STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION COMMISSION

CASE 9797 AND CASE 9832, CONSOLIDATED

COMMISSION HEARING

IN THE MATTER OF:

Application of Santa Fe Energy Operating Partners, L.P., for Compulsory Pooling and a Non-Standard Gas Proration Unit, Eddy County, New Mexico; Application of Exxon Company, U.S.A., for Compulsory Pooling, a Non-Standard Gas Proration Unit, an Unorthodox Gas well Location, and an Exemption to Special Rules and Regulations Governing the Rock Tank-Upper and Lower Morrow Gas Pools, Eddy County, New Mexico

ORIGINAL

TRANSCRIPT OF PROCEEDINGS

BEFORE: WILLIAM J. LEMAY, CHAIRMAN

WILLIAM WEISS, COMMISSIONER

WILLIAM HUMPHRIES, COMMISSIONER

STATE LAND OFFICE BUILDING

SANTA FE, NEW MEXICO

May 24, 1990

A P P E A R A N C E S

FOR THE OIL CONSERVATION DIVISION:

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

FOR SANTA FE ENERGY OPERATING PARTNERS, L.P.:

PADILLA & SNYDER
Attorneys at Law
By: ERNEST L. PADILLA
200 West Marcy, Suite 216
P.O. Box 2523
Santa Fe, New Mexico 87504-2523

FOR EXXON CORPORATION:

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

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E X H I B I T S

E X H I B I T S (Continued)

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SANTA FE ENERGY OPERATING PARTNERS EXHIBITS:

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

CHAIRMAN LEMAY: We shall resume with Case Number 9797.

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

CHAIRMAN LEMAY: Appearances in the case?

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

CHAIRMAN LEMAY: Okay, Case Number 9832?

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

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

MR. KELLAHIN: No objection.

CHAIRMAN LEMAY: Mr. Padilla? Any other --

MR. PADILLA: No.

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

Appearances in both cases, please?

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

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

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

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

MR. STOVALL: Swear the witnesses?

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

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

CHAIRMAN LEMAY: You are?

MR. KELLAHIN: Yes, sir.

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

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

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

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

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

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

MR. PADILLA: No objection, Mr. Chairman.

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

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

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

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

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

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

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

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

This case started because there is an

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

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

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

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

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

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

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

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

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

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

And that is the administrative dilemma that

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

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

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

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

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

there.

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

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

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

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

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

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

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

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

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

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

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

And in that way I hope we can focus your

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

And that's what we seek to accomplish.

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

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

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

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

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

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

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

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

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

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

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

considerable merit in choosing a surface location.

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

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

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

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

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

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

CHAIRMAN LEMAY: Thank you, Mr. Padilla.

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

(Thereupon, the witnesses were sworn.)

CHAIRMAN LEMAY: Thank you.

Mr. Kellahin, you may proceed.

JAMES M. KWOLEK,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

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

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

How do you spell your last name?

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

Q. And it's pronounced Kwolek, right?

A. That's correct.

Q. Mr. Kwolek, would you summarize your

educational experience for us?

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

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

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

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

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

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

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

the hearing in November of last year?

A. Yes, I did.

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

A. Yes, I have.

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

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

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

CHAIRMAN LEMAY: His qualifications are acceptable.

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

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

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

Q. Are you satisfied that you had sufficient

geologic information on which to base conclusions?

A. Yes, I am.

Q. What were you asked to determine?

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

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

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

A. I did.

Q. And what was that conclusion?

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

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

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

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

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

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

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

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

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

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

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

A. That is correct.

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

A. That is correct.

Q. All right.

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

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

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

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

Sandstone.

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

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

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

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

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

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

A. Yes.

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

where you believe this second sequence is?

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

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

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

A. That's correct.

Q. Why didn't you do that?

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

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

A. Yes, they are.

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

A. With respect to Section 20?

Q. Section 20?

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

Q. Yes, sir.

A. -- rephrase the question?

Q. We're looking at the same formation?

A. That is correct.

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

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

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

A. Yes, I was.

Q. What were you provided by your engineering staff?

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

Q. What did they tell you?

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

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

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

A. I did.

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

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

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

respect to Section 20.

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

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

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

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

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

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

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

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

A. If Section 20 --

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

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

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

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

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

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

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

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

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

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

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

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

In addition to the subsurface data in this

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

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

A. Yes, I have.

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

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

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

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

what distance?

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

However, there are two additional tests --

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

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

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

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

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

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

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

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

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

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

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

A. Nineteen.

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

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

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

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

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

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

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

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

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

Q. In order to have gas production--

A. Yes.

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

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

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

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

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

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

A. Not --

Q. -- to resolve that?

A. No, I would have to disregard data.

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

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

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

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

to be production established. The --

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

A. That is correct.

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

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

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

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

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

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

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

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

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

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

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

Section 29.

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

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

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

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

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

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

A. Exhibit Number 5 is a gross sandstone isolith

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

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

A. That is correct.

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

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

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

A. It does.

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

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

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

are effluvial in nature in this area.

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

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

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

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

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

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

Q. What does this tell you about how to best

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Q. Identify and describe for us Exhibit Number

6, Mr. Kwolek.

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

Q. What does it tell you?

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

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

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

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

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

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

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

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

And this also illustrates the separation that evidently exists between Rock Tank and the Baldridge Canyon field.

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

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

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

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

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

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

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

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

Mr. Padilla?

CROSS-EXAMINATION

BY MR. PADILLA:

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

A. Does Exxon want to?

Q. Yes, sir.

A. I believe, yes, it does.

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

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

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

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

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

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

However, we have -- I personally have

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

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

A. My understanding would be yes --

Q. And --

A. -- that's geologically supported.

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

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

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

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

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

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

THE WITNESS: I believe that would be --

CHAIRMAN LEMAY: Okay, thank you.

THE WITNESS: -- a correct statement.

CHAIRMAN LEMAY: Thank you.

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

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

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

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

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

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

CHAIRMAN LEMAY: Okay.

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

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

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

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

Excuse me for the interruption.

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

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

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

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

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

Q. Yes, sir.

A. Okay.

Q. How did you arrive at those dashed lines?

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

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

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

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

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

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

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

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

A. I'm trying --

Q. -- in a number of instances.

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

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

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

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

MR. KELLAHIN: He's given the witness a

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

MR. PADILLA: Sure.

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

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

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

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

So you're really looking at three wells --

Q. But in terms of structure --

A. -- for your revenue.

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

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

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

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

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

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

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

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

Q. Yes.

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

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

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

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

A. Yes.

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

A. Okay.

Q. -- in that area?

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

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

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

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

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

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

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

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

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

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

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

A. At some time, yes.

Q. Did you do seismic work in this area?

A. Since the last hearing or --

Q. Well, at any time.

A. I -- Could you rephrase the question?

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

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

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

across --

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

A. Across the entire map here? Well --

Q. Well, let's take --

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

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

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

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

MR. KELLAHIN: I understand.

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

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

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

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

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

A. I believe so.

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

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

A. I did not.

Q. You did not?

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

It establishes that we have this fault in the

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

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

A. Since the last hearing, yes.

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

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

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

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

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

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

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

right at Section 20 on the --

A. The eastern boundary?

Q. -- the eastern boundary of Section 20?

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

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

Q. Are the --

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

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

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

east of Section 20?

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

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

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

Q. Where are those cross-sections?

A. They're back at the office.

MR. PADILLA: I have no further questions.

CHAIRMAN LEMAY: Thank you, Mr. Padilla.

Additional questions of the witness?

Commissioner Weiss?

EXAMINATION

BY COMMISSIONER WEISS:

Q. What kind of rock is the reservoir?

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

You have characteristic -- It generally

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

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

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

Q. What do you think the matrix permeability is?

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

Q. And that would --

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

Unfortunately, I don't get a good handle just

looking at the logs.

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

A. Okay.

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

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

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

EXAMINATION

BY COMMISSIONER LEMAY:

Q. Mr. Kwolek --

A. Yes, sir.

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

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

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

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

A. That's correct.

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

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

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

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

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

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

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

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

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

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

A. Either one.

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

A. Right. The fault which the well control

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

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

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

A. Down in this area?

Q. Yes.

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

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

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

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

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

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

CHAIRMAN LEMAY: I have no additional questions.

Additional questions of the witness?

MR. PADILLA: No, sir.

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

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

MR. KELLAHIN: Just one more.

CHAIRMAN LEMAY: Okay, thank you.

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

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

CHAIRMAN LEMAY: We'll resume the hearing.

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

WILLIAM T. DUNCAN, JR.,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

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

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

A. Yes, I have.

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

A. Yes, I did.

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

CHAIRMAN LEMAY: Qualifications are acceptable.

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

questions involved before the Commission.

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

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

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

Q. What were you trying to investigate?

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

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

A. Those two pools are not in pressure communication.

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

A. Yes, Exhibit Number 7 shows the Rock Tank Upper Morrow data points plotted with a closed square and the Rock Tank Lower Morrow pressure measurements plotted with an open square. The Baldridge Canyon Morrow pressure data points are plotted with a closed circle.

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

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

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

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

The Baldridge Canyon Morrow Pool came on production in about 1980, and it came on production at

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

In addition --

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

A. Well, they're very small.

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

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

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

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

on our Exhibit Number 7? What would you see?

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

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

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

A. Yes, I did.

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

CHAIRMAN LEMAY: Exhibit 7 into the record without objection.

Mr. Padilla?

EXAMINATION

BY MR. PADILLA:

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

drilled in Section 20?

