir, it was my understanding that it's  
2 his opinion that it would be less of an environmental  
3 impact if we would put the location on top.

4           Q.    In terms of percentage, what would the cost  
5 of the well difference be if you had the well at the  
6 bottom of the canyon as opposed to the -- on the rim?

7           A.    The dryhole costs here are in the \$500,000  
8 range, so a \$50,000 difference is about ten percent of  
9 the well cost.

10          Q.    Is that a significant increase, in your  
11 opinion?

12          A.    Yes, sir.

13          Q.    What experience have you had, sir, with  
14 locating wells in this kind of terrain? I mean -- When  
15 I say in this kind of terrain, I'm saying at the bottom  
16 of the canyon.

17          A.    Well, the one that we drilled when I was  
18 employed by another company, during the times of high  
19 water in the river, it was very difficult to move  
20 equipment in and out due to the mud, and I just didn't  
21 like that experience.

22          Q.    And where was that?

23          A.    That was near Farmington, New Mexico.

24          Q.    And have you encountered any other locations  
25 such as this since your employment with Santa Fe?

1           A.    No, sir, since I've been employed by Santa Fe  
2 the past nine years, we've tried to avoid putting  
3 locations down in the bottom of riverbeds.

4           Q.    In the last few years, have you encountered  
5 more concerns with respect to protection of the  
6 environment as far as location of the wells is  
7 concerned?

8           A.    Yes, sir.

9           Q.    And how has that developed? Can you tell us?

10          A.    Well, I think over the -- Over the years,  
11 I've become more environmentally conscious of -- not  
12 only of the damage we can do to the environment,  
13 surface topography, try to leave things as much as  
14 possible the way they are and, when we have a chance to  
15 minimize the environmental impact, to do that.

16          Q.    Mr. Burton, does Santa Fe have any kind of  
17 policy with regard to environmental protection?

18          A.    Yes, sir, we try to do as little harm to the  
19 environment as possible.

20          Q.    Let me show you what we have marked as  
21 Exhibit Number 3 and have you tell us what that is,  
22 sir.

23          A.    This is a letter that we received from the  
24 Bureau of Land Management that is recognizing Santa Fe  
25 as the recipient of the Annual Environmental Initiative

1 Award for southeastern New Mexico, complimenting us on  
2 how our locations are clean and in full compliance with  
3 BLM regulations, orders. I think it's a compliment on  
4 the way we go about doing our work.

5 Q. Do you take credit for any of -- for that  
6 allocated -- or award, if you want to call it that?

7 A. Well, I'm --

8 Q. Accolade, I wanted to say.

9 A. I'm part of the team that helped earn this  
10 award.

11 Q. In your opinion, would locating a well in  
12 Section 20 at the bottom of the canyon or on the rim  
13 have anything to do with getting this award?

14 A. I don't know. I think that if -- This award  
15 was given before this question came up, so I don't  
16 know.

17 MR. PADILLA: Okay, that's fair enough.

18 Mr. Chairman, I may have identified the AFE's  
19 as Exhibit 3 before, and I misspoke. That should be  
20 marked as Exhibit Number 4, and this last exhibit that  
21 Mr. Burton testified from should be Exhibit Number 3.

22 I believe, Mr. Chairman, that's all I have.

23 CHAIRMAN LEMAY: Thank you. Exhibits 1  
24 through 4, renamed, into the record?

25 MR. PADILLA: I'm sorry?

1           CHAIRMAN LEMAY: Do you want to submit those  
2 into the record --

3           MR. PADILLA: Yes --

4           CHAIRMAN LEMAY: -- at this time?

5           MR. PADILLA: -- I want them.

6           CHAIRMAN LEMAY: Without objection, those  
7 exhibits will enter the record.

8           Mr. Kellahin, do you have any questions?

9           MR. KELLAHIN: No questions.

10          CHAIRMAN LEMAY: Any other questions of the  
11 witness?

12          You may be excused. Thank you very much.  
13 Congratulations on your award.

14          THE WITNESS: Thank you very much.

15          MR. PADILLA: Mr. Chairman, I'll call Vernon  
16 Dyer at this time.

17                         VERNON D. DYER,

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

20                                 EXAMINATION

21 BY MR. PADILLA:

22           Q. Mr. Dyer, could you please state your full  
23 name?

24           A. Vernon Dwayne Dyer.

25           Q. And you work for Santa Fe Operating Partners,

1 L.F.?

2 A. That is correct.

3 Q. And what's your position with Santa Fe?

4 A. I'm the district land manager.

5 Q. What duties do you have as district land  
6 marager?

7 A. I'm responsible for the Permian Basin in the  
8 capacity of all their land work, overseeing it and  
9 keeping those records, et cetera, that is required by  
10 the land department.

11 Q. Have you testified, sir, before the Oil  
12 Conservation Commission or the Oil Conservation  
13 Division and had your credentials accepted as a matter  
14 of record as a petroleum landman?

15 A. Yes, I have.

16 Q. Mr. Dyer, do you have -- You were in charge  
17 of Mr. Tower when he testified before the Oil  
18 Conservation Division before the -- at the Division  
19 hearing; is that correct?

20 A. That is correct.

21 Q. You were his supervisor?

22 A. Yes, he worked directly for me.

23 Q. And you're familiar with all of the dealings  
24 that you've had with Exxon insofar as drilling a well  
25 in Section 20 is concerned?

1           A.    Yes, I was either directly involved or I  
2 reviewed them when Mr. Tower brought them in to me.

3           Q.    Mr. Dyer, I want to go as fast as I can, and  
4 I'd like to not overlap into what Mr. Kellahin and I  
5 have stipulated, and I'm going to ask you to be as  
6 brief as you can with the questions that you -- that I  
7 have for you.

8                     Now, let me hand you what we have marked as  
9 Exhibit 5 and have you tell us what that is.

10          A.    That is a -- This is a letter that I wrote to  
11 Mr. Joe Thomas with Exxon after the Order was issued by  
12 the OCD after the last hearing.

13          Q.    And what is -- can you briefly identify --  
14 What was the purpose of sending this letter?

15          A.    Well, I was in -- In compliance with the  
16 Order, I offered him the -- offered to send two cost  
17 estimates for the well, offered him to join or to -- if  
18 they didn't want to join, to farm out their interests,  
19 and put in the terms of the farmout we would accept  
20 rather than go under the order.

21          Q.    Did you have any other communications with  
22 Exxon regarding the substance of this letter?

23          A.    Yes, I had three telephone conversations.

24          Q.    And what were the results of those  
25 conversations and correspondence?

1           A.    Well, the correspondence -- this is the only  
2           correspondence that -- I sent this to them, and they  
3           never sent anything back.

4                    And the three telephone conversations was,  
5           the day I sent this Mr. Joe Thomas called, the same  
6           day, said that they would -- wasn't going to join us in  
7           a well but they would farm out, if we would take the  
8           east half again, with a third back in -- With no back  
9           in -- No, with a third back in, I'm sorry. No, with --

10                   And I told them that that was basically the  
11           same thing they had offered before, that that wasn't  
12           acceptable to us.

13                   And he said, Well, if we talk briefly in  
14           words.

15                   And finally I said, But I'll take it to  
16           maragement. I'll, you know, make sure that there's no  
17           change of heart.

18                   Then the next day I received a call from  
19           Beth, and I'll just -- I'll apologize for the name --  
20           Franques.

21                   FROM THE FLOOR:   Francis.

22                   THE WITNESS:   Is that correct?

23                   FROM THE FLOOR:   Francis.

24                   THE WITNESS:   Francis. I'm terrible with  
25           names, and I apologize about that.

1           She asked me -- She basically stated the same  
2 thing, saying that they would farm out to us in the  
3 east half, they was not going to join with us, and that  
4 if we didn't do that, they were going to give a de  
5 novo.

6           And I said, Well, when do you need your  
7 answer?

8           And she said, Well, we -- I'm only working  
9 half a day because of a pregnancy, and that I'll be  
10 back in tomorrow. You can call me at home tonight.

11           Well, the next day -- I hadn't called her  
12 that night. The next day she called me again and again  
13 made me the same offer.

14           I said the same thing, that it was -- You  
15 know, you're not changing your tune. You -- It's the  
16 same thing, you've never offered to join. You always  
17 offered and said you were either going to nothing or  
18 you'll farm out, and you're not giving anything to help  
19 us.

20           She said fine, we'll give you a de novo and  
21 let it run.

22           Q. (By Mr. Padilla) So you still have no  
23 agreement with Exxon essentially; is that --

24           A. No.

25           Q. -- correct?

1           A.    That is correct, we do not have an agreement  
2 with Exxon.

3           Q.    Let me show you what we have marked as Santa  
4 Fe Exhibit Number 6 and ask if you can identify that.

5           A.    That is the land map that we have entered at  
6 this time as our exhibit.

7           Q.    Is that basically the same land map that Mr.  
8 Tower submitted at the Division hearing?

9           A.    Yes, it is. It's prettied up a little more,  
10 but it's basically the same thing.

11          Q.    Has your land position changed at all since  
12 the Division hearing in this area?

13          A.    No, it has not.

14          Q.    How about the south half of Section 20? Do  
15 you have a permanent grip on the south half of Section  
16 20 now?

17          A.    Well, no, we have nothing in writing.

18                We have talked to Amoco again, and they  
19 are -- have been kind of waiting to see what Exxon  
20 does, because before we do any actual paperwork, there  
21 is a time limit involved in the -- either the farmout  
22 or the well, or the optional farmout for a well in the  
23 north half, and there will be so many days we'll have  
24 to move on.

25                And knowing the problems we have, Emily

1 Goodfellow and Tim Custer said, Let's don't do any  
2 paperwork until we find out what's going to happen.

3 Q. When was the last time you talked to Amoco  
4 about the south half of Section 20?

5 A. It was last week. I talked to Tim Custer.

6 Q. And what did Mr. Custer tell you?

7 A. As far as he knew, he was still on go. He  
8 was wanting to know how things were going and if we  
9 were ready for the de novo.

10 Q. Weren't they going to farm out to you at some  
11 point or other, or what is the deal?

12 A. The deal is, we are -- as we talked, they are  
13 going to -- We have a big joint venture with them,  
14 covering a lot -- over 20,000 acres in southeast New  
15 Mexico -- and their recommendation and what they were  
16 waiting to do was to go ahead and put it into the big  
17 agreement that we already have with them, which is a  
18 farmout of a number of acres.

19 Q. Okay. So you feel comfortable with showing  
20 as having an interest in the south half of Section 20?

21 A. Yes. This -- Normally I wouldn't, unless you  
22 have something in writing. But with our relationship  
23 with Exxon -- I mean with Amoco -- for the last two  
24 years, yes, I feel very comfortable at this time.

25 Q. Mr. Dyer, I'm going to show you what we have

1 marked as Exhibit Number 7. I want you to be very  
2 brief on this exhibit and tell us what it is. It was  
3 not submitted at the Division hearing, and please tell  
4 us what that is.

5 A. That is -- This is the letter we received  
6 from Siete in January, when they first proposed the  
7 3-1/2-section working-interest unit. We had 16, 17, 21  
8 and the east half of 20. And that is my writing on  
9 there, giving the -- with the Mutton Prospects and the  
10 different interests and stuff like that.

11 Q. Why did -- Do you know why Siete excluded the  
12 west half of Section 20?

13 A. No, I do not. But at the time, I called Gene  
14 -- or Mr. Shumate -- the land manager, and talked to  
15 him and told him that we would probably join, but we  
16 would probably want the whole section put in there  
17 instead of section -- instead of just the east half.

18 And Gene said at that time, he said, Well,  
19 you know, I haven't heard from anybody. I know you --  
20 except Tex- -- except Amoco, and I know you've talked  
21 to them, and they want us to deal with you on their  
22 part. Let's just wait till Exxon comes back and see if  
23 they do anything before we bring it up. Because  
24 chances are they're not going to do anything --

25 Q. Did you ever -- Did you ever enter into a

1 working-interest unit with Siete?

2 A. Yes, we have. And it covers Sections 16 and  
3 21.

4 Q. Why would you in Section 16?

5 A. Because Exxon -- Mr. Thomas called and said  
6 that they would not join to the unit, they would not  
7 farm out to the unit, and they would not give any  
8 support to the unit.

9 MR. PADILLA: Mr. Dyer, let me -- well -- Mr.  
10 Chairman, we have marked Exhibit 8 as being the same  
11 exhibit we submitted as Exhibit 2 in the Division  
12 hearing. If Mr. Kellahin has no problem with this, we  
13 would just tender this for the purpose of --

14 MR. KELLAHIN: No objection.

15 MR. PADILLA: -- same thing. And that's all  
16 I have of Mr. Dyer.

17 CHAIRMAN LEMAY: It's admitted without  
18 objection.

19 Mr. Kellahin?

20 CROSS-EXAMINATION

21 BY MR. KELLAHIN:

22 Q. I'm confused, Mr. Dyer. Do you or do you not  
23 have a written commitment from Amoco for the south half  
24 of Section 20 for the drilling of the subject well in  
25 Section 20?

