STATE OF NEW MEXICO

ENERGY, MINERALS AND NATURAL RESOURCES DEPARTMENT

OIL CONSERVATION DIVISION

IN THE MATTER OF THE HEARING CALLED BY THE OIL CONSERVATION DIVISION FOR THE PURPOSE OF CONSIDERING:	)	
APPLICATION OF TEXACO EXPLORATION AND PRODUCTION, INC., FOR COMPULSORY POOLING, A HIGH ANGLE/HORIZONTAL DIRECTIONAL DRILLING PILOT PROJECT, AND SPECIAL OPERATING RULES THEREFOR, LEA COUNTY, NEW MEXICO	)	CASE NOS. 11,656
APPLICATION OF BURLINGTON RESOURCES OIL AND GAS COMPANY FOR COMPULSORY POOLING, LEA COUNTY, NEW MEXICO	)	and 11,678
	)	(Consolidated)

REPORTER'S TRANSCRIPT OF PROCEEDINGS

EXAMINER HEARING

ORIGINAL

BEFORE: DAVID R. CATANACH, Hearing Examiner

December 20th, 1996

Santa Fe, New Mexico

This matter came on for hearing before the New Mexico Oil Conservation Division, DAVID R. CATANACH, Hearing Examiner, on Friday, December 20th, 1996, at the New Mexico Energy, Minerals and Natural Resources Department, Porter Hall, 2040 South Pacheco, Santa Fe, New Mexico, Steven T. Brenner, Certified Court Reporter No. 7 for the State of New Mexico.

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I N D E X

December 20th, 1996
Examiner Hearing
CASE NOS. 11,656 and 11,678 (Consolidated)

(Continued...)

BURLINGTON WITNESSES:

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A P P E A R A N C E S

FOR THE DIVISION:

RAND L. CARROLL
Attorney at Law
Legal Counsel to the Division
2040 South Pacheco
Santa Fe, New Mexico 87505

FOR TEXACO EXPLORATION AND PRODUCTION, INC.:

CAMPBELL, CARR, BERGE and SHERIDAN, P.A.
Suite 1 - 110 N. Guadalupe
P.O. Box 2208
Santa Fe, New Mexico 87504-2208
By: WILLIAM F. CARR

FOR BURLINGTON RESOURCES OIL AND GAS COMPANY:

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

FOR PERMOK OIL, INC.:

HINKLE, COX, EATON, COFFIELD & HENSLEY
218 Montezuma
P.O. Box 2068
Santa Fe, New Mexico 87504-2068
By: JAMES G. BRUCE

* * *

WHEREUPON, the following proceedings were had at 8:15 a.m.:

EXAMINER CATANACH: Reconvene the hearing this morning, and at this time call Case 11,656.

MR. CARROLL: Application of Texaco Exploration and Production, Inc., for compulsory pooling, a high-angle/horizontal directional drilling pilot project, and special operating rules therefor, Lea County, New Mexico.

EXAMINER CATANACH: Call for appearances.

MR. CARR: May it please the Examiner, my name is William F. Carr with the Santa Fe law firm Campbell, Carr, Berge and Sheridan.

We represent Texaco Exploration and Production, Inc., and I have three witnesses.

EXAMINER CATANACH: Additional appearances?

MR. KELLAHIN: Mr. Examiner, I'm Tom Kellahin of the Santa Fe law firm of Kellahin and Kellahin, appearing on behalf of Burlington Resources Oil and Gas Company, and I have three witnesses as well.

With your permission, Mr. Examiner, and with the consent of opposing counsel, we would ask that you consolidate the case just called with Division Case 11,678, which is the competing pooling Application by Burlington, and have those matters consolidated for purposes of hearing.

EXAMINER CATANACH: At this time we'll call Case 11,678.

MR. CARROLL: Application of Burlington Resources Oil and Gas Company for compulsory pooling, Lea County, New Mexico.

EXAMINER CATANACH: Call for additional appearances.

MR. BRUCE: Mr. Examiner, Jim Bruce from the Hinkle law firm in Santa Fe, representing PermOK Oil, Inc. I have no witnesses.

EXAMINER CATANACH: Who?

MR. BRUCE: P-e-r-m-o-k Oil, Incorporated.

EXAMINER CATANACH: Can I get the witnesses to stand and be sworn in at this time?

(Thereupon, the witnesses were sworn.)

MR. CARR: May it please the Examiner, at this time we would call Ron W. Lanning.

MR. KELLAHIN: Mr. Examiner, I have a short opening statement, if you would like to hear from counsel with regards to the case.

EXAMINER CATANACH: Okay.

MR. KELLAHIN: Let me see if I can frame the issue as we see it, Mr. Examiner.

The dispute presently before you involves the southwest quarter of Section 23. The testimony from our

three witnesses will demonstrate the following to you, that the southwest quarter of 23 is in the Rhodes Gas Pool. That's on statewide 160-acre gas spacing. Standard wells in that pool are located 660 feet from the side boundaries of the pool.

There is some background that is relevant with regards to the spacing unit.

Back in the early part of 1996, there was a dispute filed before the Division with regards to the boundary of the Rhodes Gas Pool and the corresponding boundary of the Rhodes Oil Pool. That common boundary line, insofar as you're concerned today, is the south side of the southwest quarter of 23.

At that time, the ownership in the southwest quarter was divided where the east half of the southwest quarter was controlled by Mr. Hartman, the west half of the southwest quarter was controlled by Texaco.

Mr. Hartman sought to adjust the pool boundary, and as part of that process, then, there were competing pooling applications filed between Texaco and Hartman with regards to the development of the southwest quarter.

The dispute with Hartman was resolved by an exchange of property. Mr. Hartman received property in other areas that are not affected. And in return, Burlington acquired Mr. Hartman's interest in the subject

spacing unit.

That transaction was completed in July 10th of this last summer. And at all times prior to that, Mr. Examiner, Texaco and Hartman had pursued and had agreed that the gas in that spacing unit is best developed by a single wellbore and that that wellbore be a vertical well.

After Burlington was substituted for Hartman, then for the first time in August of 1996 Texaco changes its position. And they now suggest, pursue and now ask you to require the drilling of a high-angle multi-lateral horizontal wellbore. Burlington's position is that that resource is best developed with a vertical well.

The dispute for you to decide today is one that involves two technical questions. Our technical experts will present evidence to you that it is practical, feasible and appropriate to develop the gas with a vertical well, and we're asking you to award us operations to accomplish that.

A secondary issue, unrelated to the others, is the question of offset drainage. It will be our testimony from our experts that the southwest quarter is not subject to drainage. The offset wells, in fact, are not draining the southwest quarter.

Regardless, we think that it's appropriate to develop the spacing unit with vertical wells, using

conventional technology, and not require us to participate and pay for an unusual, unique wellbore that has yet to be drilled in this area, and we would ask that you deny the Texaco Application for this high-angle multi-lateral science project.