A. No, it does not.

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

A. Well, that is the main conclusion.

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

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

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

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

MR. PADILLA: I have no further questions.

CHAIRMAN LEMAY: Thank you, Mr. Padilla.

Commissioner Weiss?

EXAMINATION

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

Partners, L.P.?

A. Yes, sir.

Q. And what do you do for them?

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

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

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

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

A. Yes, sir, I have.

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

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

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

CHAIRMAN LEMAY: Qualifications are acceptable.

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

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

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

A. Mr. Barry Hunt.

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

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

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

A. To take some photographs of the general area.

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

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

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

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

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

CHAIRMAN LEMAY: All right.

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

A. 1-A shows a picture --

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

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

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

A. Yes.

Q. -- of the area?

A. Yes.

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

topography of that area?

A. Yes, sir.

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

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

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

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

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

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

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

A. I think they were penciled in yesterday.

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

1 location and have you explain that, please.
A. The Number 1 location is the location I was instructed to stake.
Q. And when you -- What did you find when you staked that location?
A. I found that in my opinion that was not a suitable drill site, whereupon we began searching for a suitable drill site.
Q. How about the Number 1 Exxon location? Tell us where that is.
A. That's on a point in the northeast corner of the section, 660 from the north and east.
Q. And how about the Exxon Number 2 position? Where is that located?
A. That's approximately -- Well, that's a hundred feet south of our Number 1 location.
Q. Is that number -- Exxon Number 2 position a suitable location, in your opinion?
A. No, sir.
Q. Do you have any photographs which would show the terrain of -- that would represent the Exxon Number 1, the Santa Fe Number 1, and the Exxon Number 2 locations?
A. Yes, sir, I think I do.
Q. Can you identify the exhibits that you have

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

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

Q. Okay.

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

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

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

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

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

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

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

Q. And what kind of terrain do you encounter in

that location?

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

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

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

Q. Okay.

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

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

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

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

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

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

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

CHAIRMAN LEMAY: Uh-huh.

THE WITNESS: Yes.

COMMISSIONER WEISS: Running downhill there?

THE WITNESS: Pardon me, sir? Yes.

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

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

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

A. Yes, sir.

Q. Do you have any photograph that would

identify the location of the -- these three locations?

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

Q. Is that --

A. -- and then --

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

A. I'm sorry --

Q. Is that --

A. -- I don't recall --

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

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

Q. Okay.

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

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

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

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

A. No, sir.

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

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

Q. Which one?

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

Q. And what does Exhibit 1-D represent?

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

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

A. Yes, sir.

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

A. Yes, sir.

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

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

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

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

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

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

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

A. Yes, sir.

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

CHAIRMAN LEMAY: Correct, Mr. Kellahin?

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

CHAIRMAN LEMAY: Fine, thank you.

Q. (By Mr. Padilla) Mr. Burton, given your -- Well, let me ask you this: What did the BLM person tell you when you went out there with him?

MR. KELLAHIN: Could we establish a time frame?

MR. PADILLA: Well, it would be --

THE WITNESS: This was about October 10th or 11th.

MR. KELLAHIN: And this was Mr. Hunt?

THE WITNESS: Yes, sir.

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

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

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

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

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

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

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

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

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

A. Yes, sir.

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

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

Q. And where was that?

A. That was near Farmington, New Mexico.

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

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

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

A. Yes, sir.

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

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

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

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

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

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

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

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

A. Well, I'm --

Q. Accolade, I wanted to say.

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

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

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

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

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

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

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

MR. PADILLA: I'm sorry?

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

MR. PADILLA: Yes --

CHAIRMAN LEMAY: -- at this time?

MR. PADILLA: -- I want them.

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

Mr. Kellahin, do you have any questions?

MR. KELLAHIN: No questions.

CHAIRMAN LEMAY: Any other questions of the witness?

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

THE WITNESS: Thank you very much.

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

VERNON D. DYER,

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

EXAMINATION

BY MR. PADILLA:

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

A. Vernon Dwayne Dyer.

Q. And you work for Santa Fe Operating Partners,

L.P.?

A. That is correct.

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

A. I'm the district land manager.

Q. What duties do you have as district land manager?

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

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

A. Yes, I have.

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

A. That is correct.

Q. You were his supervisor?

A. Yes, he worked directly for me.

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

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

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

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

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

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

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

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

A. Yes, I had three telephone conversations.

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

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

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

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

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

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

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

FROM THE FLOOR: Francis.

THE WITNESS: Is that correct?

FROM THE FLOOR: Francis.

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

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

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

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

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

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

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

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

A. No.

Q. -- correct?

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

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

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

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

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

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

A. No, it has not.

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

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

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

And knowing the problems we have, Emily

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

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

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

Q. And what did Mr. Custer tell you?

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

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

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

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

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

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

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

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

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

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

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

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

working-interest unit with Siete?

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

Q. Why would you in Section 16?

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

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

MR. KELLAHIN: No objection.

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

CHAIRMAN LEMAY: It's admitted without objection.

Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

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

A. I do not.

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

A. Yes.

Q. The Siete letter of January --

A. Yes.

Q. -- 30th, 1989?

A. Yes.

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

A. Yes.

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

A. I think it's the same.

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

A. Now, or at the proposed --

Q. At this time?

A. Oh, at this time?

Q. Uh-huh.

A. Based on what they propose, 26.7 percent.

Q. And what do you have now?

A. Fifty percent.

Q. In Section 16?

A. Yes.

Q. When you look at Exhibit --

A. Well, actually not 50 percent. It's close. We've got the 40 acres down in the southwest of the southwest, which would drop our interest down a little bit.

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

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

A. Yes.

Q. In the southwest quarter?

A. Yes.

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

A. Yes.

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

A. Yes, it is.

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

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

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

A. That is correct.

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

A. Yes, sir.

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

A. Yes.

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

A. Well, I really don't --

Q. -- as opposed to 640?

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

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

actually in on the con- --

Q. Kind of confusing, isn't it?

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

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

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

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

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

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

A. We --

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

A. We are in the exploration business, and that

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

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

A. That is correct.

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

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

Q. Okay --

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

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

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

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

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

Q. But the first proposed location to Exxon was

the location I've just described to you?

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

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

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

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

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

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

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

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

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

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

CHAIRMAN LEMAY: It's not a question that

he's qualified to answer, Mr. Kellahin.

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

A. We haven't abandoned it.

Q. You haven't drilled --

A. No.

Q. How come?

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

Q. And the one more deal is to --

A. No.

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

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

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

Q. On which well?

A. Sixteen.

Q. On 16?

A. Yes.

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

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

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

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

MR. KELLAHIN: Thank you, no further questions.

CHAIRMAN LEMAY: Additional questions of the witness?

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

REDIRECT EXAMINATION

BY MR. PADILLA:

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

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

Just go ahead and mark it with my pen.

A. Right about there.

Q. Speak up.

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

offset to 20 and 21.

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

A. Yes, sir, it is.

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

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

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

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

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

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

We talked to Amando Lopez and he can change

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

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

CHAIRMAN LEMAY: Thank you.

EXAMINATION

BY CHAIRMAN LEMAY:

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

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

A. Yes --

Q. -- is it --

A. -- we do.

Q. You do?

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

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

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

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

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

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

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

And we said, Okay, we'll wait.

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

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

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

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

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

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

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

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

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

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

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

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

Q. Right.

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

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

Q. Uh-huh.

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

Q. I can see that, yes.

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

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

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

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

A. Yes.

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

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

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

I don't have any additional questions.

Is there anything else of the witness? If

not, he may be excused.

Thank you, Mr. Dyer.

THE WITNESS: Okay.

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

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

(Off the record)

ROBERT C. SEILER,

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

EXAMINATION

BY MR. PADILLA:

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

A. Robert C. Seiler.

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

A. Yes, I am.

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

A. Yes, they were.

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

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

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

Q. How long have you been a geologist?

A. Twenty years.

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

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

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

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

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

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

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

CHAIRMAN LEMAY: His qualifications are acceptable.

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

A. Rock Tank?

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

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

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

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

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

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

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

A. Yes, sir, it is.

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

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

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

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

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

Q. Why is that?

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

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

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

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

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

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

First I'd like to go to Exhibit 9, which is the structure map, and indicated on the structure map is an area surrounding Section 20, Section 20 being in the location with the red square in it, which is our proposed location. That is along --

Q. What is that location?

A. That is the proposed location of 1990 -- 1980 feet from the north line, 1980 from the west line of Section 20.

Q. And that lies in the northwest quarter of that Section 20?

A. Yes, sir.

Additionally shown on this exhibit -- And I think you have smaller copies before you -- is the various -- the acreage position.

We are also showing -- describe the geology, then -- structure contours on the horizon that's identified on the bottom right-hand in the legend is Top of Morrow Sequence 2.

I'd like to point out that that is not the exact same horizon that has been used by Exxon, although it's quite close.

Now, I think for that -- To explain that difference I'd like to just make reference, then, to the cross-section, which is Exhibit 10.

Exhibit 10 -- and I think you have a small copy of that as well -- shows on the left-hand -- Well, it's a cross-section as being a stratigraphic cross-section. Not structural as the previous one, but stratigraphic.

Q. What's the difference between stratigraphic and structural?

A. Well, a stratigraphic cross-section is drawn to -- generally is drawn to establish certain stratigraphic relationships.

And in doing so, one does not, if you will, hang the cross-section on a structural datum, which is the case in a structural cross-section, but will pick a consistent stratigraphic datum so that one can better see the various relationships of the rock units involved.