1 A. I do not.

2 Q. When we look at Section 16, that was some of  
3 the acreage to be included in a working-interest unit  
4 that's discussed in Exhibit 7 that's been introduced  
5 today. Do you have that?

6 A. Yes.

7 Q. The Siete letter of January --

8 A. Yes.

9 Q. -- 30th, 1989?

10 A. Yes.

11 Q. That working-interest unit would exclude the  
12 west half of Section 20, would it not?

13 A. Yes.

14 Q. The initial well to be drilled by Siete, was  
15 that targeted for this Morrow formation?

16 A. I think it's the same.

17 Q. This well proposed by Siete, what interest  
18 would Santa Fe have in the well in Section 16?

19 A. Now, or at the proposed --

20 Q. At this time?

21 A. Oh, at this time?

22 Q. Uh-huh.

23 A. Based on what they propose, 26.7 percent.

24 Q. And what do you have now?

25 A. Fifty percent.

1 Q. In Section 16?

2 A. Yes.

3 Q. When you look at Exhibit --

4 A. Well, actually not 50 percent. It's close.

5 We've got the 40 acres down in the southwest of the  
6 southwest, which would drop our interest down a little  
7 bit.

8 But basically, it's just the three of -- the  
9 two of us, Siete and us, plus the little 40 acres down  
10 there.

11 Q. When we look at Exhibit Number 6, within  
12 Section 16 there is a open circle. Do you see that?

13 A. Yes.

14 Q. In the southwest quarter?

15 A. Yes.

16 Q. Does that represent the well that is  
17 described, the location of the well that is described  
18 in Exhibit Number 7?

19 A. Yes.

20 Q. That well was permitted by the Oil  
21 Conservation Division, wasn't it?

22 A. Yes, it is.

23 Q. Let me show you a copy of what I have marked  
24 as Exxon Exhibit Number 8 and ask you if you can  
25 identify that document.

1 A. Yes, sir, it's a C-101.

2 Q. This is the permit issued and approved by the  
3 Division that authorized the drilling of that well  
4 we've been talking about in Section 16, right?

5 A. That is correct.

6 Q. When we turn to the second page and look at  
7 the survey form, that well was projected at a location  
8 out of the southwest quarter of 1068 feet from the --  
9 from the west line, and out of the south 1514; do you  
10 see that?

11 A. Yes, sir.

12 Q. And Siete proposed to dedicate the 320 to the  
13 south half of that section to the well, did they not?

14 A. Yes.

15 Q. Do you have any knowledge of how come that  
16 320 was approved --

17 A. Well, I really don't --

18 Q. -- as opposed to 640?

19 A. No, I really don't. There was -- I'll be --  
20 Really, there's some vagueness because there was some  
21 controversy over it when the ODC [sic] told us we had  
22 to go with the 640's.

23 Mr. Tower and Mr. Shumate had a conversation,  
24 and for some reason, because of the distance -- I'm not  
25 sure of everything because it's vague and I wasn't

1 actually in on the con- --

2 Q. Kind of confusing, isn't it?

3 A. Yeah. -- on the conversation. They said  
4 that they -- that was put into the -- a different pool.

5 Q. Here in June of 1989, the OCD's approving 320  
6 gas spacing for the same formation in Section 16, and  
7 yet a few months later Santa Fe's trying to get a 320  
8 gas location in Section 20, and they're having trouble  
9 because of the spacing; isn't that right?

10 A. Well, I don't know whether we were trouble.  
11 We were trying to follow the rules as OD- -- OCD told  
12 us to.

13 Q. Well, but the first proposal you made to  
14 Exxon --

15 A. Well, the trouble we're having is trying to  
16 get somebody to get us -- to find -- to get us approval  
17 so we can drill the well. Now, whether it be on 640's  
18 or 320, I think, is really immaterial to us as long as  
19 we can get the approval to get it done.

20 Q. It doesn't matter to Santa Fe, does it --

21 A. We --

22 Q. -- whether the well, is spaced on 320's or  
23 640's? You're going to drill the well anyway, aren't  
24 you?

25 A. We are in the exploration business, and that

1 is our job to drill wells and produce and develop, and  
2 we do it to the best of our knowledge and ability, and  
3 that's what we're here trying to do.

4 Q. And Mr. Tower, under your direction and  
5 supervision, first proposed to Exxon that the drilling  
6 of this well be dedicated to a north-half spacing unit,  
7 didn't he?

8 A. That is correct.

9 Q. And it was only later, then, that you found  
10 out from the Oil Division that the District said, well,  
11 gee, maybe you need 640 for the -- for the well?

12 A. I think it was a little stronger than that  
13 but --

14 Q. Okay --

15 A. -- that's what -- what had happened.

16 Q. -- let's change the location and change the  
17 spacing.

18 A. What you'd have to do is a location to change  
19 the spacing.

20 Q. The first proposal for the north half of the  
21 section was for a location 660 from the north line and  
22 1980 from the east line, wasn't it?

23 A. No, the location was changed because our  
24 drilling engineer told us we couldn't drill there.

25 Q. But the first proposed location to Exxon was

1 the location I've just described to you?

2 A. Yes, because that was our tract of acreage in  
3 the 320, or the -- 3- -- a little less than 320, but in  
4 the proration unit.

5 Q. And now we're moving on to Exxon's acreage  
6 with what?

7 A. Because our drilling engineer tells us it's  
8 the safest place.

9 Q. Santa Fe would drill this well even if it was  
10 an east-half dedication, wouldn't it, Mr. Dyer?

11 A. We would try. We would have some problems, I  
12 think, based on past experience with the BLM, as  
13 getting a proration unit.

14 Q. Other than that, there's no other reason?

15 A. We -- No, probably not. We like the  
16 location, we like the prospect, and like I said, that's  
17 our business. We -- We are charged with replacing the  
18 reserves that are produced on a daily basis.

19 Q. And there's no doubt in your mind, from your  
20 perspective of your company, that geologically the best  
21 location would have been in the northeast quarter of  
22 the section, right?

23 A. I'm not a geologist. I can't answer that.

24 Q. But that's your understanding, isn't it?

25 CHAIRMAN LEMAY: It's not a question that

1 he's qualified to answer, Mr. Kellahin.

2 Q. (By Mr. Kellahin) What caused you and Siete  
3 to abandon and not drill this permitted location in  
4 Section 16 when you're ready to go and move over into  
5 Section 20?

6 A. We haven't abandoned it.

7 Q. You haven't drilled --

8 A. No.

9 Q. How come?

10 A. Because we are working with one more deal  
11 right now just to have the location built.

12 Q. And the one more deal is to --

13 A. No.

14 Q. -- is to drill the well first in Section 20;  
15 is that the plan?

16 A. No, we are -- At the present time, Siete is  
17 talking to Amoco in Section 9 about bringing that in,  
18 which we was not involved in, for some support, which  
19 we found out about, that that's what they're working on  
20 now, that they have let the contract for the rig.

21 They -- we're -- We'll probably spud it  
22 within 60 days.

23 Q. On which well?

24 A. Sixteen.

25 Q. On 16?

1 A. Yes.

2 Q. So that well to be spudded shortly is going  
3 to be spaced, as best you know, on 320 gas spacing?

4 A. Unless -- when they get that -- As best I  
5 know right now.

6 Q. Nobody's revoked that permit, have they?

7 A. As far as I know, they haven't.

8 MR. KELLAHIN: Thank you, no further  
9 questions.

10 CHAIRMAN LEMAY: Additional questions of the  
11 witness?

12 MR. PADILLA: Yes, sir, I have a couple of  
13 questions.

14 REDIRECT EXAMINATION

15 BY MR. PADILLA:

16 Q. Mr. Dyer, let me show you -- I believe  
17 it's -- Well, let me show it on Exxon's Exhibit Number  
18 1 right here.

19 Can you come here and approximately locate  
20 the well that you're trying to drill with Siete?

21 Just go ahead and mark it with my pen.

22 A. Right about there.

23 Q. Speak up.

24 A. It should be right in the southwest quarter,  
25 right along there, being a direct offset to 17, counter

1 offset to 20 and 21.

2 Q. Is that location more than a mile away from  
3 the east line of Section 18?

4 A. Yes, sir, it is.

5 Q. Okay. Now, let me refer you to what we have  
6 marked as Exhibit Number 6, and I'd like for you to  
7 explain more fully what you mean in response to Mr.  
8 Kellahin's question about communitizing the east half  
9 of Section 20.

10 A. Well, it's -- The problems we have run into  
11 in the past is that on federal acreage when there is  
12 enough acreage in a lease with a location. We just  
13 haven't had any luck getting them approved by the BLM.

14 I know there is exceptions that we keep  
15 hearing about. We have tried; we have been turned down  
16 every time. So --

17 Q. Have you had direct experience with  
18 communitizing -- breaking up federal leases?

19 A. Yes, in the past five years we've tried it  
20 twice, and we've been turned down both times.

21 So it -- it -- You know, maybe other people  
22 have -- have gotten it done. I'm not going to deny  
23 that. It's just that maybe we don't do it right. I  
24 don't know. We just can't get it done.

25 We talked to Amando Lopez and he can change

1 his mind anytime, I'm sure, but we just haven't been  
2 able to do it.

3 MR. PADILLA: I have no further questions,  
4 Mr. Chairman.

5 CHAIRMAN LEMAY: Thank you.

6 EXAMINATION

7 BY CHAIRMAN LEMAY:

8 Q. Mr. Dyer, I've got a couple.

9 I'm a little confused on your deal. Siete's  
10 going to drill in 16, you don't have any interest in  
11 that or --

12 A. Yes --

13 Q. -- is it --

14 A. -- we do.

15 Q. You do?

16 A. We've formed a working-interest unit with 16  
17 and 21.

18 Q. Okay. Now, what's the deal in 9? That's  
19 Siete separate from you fellows?

20 A. Well, they went up -- Before they spud the  
21 well they called Amoco to try to get an optional  
22 farmout from them in support of that well.

23 Q. Would you participate in their optional  
24 farmout if they got it?

25 A. We would, we just -- it was -- after we found

1 out about it we -- You know, our response was, why are  
2 you trying to do that? Let's go ahead and drill the  
3 well.

4 And they said, Well, we've already contacted.

5 And we said, Okay, we'll wait.

6 Q. Now, if the well in 16 is going to be  
7 spudded, are you going to wait it down before you drill  
8 the well in 20? And is the well in 20 going to depend  
9 upon the results of the well in 16?

10 A. I wish I could give you a good answer. I  
11 know what my response as a landman would be, but I'm  
12 not sure of what -- by a geologist.

13 I think that once -- We would probably,  
14 instead of drilling two wells at one time, yes, we  
15 would probably wait for 16 to go down. It only makes  
16 good business sense to me.

17 Q. Why would Exxon make a deal with you to -- on  
18 an optional farmout where there's a well drilling in  
19 the area, unless there's a lease expired? Would you  
20 make that deal if you were sitting there, offsetting a  
21 drilling well? Farm out some of your acreage on a  
22 contingency basis?

23 A. It would be a hard decision -- We have --  
24 especially if we didn't know whether the well was going  
25 down or not.

1 Q. But assuming the well is going to be drilled  
2 and you were working for Exxon, would you make that  
3 kind of a deal?

4 A. Oh, I'd probably recommend to management that  
5 we not do it, that we not farm out.

6 Q. So is all this a little premature? If we're  
7 going to drill a well in 16 and we have the spacing and  
8 that's a firm deal, this whole hearing process, what  
9 we're doing now, are we a little premature in trying to  
10 make a deal in 20 before that well is drilled?

11 Unless the contribution would involve the  
12 drilling of that well in 16. I can see from Exxon's  
13 point of view that there's some value in getting a well  
14 drilled in 16 and maybe an optional farmout of -- so  
15 it's tied to that well.

16 A. Well, you see more than Exxon did, because  
17 they didn't see any value in that at all.

18 Q. I'm not trying to make you dumb; I'm trying  
19 to understand what's going on.

20 A. Well, we were trying to get a well drilled.

21 Q. Right.

22 A. Exxon was not cooperating with us as far as  
23 the working-interest unit. Siete -- We decided we'd do  
24 it. If problems had arise- -- other problems had arise  
25 -- We wanted to get the wells drilled, so we went ahead

1 and tried to get one going in 20 before we would get  
2 one going in 16.

3 Q. Uh-huh.

4 A. We're just trying to get more wells drilled.

5 Q. I can see that, yes.

6 A. And that was it. There was a --

7 Q. Now we're pretty well sure the one in 16 is  
8 going to go before the one in 20, though, so that's the  
9 primary well?

10 A. It looks like it because of the time span.  
11 We would spud this well -- actually, we would have spud  
12 this well -- Well, by our April 16th letter, we were  
13 ready to go just as soon as we had an Exxon -- a letter  
14 from Exxon.

15 Q. So actually Siete's entry into the picture  
16 kind of clouded the whole thing. They --

17 A. Yes.

18 Q. -- wanted to do some things, and it --

19 A. Yes, and it's -- their -- Their timing we  
20 couldn't exactly count on. So now they've come back  
21 and said they're going to drill pretty soon.