Thank you, Mr. Examiner.

EXAMINER CATANACH: Mr. Carr?

MR. CARR: May it please the Examiner, as the case unfolds you will see there are actually two questions before you. One is how to best develop the acreage which is the subject of these competing pooling applications. The other is who should properly operate the tract.

The case will unfold against a backdrop that is perhaps complicated by some ownership figures and also rules, the pool rules, because as you know, we have off- -- we are in a 640-acre unit that is offset to the south by acreage developed on 40-acre spacing, in the same formation.

The evidence is going to show you that in the spacing unit that's at issue here today, Texaco owns 50 percent and has also been joined in this by two other small interest owners, that Burlington stands before you with 48 percent of the interest.

But what is more important is that the acreage that offsets this tract to the south that's developed on 40

acres is 100-percent Burlington, and to the west that is developed on 160 spacing is also 100-percent Burlington.

A year ago, Burlington proposed a well on this acreage. They proposed it in August of last year, only to discover they owned no interest in the tract. And since that time there has been an active effort by multiple parties to get this acreage developed. And while this effort has been going forward, the acreage that is owned 50 percent by Texaco has been drained.

And what happened in the meantime? Burlington ran out and drilled a well 330 feet off the lease line south of this property, and stands before you today saying there's no drainage.

The problem we have is that when we have 40-acre spacing butting up against 160-acre spacing, you've got to do what you can to protect that acreage and drain the reserves that are under it.

Now, we're proposing a horizontal well to do that. One well can protect the acreage from drainage, both from the south and from the west, and that's what we're proposing to do.

You will see that while Texaco and Hartman and Meridian wrestled with this problem, the one thing that's significant that occurred in that dispute was that Burlington succeeded to the Hartman interest. They

acquired that interest effective in April, but it was consummated in July, and there was an operating agreement on the property providing for the drilling of one well. And Burlington had the right to drill that well, but they did not.

And 14 days after that operating agreement terminated, Texaco and Burlington met and Texaco said, We'll give you until the 13th of September to decide whether you're going to develop this with two vertical wells or a horizontal well. And there was no answer, and there was no response.

And when there was no response, we finally decided that instead of sitting there and being drained, we'd have to go forward with the well. And we proposed to them the horizontal well, and we're pooling their -- hoping to pool their interests and that of Mr. Larry Nermyr so we can go forward and develop the acreage.

Today for the first time, Mr. Kellahin suggests they believe it can be drilled and developed effectively with one well. That's news to us today. Even in their Application, in paragraph 8 of that Application, they say Burlington has proposed to Texaco that the spacing unit can and should be developed by utilizing converted, conventional vertical wellbores, plural.

And today we're going to hear that one well will

do the job, when they sit offsetting us two directions, 330 from the lease line, twice as close as we can get, and want to convince you that, in fact, there is no drainage.

We submit to you that when this case is concluded you will see we have been actively pursuing this for a year, we have not been getting responses, we are being drained by an offset who owns 100 percent of the acreage, and the time to pool the land is now, and designate us operator of the well.

EXAMINER CATANACH: Mr. Carr?

RONALD W. LANNING,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Ronald W. Lanning.

Q. Where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. Texaco Exploration and Production, Inc.

Q. And what is your position with Texaco?

A. I'm a landman for the north Hobbs asset team.

Q. Have you previously testified before this

Division?

A. I have.

Q. At the time of that testimony, were your credentials as a petroleum landman accepted and made a matter of record?

A. Yes.

Q. Are you familiar with the Applications filed in each of these consolidated cases?

A. I am.

Q. Are you familiar with the status of the lands in the subject area?

A. Yes.

MR. CARR: Are the witness's qualifications acceptable?

MR. KELLAHIN: No objection.

EXAMINER CATANACH: The witness is so qualified.

Q. (By Mr. Carr) Mr. Lanning, would you briefly state what Texaco seeks with this Application?

A. A, we seek the establishment of a high-angle horizontal directional drilling pilot project in the Rhodes-Yates-Seven Rivers Gas Pool within the 160-acre gas spacing and proration unit comprising the southwest quarter of Section 23, Township 26 South, Range 37 East, Lea County.

B, we seek authorization to Drill our Rhodes 23

Federal Com Well Number 1 from an unorthodox surface location, located 660 feet from the south line and 1100 feet from the west line of Section 23, in a northwesterly direction, within a target window no closer than 660 feet to any boundary of the project area proration unit.

And C, we seek to pool all mineral interests within the Rhodes-Yates-Seven Rivers Gas Pool underlying the southwest quarter of the said Section 23.

Q. The wellbore will be at all times a standard setback, will it not, from the outer boundary of the tract?

A. That's correct.

Q. Have you prepared exhibits for presentation in this case?

A. Yes, sir.

Q. Would you refer to what has been marked for identification as Texaco Exhibit Number 1, identify that and review it for Mr. Catanach, please?

A. This is a land map that shows the subject proration unit, being the southwest quarter of Section 23, as the -- with the west half colored yellow and the east half uncolored. It shows the proposed surface location of the well, it shows the ownership of the offsetting acreage.

You'll note that the Burlington acreage is colored in green. PermOK is -- I can't describe the color, but it's to the north. Vista Resources in blue. Wood,

McShane and Thams in a fuchsia color, and the BLM in red. The Texaco acreage is in yellow, and the Burlington, et al., acreage in the spacing unit is uncolored.

The red line running in an essentially east-westerly direction is the boundary between the Rhodes Oil and Gas Pools.

Q. The green acreage on this exhibit is owned by Burlington Resources; is that right?

A. Burlington owns the gas rights.

Q. And do you know, do they own 100 percent of the gas rights in that acreage?

A. To the best of my knowledge, they do.

Q. Could you review the status of the rules which govern development of the Rhodes-Yates-Seven Rivers Gas Pool and the Rhodes Oil Pool south of --

A. They're both developed under statewide rules. The Rhodes-Yates-Seven Rivers Gas Pool is developed on 160-acre spacing with 660-foot setbacks. The Rhodes Pool is an oil pool, and it's developed on 40-acre spacing with setbacks at 330 feet.

Q. What is the status of the acreage in the southwest quarter of Section 23?

A. It's two federal leases.

Q. And at this time no development on that acreage?

A. That's correct.

Q. And what is the primary objective in the well that's being proposed by Texaco?

A. The Yates formation.

Q. Let's go to Exhibit Number 2. Can you identify that?

A. It's an ownership breakdown.

Q. Can you review the status of the interests?

A. The west half of the southwest quarter is owned 100 percent by Texaco. East half of the southwest quarter, Burlington's interest is 96.09375 percent, Larry A. Nermyr owns 1.56250 percent, James E. Burr owns 1.56250 percent, and Ruth Sutton is the owner of a 0.78125-percent interest.