This one is a stratigraphic. The other was structural.

All right, the structural horizon that is mapped -- Excuse me. The horizon that is mapped on the structure map is the top of what we call Sequence 2. Sequence 2 is highlighted on your map -- I'm sorry, on your cross-section -- in yellow.

And what has been used as the datum for the structure map that Exxon has presented is approximately a hundred feet below that. I think they called it the top or the base of their Middle Morrow marker. We refer to it as the top of the Lower Morrow. It's one and the same. But anyway, we're close but not quite the same.

Back to the structure map, then, if I could. The structure map shows very similarly, as Exxon's did, generally structure with a dip to the east-southeast. The dip rate is approximately 200 to 400 feet per mile. That's a fairly gentle dip, roughly two to five degrees per mile, a two- to five-degree dip.

It also shows the major fault at Rock Tank that was made reference to, the 500- to 600-foot fault. Notably, the intermediate fault that they have -- has been discussed today and in the previous hearing is not shown on this map.

Q. Why don't you show that fault?

A. The reason that fault is not on this map is when it was constructed, it was decided from the existing data and by my interpretation it's not required for the drawing of the map.

The -- On their interpretation, the fault varies from 75 feet to a hundred feet in magnitude, and where the well control is the closest it's only like 71 feet, I think, is the proper footage, or thereabouts.

I don't think it has to be in there. I don't see that many irregularities in the contouring.

Typically, if there's a fault in there you'll see a compression, if you will, of a contour, something funny happening that would indicate a fault. I don't

think that it necessarily has to be there.

We don't have seismic to say yea or nay. They indicated they had some, then perhaps that's another piece of evidence. But I just don't have that available to me.

Finishing up the discussion on this diagram, also shown are the varying producing horizons, and they're indicated by the colors, also indexed at the bottom of the map. The red are Morrow, and it's to mean all Morrow producers, okay, not necessarily just Upper or Lower or whatever but all Morrow producers. Purple is the Atoka producer -- Atoka production, and so on.

Also indexed is the cross-section to Exhibit 10, A/A-prime. It runs generally from the northwest to the east-southeast. It starts out at the -- on the flank of Rock Tank and moves down in an easterly direction.

Q. Why have you chosen this particular cross-section?

A. Well, it was a matter of trying to subdivide the various rock units and demonstrate what we think is a viable objective for a prospect in this area.

And to better describe that, what I'd like to do is now go to the cross-section and go into a little

more detail.

The cross-section, on the left-hand side, is the well that is in the Rock Tank field. It is the Monsanto Company Rock Tank Number 2, located in Section 6.

That well has drawn through it and to the right of it numerous subdivisions, if you will, identifying various layers.

I made reference earlier to the top of the Lower Morrow, which is identified in the center if the diagram. If you draw that back into the well to the left, you will see that it comes in at the base of a green shale marker. It's been colored green. That we use as a breakoff between Middle and Upper Morrow and Lower Morrow.

Beneath that, we have identified various units, if you will, sequences that are Lower Morrow, and they're identified L1, L2, up through L5, L for Lower.

Above that line we have identified sequence 1, 2, 3 and 4. These are again subdivisions. The way these were chosen were by the intervening shale markers.

For instance, if you will look at Sequence 4 in that well, Rock Tank 2, on the left there, there is

a very marked shale marker just above, and indeed that's the datum that we've used for hanging the stratigraphic cross-section.

And then at the base of what's marked as Sequence 4 there's another excellent marine shale marker. That defines for us sequence 4.

It's that methodology that's been used in subdividing the rock in this area, just the Morrow section in this area.

I could mention in passing that Sequence 4 is the Upper Morrow Rock Tank productive interval that was presented earlier in Exxon presentations.

As indicated on the left-hand side, that's a Rock Tank pay, there's four wells in it. They've made close to 9 BCF. To complete that line of thought, the Lower Rock Tank Pool pay is down here in what's called Sequence L1. That's a pay in Rock Tank, also in Catclaw Draw. In Rock Tank there are 7 wells that have made over 47 BCF out of that particular unit.

What I want to draw our attention to now, though, is what we refer to as Sequence 2. I know that was a bit lengthy, but what I'm trying to show is that what we're pursuing is different than the two that have been shown. It's -- Our prospect is highlighted towards that.

Q. As you move east, do you see the same thing happening, or the same kind of reservoir characteristics?

A. I think you can see, particularly as pertains to the Middle Morrow, Middle Upper Morrow, that the correlation markers carry across quite nicely, and indeed we do see it come across.

Which brings us to a key well in this cross-section, being the middle well, and this now pertains to our prospect, why we --

Q. Can you locate that well on the structure map?

A. I sure will. Again, it's the Hanagan Petroleum Company North Horseshoe Bend Number 1. That is located immediately south -- or, excuse me, two sections east of our Section 20. It's over in Section 22, up in the northeast quarter.

It's highlighted by a blue dot and a circle which, by the coding, means it did go to the Morrow, but it's a Strawn producer, it was a Strawn producer. I think it's now maybe a -- at least a temporarily abandoned or abandoned.

But, however, that is a very significant well for our prospect in the Morrow. And to highlight that I'd like to go back to the cross-section and point out

a drill-stem test interval that is shown in the central column of that well, the log of that well.

And in this DST, or drill-stem test, we see that this well recovered 9512 feet of salt water on test. Now, we're not in the business to find salt water, but we do, to find oil and gas, have to find porous and permeable rock. That's a very excellent test.

Our chore, then, to make a prospect out of this zone in this area, is to get updip from that and stay in the porous and permeable rock, and that's the key for our prospect, and we'll work that up as we go into the maps.

Q. Do you have anything further concerning Exhibits 9 or 10?

A. Not at this time.

Q. Okay, let's go to Exhibit Number 11.

A. Okay.

Q. What is Exhibit Number 11?

A. Exhibit Number 11 -- which I may point out, is a new map. This was not shown at the previous hearing. For further demonstration of our prospect, I thought it was beneficial at this time.

Exhibit Number 11 is an isopach map and, as indicated in the bottom right-hand corner of the

legend, it is a gross interval isopach.

Q. What does that mean? Does that measure sand thickness? Is that what you're talking about?

A. Okay, for Sequence 2 that measures everything. That measures sand, that measures shale, and any lines that might be in there, and I might add that it measures all sand, whether it looks porous or not. It's the total interval.

And what we have shown, then, on this map is the values for all the wells in this area, for that sequence.

And what one can see, and it's highlighted with color, is a thick in the area just to the west of -- excuse me, just to the east of Section 20, where the values reach over 100 feet, the thickest well being the well in Section 19, which also coincides with the well on the right-hand side of the cross-section, the position A on the cross of A prime in the cross-section.

The thick package that you can see in the unit is thickest there and also you can see has got a lot of sand, but we'll get to the sand in a minute.

So all this thing is doing, then, is looking at the total interval. We see that the interval is thinnest back to the west and the northwest, thickest

to the east of Section 20, and it has a lobate shape, that is, it, we feel, demonstrates a deltaic environment.

Q. How do you spell "lobate"?

A. L-o-b-a-t-e.

Q. Why did I ask that question?

A. In the transcript it was misrepresented as l-o-w b-a-i-t, as opposed to high bait or stink bait or something.

COMMISSIONER LEMAY: They were fishing in that?

THE WITNESS: Yeah. Got a chuckle out of that.

Anyway, so we see a general lobate pattern, and that's basically all that this map was intended to show. It's trying to describe what is the geometry of the overall interval? What's the overall interval doing? Where are the thins, where are the thicks, and what can you deduce from that?

From this, then, if we're going to have a prospect, we now have to look into the existence of the sandstones, and for that I'd like to go to the next display.

Q. (By Mr. Padilla) Okay. That would be Exhibit Number 12?

A. Okay, Exhibit Number 12, again, is another isopach. But this time what we're going to do is look at all the logs in here and just look at sandstone thickness, gross sandstone thickness, whether it be porous or not. We're going to eliminate all shales, we're going to eliminate any limes that might be in there.

So this is a sandstone thickness map, regardless of quality.

Once again, we look at this and see what we can garner. Basically the same shape appears. We've got a thick that's lying out to the east of Section 20 with a tongue now, if you will, coming back towards Section 20, to the north of Section 20, through Section 16, 17, 21 and 20.

What we are beginning to see now, we feel, is indeed a deltaic deposit, sourced from the northwest, very similar to the effluvial direction that Exxon had presented earlier for the other sands. Now, we're talking a different sand, but the direction seems to maintain.

And we're bringing sands in from the northwest and, we feel, depositing these in a lobate fashion out here, such as in a delta. But we're halfway home to -- for examining a prospect.

The last thing is, where is -- Where does the rock demonstrate reservoir characteristics? Porosity and permeability? We can deduce porosity off the next map, which I'd like to go to if there's no questions.

Q. Let's go. And that's Exhibit 13; is that right?

A. Yes, it is.

Okay. Now, this map is the one we've been trying to get to. This is the map, now, that we're going to look in just at the sandstone. So now, as the legend indicates, it's a net porosity map. We're going to restrict ourselves just to that portion of the sandstone that has porosity indicated from logs at 10 percent or greater.

And the logs vary across here. You've got some sonic logs, you've got the neutron density and so on. So you have to do with what you've got.

What we see, then, on this map -- and as I say, this is the map we've been looking for -- is again what we feel represents the -- where the presence of quality sandstone will be, and we see the pattern still maintains itself.