22 CHAIRMAN LEMAY: That's an interesting  
23 situation, to say the least.

24 I don't have any additional questions.

25 Is there anything else of the witness? If

1 not, he may be excused.

2 Thank you, Mr. Dyer.

3 THE WITNESS: Okay.

4 CHAIRMAN LEMAY: Mr. Padilla, do you have  
5 additional -- other witnesses?

6 MR. PADILLA: Yes, I have one more witness,  
7 Mr. Chairman. Bob Seiler.

8 (Off the record)

9 ROBERT C. SEILER,

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

12 EXAMINATION

13 BY MR. PADILLA:

14 Q. Mr. Seiler, would you please state your full  
15 name?

16 A. Robert C. Seiler.

17 Q. Mr. Seiler, are you the geologist that  
18 testified for Santa Fe at the last hearing?

19 A. Yes, I am.

20 Q. Your credentials were accepted as a matter of  
21 record at that hearing?

22 A. Yes, they were.

23 Q. Can you briefly tell us what your experience  
24 in this area is?

25 A. I've been in the Permian Basin District for

1 the past year. I've conducted studies in the general  
2 area over the past -- I guess it's been six months.  
3 And I've familiarized myself with the wells in the  
4 area.

5 Q. How long have you been a geologist?

6 A. Twenty years.

7 Q. Have you prepared certain exhibits for  
8 introduction at this --

9 A. I have. I've reviewed all these -- These  
10 were actually originally prepared by an outside  
11 geologist, but we've reviewed them and accepted them.

12 In our company, I was the individual in our  
13 company charged with the review, and I am familiar with  
14 them and agree with them.

15 Q. Are these basically the same exhibits that  
16 you testified to at the Division hearing?

17 A. They are. I will point out that the maps,  
18 however, include a larger area. I've included more  
19 peripheral area away from Section 20, and the reason I  
20 did that was, there was a couple of references made in  
21 various questions in the previous hearing to situations  
22 outside the area I presented at that time.

23 So this time I thought it would be a little  
24 more appropriate to bring in this size map, and that's  
25 we've done.

1 MR. PADILLA: Okay. Mr. Chairman, we tender  
2 Mr. Seiler as a geologist.

3 CHAIRMAN LEMAY: His qualifications are  
4 acceptable.

5 Q. (By Mr. Padilla) Mr. Seiler, can you first  
6 of all generally describe the study that you have made  
7 in this area regarding the Upper -- Tank Morrow Pools  
8 and Lower Morrow --

9 A. Rock Tank?

10 Q. Rock Tank, and how they affect Section 20?

11 A. In reviewing the prospect when it was brought  
12 to us, the prospect included the area of Rock Tank, and  
13 so I, in evaluating the prospect, became familiar with  
14 the wells in Rock Tank and their relationship to  
15 Section 20, as well as surrounding wells, Baldrige  
16 Canyon and the other pools in the immediate area.

17 Q. Now, at what point did you become involved  
18 with recommending a drilling location to Santa Fe?

19 A. That was actually upon approval of --  
20 acceptance of the prospect from the outside source. At  
21 that time it was deemed we had additional land work  
22 that we needed to do, and so the actual location  
23 recommendation has evolved as we've heard.

24 We had -- originally had picked a location  
25 in Section 20 that subsequently has been deemed

1 inappropriate or unsafe for various reasons, as  
2 testified to by Mr. Burton, and it's evolved now to the  
3 1990 out of the north and west in Section 20.

4 Q. And is that in conformity with the Order  
5 issued by the Division as a result of the Division  
6 hearing?

7 A. Yes, sir, it is.

8 Q. What's the issue, in your opinion, here as  
9 far as geology is concerned?

10 A. Well, basically, it's -- There's a couple of  
11 issues, I think. The appropriateness of the 640-acre  
12 spacing versus the 320, of course, is very important.

13 Exxon has presented very fine testimony, I  
14 think, where they are fairly certain that it's not  
15 in -- a Morrow accumulation in those two zones, in  
16 Section 20, would not be in the same pool.

17 I think that perhaps remains to be seen.  
18 It's probably not the most likely result, but I think  
19 it's still possible.

20 Therefore, I think the 640 ruling is  
21 appropriate, at least to this point in time.

22 Q. Why is that?

23 A. Well, just because we don't know, and we  
24 won't know until the well is drilled. And once the  
25 well is drilled, if indeed the sands are the same and

1 they're found at a lower stratigraphic position in the  
2 water that's been identified in Rock Tank, then at that  
3 time I think we could clearly state that it is not in  
4 Rock Tank.

5 Q. What would be the course of action if it was  
6 determined that you were not in the Rock Tank Pool?

7 A. Well, as I understand the ruling from the  
8 previous hearing, there's two units that were approved.  
9 And if we determined that it was not in the Rock Tank  
10 Pool, then we would have to come back to the Commission  
11 hearing and -- Commission -- and have a hearing and  
12 explain such, and I would assume then go on to the  
13 statewide 320, which would be appropriate if -- from  
14 the new information, as a result of the new  
15 information.

16 Q. Let's go on to what we have marked as Exhibit  
17 Number 9 and have you tell the Commission what that is.

18 A. Okay, I'll try and use the board out here so  
19 that the Commission can see it all right. It's not the  
20 scale of the previous exhibits.

21 First I'd like to go to Exhibit 9, which is  
22 the structure map, and indicated on the structure map  
23 is an area surrounding Section 20, Section 20 being in  
24 the location with the red square in it, which is our  
25 proposed location. That is along --

1 Q. What is that location?

2 A. That is the proposed location of 1990 -- 1980  
3 feet from the north line, 1980 from the west line of  
4 Section 20.

5 Q. And that lies in the northwest quarter of  
6 that Section 20?

7 A. Yes, sir.

8 Additionally shown on this exhibit -- And I  
9 think you have smaller copies before you -- is the  
10 various -- the acreage position.

11 We are also showing -- describe the geology,  
12 then -- structure contours on the horizon that's  
13 identified on the bottom right-hand in the legend is  
14 Top of Morrow Sequence 2.

15 I'd like to point out that that is not the  
16 exact same horizon that has been used by Exxon,  
17 although it's quite close.

18 Now, I think for that -- To explain that  
19 difference I'd like to just make reference, then, to  
20 the cross-section, which is Exhibit 10.

21 Exhibit 10 -- and I think you have a small  
22 copy of that as well -- shows on the left-hand -- Well,  
23 it's a cross-section as being a stratigraphic cross-  
24 section. Not structural as the previous one, but  
25 stratigraphic.

1           Q.    What's the difference between stratigraphic  
2           and structural?

3           A.    Well, a stratigraphic cross-section is drawn  
4           to -- generally is drawn to establish certain  
5           stratigraphic relationships.

6                    And in doing so, one does not, if you will,  
7           hang the cross-section on a structural datum, which is  
8           the case in a structural cross-section, but will pick a  
9           consistent stratigraphic datum so that one can better  
10          see the various relationships of the rock units  
11          involved.

12                   This one is a stratigraphic.   The other was  
13          structural.

14                   All right, the structural horizon that is  
15          mapped -- Excuse me.   The horizon that is mapped on the  
16          structure map is the top of what we call Sequence 2.  
17          Sequence 2 is highlighted on your map -- I'm sorry, on  
18          your cross-section -- in yellow.

19                   And what has been used as the datum for the  
20          structure map that Exxon has presented is approximately  
21          a hundred feet below that.   I think they called it the  
22          top or the base of their Middle Morrow marker.   We  
23          refer to it as the top of the Lower Morrow.   It's one  
24          and the same.   But anyway, we're close but not quite  
25          the same.

1           Back to the structure map, then, if I could.  
2       The structure map shows very similarly, as Exxon's did,  
3       generally structure with a dip to the east-southeast.  
4       The dip rate is approximately 200 to 400 feet per mile.  
5       That's a fairly gentle dip, roughly two to five degrees  
6       per mile, a two- to five-degree dip.

7           It also shows the major fault at Rock Tank  
8       that was made reference to, the 500- to 600-foot fault.  
9       Notably, the intermediate fault that they have -- has  
10      been discussed today and in the previous hearing is not  
11      shown on this map.

12           Q.    Why don't you show that fault?

13           A.    The reason that fault is not on this map is  
14      when it was constructed, it was decided from the  
15      existing data and by my interpretation it's not  
16      required for the drawing of the map.

17           The -- On their interpretation, the fault  
18      varies from 75 feet to a hundred feet in magnitude, and  
19      where the well control is the closest it's only like 71  
20      feet, I think, is the proper footage, or thereabouts.

21           I don't think it has to be in there. I don't  
22      see that many irregularities in the contouring.

23           Typically, if there's a fault in there you'll  
24      see a compression, if you will, of a contour, something  
25      funny happening that would indicate a fault. I don't

1 think that it necessarily has to be there.

2 We don't have seismic to say yea or nay.  
3 They indicated they had some, then perhaps that's  
4 another piece of evidence. But I just don't have that  
5 available to me.

6 Finishing up the discussion on this diagram,  
7 also shown are the varying producing horizons, and  
8 they're indicated by the colors, also indexed at the  
9 bottom of the map. The red are Morrow, and it's to  
10 mean all Morrow producers, okay, not necessarily just  
11 Upper or Lower or whatever but all Morrow producers.  
12 Purple is the Atoka producer -- Atoka production, and  
13 so on.

14 Also indexed is the cross-section to Exhibit  
15 10, A/A-prime. It runs generally from the northwest to  
16 the east-southeast. It starts out at the -- on the  
17 flank of Rock Tank and moves down in an easterly  
18 direction.

19 Q. Why have you chosen this particular cross-  
20 section?

21 A. Well, it was a matter of trying to subdivide  
22 the various rock units and demonstrate what we think is  
23 a viable objective for a prospect in this area.

24 And to better describe that, what I'd like to  
25 do is now go to the cross-section and go into a little

1 more detail.

2 The cross-section, on the left-hand side, is  
3 the well that is in the Rock Tank field. It is the  
4 Monsanto Company Rock Tank Number 2, located in Section  
5 6.

6 That well has drawn through it and to the  
7 right of it numerous subdivisions, if you will,  
8 identifying various layers.

9 I made reference earlier to the top of the  
10 Lower Morrow, which is identified in the center of the  
11 diagram. If you draw that back into the well to the  
12 left, you will see that it comes in at the base of a  
13 green shale marker. It's been colored green. That we  
14 use as a breakoff between Middle and Upper Morrow and  
15 Lower Morrow.

16 Beneath that, we have identified various  
17 units, if you will, sequences that are Lower Morrow,  
18 and they're identified L1, L2, up through L5, L for  
19 Lower.

20 Above that line we have identified sequence  
21 1, 2, 3 and 4. These are again subdivisions. The way  
22 these were chosen were by the intervening shale  
23 markers.

24 For instance, if you will look at Sequence 4  
25 in that well, Rock Tank 2, on the left there, there is

1 a very marked shale marker just above, and indeed  
2 that's the datum that we've used for hanging the  
3 stratigraphic cross-section.

4 And then at the base of what's marked as  
5 Sequence 4 there's another excellent marine shale  
6 marker. That defines for us sequence 4.

7 It's that methodology that's been used in  
8 subdividing the rock in this area, just the Morrow  
9 section in this area.

10 I could mention in passing that Sequence 4 is  
11 the Upper Morrow Rock Tank productive interval that was  
12 presented earlier in Exxon presentations.

13 As indicated on the left-hand side, that's a  
14 Rock Tank pay, there's four wells in it. They've made  
15 close to 9 BCF. To complete that line of thought, the  
16 Lower Rock Tank Pool pay is down here in what's called  
17 Sequence L1. That's a pay in Rock Tank, also in  
18 Catclaw Draw. In Rock Tank there are 7 wells that have  
19 made over 47 BCF out of that particular unit.

20 What I want to draw our attention to now,  
21 though, is what we refer to as Sequence 2. I know that  
22 was a bit lengthy, but what I'm trying to show is that  
23 what we're pursuing is different than the two that have  
24 been shown. It's -- Our prospect is highlighted  
25 towards that.

1 Q. As you move east, do you see the same thing  
2 happening, or the same kind of reservoir  
3 characteristics?

4 A. I think you can see, particularly as pertains  
5 to the Middle Morrow, Middle Upper Morrow, that the  
6 correlation markers carry across quite nicely, and  
7 indeed we do see it come across.

8 Which brings us to a key well in this cross-  
9 section, being the middle well, and this now pertains  
10 to our prospect, why we --

11 Q. Can you locate that well on the structure  
12 map?

13 A. I sure will. Again, it's the Hanagan  
14 Petroleum Company North Horseshoe Bend Number 1. That  
15 is located immediately south -- or, excuse me, two  
16 sections east of our Section 20. It's over in Section  
17 22, up in the northeast quarter.