If you consolidate all those interests for the proration unit, Texaco owns 50 percent, Burlington owns 48.046875 percent, Larry A. Nermyr and James E. Burr each own 0.781250 percent, and Ruth Sutton owns 0.390625 percent.

Q. Have you contacted each of the owners in this unit with your proposal for development of the acreage for the horizontal well?

A. We have.

Q. And what response have you received?

A. We have approved AFEs from Mr. Burr and Ms. Sutton. We've received no response from Mr. Nermyr.

Q. Is Mr. Nermyr's interest alone the reason that

you must pool this acreage?

A. It is.

Q. So the only interest owner subject to pooling, as it stands today, if you're successful, would be Burlington and Mr. Nermyr?

A. That's correct.

Q. Let's go to Texaco Exhibit Number 3. Would you identify this, please?

A. Number 3 is my letter of October 9th, 1996, to all the working interest owners, proposing the well.

Q. Is this the first formal proposal concerning the well that is before the Division here today?

A. It's the first proposal in 1996.

Q. Okay, there have been discussions that went back into 1995 concerning the development of this acreage; is that correct?

A. Yes, sir, that's correct. When we and Mr. Hartman had competing applications, we had made a formal proposal at that time.

Q. And at that time Burlington didn't own an interest in the property?

A. That's correct.

Q. And you've been actively trying to get a well developed on this acreage since 1995; is that fair to say?

A. I think that's fair to say.

Q. All right. Would you identify Exhibit Number 4, please? Before we go on, attached to Exhibit Number 3 is the AFE for the well; is that not correct?

A. That's correct.

Q. All right. Now, let's go to Exhibit Number 4. Would you identify that, please?

A. Exhibit Number 4 is my letter of November 21st, 1996, to Burlington.

Q. With this -- what we -- Referring to this letter, would you summarize the efforts that were made to obtain voluntary participation in this well, and particularly focus on your efforts to obtain Burlington's joinder?

A. Well, we had a meeting on August 14th, 1996, at our office in Midland, and we expressed our opinion to Burlington that we were being drained on two sides.

We wanted to proceed immediately to get a well drilled, and we offered them the opportunity to propose a horizontal or two vertical wells to us, and we gave them until September 13th to do that, and we never heard from them regarding a proposal.

I made two phone calls to Burlington, both of which were unreturned. And then we proceeded with our plans and proposed our well on October 9th.

Q. Now, prior to the first of August, there was an operating agreement that covered the property; is that not

right?

A. That's correct.

Q. And that was an operating agreement that designated initially Mr. Hartman and then Burlington as his successor, as operator of that property?

A. Well, a successor operator was never elected under the operating agreement, but Mr. Hartman was the operator under the agreement.

Q. And did that agreement provide for the drilling of a single well on that acreage?

A. Yes, it did, on or before August 1st, 1996.

Q. And after that date, that operating agreement would not have been effective, would it?

A. That's correct.

Q. So 14 days later you met concerning the development of the acreage; is that --

A. That's correct.

Q. When did you first receive any proposal from Burlington concerning the development of this acreage?

A. In August of 1995.

Q. Did they propose to drill a well at that time?

A. They did.

Q. And what did they propose?

A. They proposed -- I believe they called it the Texsun Number 1, at a location 660 feet from the south and

660 feet from the west line of the section.

Q. And was that discussed at your August 14 meeting?

A. No, that was discussed at a meeting in August of 1995.

Q. Okay. And then I'm talking now about after the operating agreement expired, then you met in August at your office?

A. That's correct.

Q. Has there been any proposal to you since that time concerning the drilling of a well?

A. Yes.

Q. And when was that? After the pooling application was filed?

A. Yes.

Q. Let's go back to the AFE which is attached to Exhibit Number 3. Could you review the totals on that exhibit, please?

A. Dry hole cost is $367,000, completed cost $485,000.

Q. And these are for a horizontal wellbore; is that correct?

A. That's correct.

Q. Do you know what the straight-hole costs would be?

A. Approximately 50 percent of that amount.

Q. Is Exhibit -- Texaco Exhibit Number 5 an affidavit confirming that notice of this hearing has been provided to the affected interest owners in accordance with Oil Conservation Division rules and regulations?

A. It is, it is.

Q. Have you made an estimate of the overhead and administrative costs to be charged while drilling this well and also while producing it, if it is successful?

A. Yes, sir.

Q. And what are those figures?

A. We propose a drilling rate of $3500 a month and a producing rate of $350 a month.

Q. And what is the basis for those figures?

A. The basis is Ernst and Young's 1995 report.

Q. Have they been adjusted for the horizontal wellbore?

A. Very slightly.

Q. How much of an adjustment, approximately?

A. Infinitesimal, almost. For a gas well shallower than 5000 feet, the 1995 mean rate was $3261, the median rate was $3000. The 1995 producing rates were $365 mean and $330 median. We felt like that proposing $3500 and $350 a month was more than fair, since it's a horizontal well and it is a year later.

Q. Do you recommend that these figures be

incorporated into the order that results from today's hearing?

A. We do.

Q. Texaco is requesting to be designated as operator of the well, is it not?

A. Yes, sir.

Q. Have you obtained an approved application for permit to drill --

A. We have.

Q. Were Exhibits 1 through 5 prepared by you or compiled under your direction?

A. Yes, sir.

MR. CARR: At this time, Mr. Catanach, we move the admission into evidence of Texaco Exhibits 1 through 5.

EXAMINER CATANACH: Exhibits 1 through 5 will be admitted as evidence.

MR. CARR: That concludes my direct examination of Mr. Lanning.

EXAMINER CATANACH: Mr. Kellahin?

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Lanning, if you'll refer to your Exhibit Number 1 with me, please. In February of 1996 when Texaco and Hartman had competing pooling applications before the Division for a vertical well in the southwest quarter of

23, was the Burlington-operated "B" 7 well, in the north half of the northwest quarter of 26, an existing wellbore?

A. Yes, to the best of my recollection.

Q. All right. So at the time you and Mr. Hartman were disputing development of Section 23, the southwest quarter, the existing vertical well to the south of you, in fact, was there and producing?

A. My recollection is that that well was completed and put on line in February of 1996.

Q. Yes, sir. When you look at the western boundary of the spacing unit over in 22, there is a gas well. It's the "A" 4. I think it shows as the 4 well on this display?

A. Yes, sir.

Q. That was also an existing producing Rhodes Gas Pool well at the time that you and Mr. Hartman were disputing how to develop and drill the southwest quarter of 23?

A. That's correct.

Q. Up until August of 1996, in all your dealings with Mr. Hartman, Texaco's position was a single vertical well in the southwest quarter of 23; is that not true, sir?

A. That is not correct. We at all times thought there was a high likelihood that in the event the first well was a vertical well, that we would come back and propose a second vertical well.