We see a thick, again, still out to the east of Section 20. We see the -- What we think is the feeder direction coming in from the northwest.

And what really stands out now is this protrusion that sticks up down here to the south and east -- or south and west. This, we think, is another channel that either flipped out here, or perhaps -- There's a geologic feature called a crevasse splay, and that's where in a delta environment the channel breaks out and sends out another little arm, if you will, such -- weakly represented, maybe, the Mississippi Delta when in lobate fashion if it slips -- switches around there could be crevasse splays where it breaks through its levee.

Well, anyway, we feel as though a major -- this tributary may have headed off into this direction.

Q. Is that shown by the yellow or the red coloring that --

A. Well, I'd like to get to the red in just a second, okay?

The significance, then, is, we've got quality sand in excess of 50 feet, we have one well with 51 feet to the north of us there in Section 15. We've got our good well with the big test, with the big water test, present with 31 feet of quality sand, and our prospect, then, is, we've got to get updip from that water.

Well, what we've done is look where does this

zone, if anywhere, produce gas?

And I mentioned that crevasse splay. The well down in the south half of Section 31 had a DST run on Section 2 -- or, excuse me, on Sequence 2 -- and during that DST, drill stem test, the well flowed at the rate of 9.2 million cubic foot a day. On a 19/32 choke, they recovered 80 feet of water and 260 feet of gas-cut mud. The sample chamber had 7.4 cubic feet of gas, no water.

Q. What does that mean?

A. Basically -- I'm sure they were very excited when they first had it. It was a wonderful test. The well subsequently -- They attempted a completion in here, along with the lower zone, and it produced a lot of water.

The lower zone tested by itself made a lot of water on the production test. They came up and added this one to it and always had too much water. They never made a viable completion in Sequence 2.

Q. How --

A. But it did test --

Q. How is that relevant to your proposed location?

A. All right, what that demonstrates to us, then, is in Sequence 2, that there is gas in this

sequence, in this interval, in this subinterval of the Morrow.

And in addition, it shows us if you extrapolate the lowest porosity zone in Sequence 2 and trace that contour on your structure map, you can then determine where, if you will, the lowest known gas is in Sequence 2 from your lowest perforation or your lowest porosity foot. And it did make gas, so that would be our lowest known gas.

That is the red line on the -- It's drawn across the top of the sandbar.

Now, on the right-hand side there is a bluish-green line which is labeled Highest Known Water. That's taken from the highest porous foot that the well had made -- made the water.

So now we've got the stage set. We've got porous sand, we've got a water test that tells us we've got to be further updip than that point. We've got gas down to this point.

That, for us, sets up a prospect in the area of Section 20, and our location, as you can see, would be in the net sand. It would be close to the lowest known gas elevation in this sequence.

One thing I need to point out is, this is a stratigraphic trap. The question has to be asked, Why

didn't that leak all the way up to Rock Tank?

If you notice the updip limit of that sand, where it's colored orange and goes to white, that is a field of zero control. That is a stratigraphic pinchout of porous sand in this interval, and that is more than likely how a lot of these downdip fields appear, that they're not structurally controlled; they're stratigraphic.

They go to a pinchout, a porosity pinchout updip. That is our prospect, Sequence 2.

Q. Does -- Let me ask you something. Does that mean when you have a pinchout that you're no longer in the Rock Tank Pool, or --

A. This is a -- not a question of Rock Tank at this point in that it's a different interval than either of the two Rock Tank producing horizons, okay?

Q. How did you reconcile structure with the sand thickness explored or -- as far as choosing your location?

A. Well, I'd have to concur with the previous testimony, both hearings, with the Morrow the best idea in the world is to get in the sand thicks and, the best you can, get in porous sand thicks.

And that's what we're attempting to do by coming updip from that water well. We know it's

quality. So you go for your sand thicks.

And then, of course, you must pay attention to structure. In the case of producing free water, you've got to be above free water.

We have then set the stage, as I've said. We've got a band in here. Apparently, one would believe that a gas-water contact would have to exist through here somewhere and you'd want to be on the updip portion of that. That's where we are situated in Section 20, and we feel we've got a viable prospect.

Q. In terms of 320-acre spacing and in terms of laydown units or standup units, how does this geology in your proposed location work? In other words, where do you drill the second well, should 320-acre spacing be decided to be applicable by the Commission?

A. Well, as -- as -- As we indicated in the previous hearing, our first well -- and Mr. Kellahin was right when he said we would prefer, if we thought it was a viable place to drill, the northeast of Section 20.

We have determined, through quite extensive investigation and expense, that we do not feel that that is viable for the reasons that have been stated.

We would then go forward with our location in a north-half proration unit. If it were to be deemed

to be 320, we would drill it at 1980, 1980.

And then to obtain the maximum sand thickness for the second well in Section 20 we would go to the southeast, knowing that we are sacrificing some elevation. But that is the area of greatest sand thickness.

And I might add, as I said before in the previous hearing, quite encouraged. It's not only the greatest sand thickness in the south half in Sequence 2, but it also happens to be the greatest thickness in the zones that were mapped by Exxon, that I had not previously done across this area. So I was encouraged by that.

Q. So you would locate one well in the northwest quarter and the other well in the southeast quarter?

A. Correct, right.

Q. In your view, would that be -- well, would that be a better way to develop Section 20, should 320 acres be applicable?

A. I think, given the surface conditions and everything that we have to deal with in Section 20, the rank, wild nature of this where we must control costs, and all things considered, this is, yes, the best way to develop Section 20.

Q. Mr. Seiler, do you have anything further to

add to your testimony as far as your geologic presentation is concerned?

A. I think that covers it.

Q. Mr. Seiler, would approval of Santa Fe's Application be in the best interests of conservation and the protection of correlative rights?

A. In my opinion, yes, sir.

MR. PADILLA: Mr. Chairman, we offer Exhibits, I believe, 5 through 13 at this time.

CHAIRMAN LEMAY: Without objection, those exhibits will be entered into the record.

MR. PADILLA: And we'll pass the witness.

CHAIRMAN LEMAY: Yes, Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Seiler, if you'll turn with me to your Exhibit Number 13 --

A. Yes, sir.

Q. -- when we look specifically at Section 20, am I clear in understanding when you're looking at Sequence 2 as the target that the greatest thickness for Sequence 2 is going to be a well located in the northeast quarter?

A. That is correct.

Q. Because of your understanding of the surface

constraints, then, rather than moving to the southeast quarter, you have moved over into the northwest quarter?

A. Yes, sir.

Q. Why have you done that?

A. It is as close as I can get and have a -- still have structural advantage, which has to be worked into the formula as well. I believe -- and it's as close as we feel that we can get to a good location in the northeast quarter with a vertical well.

Q. The southeast quarter of the section would give you greater thickness than your location in the northwest quarter, would it not?

A. It would give a little bit greater thickness, yes, sir, and also sacrifice a little elevation as has been discussed earlier.

Q. Nothing you've said about locating your first well in the northwest quarter and the second well in the southeast quarter precludes standing the units up, does it?

A. Not in terms of geologic testimony, no, sir.

Q. Or in terms of well location? You can take that location in the northwest quarter and designate the west half and have a west-half dedication at the standard well location, can't you?

A. I believe that's correct, yes.

Q. And that will still leave you an opportunity, then, in the east half to put a well at good thickness above the 20-foot contour line at a standard location?

A. Yes, sir.

Q. When we look at Exhibit 13, you've drawn our attention down to Section 31, and there's the well whose name escapes me, but it shows about 11 feet, and it's got the red dot?

A. Yes, sir.

Q. How important is that well to you in your evaluation of the Sequence 2?

A. Well, it -- It, I think, is pretty significant. Although it's somewhat distant it does demonstrate the gas in Sequence 2, and as -- I think it was Mr. Kwolek made the observation, there's not a producing well, currently producing well in the immediate area in Sequence 2. This is as close as we could come, and I think it's a very substantial show at a flowing over 9 million a day. So I think it's pretty significant.

Q. Other than that well, when I look at the area mapped on your exhibit and look at Sequence 2, there in fact is no production in Sequence 2, is there?

A. No, sir.

Q. When we look in Section 22, which is two sections to the east of 20, we have the well that had reservoir porosity, but that's the well -- the Hanagan Well that was wet?

A. Correct.

Q. And that has caused you to identify, then, the highest known water?

A. Yes, sir, in Sequence 2.

Q. Yes, sir. All of my questions are on Sequence 2, Mr. Seiler.

A. Okay.

Q. On the other hand, we're trying to determine the lowest known gas with the red line?

A. Yes, sir.

Q. And the control point for that is the well in Section 31?

A. Yes, sir.

Q. Do you have the information available on the well in 31? And let's talk, again, about what you told Mr. Padilla.

A. Yes, I do.

Q. We have the drill-stem test?

A. Yes, sir.

Q. And the drill-stem test was taken at 10,440 feet through -487?

A. Yes, sir.
Q. Is that your information?
A. Yes, it is.
Q. The gas flowed approximately 9.2 million cubic feet of gas per day?
A. Yes, sir.
Q. Recovered 80 feet of water?
A. Yes, sir.
Q. And 260 feet of gas-cut mud?
A. Yes, sir.
Q. All right. Then they perforated two intervals, did they not, from 10,462 to -- You'll have to help me because I've lost track of the top perforations.
A. Yeah. The perfs were 10,462 to -64, and then they perf'd 10,469 to -481.
Q. Four eighty-one, all right. And what was there? Four shots or --
A. Four shots per foot, yes, sir.
Q. They swabbed back 150 barrels of water in eleven hours?
A. Yes, sir.
Q. Squeezed the perfs?
A. Yes, they did.
Q. Why does that not represent in the lower

perfs the highest known water contact in Sequence 2?