18 It's highlighted by a blue dot and a circle  
19 which, by the coding, means it did go to the Morrow,  
20 but it's a Strawn producer, it was a Strawn producer.  
21 I think it's now maybe a -- at least a temporarily  
22 abandoned or abandoned.

23 But, however, that is a very significant well  
24 for our prospect in the Morrow. And to highlight that  
25 I'd like to go back to the cross-section and point out

1 a drill-stem test interval that is shown in the central  
2 column of that well, the log of that well.

3 And in this DST, or drill-stem test, we see  
4 that this well recovered 9512 feet of salt water on  
5 test. Now, we're not in the business to find salt  
6 water, but we do, to find oil and gas, have to find  
7 porous and permeable rock. That's a very excellent  
8 test.

9 Our chore, then, to make a prospect out of  
10 this zone in this area, is to get updip from that and  
11 stay in the porous and permeable rock, and that's the  
12 key for our prospect, and we'll work that up as we go  
13 into the maps.

14 Q. Do you have anything further concerning  
15 Exhibits 9 or 10?

16 A. Not at this time.

17 Q. Okay, let's go to Exhibit Number 11.

18 A. Okay.

19 Q. What is Exhibit Number 11?

20 A. Exhibit Number 11 -- which I may point out,  
21 is a new map. This was not shown at the previous  
22 hearing. For further demonstration of our prospect, I  
23 thought it was beneficial at this time.

24 Exhibit Number 11 is an isopach map and, as  
25 indicated in the bottom right-hand corner of the

1 legend, it is a gross interval isopach.

2 Q. What does that mean? Does that measure sand  
3 thickness? Is that what you're talking about?

4 A. Okay, for Sequence 2 that measures  
5 everything. That measures sand, that measures shale,  
6 and any lines that might be in there, and I might add  
7 that it measures all sand, whether it looks porous or  
8 not. It's the total interval.

9 And what we have shown, then, on this map is  
10 the values for all the wells in this area, for that  
11 sequence.

12 And what one can see, and it's highlighted  
13 with color, is a thick in the area just to the west  
14 of -- excuse me, just to the east of Section 20, where  
15 the values reach over 100 feet, the thickest well being  
16 the well in Section 19, which also coincides with the  
17 well on the right-hand side of the cross-section, the  
18 position A on the cross of A prime in the cross-  
19 section.

20 The thick package that you can see in the  
21 unit is thickest there and also you can see has got a  
22 lot of sand, but we'll get to the sand in a minute.

23 So all this thing is doing, then, is looking  
24 at the total interval. We see that the interval is  
25 thinnest back to the west and the northwest, thickest

1 to the east of Section 20, and it has a lobate shape,  
2 that is, it, we feel, demonstrates a deltaic  
3 environment.

4 Q. How do you spell "lobate"?

5 A. L-o-b-a-t-e.

6 Q. Why did I ask that question?

7 A. In the transcript it was misrepresented as  
8 l-o-w b-a-i-t, as opposed to high bait or stink bait  
9 or something.

10 COMMISSIONER LEMAY: They were fishing in  
11 that?

12 THE WITNESS: Yeah. Got a chuckle out of  
13 that.

14 Anyway, so we see a general lobate pattern,  
15 and that's basically all that this map was intended to  
16 show. It's trying to describe what is the geometry of  
17 the overall interval? What's the overall interval  
18 doing? Where are the thins, where are the thicks, and  
19 what can you deduce from that?

20 From this, then, if we're going to have a  
21 prospect, we now have to look into the existence of the  
22 sandstones, and for that I'd like to go to the next  
23 display.

24 Q. (By Mr. Padilla) Okay. That would be  
25 Exhibit Number 12?

1           A.    Okay, Exhibit Number 12, again, is another  
2 isopach. But this time what we're going to do is look  
3 at all the logs in here and just look at sandstone  
4 thickness, gross sandstone thickness, whether it be  
5 porous or not. We're going to eliminate all shales,  
6 we're going to eliminate any limes that might be in  
7 there.

8                    So this is a sandstone thickness map,  
9 regardless of quality.

10                   Once again, we look at this and see what we  
11 can garner. Basically the same shape appears. We've  
12 got a thick that's lying out to the east of Section 20  
13 with a tongue now, if you will, coming back towards  
14 Section 20, to the north of Section 20, through Section  
15 16, 17, 21 and 20.

16                   What we are beginning to see now, we feel, is  
17 indeed a deltaic deposit, sourced from the northwest,  
18 very similar to the effluvial direction that Exxon had  
19 presented earlier for the other sands. Now, we're  
20 talking a different sand, but the direction seems to  
21 maintain.

22                   And we're bringing sands in from the  
23 northwest and, we feel, depositing these in a lobate  
24 fashion out here, such as in a delta. But we're  
25 halfway home to -- for examining a prospect.

1           The last thing is, where is -- Where does the  
2 rock demonstrate reservoir characteristics? Porosity  
3 and permeability? We can deduce porosity off the next  
4 map, which I'd like to go to if there's no questions.

5           Q.    Let's go. And that's Exhibit 13; is that  
6 right?

7           A.    Yes, it is.

8           Okay. Now, this map is the one we've been  
9 trying to get to. This is the map, now, that we're  
10 going to look in just at the sandstone. So now, as the  
11 legend indicates, it's a net porosity map. We're going  
12 to restrict ourselves just to that portion of the  
13 sandstone that has porosity indicated from logs at 10  
14 percent or greater.

15           And the logs vary across here. You've got  
16 some sonic logs, you've got the neutron density and so  
17 on. So you have to do with what you've got.

18           What we see, then, on this map -- and as I  
19 say, this is the map we've been looking for -- is again  
20 what we feel represents the -- where the presence of  
21 quality sandstone will be, and we see the pattern still  
22 maintains itself.

23           We see a thick, again, still out to the east  
24 of Section 20. We see the -- What we think is the  
25 feeder direction coming in from the northwest.

1           And what really stands out now is this  
2 protrusion that sticks up down here to the south and  
3 east -- or south and west. This, we think, is another  
4 channel that either flipped out here, or perhaps --  
5 There's a geologic feature called a crevasse splay, and  
6 that's where in a delta environment the channel breaks  
7 out and sends out another little arm, if you will, such  
8 -- weakly represented, maybe, the Mississippi Delta  
9 when in lobate fashion if it slips -- switches around  
10 there could be crevasse splays where it breaks through  
11 its levee.

12           Well, anyway, we feel as though a major --  
13 this tributary may have headed off into this direction.

14           Q. Is that shown by the yellow or the red  
15 coloring that --

16           A. Well, I'd like to get to the red in just a  
17 second, okay?

18           The significance, then, is, we've got quality  
19 sand in excess of 50 feet, we have one well with 51  
20 feet to the north of us there in Section 15. We've got  
21 our good well with the big test, with the big water  
22 test, present with 31 feet of quality sand, and our  
23 prospect, then, is, we've got to get updip from that  
24 water.

25           Well, what we've done is look where does this

1 zone, if anywhere, produce gas?

2 And I mentioned that crevasse splay. The  
3 well down in the south half of Section 31 had a DST run  
4 on Section 2 -- or, excuse me, on Sequence 2 -- and  
5 during that DST, drill stem test, the well flowed at  
6 the rate of 9.2 million cubic foot a day. On a 19/32  
7 choke, they recovered 80 feet of water and 260 feet of  
8 gas-cut mud. The sample chamber had 7.4 cubic feet of  
9 gas, no water.

10 Q. What does that mean?

11 A. Basically -- I'm sure they were very excited  
12 when they first had it. It was a wonderful test. The  
13 well subsequently -- They attempted a completion in  
14 here, along with the lower zone, and it produced a lot  
15 of water.

16 The lower zone tested by itself made a lot of  
17 water on the production test. They came up and added  
18 this one to it and always had too much water. They  
19 never made a viable completion in Sequence 2.

20 Q. How --

21 A. But it did test --

22 Q. How is that relevant to your proposed  
23 location?

24 A. All right, what that demonstrates to us,  
25 then, is in Sequence 2, that there is gas in this

1 sequence, in this interval, in this subinterval of the  
2 Morrow.

3 And in addition, it shows us if you  
4 extrapolate the lowest porosity zone in Sequence 2 and  
5 trace that contour on your structure map, you can then  
6 determine where, if you will, the lowest known gas is  
7 in Sequence 2 from your lowest perforation or your  
8 lowest porosity foot. And it did make gas, so that  
9 would be our lowest known gas.

10 That is the red line on the -- It's drawn  
11 across the top of the sandbar.

12 Now, on the right-hand side there is a  
13 bluish-green line which is labeled Highest Known Water.  
14 That's taken from the highest porous foot that the well  
15 had made -- made the water.

16 So now we've got the stage set. We've got  
17 porous sand, we've got a water test that tells us we've  
18 got to be further updip than that point. We've got gas  
19 down to this point.

20 That, for us, sets up a prospect in the area  
21 of Section 20, and our location, as you can see, would  
22 be in the net sand. It would be close to the lowest  
23 known gas elevation in this sequence.

24 One thing I need to point out is, this is a  
25 stratigraphic trap. The question has to be asked, Why

1 didn't that leak all the way up to Rock Tank?

2           If you notice the updip limit of that sand,  
3 where it's colored orange and goes to white, that is a  
4 field of zero control. That is a stratigraphic  
5 pinchout of porous sand in this interval, and that is  
6 more than likely how a lot of these downdip fields  
7 appear, that they're not structurally controlled;  
8 they're stratigraphic.

9           They go to a pinchout, a porosity pinchout  
10 updip. That is our prospect, Sequence 2.

11           Q. Does -- Let me ask you something. Does that  
12 mean when you have a pinchout that you're no longer in  
13 the Rock Tank Pool, or --

14           A. This is a -- not a question of Rock Tank at  
15 this point in that it's a different interval than  
16 either of the two Rock Tank producing horizons, okay?

17           Q. How did you reconcile structure with the sand  
18 thickness explored or -- as far as choosing your  
19 location?

20           A. Well, I'd have to concur with the previous  
21 testimony, both hearings, with the Morrow the best idea  
22 in the world is to get in the sand thicks and, the best  
23 you can, get in porous sand thicks.

24           And that's what we're attempting to do by  
25 coming updip from that water well. We know it's

1 quality. So you go for your sand thicks.

2 And then, of course, you must pay attention  
3 to structure. In the case of producing free water,  
4 you've got to be above free water.

5 We have then set the stage, as I've said.  
6 We've got a band in here. Apparently, one would  
7 believe that a gas-water contact would have to exist  
8 through here somewhere and you'd want to be on the  
9 updip portion of that. That's where we are situated in  
10 Section 20, and we feel we've got a viable prospect.

11 Q. In terms of 320-acre spacing and in terms of  
12 laydown units or standup units, how does this geology  
13 in your proposed location work? In other words, where  
14 do you drill the second well, should 320-acre spacing  
15 be decided to be applicable by the Commission?

16 A. Well, as -- as -- As we indicated in the  
17 previous hearing, our first well -- and Mr. Kellahin  
18 was right when he said we would prefer, if we thought  
19 it was a viable place to drill, the northeast of  
20 Section 20.

21 We have determined, through quite extensive  
22 investigation and expense, that we do not feel that  
23 that is viable for the reasons that have been stated.

24 We would then go forward with our location in  
25 a north-half proration unit. If it were to be deemed

1 to be 320, we would drill it at 1980, 1980.

2 And then to obtain the maximum sand thickness  
3 for the second well in Section 20 we would go to the  
4 southeast, knowing that we are sacrificing some  
5 elevation. But that is the area of greatest sand  
6 thickness.

7 And I might add, as I said before in the  
8 previous hearing, quite encouraged. It's not only the  
9 greatest sand thickness in the south half in Sequence  
10 2, but it also happens to be the greatest thickness in  
11 the zones that were mapped by Exxon, that I had not  
12 previously done across this area. So I was encouraged  
13 by that.

14 Q. So you would locate one well in the northwest  
15 quarter and the other well in the southeast quarter?

16 A. Correct, right.

17 Q. In your view, would that be -- well, would  
18 that be a better way to develop Section 20, should 320  
19 acres be applicable?

20 A. I think, given the surface conditions and  
21 everything that we have to deal with in Section 20, the  
22 rank, wild nature of this where we must control costs,  
23 and all things considered, this is, yes, the best way  
24 to develop Section 20.

25 Q. Mr. Seiler, do you have anything further to

1 add to your testimony as far as your geologic  
2 presentation is concerned?

3 A. I think that covers it.

4 Q. Mr. Seiler, would approval of Santa Fe's  
5 Application be in the best interests of conservation  
6 and the protection of correlative rights?

7 A. In my opinion, yes, sir.

8 MR. PADILLA: Mr. Chairman, we offer  
9 Exhibits, I believe, 5 through 13 at this time.

10 CHAIRMAN LEMAY: Without objection, those  
11 exhibits will be entered into the record.

12 MR. PADILLA: And we'll pass the witness.

13 CHAIRMAN LEMAY: Yes, Mr. Kellahin?

14 CROSS-EXAMINATION

15 BY MR. KELLAHIN:

16 Q. Mr. Seiler, if you'll turn with me to your  
17 Exhibit Number 13 --

18 A. Yes, sir.

19 Q. -- when we look specifically at Section 20,  
20 am I clear in understanding when you're looking at  
21 Sequence 2 as the target that the greatest thickness  
22 for Sequence 2 is going to be a well located in the  
23 northeast quarter?