Q. All right. At no time prior to August of 1996, then, did your dealings with Mr. Hartman include the concept of this high-angle horizontal, multi-lateral wellbore?

A. I can't recall any specific discussions regarding a horizontal well.

Q. And it's not specifically requested in your application for force-pooling of that spacing unit in Case 11,473, is it, sir?

A. Is that the 1995 case?

Q. That's the 1996 pooling case against Mr. Hartman.

A. No, it wasn't.

Q. And neither did Mr. Hartman propose back to Texaco in Case 11,476 a high-angle horizontal multi-lateral wellbore?

A. No, he did not.

Q. The dispute between you and Mr. Hartman involved a difference in well locations, did it not, sir, for the southwest quarter of 23?

A. I think it's wrong to characterize our dispute with Mr. Hartman as simply a dispute in the locations of the well. As I remember --

Q. Let me ask you the question again. My question was, one of the components of that dispute was a difference of well locations?

Let me ask you this: There was a difference in well locations between you and Mr. Hartman?

A. There was a difference in the initial locations that were proposed between us.

Q. All right. Mr. Hartman was proposing a location in his case of 1980 from the south boundary, 660 from the west side; is that not true?

A. I'd have to look at it to verify that. I thought it was 1650.

Q. All right, let me show you the docket. I'm looking at Hartman Case 11,476, and the footage is described on the docket.

A. Yes, he is 1980 from the south line.

Q. All right. Now, Texaco's force-pooling application against Mr. Hartman, in your case, asked for the approval of the well in Unit Letter M, which would be the southwest-southwest of 23?

A. That's correct.

Q. All right. Up until August of 1996, then, there is no other competing offsetting wells to the spacing unit for which there should be any concern; is that not true?

A. To the best of my knowledge, yes.

Q. So the change between Texaco's agreement for one or more vertical wells in the southwest quarter was not made based upon the offsetting wells?

A. I don't think I'm qualified to answer that question.

Q. All right. Are you qualified to respond to the fact that in August of 1996, Texaco changed its mind and now proposed a high-angle horizontal multi-lateral wellbore?

A. In either July or August of this year, I think it's safe to say, we started looking at the possibility of a horizontal well.

Q. And you communicated that to Burlington. I have a copy of your letter of November 21st. I forgot the exhibit number, Mr. Lanning --

A. 4, I believe.

Q. -- that's Exhibit Number 4, I think. Let's go through the letter, if you don't mind, please.

A. Sure. Okay.

Q. All right. In the second paragraph, that has got the dot to indicate its position in the first page, it indicates that you've met with representatives of Burlington on August 18th [*sic*] regarding the drilling of wells in the proration unit, and at this meeting and in a subsequent phone call you are proposing to Burlington the drilling of one horizontal well or two vertical wells?

A. That's correct.

Q. All right. So the first occasion that I have

evidence of, of Texaco suggesting a change in the development of the spacing unit, occurs on August 14th; is that not true?

A. With another party, yes.

Q. Yes, sir.

A. Yes, that's correct.

Q. Are you aware --

A. May I clarify that answer a little bit?

Q. Sure.

A. We at all times discussed with Mr. Hartman the possibility of two vertical wells.

Q. I am focusing on Burlington's relationship with you, sir.

A. Okay.

Q. Are you aware, Mr. Lanning, that the closing of the transaction between Hartman and Burlington with regards to this exchange, which removed Mr. Hartman from involvement in the southwest quarter, did not occur until July 10th of 1996?

A. I don't remember the exact date. I have a copy of it. I know it was not on April 1st.

Q. Okay. So you're not suggesting in your first paragraph that Burlington was in a position by April 1st of 1996 to do anything about operations in the southwest quarter, are you sir?

A. I suppose I was probably trying to infer that on or about that date they knew they were going to acquire the interest and that they knew that the operating agreement was in effect.

Q. By April 1st of 1996, you're inferring that they would --

A. I don't know when their discussions with Mr. Hartman began.

Q. Have you tried to close a transaction with Mr. Hartman?

A. I'm sorry?

Q. Have you tried to close an exchange or a transaction or an agreement with Mr. Hartman?

A. Yes, sir, we have.

Q. They're very complicated, aren't they, sir?

A. Yes, sir, they are.

Q. They take an incredible amount of time, don't they?

A. Yes, sir, they do.

Q. All right. So you're not inferring that in April 1st of 1996, that Burlington is going to have been in a position that they can begin to assume operations under that operating agreement; isn't that fair?

A. Yes.

Q. Okay. By mid-July, now, Burlington has closed

with Mr. Hartman, and there is a meeting with you and your representatives in August in which you're now suggesting to Burlington for the first time that you need to consider this high-angle horizontal multi-lateral wellbore, right?

A. Or two vertical wells.

Q. All right. Your proposal of October 9th, that is the formal letter by which you've communicated the AFE to Burlington, and it describes the idea of the high-angle horizontal well; is that not true?

A. Correct.

Q. Okay. Let's look at that letter. That's Exhibit what, sir? It's the October 9th --

A. Three.

Q. Exhibit 3? The letter describes that the well is to be drilled vertically to about 3200 feet, and then you anticipate a lateral in the Sand 4, middle Yates, give an approximate distance, and then you say you plan an additional lateral in Sand 6 of the Yates, 1400 feet, and you give him the spacing unit.

Did you transmit to Burlington a wellbore schematic for the high-angle horizontal well?

A. No, sir.

Q. Did you give them a horizontal plan view for the well?

A. No, sir.

Q. Did you give them a vertical plan view for the well?

A. Not that I recall.

Q. Did you identify for them your nomenclature of what Texaco thought they were describing when they suggest that one of the laterals is in Sand 4?

A. No.

Q. Did you identify for Burlington what you were meaning by your nomenclature of putting a lateral in Sand 6?

A. No.

Q. Did you give them a well plan?

A. Not that I recall.

Q. Did you give them any type of drilling prognosis?

A. No, sir.

Q. Did you disclose to them the direction of each lateral?

A. Well, the bottomhole location is in the letter.

Q. Yes, sir, but I'm talking about the direction the lateral takes after you drill the vertical portion.

A. Well, if you take from the surface location and you go to the bottomhole location, I believe that gives you the direction, does it not?

Q. No, sir, I'm not making myself clear. You've got a vertical well being drilled to 3200 feet.

A. Correct.

Q. Then they're going to come back uphole a certain distance and they're going to go in some direction 400 feet in one of these sand members; is that not true?

A. Correct.

Q. You don't tell them what direction you're going, do you? There's nothing in this letter that tells you what direction you're going with that lateral; is that not true?

A. Well, in my opinion it does. If I'm not understanding your question, I'm not qualified to answer it.

Q. All right. Did you tell them in this letter the angle at which the horizontal well is being drilled through these sands?