A. From my interpretation of the information, I think what one has to consider is, prior to perf'ing those two zones we've just described, they perf'd another interval that flowed 162 barrels of water along with 2.8 million cubic feet of gas.

Q. Where was that?

A. That is in the interval just beneath us at 10,496 to 10,544.

And from the information I have on this ticket, they did not try to squeeze those off or plug it off. They just came up above and opened the upper ones.

And any water that was made, then, my interpretation is that it's a combination of the two sets, or actually the three sets of perforations.

Q. We don't know, do we, were that water is coming form, which of the series of perforations that water volume is being produced from, do we?

A. Well, Mr. Kellahin, when the first set was open only, it made a lot of water. Okay? And then they opened some others, and they made a lot of gas and some more water.

So just subtracting back, I don't think it's unreasonable to think that most of the water may be

coming -- or maybe all of the water is coming from the lower set.

Q. Do you see any evidence that they went back and squeezed the perfs and reshot the sequence in 2 zone?

A. Okay, I'm going to have to read the ticket a little further. Give me a minute here.

Yes, sir, they did.

Q. And what happened?

A. That operation, the -- I'm sorry, I've got --

Q. Can you find the entry on 9-9-80?

A. I'm sorry, I'm struggling here. I can't relocate it.

Q. Okay, let me help you.

A. Please. You've got a more detailed card than I have. That's part of my problem.

Q. Well, let me loan you my copy.

A. All right. I assume this is just a commercial part, I suppose.

Q. In summary, did they not try again and simply recover more water?

A. The information before me is that the -- what you've circled, that it flowed an additional 40 barrels of water. This is after acidizing.

I don't know if they've broken into this

lower interval now or what. I do know that it made -- it made excellent gas and virtually water-free on DST, and then when they started testing the lower zone with the upper zone and then trying to mess with it, it looks like they never did get the water shut off.

I still think there's valid information here that there was gas in Sequence 2; and the apparent water in the area, it's not to me clear-cut where it came from. The two zones are very close to each other on the log.

Q. When we look at the extent of Sequence 2 as we move to Rock Tank, we don't find Sequence 2 being produced in Rock Tank within the pool boundaries of that pool, do we?

A. No, sir.

Q. Structurally, when we look at your interpretation, the Exxon interpretation -- Let's go to your map, Exhibit 9.

A. Uh-huh. Let's see, I don't have the Exxon with me if I need to compare.

All right.

Q. Do you have the Exxon -- Mr. Kwolek's map?

A. I do, thank you.

Q. Did both of you use the same data point to map the structure?

A. Have we used the same data?

Q. The datum, the same -- the same point in which -- position in your structure?

A. No, we haven't sir.

Q. And that therein explains why there are some differences in --

A. Yes.

Q. -- in the elevation?

A. The numbers for each well will be off roughly a hundred feet. They're about a hundred feet apart.

Q. When we look at Section 20, though, and the way the structure is contoured through Section 20, you gentlemen are in agreement, are you not?

A. Remarkably so.

Q. Have you examined Mr. Kwolek's geologic interpretation in terms of his conclusions about the water production out of the Number 3 Well in Section 5 --

A. I have.

Q. -- and how it impacts the Lower Morrow?

A. I have.

Q. Do you find his interpretation to be reasonable for that zone?

A. Reasonable for defining the water leg in Rock Tank, yes, sir.

Q. Does it add anything to your structural interpretation if you had included the Section 5 well in your cross-section?

Well, I've confused myself. I had a stratigraphic cross-section.

A. Yes, sir.

Q. But on the on the structure map there is a line of cross-section for you, okay? The first well, the A Well, in the A position on the left margin of your cross-section, your stratigraphic?

A. Yes, right, I've got a line of section on my structure map, yes, sir.

Q. I was using that as my index map. If you'll go to your stratigraphic cross-section, how come you didn't use the Number 3 Well in mapping Sequence 2?

A. Actually, the intent was to subdivide and also document and pick a well that is produced -- a Morrow producer in the area, and help subdivide the Morrow, and the obvious conclusion is that Sequence 2 is not one of those that is producing up there.

Q. Okay, you went farther west than he did in your particular examination of Sequence 2. In other words, you have picked a well farther into Rock Tank, looking for Sequence 2, and don't find it to be productive?

A. Yeah. Well, he went in there with his cross-section and covered all the producing wells.

Q. When we look at your structure map --

A. Yes, sir.

Q. -- you have displayed on the structure map the acreage relationship, and you've shown the Exxon acreage in Section 17?

A. Yes, sir.

Q. It's going to be -- Section 17 is going to be structurally updip in Sequence 2 from the Santa Fe acreage in Section 16, isn't it?

A. Yes.

Q. When we look at the relationship of Section 20 structurally, if gas is going to be productive in sequence 2 in Section 20 --

A. Yes, sir.

Q. -- it's not going to come from the Rock Tank Pool, is it?

A. Come from the Rock Tank Pool? I -- The Sequence 2 does not produce up there, and I don't -- wouldn't say that they're related. They're different sands.

Q. Yes, sir, and you have not projected the potential production up into there?

A. No, sir.

Q. Let me confirm again in my own mind, then, when we look at your stratigraphic cross-section, the Upper Morrow, when we start vertically and go down from the datum point, Sequence 4 --

A. Yes, sir.

Q. -- corresponds to the Exxon Upper Morrow, does it not?

A. I believe that is correct, yes.

Q. And then we go down to what you've identified as Sequence L1, and that would be Mr. Kwolek's Lower Morrow that he's mapped?

A. I believe that is also correct, yes.

Q. Describe for us why you've taken Sequence 2 as the primary objective for the exploration in this area.

A. Well, basically when you're trying to explore in the Morrow in Lea and Eddy Counties, you learn very quickly it's not that much unlike the Morrow elsewhere that I've worked, mainly in the mid-continent.

You first need to determine your -- your patterns of sedimentary distribution, where your sands lie.

And then when you go to put a prospect together, with rocks of this age being -- having been subjected to diagenesis and all the factors, you

immediately zoom in on any well that, number one, has produced real well or has shown reservoir characteristics that shows that it could produce oil or gas if it was in the right structural position.

And that's why when we spotted this test with 9500 feet of water produced, showing excellent reservoir conditions, we tried to see what we could make of it and hence our prospect in Sequence 2.

Q. Is it fair to characterize your target in Sequence 2 as a wildcat oil prospect in Eddy County, New Mexico?

A. Very much so.

MR. KELLAHIN: No further questions.

CHAIRMAN LEMAY: Additional questions of the witness?

EXAMINATION

BY CHAIRMAN LEMAY:

Q. One quick clarification. Is it your testimony, Mr. Seiler, that in terms of location -- We're trying to come to grips with the issues here at the Commission. One of them seems to be spacing?

A. Yes, sir.

Q. But the bigger was standup or laydown. Geologically, you can stand them up or lay them down, put them in the northwest or the southeast, and

geologically it makes no difference?

A. There are tradeoffs for either method, either standup or laydown. It can be done either way. If you -- you're going to have to go to the southeast quarter, you're going to have thicker sand, but you're going to be lower. And you can do that with either a standup or a laydown.

And that's given the conditions, again, of the northeast, so you can drill up there safely.

Q. Have you had any conversations or any work with Stu Hanson with Siete? Have you worked with him on this prospect?

A. I -- Yes, sir, we discussed this prospect. It's been a while.

Q. Do they have part of -- Well, maybe that question would be more appropriate to the next witness I'd like to recall.

A. Okay --

CHAIRMAN LEMAY: Thank you very much.

THE WITNESS: -- I don't know if there are any more witnesses, but --

CHAIRMAN LEMAY: Well, I'd like to recall the only landman that we've had here. I think --

Yes, sir? You have another question? Please, Mr. Padilla.

REDIRECT EXAMINATION

BY MR. PADILLA:

Q. Mr. Seiler, if you standup on this nonstandard section, if you standup on the west half of the proration unit at a standard location, would your -- Can you tell me whether you would have to move your proposed location in any way?

A. If it were a standup? Oh, yes.

Q. Standup.

A. Yes. Yes, because we have to be 1980 from an end line, 660 -- no more than 660 from a side line, and I think we're going to have a problem. I believe that's right.

Q. Which direction would you --

A. Let me look at that a second.

(Off the record)

THE WITNESS: I stand corrected. I think it would work that way too. It would work as a standup.

CHAIRMAN LEMAY: Yeah, the 1980 would work.

THE WITNESS: Yeah, I stand corrected.

Q. (By Mr. Padilla) 1980. How about 660 from the side boundary?

A. It would be -- You would still be 660 from the centerline of the section.

Q. Even on a nonstandard section?

A. Yeah, this is a peculiar section. It's short. Because it's an oddball -- less than 600 acres, as it turns out from the topo map, I get it as only 4900 feet wide in an east-west direction, as opposed to 5280. So we've got a little problem there we'd have to work with.

And then it's longer the other way. It's 5400 feet long as opposed to 5280. So that would have to be worked out.

And then the next thing is to fit it on the topography with the problems we have on top of the canyon rim.

MR. PADILLA: I don't have any further questions.

CHAIRMAN LEMAY: Thank you. Additional questions of the witness?

You may be excused.

Do you have any additional witnesses here?

MR. PADILLA: No.