24 A. That is correct.

25 Q. Because of your understanding of the surface

1 constraints, then, rather than moving to the southeast  
2 quarter, you have moved over into the northwest  
3 quarter?

4 A. Yes, sir.

5 Q. Why have you done that?

6 A. It is as close as I can get and have a --  
7 still have structural advantage, which has to be worked  
8 into the formula as well. I believe -- and it's as  
9 close as we feel that we can get to a good location in  
10 the northeast quarter with a vertical well.

11 Q. The southeast quarter of the section would  
12 give you greater thickness than your location in the  
13 northwest quarter, would it not?

14 A. It would give a little bit greater thickness,  
15 yes, sir, and also sacrifice a little elevation as has  
16 been discussed earlier.

17 Q. Nothing you've said about locating your first  
18 well in the northwest quarter and the second well in  
19 the southeast quarter precludes standing the units up,  
20 does it?

21 A. Not in terms of geologic testimony, no, sir.

22 Q. Or in terms of well location? You can take  
23 that location in the northwest quarter and designate  
24 the west half and have a west-half dedication at the  
25 standard well location, can't you?

1           A.    I believe that's correct, yes.

2           Q.    And that will still leave you an opportunity,  
3 then, in the east half to put a well at good thickness  
4 above the 20-foot contour line at a standard location?

5           A.    Yes, sir.

6           Q.    When we look at Exhibit 13, you've drawn our  
7 attention down to Section 31, and there's the well  
8 whose name escapes me, but it shows about 11 feet, and  
9 it's got the red dot?

10          A.    Yes, sir.

11          Q.    How important is that well to you in your  
12 evaluation of the Sequence 2?

13          A.    Well, it -- It, I think, is pretty  
14 significant.  Although it's somewhat distant it does  
15 demonstrate the gas in Sequence 2, and as -- I think it  
16 was Mr. Kwolek made the observation, there's not a  
17 producing well, currently producing well in the  
18 immediate area in Sequence 2.  This is as close as we  
19 could come, and I think it's a very substantial show at  
20 a flowing over 9 million a day.  So I think it's pretty  
21 significant.

22          Q.    Other than that well, when I look at the area  
23 mapped on your exhibit and look at Sequence 2, there in  
24 fact is no production in Sequence 2, is there?

25          A.    No, sir.

1 Q. When we look in Section 22, which is two  
2 sections to the east of 20, we have the well that had  
3 reservoir porosity, but that's the well -- the Hanagan  
4 Well that was wet?

5 A. Correct.

6 Q. And that has caused you to identify, then,  
7 the highest known water?

8 A. Yes, sir, in Sequence 2.

9 Q. Yes, sir. All of my questions are on  
10 Sequence 2, Mr. Seiler.

11 A. Okay.

12 Q. On the other hand, we're trying to determine  
13 the lowest known gas with the red line?

14 A. Yes, sir.

15 Q. And the control point for that is the well in  
16 Section 31?

17 A. Yes, sir.

18 Q. Do you have the information available on the  
19 well in 31? And let's talk, again, about what you told  
20 Mr. Padilla.

21 A. Yes, I do.

22 Q. We have the drill-stem test?

23 A. Yes, sir.

24 Q. And the drill-stem test was taken at 10,440  
25 feet through -487?

1 A. Yes, sir.

2 Q. Is that your information?

3 A. Yes, it is.

4 Q. The gas flowed approximately 9.2 million  
5 cubic feet of gas per day?

6 A. Yes, sir.

7 Q. Recovered 80 feet of water?

8 A. Yes, sir.

9 Q. And 260 feet of gas-cut mud?

10 A. Yes, sir.

11 Q. All right. Then they perforated two  
12 intervals, did they not, from 10,462 to -- You'll have  
13 to help me because I've lost track of the top  
14 perforations.

15 A. Yeah. The perfs were 10,462 to -64, and then  
16 they perf'd 10,469 to -481.

17 Q. Four eighty-one, all right. And what was  
18 there? Four shots or --

19 A. Four shots per foot, yes, sir.

20 Q. They swabbed back 150 barrels of water in  
21 eleven hours?

22 A. Yes, sir.

23 Q. Squeezed the perfs?

24 A. Yes, they did.

25 Q. Why does that not represent in the lower

1       perfs the highest known water contact in Sequence 2?

2           A.    From my interpretation of the information, I  
3       think what one has to consider is, prior to perf'ing  
4       those two zones we've just described, they perf'd  
5       another interval that flowed 162 barrels of water along  
6       with 2.8 million cubic feet of gas.

7           Q.    Where was that?

8           A.    That is in the interval just beneath us at  
9       10,496 to 10,544.

10           And from the information I have on this  
11       ticket, they did not try to squeeze those off or plug  
12       it off. They just came up above and opened the upper  
13       ones.

14           And any water that was made, then, my  
15       interpretation is that it's a combination of the two  
16       sets, or actually the three sets of perforations.

17           Q.    We don't know, do we, were that water is  
18       coming from, which of the series of perforations that  
19       water volume is being produced from, do we?

20           A.    Well, Mr. Kellahin, when the first set was  
21       open only, it made a lot of water. Okay? And then  
22       they opened some others, and they made a lot of gas and  
23       some more water.

24           So just subtracting back, I don't think it's  
25       unreasonable to think that most of the water may be

1 coming -- or maybe all of the water is coming from the  
2 lower set.

3 Q. Do you see any evidence that they went back  
4 and squeezed the perfs and reshot the sequence in 2  
5 zone?

6 A. Okay, I'm going to have to read the ticket a  
7 little further. Give me a minute here.

8 Yes, sir, they did.

9 Q. And what happened?

10 A. That operation, the -- I'm sorry, I've got --

11 Q. Can you find the entry on 9-9-80?

12 A. I'm sorry, I'm struggling here. I can't  
13 relocate it.

14 Q. Okay, let me help you.

15 A. Please. You've got a more detailed card than  
16 I have. That's part of my problem.

17 Q. Well, let me loan you my copy.

18 A. All right. I assume this is just a  
19 commercial part, I suppose.

20 Q. In summary, did they not try again and simply  
21 recover more water?

22 A. The information before me is that the -- what  
23 you've circled, that it flowed an additional 40 barrels  
24 of water. This is after acidizing.

25 I don't know if they've broken into this

1 lower interval now or what. I do know that it made --  
2 it made excellent gas and virtually water-free on DST,  
3 and then when they started testing the lower zone with  
4 the upper zone and then trying to mess with it, it  
5 looks like they never did get the water shut off.

6 I still think there's valid information here  
7 that there was gas in Sequence 2; and the apparent  
8 water in the area, it's not to me clear-cut where it  
9 came from. The two zones are very close to each other  
10 on the log.

11 Q. When we look at the extent of Sequence 2 as  
12 we move to Rock Tank, we don't find Sequence 2 being  
13 produced in Rock Tank within the pool boundaries of  
14 that pool, do we?

15 A. No, sir.

16 Q. Structurally, when we look at your  
17 interpretation, the Exxon interpretation -- Let's go to  
18 your map, Exhibit 9.

19 A. Uh-huh. Let's see, I don't have the Exxon  
20 with me if I need to compare.

21 All right.

22 Q. Do you have the Exxon -- Mr. Kwolek's map?

23 A. I do, thank you.

24 Q. Did both of you use the same data point to  
25 map the structure?

1 A. Have we used the same data?

2 Q. The datum, the same -- the same point in  
3 which -- position in your structure?

4 A. No, we haven't sir.

5 Q. And that therein explains why there are some  
6 differences in --

7 A. Yes.

8 Q. -- in the elevation?

9 A. The numbers for each well will be off roughly  
10 a hundred feet. They're about a hundred feet apart.

11 Q. When we look at Section 20, though, and the  
12 way the structure is contoured through Section 20, you  
13 gentlemen are in agreement, are you not?

14 A. Remarkably so.

15 Q. Have you examined Mr. Kwolek's geologic  
16 interpretation in terms of his conclusions about the  
17 water production out of the Number 3 Well in Section  
18 5 --

19 A. I have.

20 Q. -- and how it impacts the Lower Morrow?

21 A. I have.

22 Q. Do you find his interpretation to be  
23 reasonable for that zone?

24 A. Reasonable for defining the water leg in Rock  
25 Tank, yes, sir.

1 Q. Does it add anything to your structural  
2 interpretation if you had included the Section 5 well  
3 in your cross-section?

4 Well, I've confused myself. I had a  
5 stratigraphic cross-section.

6 A. Yes, sir.

7 Q. But on the on the structure map there is a  
8 line of cross-section for you, okay? The first well,  
9 the A Well, in the A position on the left margin of  
10 your cross-section, your stratigraphic?

11 A. Yes, right, I've got a line of section on my  
12 structure map, yes, sir.

13 Q. I was using that as my index map. If you'll  
14 go to your stratigraphic cross-section, how come you  
15 didn't use the Number 3 Well in mapping Sequence 2?

16 A. Actually, the intent was to subdivide and  
17 also document and pick a well that is produced -- a  
18 Morrow producer in the area, and help subdivide the  
19 Morrow, and the obvious conclusion is that Sequence 2  
20 is not one of those that is producing up there.

21 Q. Okay, you went farther west than he did in  
22 your particular examination of Sequence 2. In other  
23 words, you have picked a well farther into Rock Tank,  
24 looking for Sequence 2, and don't find it to be  
25 productive?

1           A.    Yeah.  Well, he went in there with his cross-  
2 section and covered all the producing wells.

3           Q.    When we look at your structure map --

4           A.    Yes, sir.

5           Q.    -- you have displayed on the structure map  
6 the acreage relationship, and you've shown the Exxon  
7 acreage in Section 17?

8           A.    Yes, sir.

9           Q.    It's going to be -- Section 17 is going to be  
10 structurally updip in Sequence 2 from the Santa Fe  
11 acreage in Section 16, isn't it?

12          A.    Yes.

13          Q.    When we look at the relationship of Section  
14 20 structurally, if gas is going to be productive in  
15 sequence 2 in Section 20 --

16          A.    Yes, sir.

17          Q.    -- it's not going to come from the Rock Tank  
18 Pool, is it?

19          A.    Come from the Rock Tank Pool?  I -- The  
20 Sequence 2 does not produce up there, and I don't --  
21 wouldn't say that they're related.  They're different  
22 sands.

23          Q.    Yes, sir, and you have not projected the  
24 potential production up into there?

25          A.    No, sir.

1 Q. Let me confirm again in my own mind, then,  
2 when we look at your stratigraphic cross-section, the  
3 Upper Morrow, when we start vertically and go down  
4 from the datum point, Sequence 4 --

5 A. Yes, sir.

6 Q. -- corresponds to the Exxon Upper Morrow,  
7 does it not?

8 A. I believe that is correct, yes.

9 Q. And then we go down to what you've identified  
10 as Sequence L1, and that would be Mr. Kwolek's Lower  
11 Morrow that he's mapped?

12 A. I believe that is also correct, yes.

13 Q. Describe for us why you've taken Sequence 2  
14 as the primary objective for the exploration in this  
15 area.

16 A. Well, basically when you're trying to explore  
17 in the Morrow in Lea and Eddy Counties, you learn very  
18 quickly it's not that much unlike the Morrow elsewhere  
19 that I've worked, mainly in the mid-continent.

20 You first need to determine your -- your  
21 patterns of sedimentary distribution, where your sands  
22 lie.

23 And then when you go to put a prospect  
24 together, with rocks of this age being -- having been  
25 subjected to diagenesis and all the factors, you

1 immediately zoom in on any well that, number one, has  
2 produced real well or has shown reservoir  
3 characteristics that shows that it could produce oil or  
4 gas if it was in the right structural position.

5 And that's why when we spotted this test with  
6 9500 feet of water produced, showing excellent  
7 reservoir conditions, we tried to see what we could  
8 make of it and hence our prospect in Sequence 2.

9 Q. Is it fair to characterize your target in  
10 Sequence 2 as a wildcat oil prospect in Eddy County,  
11 New Mexico?

12 A. Very much so.

13 MR. KELLAHIN: No further questions.

14 CHAIRMAN LEMAY: Additional questions of the  
15 witness?

16 EXAMINATION

17 BY CHAIRMAN LEMAY:

18 Q. One quick clarification. Is it your  
19 testimony, Mr. Seiler, that in terms of location --  
20 We're trying to come to grips with the issues here at  
21 the Commission. One of them seems to be spacing?

22 A. Yes, sir.

23 Q. But the bigger was standup or laydown.  
24 Geologically, you can stand them up or lay them down,  
25 put them in the northwest or the southeast, and

1 geologically it makes no difference?