A. No, sir.

Q. Okay. Do you have indication in your records of when Burlington received the October 9th letter?

A. Yes, sir, I do.

Q. And what day did they get that letter?

A. You'll have to bear with me for a moment. October 11th.

Q. The next exhibit you gave me was Texaco Exhibit 4. It was a letter of November 21st, the first paragraph of which says you have reviewed Ms. Swierc's letter of November 19th. It's not yet been introduced, Mr. Lanning.

Do you have a copy of Ms. Swierc's letter of November 19th?

A. Yes, sir.

Q. Would you please get that in front of you?

A. I'm going to take a minute to get this stuff straightened out.

Q. Okay.

A. Okay.

Q. In the last sentence -- second to the last sentence of her first paragraph, she says, BR, referring to Burlington, "is continuing to evaluate our participation in your multi-lateral horizontal well and in order to fairly complete our evaluation, a drilling prognosis and wellbore schematic would expedite the process. Please fax same to the undersigned...at your earliest possible convenience."

Do you see that?

A. Yes, sir.

Q. You got that letter, did you?

A. Yes, sir.

Q. Did you -- You did not fax her the data, did you?

A. No, sir.

Q. You did not mail her the data, did you?

A. No, sir.

Q. You had the data, didn't you?

A. I don't think I'm qualified to answer that.

Q. Did you ask your technical people if they had the

data by which you could respond to her request?

A. I don't remember if we discussed it or not.

Q. You ignored her request?

A. I don't know if "ignore" is a good word.

Q. All right, let's look at the November 21st letter. Is there anything in the November 21st response by you to her that give her the information she's asked for?

A. No, sir.

MR. KELLAHIN: No further questions.

MR. CARROLL: Just a couple questions, Mr. Lanning.

EXAMINATION

BY MR. CARROLL:

Q. On the October 9th letter, and the proposal of the horizontal well, is it correct to say that this well is going to be drilled vertically 3200 feet and then the horizontal part of it will start?

A. I can't tell you exactly the footage where the horizontal portion will start, but it's uphole from 3200 feet.

Q. So the bottomhole location is at 3200 feet?

A. No.

MR. CARROLL: Okay, I guess the questions can be directed at another witness.

That's all.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Lanning, you first proposed this well to Burlington October 9th; is that correct?

A. That's correct.

Q. And now when did Burlington come back and propose their well to Texaco?

A. Their letter is dated November the 19th, 1996.

Q. Mr. Lanning you have -- I believe you said you had the interest of the -- the Sutton and the Burr interests --

A. That's correct.

Q. -- that signed Texaco's AFE?

A. That's correct.

Q. What's the response -- Have you had any response from Nermyr?

A. None.

EXAMINER CATANACH: I have no further questions.

MR. CARROLL: I have one more question.

FURTHER EXAMINATION

BY MR. CARROLL:

Q. Mr. Lanning, was there any correspondence or communications between you and Burlington between October 9th and November 19th?

A. Not that I recall.

MR. CARROLL: Okay, that's all I have.

EXAMINER CATANACH: The witness may be excused.

MR. CARR: At this time we call Charles Sadler.

CHARLES E. SADLER,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Charles E. Sadler.

Q. And where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. Texaco E&P, Inc.

Q. And what is your position with Texaco?

A. Project geologist.

Q. Mr. Sadler, have you previously testified before this Division?

A. Yes, I have.

Q. At the time of that testimony, were your credentials as a petroleum geologist accepted and made a matter of record?

A. Yes, they were.

Q. Are you familiar with the Applications filed in each of these cases?

A. Yes, I am.

Q. Have you made a geological study of the area which is involved in this hearing?

A. Yes, I have.

Q. And are you prepared to share the results of that study with Mr. Catanach?

A. Yes.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) You've prepared exhibits for presentation here today?

A. Yes, I have.

Q. Would you refer to what has been marked for identification as Texaco Exhibit Number 6, identify and review this for Mr. Catanach, please?

A. Exhibit Number 6 is a type log from the Rhodes-Yates-Seven Rivers Gas Pool. This well is the Meridian Moberly Rhodes Waterflood Number 2. If you'll refer back to Exhibit Number 1, you'll see that this well is located in Spot O of Section 21.

While this well is in the oil pool, the oil and gas pool have common stratigraphic boundaries. This was the nearest well that I could find in either the oil or gas pool that completely penetrated the pool.

As you can see on Exhibit Number 6, the top of the pool, the Yates, is approximately 2930 feet, and the base of the pool, base of the Seven Rivers or top of Queen, is at approximately 3580 feet. The Yates sands are the primary reservoir within this pool.

Q. Let's go to Exhibit Number 7, your structure map. Would you identify and review that for Mr. Catanach?

A. Exhibit Number 7 is a structure map prepared from well control, on the top of the Yates Sand 6 member. We see dip down to the southwest. We also see that the proposed location is slightly updip to the Burlington Rhodes "B" Federal Number 7 to the south, as well as the Burlington Rhodes "A" Federal Number 4 to the west.

Q. Does structure play a significant part in determining whether or not you make a productive well in this area?

A. No, it doesn't.

Q. And what we have is a continuous formation running from the proposed acreage across and into the oil pool; is that right?

A. That's correct.

Q. Let's go to Exhibit 8, your cross-section. Would you identify and review that?

A. Exhibit Number 8 is a north-south structural cross-section through the Yates formation. On the left,

the north side, we see the then Meridian Rhodes "A" Number 3 to the Meridian Rhodes "A" Number 4, both these wells located in Section 22, the proposed location, and then to the south into Section 26, the then Meridian Rhodes "B" Federal Number 7 and Linebery "B" Federal Number 1.

The area shaded in green is the reservoir-quality sand which has porosity greater than 15 percent. We see the two targets for the laterals. Sand 4 is the upper lateral, and Sand 6 is the lower lateral. In Sand 4 we see that it is discontinuous to the west in the Rhodes "A" Number 4. And Sand 6, while it is continuous over the area, we see that there are lateral discontinuities within this zone.

This cross-section also exhibits some of the risk associated with this area. The Linebery "B" Federal Number 1 to the south is a 40-acre east offset to the Rhodes "B" Federal Number 7, and neither Sand 4 or Sand 6 encountered reservoir-quality sands.

We also see that the proposed well will be completed in correlative zones that are producing in the Rhodes "B" Federal Number 7, operated by Burlington to the south, as well as the Burlington Rhodes "A" Number 4, completed to the west.

Q. Mr. Sadler, when we look at this exhibit, are the sands in which you propose to complete your proposed

horizontal well the same sands that extend off into the oil pool?

A. Yes, they are.

Q. So in fact, this proposed well would be completed in the same interval as the Burlington wells to the south?

A. That is correct.

Q. When we look at this exhibit and the discontinuous nature of the sand, in your opinion, is there risk associated with drilling this well?

A. Yes, there is.

Q. Is there a chance that, in fact, this well could not be a commercial success?

A. Yes, there is.

Q. Are you prepared to make a recommendation to the Examiner as to the risk penalty that should be assessed against any nonconsenting interest owner?