CHAIRMAN LEMAY: We'd like to use our prerogative here and recall Mr. Vernon Dyer if we might.

MR. KELLAHIN: I want to call Mr. Bill Hill at some appropriate time. Mr. Hill is my surface topography man. It won't take but a few minutes, but

at some point I'd like to introduce him.

CHAIRMAN LEMAY: Why don't you do that, and then I'll finish up with Vernon?

(Off the record)

MR. KELLAHIN: Perhaps to expedite things, Mr. Chairman, I'll clean up my exhibit filings.

I'd like at this time to move the introduction of Exhibit Number 8, which was the APD approved on the Siete Well in Section 16. I've failed to do that thus far. I'll do that at this point.

The next exhibit I have needs to be stamped. It carries the wrong number. This should be Number 9, as opposed to 10, but it's also a topo map from which I'll have Mr. Hill describe his involvement in this case.

JOSEPH W. HILL,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. My name is Joseph Warren Hill, and I'm a technical foreman in construction with Exxon in the Civil Engineering Construction Group.

Q. What does that mean that you do?

A. My primary responsibility for the last eight years has been construction of drilling roads and locations and subsequent reclamation.

Q. Have you been involved in finding surface locations acceptable to the various governmental agencies and landowners in Eddy County, New Mexico?

A. Yes, I have.

Q. And are you familiar with the application by the BLM of their Surface Use Management Rules and Regulations?

A. Yes, I am.

Q. In dealing with those particular individuals with regards to the location of the well in Section 20, with whom would you deal?

A. Generally we call a natural resources specialist, a man named Barry Hunt out of the Carlsbad office.

Q. Would this be the same gentlemen that the Santa Fe witness has referred to that he had conversations with?

A. I'm sure it is.

Q. Are you familiar with, then, not only the Rules but the application of those Rules by the surface management specialists of the BLM?

A. Yes, I am.

Q. And have you applied that knowledge and expertise by going physically on Section 20 to determine whether or not, in your opinion, based upon your expertise, there could be a well location for a well as we've described today in the northeast quarter of Section 20?

A. Yes, I have.

MR. KELLAHIN: We tender Mr. Hill as an expert.

CHAIRMAN LEMAY: His qualifications are acceptable.

Q. (By Mr. Kellahin) Describe for us in sequence what you have done to familiarize yourself with the surface in Section 20. And to aid you in that discussion, let me refer you to what has been marked as Exxon's Exhibit Number 9.

A. Okay, I can start from -- I've made two trips in all to the location. Should I --

Q. Describe the first one.

A. Okay. The first one, I was contacted on rather short notice to go look at a surface -- the Section 20 as we've been discussing -- to see whether a proposed location could be staked. And this particular location, we had not been to the site. It was 660, 660

out of the northeast corner.

Q. This was a few days prior to the November 29th hearing before the Examiner?

A. I believe it was November the 27th.

Q. And you made a physical inspection, then, of the surface?

A. Yes, I did. I went through the site and found the location, 660, 660, which was, because of topography, totally unacceptable. It would not have been buildable from a financial standpoint. I'm sure the BLM would not have approved of it. There were several problems with it. It would not have been a safe location.

Q. In examining the surface, did you find that the topographic map that you're utilizing, and a copy of which you presented today was accurate and reliable?

A. Yes, it was remarkably accurate as far as I could tell.

Q. Is -- Is this the same topo map that the Santa Fe witness used a while ago?

A. Yes, it is.

Q. Describe for us -- Was that the end of your investigation, then, at the first visit?

A. No, at that point, I took several pictures myself. But the primary objective I had was, as that

location was unacceptable, I looked for a location as near to that spot that I would consider a reasonably safe location to build, would be financially buildable, just a more suitable location.

Q. Did you find one?

A. Yes, I did. I located a location which is roughly, as indicated by the Santa Fe map -- I'm not sure of their exhibit number, but it's a location that they represent as E-3.

Q. When we look at the topo maps and look at that E-3, there is a point on the topo map where there is an intersection of two roads?

A. That's correct.

Q. And this drainage area, there's a little V-shape. Within that area, then, is the approximate location of the well?

A. That is correct.

Q. Okay. Now, the Exxon witness described that to be unsatisfactory in his opinion because it was subject to potential flooding at some point?

A. Okay, the Santa Fe witness?

Q. Yes, sir, the Santa Fe.

A. Yes.

Q. Did you come to the same conclusion?

A. No, I did not. There are several reasons

that that particular location is not the problem that he suggested.

In referring to his map -- and it was something that I used -- there are several things that you have to take into account.

These are 20-foot contours that are shown on the topographic map. The dashed line that he has highlighted in blue is the flow line of the drainage channel at that point, and if you can mark back up, that's approximately 20 feet to 25 feet above the lower flow-line grade of the channel.

If you look back on their exhibit, to the southwest of Section 19, you'll see a series of small black dots, very small squares. That is a ranch house, with some small sheds. You'll see some dotted lines emanating from that, which is a fence line.

That is a house built in there at approximately the same distance from that flow line, and it's been in existence for some time.

The location that we looked at, and the existence of that road there are well above the water level that comes down that channel.

Q. Did you go to the top of what I'll characterize as the ridge and examine the area where Santa Fe has recommended this afternoon that that is

the best location, if you will, topographically to place the well?

A. Yes, I have.

Q. You walked all through that area?

A. That's correct.

Q. And what did you find, and what did you conclude?

A. Well, the -- He was correct in the fact that there is relatively no leveling to be done on the location itself.

In the construction of drilling pits, the construction of the drilling cellar, subexcavation is necessary. And on top of these bluffs there is very little soil. The nature of the subsoil is solid rock.

In order to build a location up on top of this bluff, you are going to have to use explosives. You will have to blast that location, not the location itself. And you might have some -- some small rises in the location that may have to be blasted. But the cellar, the working pits and the reserve pit themselves all must be blasted up there.

Q. Having examined the topography of the area involved, and having looked at all the choices of both companies that have been generated over the last few months, what is your opinion as an expert as to a

suitable topographic location in which to locate the well?

A. The location -- either their location 2, our -- and 4, or our location 3 would be acceptable locations.

The soil down in that particular area is sediment. It's not solid. It's been deposited or washed off of the bluff over the years, and it's a more workable material. I don't believe it should be characterized as solid rock. I think it's -- There is some rock in there, and there is some leveling to be done, but it is a sediment. It's a deposited material.

Q. Did you examine the access into the well site all the way from a usable access road?

A. Yes, I did. There's a paved county road to the south, approximately two miles, two and a half miles.

Q. From that point to the site, including the site, would you describe for us the kind of difficulty and expense, based upon your experience, that's going to be encountered by the interest owners involved in drilling the well --

A. Okay --

Q. -- and contrast that, then, between the two locations.

A. Okay. The road coming in, there's a dry hole that is to the south of these -- of this particular section -- and there is a fairly good road coming to that, though it is quite old, it's weathered. It would have to be rebuilt, essentially, resurfaced. Most of the surfacing material has been washed off.

So you have approximately two and a half miles of road, possibly more, that would have to be rebuilt, and the real expense in that particular case is depositing or hauling in surfacing material.

Once you get up to the Section 20 and you're on top of the bluff, the additional expense in building locations on top as opposed to the bottom is the approximately 2500 foot of road from the top down to the bottom.

There was a concern at the hearing that the road would be unsafe, and it is possible to lay a road out, off of the top of this, at a ten-percent grade, which would be -- which is within -- well within safe limits as far as steepness of grade.

It is not necessary to cut the road entirely. It's a balancing situation. You're -- You're building on a partial cut in a fill situation, so the road is buildable.

In my estimation, your difference in the two

locations is probably in the neighborhood of $2500 to maybe $5000, and that is strictly the length of the road.

The fact that the sediment material at the base, at location E-3, is workable would minimize the amount of pit construction that needed to go on. It would also possibly minimize the amount of surfacing material that needed to be put on it, depending on what kind of material was found in balancing the location.

But it's my estimation that you're looking somewhere in the neighborhood of $2500 to $5000 difference in the two locations.

Q. When you look at the area identified on your exhibit, the E-1, there is a circle scribed on the topo map --

A. That's correct.

Q. -- on your exhibit, and that's shaded in in ink, the center point of which is approximately the intersection of the two roads?

A. That's correct.

Q. Did you return to this site after the November 27th, 1989, visit to that location?

A. Yes. As there was a concern that Mr. Hunt had viewed these particular sites and was against building a location in that area, because of my

experience and the fact that I did know Mr. Hunt, I called him and asked him if I could review the sites with him to see exactly what his concerns were.

And I met him out there on December the 8th, and the geologist Bill Tate was with me at that time, and we discussed proposed locations in that area.

Q. What does the circle scribed on your exhibit and identified as E-1 mean?

A. We looked at those locations. There were two existing stakes from Santa Fe's previously staked locations 2 and 4, and then I had picked a spot that was approximately in between those, and I asked Mr. Hunt if he had any objection, what exactly were his problems were that. And he seemed surprised and indicated that he had no objection to those sites, that he had never voiced an objection to those sites as safe building locations.

Q. As best you know, is he the appropriate BLM individual by which the final judgment is made on building these sites?

A. He is the man that attends, in this particular area, all of the on-site meetings, laying out roads, locations, orienting the location towards -- In this case, we talked about orientation of the location and how it should be positioned in that place.

And he is the man we always consult, yes, sir.

MR. KELLAHIN: That concludes my examination of Mr. Hill. We wold move the introduction of his Exhibit Number 9.