2 A. There are tradeoffs for either method, either  
3 standup or laydown. It can be done either way. If you  
4 -- you're going to have to go to the southeast quarter,  
5 you're going to have thicker sand, but you're going to  
6 be lower. And you can do that with either a standup or  
7 a laydown.

8 And that's given the conditions, again, of  
9 the northeast, so you can drill up there safely.

10 Q. Have you had any conversations or any work  
11 with Stu Hanson with Siete? Have you worked with him  
12 on this prospect?

13 A. I -- Yes, sir, we discussed this prospect.  
14 It's been a while.

15 Q. Do they have part of -- Well, maybe that  
16 question would be more appropriate to the next witness  
17 I'd like to recall.

18 A. Okay --

19 CHAIRMAN LEMAY: Thank you very much.

20 THE WITNESS: -- I don't know if there are  
21 any more witnesses, but --

22 CHAIRMAN LEMAY: Well, I'd like to recall the  
23 only landman that we've had here. I think --

24 Yes, sir? You have another question?

25 Please, Mr. Padilla.

## REDIRECT EXAMINATION

1  
2 BY MR. PADILLA:

3 Q. Mr. Seiler, if you standup on this  
4 nonstandard section, if you standup on the west half of  
5 the proration unit at a standard location, would your  
6 -- Can you tell me whether you would have to move your  
7 proposed location in any way?

8 A. If it were a standup? Oh, yes.

9 Q. Standup.

10 A. Yes. Yes, because we have to be 1980 from an  
11 end line, 660 -- no more than 660 from a side line, and  
12 I think we're going to have a problem. I believe  
13 that's right.

14 Q. Which direction would you --

15 A. Let me look at that a second.

16 (Off the record)

17 THE WITNESS: I stand corrected. I think it  
18 would work that way too. It would work as a standup.

19 CHAIRMAN LEMAY: Yeah, the 1980 would work.

20 THE WITNESS: Yeah, I stand corrected.

21 Q. (By Mr. Padilla) 1980. How about 660 from  
22 the side boundary?

23 A. It would be -- You would still be 660 from  
24 the centerline of the section.

25 Q. Even on a nonstandard section?

1           A.    Yeah, this is a peculiar section.  It's  
2 short.  Because it's an oddball -- less than 600 acres,  
3 as it turns out from the topo map, I get it as only  
4 4900 feet wide in an east-west direction, as opposed to  
5 5280.  So we've got a little problem there we'd have to  
6 work with.

7                   And then it's longer the other way.  It's  
8 5400 feet long as opposed to 5280.  So that would have  
9 to be worked out.

10                   And then the next thing is to fit it on the  
11 topography with the problems we have on top of the  
12 canyon rim.

13                   MR. PADILLA:  I don't have any further  
14 questions.

15                   CHAIRMAN LEMAY:  Thank you.  Additional  
16 questions of the witness?

17                   You may be excused.

18                   Do you have any additional witnesses here?

19                   MR. PADILLA:  No.

20                   CHAIRMAN LEMAY:  We'd like to use our  
21 prerogative here and recall Mr. Vernon Dyer if we  
22 might.

23                   MR. KELLAHIN:  I want to call Mr. Bill Hill  
24 at some appropriate time.  Mr. Hill is my surface  
25 topography man.  It won't take but a few minutes, but

1 at some point I'd like to introduce him.

2 CHAIRMAN LEMAY: Why don't you do that, and  
3 then I'll finish up with Vernon?

4 (Off the record)

5 MR. KELLAHIN: Perhaps to expedite things,  
6 Mr. Chairman, I'll clean up my exhibit filings.

7 I'd like at this time to move the  
8 introduction of Exhibit Number 8, which was the APD  
9 approved on the Siete Well in Section 16. I've failed  
10 to do that thus far. I'll do that at this point.

11 The next exhibit I have needs to be stamped.  
12 It carries the wrong number. This should be Number 9,  
13 as opposed to 10, but it's also a topo map from which  
14 I'll have Mr. Hill describe his involvement in this  
15 case.

16 JOSEPH W. HILL,

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

19 DIRECT EXAMINATION

20 BY MR. KELLAHIN:

21 Q. Mr. Hill, for the record would you please  
22 state your name and occupation?

23 A. My name is Joseph Warren Hill, and I'm a  
24 technical foreman in construction with Exxon in the  
25 Civil Engineering Construction Group.

1 Q. What does that mean that you do?

2 A. My primary responsibility for the last eight  
3 years has been construction of drilling roads and  
4 locations and subsequent reclamation.

5 Q. Have you been involved in finding surface  
6 locations acceptable to the various governmental  
7 agencies and landowners in Eddy County, New Mexico?

8 A. Yes, I have.

9 Q. And are you familiar with the application by  
10 the BLM of their Surface Use Management Rules and  
11 Regulations?

12 A. Yes, I am.

13 Q. In dealing with those particular individuals  
14 with regards to the location of the well in Section 20,  
15 with whom would you deal?

16 A. Generally we call a natural resources  
17 specialist, a man named Barry Hunt out of the Carlsbad  
18 office.

19 Q. Would this be the same gentlemen that the  
20 Santa Fe witness has referred to that he had  
21 conversations with?

22 A. I'm sure it is.

23 Q. Are you familiar with, then, not only the  
24 Rules but the application of those Rules by the surface  
25 management specialists of the BLM?

1           A.    Yes, I am.

2           Q.    And have you applied that knowledge and  
3 expertise by going physically on Section 20 to  
4 determine whether or not, in your opinion, based upon  
5 your expertise, there could be a well location for a  
6 well as we've described today in the northeast quarter  
7 of Section 20?

8           A.    Yes, I have.

9           MR. KELLAHIN: We tender Mr. Hill as an  
10 expert.

11           CHAIRMAN LEMAY: His qualifications are  
12 acceptable.

13           Q.    (By Mr. Kellahin) Describe for us in  
14 sequence what you have done to familiarize yourself  
15 with the surface in Section 20. And to aid you in that  
16 discussion, let me refer you to what has been marked as  
17 Exxon's Exhibit Number 9.

18           A.    Okay, I can start from -- I've made two trips  
19 in all to the location. Should I --

20           Q.    Describe the first one.

21           A.    Okay. The first one, I was contacted on  
22 rather short notice to go look at a surface -- the  
23 Section 20 as we've been discussing -- to see whether a  
24 proposed location could be staked. And this particular  
25 location, we had not been to the site. It was 660, 660

1 out of the northeast corner.

2 Q. This was a few days prior to the November  
3 29th hearing before the Examiner?

4 A. I believe it was November the 27th.

5 Q. And you made a physical inspection, then, of  
6 the surface?

7 A. Yes, I did. I went through the site and  
8 found the location, 660, 660, which was, because of  
9 topography, totally unacceptable. It would not have  
10 been buildable from a financial standpoint. I'm sure  
11 the BLM would not have approved of it. There were  
12 several problems with it. It would not have been a  
13 safe location.

14 Q. In examining the surface, did you find that  
15 the topographic map that you're utilizing, and a copy  
16 of which you presented today was accurate and reliable?

17 A. Yes, it was remarkably accurate as far as I  
18 could tell.

19 Q. Is -- Is this the same topo map that the  
20 Santa Fe witness used a while ago?

21 A. Yes, it is.

22 Q. Describe for us -- Was that the end of your  
23 investigation, then, at the first visit?

24 A. No, at that point, I took several pictures  
25 myself. But the primary objective I had was, as that

1 location was unacceptable, I looked for a location as  
2 near to that spot that I would consider a reasonably  
3 safe location to build, would be financially buildable,  
4 just a more suitable location.

5 Q. Did you find one?

6 A. Yes, I did. I located a location which is  
7 roughly, as indicated by the Santa Fe map -- I'm not  
8 sure of their exhibit number, but it's a location that  
9 they represent as E-3.

10 Q. When we look at the topo maps and look at  
11 that E-3, there is a point on the topo map where there  
12 is an intersection of two roads?

13 A. That's correct.

14 Q. And this drainage area, there's a little V-  
15 shape. Within that area, then, is the approximate  
16 location of the well?

17 A. That is correct.

18 Q. Okay. Now, the Exxon witness described that  
19 to be unsatisfactory in his opinion because it was  
20 subject to potential flooding at some point?

21 A. Okay, the Santa Fe witness?

22 Q. Yes, sir, the Santa Fe.

23 A. Yes.

24 Q. Did you come to the same conclusion?

25 A. No, I did not. There are several reasons

1 that that particular location is not the problem that  
2 he suggested.

3 In referring to his map -- and it was  
4 something that I used -- there are several things that  
5 you have to take into account.

6 These are 20-foot contours that are shown on  
7 the topographic map. The dashed line that he has  
8 highlighted in blue is the flow line of the drainage  
9 channel at that point, and if you can mark back up,  
10 that's approximately 20 feet to 25 feet above the lower  
11 flow-line grade of the channel.

12 If you look back on their exhibit, to the  
13 southwest of Section 19, you'll see a series of small  
14 black dots, very small squares. That is a ranch house,  
15 with some small sheds. You'll see some dotted lines  
16 emanating from that, which is a fence line.

17 That is a house built in there at  
18 approximately the same distance from that flow line,  
19 and it's been in existence for some time.

20 The location that we looked at, and the  
21 existence of that road there are well above the water  
22 level that comes down that channel.

23 Q. Did you go to the top of what I'll  
24 characterize as the ridge and examine the area where  
25 Santa Fe has recommended this afternoon that that is

1 the best location, if you will, topographically to  
2 place the well?

3 A. Yes, I have.

4 Q. You walked all through that area?

5 A. That's correct.

6 Q. And what did you find, and what did you  
7 conclude?

8 A. Well, the -- He was correct in the fact that  
9 there is relatively no leveling to be done on the  
10 location itself.

11 In the construction of drilling pits, the  
12 construction of the drilling cellar, subexcavation is  
13 necessary. And on top of these bluffs there is very  
14 little soil. The nature of the subsoil is solid rock.

15 In order to build a location up on top of  
16 this bluff, you are going to have to use explosives.  
17 You will have to blast that location, not the location  
18 itself. And you might have some -- some small rises in  
19 the location that may have to be blasted. But the  
20 cellar, the working pits and the reserve pit themselves  
21 all must be blasted up there.

22 Q. Having examined the topography of the area  
23 involved, and having looked at all the choices of both  
24 companies that have been generated over the last few  
25 months, what is your opinion as an expert as to a

1 suitable topographic location in which to locate the  
2 well?

3 A. The location -- either their location 2,  
4 our -- and 4, or our location 3 would be acceptable  
5 locations.

6 The soil down in that particular area is  
7 sediment. It's not solid. It's been deposited or  
8 washed off of the bluff over the years, and it's a more  
9 workable material. I don't believe it should be  
10 characterized as solid rock. I think it's -- There is  
11 some rock in there, and there is some leveling to be  
12 done, but it is a sediment. It's a deposited material.

13 Q. Did you examine the access into the well site  
14 all the way from a usable access road?

15 A. Yes, I did. There's a paved county road to  
16 the south, approximately two miles, two and a half  
17 miles.

18 Q. From that point to the site, including the  
19 site, would you describe for us the kind of difficulty  
20 and expense, based upon your experience, that's going  
21 to be encountered by the interest owners involved in  
22 drilling the well --

23 A. Okay --

24 Q. -- and contrast that, then, between the two  
25 locations.

1           A.    Okay.  The road coming in, there's a dry hole  
2   that is to the south of these -- of this particular  
3   section -- and there is a fairly good road coming to  
4   that, though it is quite old, it's weathered.  It would  
5   have to be rebuilt, essentially, resurfaced.  Most of  
6   the surfacing material has been washed off.

7                    So you have approximately two and a half  
8   miles of road, possibly more, that would have to be  
9   rebuilt, and the real expense in that particular case  
10  is depositing or hauling in surfacing material.

11                   Once you get up to the Section 20 and you're  
12  on top of the bluff, the additional expense in building  
13  locations on top as opposed to the bottom is the  
14  approximately 2500 foot of road from the top down to  
15  the bottom.

16                   There was a concern at the hearing that the  
17  road would be unsafe, and it is possible to lay a road  
18  out, off of the top of this, at a ten-percent grade,  
19  which would be -- which is within -- well within safe  
20  limits as far as steepness of grade.

21                   It is not necessary to cut the road entirely.  
22  It's a balancing situation.  You're -- You're building  
23  on a partial cut in a fill situation, so the road is  
24  buildable.

25                   In my estimation, your difference in the two

1 locations is probably in the neighborhood of \$2500 to  
2 maybe \$5000, and that is strictly the length of the  
3 road.

4 The fact that the sediment material at the  
5 base, at location E-3, is workable would minimize the  
6 amount of pit construction that needed to go on. It  
7 would also possibly minimize the amount of surfacing  
8 material that needed to be put on it, depending on what  
9 kind of material was found in balancing the location.

10 But it's my estimation that you're looking  
11 somewhere in the neighborhood of \$2500 to \$5000  
12 difference in the two locations.