A. Yes, I am.

Q. And what is that?

A. 200 percent.

Q. Let's go back now and let's look at your Exhibit Number 9, the isopach, Sand 4. Will you review that for Mr. Catanach?

A. Exhibit Number 9 is an isopach map of the Yates Sand 4, again reservoir-quality sand, which -- porosity greater than 15 percent.

We see that this sand is discontinuous over the area, however we do anticipate encountering approximately 20 feet of sand at the surface hole location, which will be drilled in a northwesterly direction. We anticipate a pinchout in that direction, which will dictate the exact lateral length within Sand 4.

Q. And again, if we relate this back to the cross-section, this sand extends from the proposed location to the well that was drilled by Burlington in the northeast of the northwest of Section 26 last year; is that right?

A. That is correct.

Q. All right. Let's go to Exhibit Number 10, the isopach on Sand 6.

A. Exhibit Number 10 is again an isopach map based on the 15-percent porosity cutoff of the Sand 6 package. We see this sand is developed over a larger area. We anticipate approximately 40 feet of reservoir-quality sand through the length of the lateral.

Again, it is the -- does extend to the south in Section 26, and also we see the risk associated with this reservoir by the wells to the east which encountered no reservoir sand.

Q. If we look at this again and relate it to the cross-section, we are in the same sand as the Number 7 well that's recently been drilled to the south of us in Section

26; is that correct?

A. That is correct.

Q. How close to the common lease line will the proposed -- is the proposed surface location for the Texaco well?

A. 660 feet.

Q. And how close to that common lease line is the Burlington well south of us?

A. 330 feet.

Q. And that's permitted because of the difference in the pool rules; is that right?

A. That is correct.

Q. Can you review for Mr. Catanach the conclusions that you've reached from your study of this area?

A. The proposed horizontal well is necessary to protect this tract from offsetting drainage from the south, as well as the west, from Burlington-operated wells.

There are two sands, each suitable for a horizontal lateral, and there is sufficient geologic risk to impose a 200-percent risk factor.

Q. Were Exhibits 6 through 10 prepared by you?

A. Yes they were.

MR. CARR: At this time, Mr. Catanach, we would move the admission into evidence of Texaco Exhibits 6 through 10.

EXAMINER CATANACH: Exhibits 6 though 10 will be admitted as evidence.

MR. CARR: And that concludes my direct examination of Mr. Sadler.

EXAMINER CATANACH: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Sadler, if you'll turn with me to Exhibit 8, that's your cross-section. This represents your work product, does it, Mr. Sadler?

A. I didn't hear your question, sir.

Q. This represents your work product?

A. Yes, sir.

Q. Were you involved as Texaco's geologist in early 1996 when you were having the dispute with Mr. Hartman?

A. Yes, I was.

Q. Had you prepared maps at that time?

A. There were some early maps prepared.

Q. Did they include this cross-section?

A. No, they did not.

Q. Did you have the logs of these four wells available then?

A. I do not believe I had the two wells to the south of the acreage, the recently drilled Meridian wells.

Q. The "B" 7 well for Meridian, Burlington?

A. That's correct.

Q. Now, in the oil pool, that ownership is divided such that Texaco has the rights to the oil production; is that not true?

A. That's true.

Q. And Burlington, Meridian, has the gas in the oil pool?

A. That is correct.

Q. And when we get in the southwest quarter of 23, because of Burlington's succeeding Mr. Hartman, both Texaco and Burlington would share both the gas and the oil?

A. That is correct.

Q. When we look at this particular prospect, is there any probability that you're going to get oil production here?

A. I do not anticipate it.

Q. You're looking for gas?

A. That is correct.

Q. Within the gas pool, you've identified two sands, the 4 and the 6?

A. That is correct.

Q. Let's look at the log of the "B" 7 well on the cross-section. Describe for me what has caused you to separate the base of the 4 sand from the top of the 6 sand.

A. Between those two sands is what I call Sand 5. The cause for separating those two sands is the reservoir quality. From the neutron and density response, this is interpreted as a shaley siltstone, which I would believe to be nonproductive.

Q. In this area, apparently, at least on the wells and this cross-section, Sand 5 is not productive?

A. That is correct.

Q. Have you examined any of the cores in this area?

A. No, sir.

Q. Do you have any opinion with regards to the relationship between vertical and horizontal permeability?

A. No, sir.

Q. When you look at Sand 4, it appears in the closest well to this spacing unit to exist in the Rhodes "B" 7 well to the south; is that not true?

A. That is true.

Q. And if you look at the western offset well, the Rhodes "A" 4, it's absent?

A. That's correct.

Q. Okay. Do you have a schematic that shows me the direction and the angle for the lateral you're proposing in Sand 4?

A. I don't for my exhibits.

Q. Let's take your Sand 4 isopach. Let's look at

the surface location in the southwest quarter on the display, where the well starts. Okay, you see that?

A. Yes, sir.

Q. And then it's targeted with a bottomhole location up to the northwest corner of the spacing unit?

A. Yes.

Q. At some distance between those two points we cross over the zero line and get out of the A sand?

A. The "4" sand, yes, sir.

Q. I'm sorry, the "4" sand.

A. Yes, sir.

Q. Do you use or do you have a recommendation as to the minimum thickness using this 15-percent porosity cutoff at which you're going to be able to recover gas?

A. No, sir, I don't.

Q. Okay. The Application as filed requests approval for a lateral in Sand 4 of approximately 500 feet; is that not true?

A. That is true.

Q. What is the direction of that lateral?

A. The direction of the Number 4 -- or Sand 4 lateral is in the same direction as the Number 6 lateral, which is to the 1980-660 location.

Q. So the lateral is moving towards the "A" 4 well for which there is no competing Sand 4 --

A. Not directly --

Q. -- in existence?

A. I'm sorry. Not directly towards the "A" 4. Moving to the northeast of the "A" 4 location.

Q. Okay. It is moving away from the "B" 7 well, in which there is Sand 4 production?

A. That is correct.

Q. Okay. What is the thickness of the Sand 4 interval in the "B" 7 well? You've got what? 23 feet?

A. 23 feet.

Q. But you've chosen to move away from that?

A. Yes, sir.

Q. When we look at the Number 6 sand, do you have a schematic that shows me the angle and the direction for the lateral you're proposing in the Sand 6?

A. Exhibit Number 10 shows the direction, but I don't have the exhibit that shows the angle.

Q. There is a subsequent exhibit that will give us that information?

A. Yes.

Q. All right. To the best of your knowledge, is -- I assume that it's going towards the northwest corner as you've shown on Exhibit 10?

A. That is correct.

Q. What is the distance that you understand you're

proposing for the lateral in Sand 6?