CHAIRMAN LEMAY: Exhibit 9 into the record without objection.

Mr. Padilla?

CROSS-EXAMINATION

BY MR. PADILLA:

Q. Sir, I've forgotten your last name.

A. Hill.

Q. Hill, okay. Let me show you Santa Fe's Exhibit Number 2. You've identified a ranch in there at the southwestern end of that exhibit, have you not?

A. Yes.

Q. Can you tell me whether the draw in that area of the ranch house, as it proceeds north, is steep? The draw itself?

A. It's really quite wide in that area.

Q. It's really wide, isn't it?

A. Yes, sir.

Q. And the location of the well you've drawn there is considerably further than the ranch area; is that correct?

A. Yes.

Q. Now, can you tell me what the -- what watershed empties into this draw when it rains? What's the watershed? Can you identify that?

A. No, sir, I can't.

Q. Would you agree that at least as far as the northwest area of this Exhibit Number 2 of Santa Fe, that water that -- that water would drain into that draw and proceed downstream towards the well site?

A. Yes, it would.

Q. Can you tell me, sir, do you have any idea how the sediment or deposit on the locations of Santa Fe Number 2 or the Exxon Number 3 or the Santa Fe 4, how that sediment would have gotten there?

A. I'm sure it was wind and rain.

Q. Do you agree with me that some of that sediment would come from upstream as a result of rain?

A. In this particular case, I don't really think so. The river channel itself, if you were -- if you had been -- if you've been on site, the river channel proper is easily identified by a large, baseball-sized gravel, real heavy, pure white, extremely clean, no fines whatsoever.

The area where this location is is, like I say, approximately 20, 25 feet higher than that. It's approximately 200 feet from that area, and it's sand,

silt, small gravel, grass, lots of vegetation. The two-track road itself is pure fines. It's not the same.

Q. Is it the kind of fines that would be swept aside as the rain was coming down the -- as the water was coming down that draw?

A. I think if the water came down that high, it would have washed those fines away as it did in the river channel, and it did not. It's deposited there. They are there.

Q. You don't find those fines down at the bottom of the stream bed, do you?

A. No, you don't.

Q. Mr. Hill, how long have you -- how many locations have you staked in this area?

A. In that particular area, four or five.

Q. In this immediate area?

A. In the -- Yes, in the mouth in Dark Canyon -- I've been associated with many of them.

I don't stake them myself. I supervise construction. But I've been associated with many wells in that area, in one way or another.

Q. How long -- Well, you've been there twice; is that your testimony?

A. That's correct.

Q. And the second time was December 8th?

A. December the 8th, right.

Q. What other wells does Exxon have in this immediate area?

A. There are some -- There are more up towards Happy Valley, Happy Valley Fed Com, they're all in that Dark Canyon area southwest of Carlsbad, there's Squaw Federal, Mary Federal, we have lots of acreage in that are, and --

Q. And how far away are those wells?

A. Some of them are relatively close, within maybe four or five miles. Some of them are further down towards Carlsbad, you know, to the northeast. But, you know, they're in that general area.

Q. You don't consider a ten-percent grade as dangerous?

A. No, sir. As a matter of fact, at times those grades are exceeded. There are state highways, higher grades than that, approaching 15 percent. Not for long segments, but ten percent is the acceptable --

Q. Do you know what grade --

MR. KELLAHIN: Excuse me, I'm not sure the witness was finished responding.

Q. (By Mr. Padilla) I'm sorry.

A. That's fine. Ten percent is our contractual

requirement. We ask that our contractors construct the roads at grades no greater than ten percent. They can exceed those grades for distances shorter than one-tenth of a mile or 500 feet, but ten-percent is an acceptable grade for a drilling road.

Q. Isn't that your top limit?

A. No, sir. Like I said, you can exceed those grades if -- you know, if conditions warrant that, for short distances.

Q. Do you agree with Mr. Burton's testimony that building a location at the bottom of the canyon would cost approximately $50,000 more?

A. No, I do not.

Q. Do you agree that the AFE submitted by Mr. Burton is reasonable as has been stipulated by Mr. Kellahin?

A. I agree with that. I agree that the two and a half miles of road construction itself are going to cost you approximately $10,000 a mile, and so you're talking about $25,000 alone in road construction.

Then you add the location construction, subsequent reclamation, it can easily go that high. The first estimate was way too low for a location in this area.

MR. PADILLA: I have no further questions.

CHAIRMAN LEMAY: Additional questions of the witness?

A couple quick ones.

THE WITNESS: Yes, sir.

EXAMINATION

BY CHAIRMAN LEMAY:

Q. You testified that you did not know an acreage, the watershed going to the Dark Canyon?

A. No, sir, I do not.

Q. How about -- Are you familiar with the concept of the 50- or 100-year-old -- 100-year floods?

A. I am familiar with it, though I'm not -- That's not my expertise. I am not an engineer.

Q. Right. Well, we're talking about 20 feet of elevation over the bottom of this thing. Do you know if a 50-year flood would wash it out or not, or a 100-year flood would?

A. I could not --

Q. So we're talking --

A. -- say.

Q. -- about something relative without having all the information in terms of what's safe and what isn't?

A. Yes, sir. The -- My observations were made on existing structures, houses, the appearance of the

soil, the appearance of the road, and there are ranchers' windmills, one to the east and one to the west that are in the same elevation, in that same --

Q. Is it possible --

A. -- area.

Q. -- a 50-year-old flood could wipe out the ranch house as well as the location 20 feet off the bottom of this thing?

A. I suppose it could. I really -- I guess -- That's an area that I have no expertise on.

Q. Well, I -- I just -- I have to ask the question --

A. Sure.

Q. -- because we're talking about something relative without having a standard to go by.

I have no further questions.

MR. KELLAHIN: Follow-up question, Mr. Chairman.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. The standards applied, as best you understand them, by the Bureau of Land Management includes consideration of flood plains, does it not?

A. It does, and this particular location could easily warrant more study, but --

Q. You took Mr. Barry Hunt out there with you, and it was obvious to you that both of you were looking at a drainage area, was it not?

A. That's correct.

Q. He didn't raise any questions about this being in a vulnerable flood plan with you?

A. He evidenced no concern about that. He felt that it was a prudent distance from the -- the drainage channel, and he signed the exhibit.

I asked him because I knew, you know, that we would not probably bring him in here, so I asked him if he would mind signing my plat. But he had no objection to that location --

Q. And did you watch him sign it --

A. -- that was fine.

Q. -- and is that his signature on your copy --

A. That is correct --

Q. -- of Exhibit Number --

A. -- and Mr. Tate witnessed the signature as well.

MR. KELLAHIN: Nothing further.

CHAIRMAN LEMAY: Thank you. I have no further questions. You may be excused.

Could I call Mr. Vernon Dyer back at this time?

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

drilled within 60 days --

Q. Right, before you drill this?

A. -- which we feel -- Yeah, we feel that -- Yes, that would be fair to say.

Q. And if you went with standup 320's and you drilled and we drilled in the northeast quarter, like some of the locations talked, we'd have an optional farmout, mandatory optional farmout from Exxon of 120 acres?

A. Yes, provided we get --

Q. And if we drilled in the northwest of Section 20, or that was the location, we'd have a 160-acre optional farmout from Exxon?

A. Yes, for the east half of the west half.

Q. For the -- Right, east half and west half.

And if we had no agreement whatsoever, then Exxon might be considered to have a free ride. They could watch the well in 16 go down, and they would maintain their acreage ownership for the north half of 20 as well as 17, to be able to develop?

A. That's what they've indicated they want to do all along, yes.

Q. Yes, I understand that. What I'm trying to do is -- What you're asking the Commission to do, in essence, is to define the amount of acreage that might

be contributed by Exxon to an optional farmout in Section 20. Would that be a fair way to characterize what we've been going through here today?

A. Well, with the fact that 16 may be drilled within 60 days, like we think it may be now, yes, that's what it's boiling down to.

When we started this, it was not because there was nothing -- the 16 -- Well 16 was a long ways away. There was no agreement made. We were trying to negotiate with Exxon who had made it apparent that they wasn't going to do anything to support us in any way on anything.

So we were going to go ahead and drill our well because we were not the operator -- We are not the operator of 16, which kind of -- We've kind of lost control of it, as getting it spudded when we wanted to.

Siete had other things happening and they couldn't do it till -- postponed it till -- supposedly it was going to be in the second or third quarter this year --

Q. So --

A. -- which gave us a chance to go ahead and drill the well we wanted to.

Q. Are you going to have some money in the well in 16?

A. Yes.

Q. Are you --

A. Yes, we are.

Q. You are?

A. Yes, sir.

Q. How about Siete? Do they want some of your stuff in 20 or are they going to be a party to that or not?

A. At this time they are not.

Q. They are not.

A. We have -- It's kind of been -- and I'll add here, it's kind of been implied that they're going to have part of it. And with all indications, Exxon has -- from the very start, has indicated they are not going to join. They're either going to farm out or do nothing.

It has kind of been implied that we would try to sell half of it to Siete, half of our position there to Siete.

Q. Well, with the argument about the location and all, and even with the geology being a wildcat, I think the Commission is trying to come to grips with what -- what are the true issues in this case? And I've tried to state some optional issues here that seem quite relevant as far as how much acreage goes into any

well drilled in 20.

Prior to that the issue could have been described as how much acreage would Exxon contribute to the initial test? Depending on where you drilled it, they would -- they would have different -- because you have offsetting acreage too?