13 Q. When you look at the area identified on your  
14 exhibit, the E-1, there is a circle scribed on the topo  
15 map --

16 A. That's correct.

17 Q. -- on your exhibit, and that's shaded in in  
18 ink, the center point of which is approximately the  
19 intersection of the two roads?

20 A. That's correct.

21 Q. Did you return to this site after the  
22 November 27th, 1989, visit to that location?

23 A. Yes. As there was a concern that Mr. Hunt  
24 had viewed these particular sites and was against  
25 building a location in that area, because of my

1 experience and the fact that I did know Mr. Hunt, I  
2 called him and asked him if I could review the sites  
3 with him to see exactly what his concerns were.

4 And I met him out there on December the 8th,  
5 and the geologist Bill Tate was with me at that time,  
6 and we discussed proposed locations in that area.

7 Q. What does the circle scribed on your exhibit  
8 and identified as E-1 mean?

9 A. We looked at those locations. There were two  
10 existing stakes from Santa Fe's previously staked  
11 locations 2 and 4, and then I had picked a spot that  
12 was approximately in between those, and I asked Mr.  
13 Hunt if he had any objection, what exactly were his  
14 problems were that. And he seemed surprised and  
15 indicated that he had no objection to those sites, that  
16 he had never voiced an objection to those sites as safe  
17 building locations.

18 Q. As best you know, is he the appropriate BLM  
19 individual by which the final judgment is made on  
20 building these sites?

21 A. He is the man that attends, in this  
22 particular area, all of the on-site meetings, laying  
23 out roads, locations, orienting the location towards --  
24 In this case, we talked about orientation of the  
25 location and how it should be positioned in that place.

1 And he is the man we always consult, yes, sir.

2 MR. KELLAHIN: That concludes my examination  
3 of Mr. Hill. We would move the introduction of his  
4 Exhibit Number 9.

5 CHAIRMAN LEMAY: Exhibit 9 into the record  
6 without objection.

7 Mr. Padilla?

8 CROSS-EXAMINATION

9 BY MR. PADILLA:

10 Q. Sir, I've forgotten your last name.

11 A. Hill.

12 Q. Hill, okay. Let me show you Santa Fe's  
13 Exhibit Number 2. You've identified a ranch in there  
14 at the southwestern end of that exhibit, have you not?

15 A. Yes.

16 Q. Can you tell me whether the draw in that area  
17 of the ranch house, as it proceeds north, is steep?  
18 The draw itself?

19 A. It's really quite wide in that area.

20 Q. It's really wide, isn't it?

21 A. Yes, sir.

22 Q. And the location of the well you've drawn  
23 there is considerably further than the ranch area; is  
24 that correct?

25 A. Yes.

1 Q. Now, can you tell me what the -- what  
2 watershed empties into this draw when it rains? What's  
3 the watershed? Can you identify that?

4 A. No, sir, I can't.

5 Q. Would you agree that at least as far as the  
6 northwest area of this Exhibit Number 2 of Santa Fe,  
7 that water that -- that water would drain into that  
8 draw and proceed downstream towards the well site?

9 A. Yes, it would.

10 Q. Can you tell me, sir, do you have any idea  
11 how the sediment or deposit on the locations of Santa  
12 Fe Number 2 or the Exxon Number 3 or the Santa Fe 4,  
13 how that sediment would have gotten there?

14 A. I'm sure it was wind and rain.

15 Q. Do you agree with me that some of that  
16 sediment would come from upstream as a result of rain?

17 A. In this particular case, I don't really think  
18 so. The river channel itself, if you were -- if you  
19 had been -- if you've been on site, the river channel  
20 proper is easily identified by a large, baseball-sized  
21 gravel, real heavy, pure white, extremely clean, no  
22 fines whatsoever.

23 The area where this location is is, like I  
24 say, approximately 20, 25 feet higher than that. It's  
25 approximately 200 feet from that area, and it's sand,

1 silt, small gravel, grass, lots of vegetation. The  
2 two-track road itself is pure fines. It's not the  
3 same.

4 Q. Is it the kind of fines that would be swept  
5 aside as the rain was coming down the -- as the water  
6 was coming down that draw?

7 A. I think if the water came down that high, it  
8 would have washed those fines away as it did in the  
9 river channel, and it did not. It's deposited there.  
10 They are there.

11 Q. You don't find those fines down at the bottom  
12 of the stream bed, do you?

13 A. No, you don't.

14 Q. Mr. Hill, how long have you -- how many  
15 locations have you staked in this area?

16 A. In that particular area, four or five.

17 Q. In this immediate area?

18 A. In the -- Yes, in the mouth in Dark Canyon --  
19 I've been associated with many of them.

20 I don't stake them myself. I supervise  
21 construction. But I've been associated with many wells  
22 in that area, in one way or another.

23 Q. How long -- Well, you've been there twice; is  
24 that your testimony?

25 A. That's correct.

1 Q. And the second time was December 8th?

2 A. December the 8th, right.

3 Q. What other wells does Exxon have in this  
4 immediate area?

5 A. There are some -- There are more up towards  
6 Happy Valley, Happy Valley Fed Com, they're all in that  
7 Dark Canyon area southwest of Carlsbad, there's Squaw  
8 Federal, Mary Federal, we have lots of acreage in that  
9 are, and --

10 Q. And how far away are those wells?

11 A. Some of them are relatively close, within  
12 maybe four or five miles. Some of them are further  
13 down towards Carlsbad, you know, to the northeast.  
14 But, you know, they're in that general area.

15 Q. You don't consider a ten-percent grade as  
16 dangerous?

17 A. No, sir. As a matter of fact, at times those  
18 grades are exceeded. There are state highways, higher  
19 grades than that, approaching 15 percent. Not for long  
20 segments, but ten percent is the acceptable --

21 Q. Do you know what grade --

22 MR. KELLAHIN: Excuse me, I'm not sure the  
23 witness was finished responding.

24 Q. (By Mr. Padilla) I'm sorry.

25 A. That's fine. Ten percent is our contractual

1 requirement. We ask that our contractors construct the  
2 roads at grades no greater than ten percent. They can  
3 exceed those grades for distances shorter than one-  
4 tenth of a mile or 500 feet, but ten-percent is an  
5 acceptable grade for a drilling road.

6 Q. Isn't that your top limit?

7 A. No, sir. Like I said, you can exceed those  
8 grades if -- you know, if conditions warrant that, for  
9 short distances.

10 Q. Do you agree with Mr. Burton's testimony that  
11 building a location at the bottom of the canyon would  
12 cost approximately \$50,000 more?

13 A. No, I do not.

14 Q. Do you agree that the AFE submitted by Mr.  
15 Burton is reasonable as has been stipulated by Mr.  
16 Kellahin?

17 A. I agree with that. I agree that the two and  
18 a half miles of road construction itself are going to  
19 cost you approximately \$10,000 a mile, and so you're  
20 talking about \$25,000 alone in road construction.

21 Then you add the location construction,  
22 subsequent reclamation, it can easily go that high.  
23 The first estimate was way too low for a location in  
24 this area.

25 MR. PADILLA: I have no further questions.

1 CHAIRMAN LEMAY: Additional questions of the  
2 witness?

3 A couple quick ones.

4 THE WITNESS: Yes, sir.

5 EXAMINATION

6 BY CHAIRMAN LEMAY:

7 Q. You testified that you did not know an  
8 acreage, the watershed going to the Dark Canyon?

9 A. No, sir, I do not.

10 Q. How about -- Are you familiar with the  
11 concept of the 50- or 100-year-old -- 100-year floods?

12 A. I am familiar with it, though I'm not --  
13 That's not my expertise. I am not an engineer.

14 Q. Right. Well, we're talking about 20 feet of  
15 elevation over the bottom of this thing. Do you know  
16 if a 50-year flood would wash it out or not, or a 100-  
17 year flood would?

18 A. I could not --

19 Q. So we're talking --

20 A. -- say.

21 Q. -- about something relative without having  
22 all the information in terms of what's safe and what  
23 isn't?

24 A. Yes, sir. The -- My observations were made  
25 on existing structures, houses, the appearance of the

1 soil, the appearance of the road, and there are  
2 ranchers' windmills, one to the east and one to the  
3 west that are in the same elevation, in that same --

4 Q. Is it possible --

5 A. -- area.

6 Q. -- a 50-year-old flood could wipe out the  
7 ranch house as well as the location 20 feet off the  
8 bottom of this thing?

9 A. I suppose it could. I really -- I guess --  
10 That's an area that I have no expertise on.

11 Q. Well, I -- I just -- I have to ask the  
12 question --

13 A. Sure.

14 Q. -- because we're talking about something  
15 relative without having a standard to go by.

16 I have no further questions.

17 MR. KELLAHIN: Follow-up question, Mr.  
18 Chairman.

19 REDIRECT EXAMINATION

20 BY MR. KELLAHIN:

21 Q. The standards applied, as best you understand  
22 them, by the Bureau of Land Management includes  
23 consideration of flood plains, does it not?

24 A. It does, and this particular location could  
25 easily warrant more study, but --

1 Q. You took Mr. Barry Hunt out there with you,  
2 and it was obvious to you that both of you were looking  
3 at a drainage area, was it not?

4 A. That's correct.

5 Q. He didn't raise any questions about this  
6 being in a vulnerable flood plan with you?

7 A. He evidenced no concern about that. He felt  
8 that it was a prudent distance from the -- the drainage  
9 channel, and he signed the exhibit.

10 I asked him because I knew, you know, that we  
11 would not probably bring him in here, so I asked him if  
12 he would mind signing my plat. But he had no objection  
13 to that location --

14 Q. And did you watch him sign it --

15 A. -- that was fine.

16 Q. -- and is that his signature on your copy --

17 A. That is correct --

18 Q. -- of Exhibit Number --

19 A. -- and Mr. Tate witnessed the signature as  
20 well.

21 MR. KELLAHIN: Nothing further.

22 CHAIRMAN LEMAY: Thank you. I have no  
23 further questions. You may be excused.

24 Could I call Mr. Vernon Dyer back at this  
25 time?

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VERNON D. DYER (Recalled),

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

EXAMINATION

BY CHAIRMAN LEMAY:

Q. Mr. Dyer, I must remind you you're still sworn as a witness.

Trying to come to grips with the issues here, just make some -- play some games with me. Assume that the Commission gives 320 instead of 640, that that particular issue wouldn't be an issue. Then we get down to whether we're talking about standup 320's or sit- -- or laydown 320's.

In consideration of the well in Section 16, I did some rough calculations, and we started arguing where this well is going to be drilled.

Example, whether there's a -- If we're talking about the north half being the proration unit, Santa Fe would have -- we'll call it -- and Exxon would not join, we would be talking about maybe an optional farmout encompassing 280 acres from Exxon if the Commission would give the north-half proration unit; would that be a fair way to kind of put this thing in perspective?

A. Yes, with the fact that the well in 16 may be

1 drilled within 60 days --

2 Q. Right, before you drill this?

3 A. -- which we feel -- Yeah, we feel that --  
4 Yes, that would be fair to say.

5 Q. And if you went with standup 320's and you  
6 drilled and we drilled in the northeast quarter, like  
7 some of the locations talked, we'd have an optional  
8 farmout, mandatory optional farmout from Exxon of 120  
9 acres?

10 A. Yes, provided we get --

11 Q. And if we drilled in the northwest of Section  
12 20, or that was the location, we'd have a 160-acre  
13 optional farmout from Exxon?

14 A. Yes, for the east half of the west half.

15 Q. For the -- Right, east half and west half.

16 And if we had no agreement whatsoever, then  
17 Exxon might be considered to have a free ride. They  
18 could watch the well in 16 go down, and they would  
19 maintain their acreage ownership for the north half of  
20 20 as well as 17, to be able to develop?

21 A. That's what they've indicated they want to do  
22 all along, yes.

23 Q. Yes, I understand that. What I'm trying to  
24 do is -- What you're asking the Commission to do, in  
25 essence, is to define the amount of acreage that might

1 be contributed by Exxon to an optional farmout in  
2 Section 20. Would that be a fair way to characterize  
3 what we've been going through here today?

4 A. Well, with the fact that 16 may be drilled  
5 within 60 days, like we think it may be now, yes,  
6 that's what it's boiling down to.

7 When we started this, it was not because  
8 there was nothing -- the 16 -- Well 16 was a long ways  
9 away. There was no agreement made. We were trying to  
10 negotiate with Exxon who had made it apparent that they  
11 wasn't going to do anything to support us in any way on  
12 anything.

13 So we were going to go ahead and drill our  
14 well because we were not the operator -- We are not the  
15 operator of 16, which kind of -- We've kind of lost  
16 control of it, as getting it spudded when we wanted to.

17 Siete had other things happening and they  
18 couldn't do it till -- postponed it till -- supposedly  
19 it was going to be in the second or third quarter this  
20 year --

21 Q. So --

22 A. -- which gave us a chance to go ahead and  
23 drill the well we wanted to.

24 Q. Are you going to have some money in the well  
25 in 16?

1 A. Yes.

2 Q. Are you --

3 A. Yes, we are.

4 Q. You are?

5 A. Yes, sir.

6 Q. How about Siete? Do they want some of your  
7 stuff in 20 or are they going to be a party to that or  
8 not?

9 A. At this time they are not.

10 Q. They are not.

11 A. We have -- It's kind of been -- and I'll add  
12 here, it's kind of been implied that they're going to  
13 have part of it. And with all indications, Exxon has  
14 -- from the very start, has indicated they are not  
15 going to join. They're either going to farm out or do  
16 nothing.