A. The Sand 6 lateral will be approximately 1300 feet. The total lateral between the two zones is 1400 feet, but the way the well path is designed, some of that distance is lost in Sand 6.

Q. All right, say that again.

A. My best-guess estimate of the length of the Sand 6 lateral is approximately 1300 feet.

Q. Okay, let's look, then, at the schematic on the cross-section, where you projected the vertical position of the Texaco well at this point. The well is drilled vertically to about 3200 feet. That's the total depth I saw on the AFE you submitted?

A. That is correct.

Q. All right. And that will take us down below -- substantially below Sand 6?

A. That is correct.

Q. All right. The idea, then, is to come back up in that wellbore and develop a kickoff point for Sand 6 lateral and build angle and then go in some angle through 6?

A. Actually, it will plug back and initiate the initial lateral in Sand 4.

Q. Okay, then what happens?

A. Then the second lateral in Sand 6 will drop off

of the Sand 4 lateral.

Q. There is going to mathematically be a distance, based upon the angle, that moves you farther away from the Rhodes "B" 7 well when you penetrate this Sand 6?

A. That is correct.

Q. Okay. Do you know the current producing rate of the Rhodes "B" 7 well?

A. Our last conversation with Burlington, they indicated the well was making approximately 800 MCF a day.

Q. Do you know what the current producing rate is on the Rhodes "A" 4 well?

A. I believe it's approximately 500 MCF a day.

Q. Okay. Under your plan, you intend to penetrate sand 6 and take the lateral away from the better of the two producing wells for which you say there's competition?

A. To maximize the length of the lateral, that is correct.

Q. Okay. Now, am I correct in understanding that the plan for the Texaco well does not include any stimulation of the horizontal wellbore, any of the laterals?

A. Not fracture stimulation.

Q. That's what I'm saying.

A. Yes.

Q. No fracture stimulation?

A. (Nods)

Q. Without fracture stimulation, will the Sand 4 and the 6 gas production that's stored in those sands be separated?

A. I don't know that I understand your question.

Q. All right. In the absence of the Texaco well as it exists now, is Sand 4 and Sand 6 isolated from each other in the reservoir?

A. Yes, they are.

Q. And when you drill the well and put the laterals in each of those two sands, your intention is to not communicate the two together?

A. They will be communicated in the wellbore.

Q. I understand.

A. Yes.

Q. But there is no activity planned that would cause the reservoirs outside the wellbore to be in communication?

A. That is correct.

Q. Okay. Are there any wellbores in the gas pool that have been drilled, that include this concept of a lateral?

A. Not that I'm aware of.

Q. In either sand?

A. Not that I'm aware of.

Q. Is there any high-angle lateral wells in the oil

pool in the Rhodes area?

A. Not that I'm aware of.

Q. Is this your idea for a high-angle horizontal multi-lateral wellbore, Mr. Sadler?

A. It is Texaco's recommendation, yes.

Q. Yes, sir, but that's not -- you didn't generate this idea, did you?

A. As a group, the idea was generated.

Q. But not by you?

A. Well, not individually by me; as a group. As the team, group, the idea was generated.

Q. Okay, whose idea was this?

A. I don't recall who actually came up with the idea. It was just recommended as a team.

Q. Has the composition of the team changed before and after August of 1996?

A. No, it has not.

Q. So the team members that participated in this change of plan are the same team members you had in early 1996?

A. Yes.

Q. You've shown even within Sand 6 that there appears to be some vertical separation when we look at the Rhodes "A" 4 well; do you see that?

A. Yes, sir.

Q. Describe for me what you see that causes you to conclude there is separation within that well.

A. Again, like Sand 5, we see that within Sand 6 in the "A" 4 there are zones of low porosity, shaley, silty intervals.

Q. And that relationship appears to exist between the Rhodes "A" 3 and the "A" 4, and yet as you move to the "B" 7, the sand separation is interpreted to be divided in only two parts instead of 3?

A. That is correct.

Q. Let's look at the sand package for Sand 6 on the isopach, Exhibit 10, if you please. What's your basis in using a 15-percent porosity cutoff?

A. Based on the available core data in the area, this is my porosity cutoff that I have utilized.

Q. I thought you told me you hadn't looked at any core data.

A. I have not looked at core; I have looked at core data.

Q. All right.

A. I believe your original -- Maybe I misunderstood your question. I thought it was, Have you looked at core?

Q. All right, but you have looked at the data that someone else generated from their examination of the core?

A. In terms of analysis, yes.

Q. Yeah, you're looking at somebody else's report?

A. Well, from a laboratory report, yes.

Q. All right. And in looking at the core data, am I correct in still understanding that you do not have an opinion on the relative permeability between vertical and horizontal?

A. No, I do not.

Q. You have not. All right.

When we look at the isopach for Sand 6, have you attempted to aid your engineer in formulating a conclusion with regards to the drainage area for any of the wells on this map? Are you with me?

A. I missed --

Q. Yes, sir, let me --

A. I misunderstood the first part of your question.

Q. All right. Looking at the isopach --

A. Right.

Q. -- have you taken the isopach here and helped your engineer derive any volumetric calculations of gas in place?

A. I don't know exactly what our engineer used in doing the analysis. This data is available.

Q. All right. Did you provide him any type of ϕh map for calculating drainage areas?

A. No.

Q. Did you participate in any way, other than providing the isopach to the engineer, in working on drainage calculations?

A. Just providing the geologic input needed to do the analysis.

Q. All right. Is that geologic input the same display as we're looking at now?

A. Yes.

Q. And this is your work product?

A. Yes.

MR. KELLAHIN: No further questions, Mr. Examiner.

MR. CARR: Mr. Catanach, if I could ask a couple of questions.

REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Sadler, if we look at this, what you're confronted with is a situation where you have a tract that's offset from two directions; is that right?

A. Yes.

Q. And the well to the south is 330 from your lease line, and the well to the west is 660 from your lease line; isn't that right?

A. That is correct.

Q. And you're trying to offset that by drilling a

horizontal wellbore, correct?

A. That is correct.

Q. A horizontal wellbore will give you more access to the actual contact with the formation than a vertical wellbore; is that not fair to say?

A. That's correct.

Q. And it will also give you access to the formation offsetting the well that's offsetting you to the west?

A. Yes.

Q. And it will also give you an offsetting interval in that formation that offsets the well to the south; isn't that fair to say?

A. That is correct.

Q. Mr. Kellahin asked you, Weren't you drilling away from the well to the south? Well, the bottom line is, when you get it done you're going to have a wellbore no matter which way you drill it, correct?

A. Correct.

Q. And it's going to run from approximately an offset location of the well to the south to approximately an offset location to the well from the west; isn't that what you're trying to achieve?

A. Correct.

MR. CARR: That's all I have.

MR. KELLAHIN: I have an additional response.