A. Yes, yes. And I believe, you know -- Well, I firmly believe that those who take the risk should reap the benefit, as far as -- as far as you're going about the acreage contribution and everything.

And when -- Like the 16 being drilled or supposed to be drilled within the next 60 days, we feel it will be, that it does work out to this situation because of the delaying tactics, or whatever we want to call it, that's been happening to prevent us from drilling our well when we wanted to.

Q. Well, the parties are asking the Commission to come up with an order. That order would be timely.

That order would also, probably -- I've never seen it be contingent upon another well. It would refer only to forced pooling within the proration unit as we would define it, as well as spacing.

But the activity around that proration unit certainly influences the actions that are going on.

A. At this time, yes. When it was filed it

wasn't that way, but now it is. It has become part, probably a major part of this.

Q. Well, and I think it's important that the Commissioners understand what's going on.

A. Well, we're not trying to hide --

Q. No, I know that, but there's been a lot of geological/engineering testimony and very little land testimony, and it would seem as far as the deal goes, the land portion of this is a very significant part of what's driving it.

A. Yes. Being a landman, I think that's a major part of anything.

Q. Being a former independent, I can smell some of these things out, or think I can.

So I wanted to bring that to the benefit of maybe my fellow Commissioners to see if this may be truly an important issue involved in our decision when it has not been a major part of the testimony presented today.

A. Yes, I have no problem with that. This is the facts that are taking place now.

CHAIRMAN LEMAY: Is there anyone else that has any questions on the witness that's been recalled?

Okay, you may be excused. Thank you, Mr. Dyer, appreciate it.

Do you want to wind this thing up with some concluding remarks?

MR. PADILLA: I'll be very brief, Mr. Chairman.

In light of the questions asked of Mr. Dyer, when the Chairman called Mr. Dyer, I think it's important that the Commission look at what we submitted as Exhibit Number 8 and Exhibit Number 7, which indicates Santa Fe's efforts to develop this area.

This is still a compulsory pooling case, even though we have the two issues of whether -- the issue of whether or not 640-acre spacing would apply or 320-acre spacing would apply.

By way of shortening this hearing, I think we somehow stipulated ourselves out of the efforts that Santa Fe has made in order to develop this area.

The de novo hearing certainly has delayed any drilling, and certainly even though there's been no stay, there would be a considerable risk of going forth and having some change as a result of the de novo hearing.

But if you look at the prior record, I think it's fair to say that this was truly a compulsory pooling case from the very beginning, with those collateral issues of 640-acre spacing and 320-acre

spacing.

Going back to my opening statement, to my opening statements, I think the Commission has to go back to those findings that were made by the Division, Findings 8 and 9, and I think that we have -- we can come to the conclusion that until a well is drilled in Section 20, we don't know whether it's in the Rock Tank area.

If -- We have to follow, and the Commission as well has to follow, the rules and its own regulations. While we may not openly advocate 320-acre spacing or 640-acre spacing, nonetheless, as far as we are concerned today, those rules still apply.

So therefore, I think that the Commission really has no discretion but to follow its regulations.

Once the well is drilled, then if a 320-acre spacing is appropriate, then we would go to that area.

The scope of this hearing really is not to create a new pool or decide what -- That has never been the case, as to whether or not we're in a different pool or not. The scope of the hearing still is compulsory pooling, and really the Commission has no discretion if we're within a mile -- and we're certainly within a mile by virtue of the definition of the Rock Tank special pool rules.

I think topography is very important in this case. Photographs show the kind of area that is found in -- at the bottom of the canyon. And I probably -- The picture behind you is probably an excellent illustration of what we'd find down there, is that during a low rainfall you could have -- find water in the very bottom. But if you have a hellacious rainstorm you're going to have water spreading all over the valley.

And I think that to say that -- to compare that ranch building as Mr. -- ranch area -- as Mr. Hill has, with the draw at the close location there are entirely apples and oranges.

I think the geology that we presented fairly illustrates that as we move further west we sacrifice very little in terms of -- Santa Fe can still gain in structure and that, I think, is important to -- insofar as the selection of the well in the northeast quarter versus the northwest quarter.

The northeast quarter location admittedly is preferable from a geological situation, but from a safety situation and from an environmental situation it's not acceptable and there's some risk, that we don't sacrifice that much geology moving west with that location.

With that, I would ask the Commission to sustain the Order of the Oil Conservation Division.

CHAIRMAN LEMAY: Thank you, Mr. Padilla.

Mr. Kellahin?

MR. KELLAHIN: Gentlemen, this has been a personally frustrating case for me. We've tried to present a case today that dealt with what I have perceived to be -- The substance of the problem was a geologic question. The paramount one was the separation of the Rock Tank.

But I find late in the day that there may have been a mistake on my part in not focusing your attention on the entire case, and maybe that's what we should do in de novo matters.

I think there's a way to remedy that. One is, you can simply read the transcript which is already incorporated and satisfy yourself how we got to where we are.

My recollection is considerably different from the way I was sensing the tone of the answers to the questions.

When this started off, we were being beaten about the head and shoulders with the compulsory pooling stick. When you looked at Section 16, there was a permitted well where Siete and Santa Fe, with

their own money and their own acreage, had made the decision to drill a Morrow well.

In Section 16, based upon their geology, we had a less favorable location. Their best geology was in Section 16. They invited us to participate in a working-interest arrangement that included only the east half of our section.

They didn't like that, and because you can't pool working-interest units combining more than a single spacing unit, they picked out a different strategy.

The testimony before Examiner Stogner is, they had abandoned and given up drilling the well in 16, and they were going to come over and explore on us to their advantage. They had a six-percent interest in the entire section. We held the north half of the section, except for 37 acres. Amoco had the south half, and they were going to use our acreage to develop their acreage. And that's the way it played out.

Exxon's got its own plans for development, thank you very much.

We think the appropriate way to make that development is with some seismic information, and we still have sufficient years left in the primary term of our federal lease to do that.

We don't want to waste our acreage. We want a test for Santa Fe and Siete -- and Amoco now, if that's where they are now. They're trying to play our hand, and we'd like to play it.

We concede that even a small-interest owner with a six-percent interest, under the Rules and Regulations of this Commission, can file a compulsory pooling case.

We have some choices, but we think it is unconscionable to extend 640 gas spacing to this section when both parties, regardless of their geologic perspective on how they came to this case, can't tie you back into Rock Tank.

We don't want to be stuck with the development of Section 20 and our Section 17 with the presumption that 640-spacing is going to apply, when the technical presentation before you and the only substantial evidence in this case is it doesn't work.

If you'll look through the correspondence before the Examiner, you'll also see something else that's interesting. At no point in the negotiations with Exxon did Santa Fe take the position that the well location and the orientation was for geologic reasons.

There was always a bureaucratic stumbling block that told them that they couldn't drill the best

location. One of them is, Oh, we're in a flood plain, the BLM just won't approve this, the surface topography is going to dictate the best geologic development of the reservoir.

I sent Mr. Hill out there to find out, sent him there again to recheck. He's applied the disciplines of what he does and confirmed with the BLM the surface can be used where we propose to use it within an area wide enough to encompass several locations by both companies, and I don't know why the Commission should worry about that question when your question is to prevent waste and protect correlative rights of the members.

That's your decision, and then it's up to the operator to go to the BLM and find out if he can or cannot, and we say he can.

The other excuse we've been given is, Oh, my goodness, you can't orient the spacing unit in the most appropriate way because the BLM won't let you communitize two federal leases when you could lay them down and have one.

Well, that's the BLM's choice. You're going to have to communitize this regardless of how you turn it, because you've got a 40-acre tract that's non-federal.

We have talked to Amando Lopez, and the transcript before the Examiner shows Mr. Duncan's responses with Amando Lopez at the BLM, and he says communitization ain't the problem.

So every time they raise a straw man and we whack it down, they think of something else. But the bottom line is, the best geologic location is the northeast quarter. And we're asking you to do that for us.

Mr. Seiler tells us that he can change the orientation either way, still end up with some standard locations. Our geology says that both wells ought to be in the north half.

We just need some relief to cut through this, and we're not trying to delay it. We're trying to make some choices, but it's awful tough to make a choice when we don't know what the spacing is. If you can tell us what the spacing is, maybe we can help choose some of the other answers, and if not I guess you'll have to do that for us.

To aid you in understanding our position, I have prepared a draft order, which I'd like to submit to you, which supports our understanding of the facts and how we would write the order if you choose to adopt our position.

Exxon as a company, and I personally as a lawyer, take pride in not trying to use administrative processes to delay. We simply cannot resolve this matter without your assistance, however, and we would very much appreciate some resolution of our difficulty.

Thank you for your time.

CHAIRMAN LEMAY: Thank you, Mr. Kellahin.

Additional statements in the case?

I'd like to have a draft order, Mr. Padilla --

MR. PADILLA: Thank you very much.

CHAIRMAN LEMAY: -- to help us with our decision. So can you have that to us in 15 days, do you think, so that --

MR. PADILLA: I certainly can.

CHAIRMAN LEMAY: Okay. Well, we'll leave the record open for 15 days and then take the case under advisement.

Thank you, gentlemen.

(Thereupon, these proceedings were concluded at 6:09 p.m.)

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Shorthand Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Commission was reported by me; that I transcribed my notes; and that the foregoing is a true and accurate record of the proceedings.

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

WITNESS MY HAND AND SEAL June 3, 1990.

STEVEN T. BRENNER
CSR No. 106

My commission expires: October 14, 1990