17 It has kind of been implied that we would try  
18 to sell half of it to Siete, half of our position there  
19 to Siete.

20 Q. Well, with the argument about the location  
21 and all, and even with the geology being a wildcat, I  
22 think the Commission is trying to come to grips with  
23 what -- what are the true issues in this case? And  
24 I've tried to state some optional issues here that seem  
25 quite relevant as far as how much acreage goes into any

1 well drilled in 20.

2 Prior to that the issue could have been  
3 described as how much acreage would Exxon contribute to  
4 the initial test? Depending on where you drilled it,  
5 they would -- they would have different -- because you  
6 have offsetting acreage too?

7 A. Yes, yes. And I believe, you know -- Well, I  
8 firmly believe that those who take the risk should reap  
9 the benefit, as far as -- as far as you're going about  
10 the acreage contribution and everything.

11 And when -- Like the 16 being drilled or  
12 supposed to be drilled within the next 60 days, we feel  
13 it will be, that it does work out to this situation  
14 because of the delaying tactics, or whatever we want to  
15 call it, that's been happening to prevent us from  
16 drilling our well when we wanted to.

17 Q. Well, the parties are asking the Commission  
18 to come up with an order. That order would be timely.

19 That order would also, probably -- I've never  
20 seen it be contingent upon another well. It would  
21 refer only to forced pooling within the proration unit  
22 as we would define it, as well as spacing.

23 But the activity around that proration unit  
24 certainly influences the actions that are going on.

25 A. At this time, yes. When it was filed it

1 wasn't that way, but now it is. It has become part,  
2 probably a major part of this.

3 Q. Well, and I think it's important that the  
4 Commissioners understand what's going on.

5 A. Well, we're not trying to hide --

6 Q. No, I know that, but there's been a lot of  
7 geological/engineering testimony and very little land  
8 testimony, and it would seem as far as the deal goes,  
9 the land portion of this is a very significant part of  
10 what's driving it.

11 A. Yes. Being a landman, I think that's a major  
12 part of anything.

13 Q. Being a former independent, I can smell some  
14 of these things out, or think I can.

15 So I wanted to bring that to the benefit of  
16 maybe my fellow Commissioners to see if this may be  
17 truly an important issue involved in our decision when  
18 it has not been a major part of the testimony presented  
19 today.

20 A. Yes, I have no problem with that. This is  
21 the facts that are taking place now.

22 CHAIRMAN LEMAY: Is there anyone else that  
23 has any questions on the witness that's been recalled?

24 Okay, you may be excused. Thank you, Mr.  
25 Dyer, appreciate it.

1 Do you want to wind this thing up with some  
2 concluding remarks?

3 MR. PADILLA: I'll be very brief, Mr.  
4 Chairman.

5 In light of the questions asked of Mr. Dyer,  
6 when the Chairman called Mr. Dyer, I think it's  
7 important that the Commission look at what we submitted  
8 as Exhibit Number 8 and Exhibit Number 7, which  
9 indicates Santa Fe's efforts to develop this area.

10 This is still a compulsory pooling case, even  
11 though we have the two issues of whether -- the issue  
12 of whether or not 640-acre spacing would apply or 320-  
13 acre spacing would apply.

14 By way of shortening this hearing, I think we  
15 somehow stipulated ourselves out of the efforts that  
16 Santa Fe has made in order to develop this area.

17 The de novo hearing certainly has delayed any  
18 drilling, and certainly even though there's been no  
19 stay, there would be a considerable risk of going forth  
20 and having some change as a result of the de novo  
21 hearing.

22 But if you look at the prior record, I think  
23 it's fair to say that this was truly a compulsory  
24 pooling case from the very beginning, with those  
25 collateral issues of 640-acre spacing and 320-acre

1 spacing.

2           Going back to my opening statement, to my  
3 opening statements, I think the Commission has to go  
4 back to those findings that were made by the Division,  
5 Findings 8 and 9, and I think that we have -- we can  
6 come to the conclusion that until a well is drilled in  
7 Section 20, we don't know whether it's in the Rock Tank  
8 area.

9           If -- We have to follow, and the Commission  
10 as well has to follow, the rules and its own  
11 regulations. While we may not openly advocate 320-acre  
12 spacing or 640-acre spacing, nonetheless, as far as we  
13 are concerned today, those rules still apply.

14           So therefore, I think that the Commission  
15 really has no discretion but to follow its regulations.

16           Once the well is drilled, then if a 320-acre  
17 spacing is appropriate, then we would go to that area.

18           The scope of this hearing really is not to  
19 create a new pool or decide what -- That has never been  
20 the case, as to whether or not we're in a different  
21 pool or not. The scope of the hearing still is  
22 compulsory pooling, and really the Commission has no  
23 discretion if we're within a mile -- and we're  
24 certainly within a mile by virtue of the definition of  
25 the Rock Tank special pool rules.

1 I think topography is very important in this  
2 case. Photographs show the kind of area that is found  
3 in -- at the bottom of the canyon. And I probably --  
4 The picture behind you is probably an excellent  
5 illustration of what we'd find down there, is that  
6 during a low rainfall you could have -- find water in  
7 the very bottom. But if you have a hellacious  
8 rainstorm you're going to have water spreading all over  
9 the valley.

10 And I think that to say that -- to compare  
11 that ranch building as Mr. -- ranch area -- as Mr. Hill  
12 has, with the draw at the close location there are  
13 entirely apples and oranges.

14 I think the geology that we presented fairly  
15 illustrates that as we move further west we sacrifice  
16 very little in terms of -- Santa Fe can still gain in  
17 structure and that, I think, is important to -- insofar  
18 as the selection of the well in the northeast quarter  
19 versus the northwest quarter.

20 The northeast quarter location admittedly is  
21 preferable from a geological situation, but from a  
22 safety situation and from an environmental situation  
23 it's not acceptable and there's some risk, that we  
24 don't sacrifice that much geology moving west with that  
25 location.

1           With that, I would ask the Commission to  
2 sustain the Order of the Oil Conservation Division.

3           CHAIRMAN LEMAY: Thank you, Mr. Padilla.

4           Mr. Kellahin?

5           MR. KELLAHIN: Gentlemen, this has been a  
6 personally frustrating case for me. We've tried to  
7 present a case today that dealt with what I have  
8 perceived to be -- The substance of the problem was a  
9 geologic question. The paramount one was the  
10 separation of the Rock Tank.

11           But I find late in the day that there may  
12 have been a mistake on my part in not focusing your  
13 attention on the entire case, and maybe that's what we  
14 should do in de novo matters.

15           I think there's a way to remedy that. One  
16 is, you can simply read the transcript which is already  
17 incorporated and satisfy yourself how we got to where  
18 we are.

19           My recollection is considerably different  
20 from the way I was sensing the tone of the answers to  
21 the questions.

22           When this started off, we were being beaten  
23 about the head and shoulders with the compulsory  
24 pooling stick. When you looked at Section 16, there  
25 was a permitted well where Siete and Santa Fe, with

1 their own money and their own acreage, had made the  
2 decision to drill a Morrow well.

3 In Section 16, based upon their geology, we  
4 had a less favorable location. Their best geology was  
5 in Section 16. They invited us to participate in a  
6 working-interest arrangement that included only the  
7 east half of our section.

8 They didn't like that, and because you can't  
9 pool working-interest units combining more than a  
10 single spacing unit, they picked out a different  
11 strategy.

12 The testimony before Examiner Stogner is,  
13 they had abandoned and given up drilling the well in  
14 16, and they were going to come over and explore on us  
15 to their advantage. They had a six-percent interest in  
16 the entire section. We held the north half of the  
17 section, except for 37 acres. Amoco had the south  
18 half, and they were going to use our acreage to develop  
19 their acreage. And that's the way it played out.

20 Exxon's got its own plans for development,  
21 thank you very much.

22 We think the appropriate way to make that  
23 development is with some seismic information, and we  
24 still have sufficient years left in the primary term of  
25 our federal lease to do that.

1           We don't want to waste our acreage. We want  
2 a test for Santa Fe and Siete -- and Amoco now, if  
3 that's where they are now. They're trying to play our  
4 hand, and we'd like to play it.

5           We concede that even a small-interest owner  
6 with a six-percent interest, under the Rules and  
7 Regulations of this Commission, can file a compulsory  
8 pooling case.

9           We have some choices, but we think it is  
10 unconscionable to extend 640 gas spacing to this  
11 section when both parties, regardless of their geologic  
12 perspective on how they came to this case, can't tie  
13 you back into Rock Tank.

14           We don't want to be stuck with the  
15 development of Section 20 and our Section 17 with the  
16 presumption that 640-spacing is going to apply, when  
17 the technical presentation before you and the only  
18 substantial evidence in this case is it doesn't work.

19           If you'll look through the correspondence  
20 before the Examiner, you'll also see something else  
21 that's interesting. At no point in the negotiations  
22 with Exxon did Santa Fe take the position that the well  
23 location and the orientation was for geologic reasons.

24           There was always a bureaucratic stumbling  
25 block that told them that they couldn't drill the best

1 location. One of them is, Oh, we're in a flood plain,  
2 the BLM just won't approve this, the surface topography  
3 is going to dictate the best geologic development of  
4 the reservoir.

5 I sent Mr. Hill out there to find out, sent  
6 him there again to recheck. He's applied the  
7 disciplines of what he does and confirmed with the BLM  
8 the surface can be used where we propose to use it  
9 within an area wide enough to encompass several  
10 locations by both companies, and I don't know why the  
11 Commission should worry about that question when your  
12 question is to prevent waste and protect correlative  
13 rights of the members.

14 That's your decision, and then it's up to the  
15 operator to go to the BLM and find out if he can or  
16 cannot, and we say he can.

17 The other excuse we've been given is, Oh, my  
18 goodness, you can't orient the spacing unit in the most  
19 appropriate way because the BLM won't let you  
20 communitize two federal leases when you could lay them  
21 down and have one.

22 Well, that's the BLM's choice. You're going  
23 to have to communitize this regardless of how you turn  
24 it, because you've got a 40-acre tract that's non-  
25 federal.

1           We have talked to Amando Lopez, and the  
2 transcript before the Examiner shows Mr. Duncan's  
3 responses with Amando Lopez at the BLM, and he says  
4 communitization ain't the problem.

5           So every time they raise a straw man and we  
6 whack it down, they think of something else. But the  
7 bottom line is, the best geologic location is the  
8 northeast quarter. And we're asking you to do that for  
9 us.

10           Mr. Seiler tells us that he can change the  
11 orientation either way, still end up with some standard  
12 locations. Our geology says that both wells ought to  
13 be in the north half.

14           We just need some relief to cut through this,  
15 and we're not trying to delay it. We're trying to make  
16 some choices, but it's awful tough to make a choice  
17 when we don't know what the spacing is. If you can  
18 tell us what the spacing is, maybe we can help choose  
19 some of the other answers, and if not I guess you'll  
20 have to do that for us.

21           To aid you in understanding our position, I  
22 have prepared a draft order, which I'd like to submit  
23 to you, which supports our understanding of the facts  
24 and how we would write the order if you choose to adopt  
25 our position.

1 Exxon as a company, and I personally as a  
2 lawyer, take pride in not trying to use administrative  
3 processes to delay. We simply cannot resolve this  
4 matter without your assistance, however, and we would  
5 very much appreciate some resolution of our difficulty.

6 Thank you for your time.

7 CHAIRMAN LEMAY: Thank you, Mr. Kellahin.

8 Additional statements in the case?

9 I'd like to have a draft order, Mr.

10 Padilla --

11 MR. PADILLA: Thank you very much.

12 CHAIRMAN LEMAY: -- to help us with our  
13 decision. So can you have that to us in 15 days, do  
14 you think, so that --

15 MR. PADILLA: I certainly can.

16 CHAIRMAN LEMAY: Okay. Well, we'll leave the  
17 record open for 15 days and then take the case under  
18 advisement.

19 Thank you, gentlemen.

20 (Thereupon, these proceedings were concluded  
21 at 6:09 p.m.)

1 CERTIFICATE OF REPORTER

2

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

5

6 I, Steven T. Brenner, Certified Shorthand  
 7 Reporter and Notary Public, HEREBY CERTIFY that the  
 8 foregoing transcript of proceedings before the Oil  
 9 Conservation Commission was reported by me; that I  
 10 transcribed my notes; and that the foregoing is a true  
 11 and accurate record of the proceedings.

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

16 WITNESS MY HAND AND SEAL June 3, 1990.

17 

18 STEVEN T. BRENNER  
 19 CSR No. 106

20 My commission expires: October 14, 1990

21

22

23

24

25