RECROSS-EXAMINATION

BY MR. KELLAHIN:

Q. You could achieve the same objectives with at least two wells then; is that not true?

A. The two vertical wells could be drilled in this pool. It might be possible, depending on the lateral discontinuities within the reservoir, which we can't ascertain with the well densities we have right now.

Q. Okay. So you could put a vertical well offsetting the "B" 7, and you could put a vertical well offsetting the "A" 4?

A. You could.

Q. Okay. Are you aware of any geologic reason why that would be less acceptable than this high-angle multi-horizontal wellbore?

A. In that we do not know the exact discontinuity of the reservoir between those two locations, it might be that the horizontal will more effectively deplete the reservoir by contacting and intersecting more of these discontinuous zones.

Q. Using fracture stimulation of the vertical well, you can achieve that same vertical and horizontal communication in the spacing unit, can you not?

A. Depending on the size of the fracture treatment. I do not believe that you could attain 1400 feet of

fracture length from the -- combined between those two wells. But again, you know, that's beyond my specialty, and I'm really not qualified to address the fracture-stimulation issues.

Q. Geologically, though, it's acceptable to access the reservoir in one of two ways, if I understand your testimony: You can do that with vertical wells. And, in your opinion, you can do it with this single high-angle horizontal wellbore with the two laterals?

A. That is correct.

MR. KELLAHIN: No further questions.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Sadler, the first lateral in the Sand 4 will be essentially very close to where the vertical wellbore is at; is that correct? Where you'll first --

A. Yes.

Q. -- encounter the Sand 4?

A. Yes.

Q. And that lateral will go a distance of approximately 500 feet to the northwest?

A. That is correct.

Q. Okay. So at that point you will take another lateral off that, into the Sand 6?

A. That is correct.

Q. And that will go a distance -- Once you're in the Sand 6, that will go a distance of 1300 feet?

A. Depending how far you are away from the vertical well. Once you've reached the sand -- 13- -- That's just my estimate. There will be additional testimony to address those specific numbers.

Q. Will your Sand 6 lateral penetrate all of those sands in the Sand 6 interval?

A. That is the design.

Q. Even the lowermost sand that you have separated there?

A. That is the intent of the project.

EXAMINER CATANACH: I believe that's all I have. The witness may be excused.

MR. CARR: At this time I'd call Charles Wolle.

CHARLES R. WOLLE,

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

DIRECT EXAMINATION

BY MR. CARR:

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

A. Charles R. Wolle.

Q. How do you spell your last name?

A. W-o-l-l-e.

Q. Where do you reside?

A. Midland, Texas.

Q. By whom are you employed?

A. I'm employed by Texaco Exploration and Production, Inc.

Q. And what is your position with Texaco?

A. Project engineer.

Q. Have you previously testified before the New Mexico Oil Conservation Division and had your credentials accepted and made a matter of record?

A. Yes, sir.

Q. And at that time you were qualified as a petroleum engineer?

A. Yes, sir.

Q. Are you familiar with the Applications filed in each of these consolidated cases?

A. Yes, sir.

Q. Are you familiar with how Texaco plans to horizontally drill this well?

A. Yes.

Q. And are you prepared to review these plans with Mr. Catanach?

A. Yes.

MR. CARR: Are the witness's qualifications acceptable?

EXAMINER CATANACH: They are.

Q. (By Mr. Carr) All right, Mr. Wolle, let's go back first, just to Exhibit 1, the plat, and just identify for us again the surface location for the well.

A. The surface location is 660 feet from the south line, 1100 feet from the west line, Section 23.

Q. Now, the project area for this well will be what? The southwest of Section 23?

A. Correct.

Q. And this exhibit shows the offsetting wells in the Yates formation?

A. Yes, sir, that's correct.

Q. Has the type log for the well previously been introduced as Texaco Exhibit Number 6?

A. Yes, it has.

Q. And that was reviewed by Mr. Sadler?

A. That's correct.

Q. All right. Now, let's go to Texaco Exhibit Number 11, your vertical plan, and I would ask you to review this for Mr. Catanach.

A. What we're proposing is to drill a conventional vertical well to approximately 3200 feet, run open-hole logs. That will give us further information on the depth and the thickness of the Sands 4, Sand 6.

We'll run and cement the casing and we'll come up

to approximately 2775 feet, set a whipstock, cut a window in the casing, drill a short-radius curve to a measured depth of plus or minus 2930 feet. We'll be building angle, about 57.3 degrees per hundred feet. That should get us into Sand 4. We will drill an approximate 500-foot lateral in that sand, depending on the distance that that sand does go in that direction. The 500-feet is an estimate; it will be adjusted as appropriate during the drilling operation.

That will take us to a -- or at the end of that, the estimated 500 feet, a true vertical depth at 2885 feet, measured depth approximately 3332 feet. At that point we'll come back and low-side the curve at approximately 2895 feet measured depth, build a 10-degree-per-100-foot curve starting at 69 degrees. We'll continue building that curve to a measured depth of about 3090 feet, total vertical -- or true vertical depth, approximately 2906. We'll drill a near-horizontal lateral at 88.6 degrees to a measured depth, 4236 feet, approximately, true vertical depth approximately 2935 feet.

That should take us to the base of the Sand 6 sand that we will have penetrated from the top of the Sand 6 to the base of the Sand 6.

The proposed bottomhole location from the surface location, approximately 342.56 degrees azimuth, horizontal displacement approximately 1400 feet, true vertical depth

approximately 2935 feet, measured depth approximately 4236 feet.

Q. All right. Let's go now to Texaco Exhibit Number 12, the horizontal view. Would you review that, please?

A. Again, this shows the project area, which is a single spacing unit comprised of the southwest quarter of Section 23. It shows the producing area as defined by the red line, which is a drilling window for the proposed well, a standard 660-foot setback from the outer boundary of this standard 160-acre spacing unit in the Rhodes-Yates-Seven Rivers Gas Pool.

Q. The wellbore at all times will be at least 660 feet from the outer boundary of the project area; is that correct?

A. That is correct.

Q. And what is the direction of the azimuth of the horizontal portion of the well?

A. For both laterals it will be approximately 342.56 degrees. The upper lateral will be about 500 feet in length, the lower lateral about 1400 feet in length.

Q. In your opinion, will the drilling of the proposed enable Texaco to protect the southwest quarter of Section 23 from drainage from the offsetting Burlington wells?

A. Yes.

Q. In your opinion, will granting this Application and drilling of this well as proposed be in the best interest of conservation, the prevention of waste and the protection of correlative rights?

A. Yes, sir.

Q. How soon does Texaco plan to spud this well?

A. It's on our rig schedule tentatively for February 10th of 1997.

Q. Were Exhibits 11 and 12 prepared by you or under your direction?

A. Yes, sir.

Q. And can you testify as to the accuracy of these two exhibits?

A. To the best of my knowledge, they are true and correct, yes, sir. I'm not qualified to speak to all the technical aspects of horizontal drilling, but as far as I know, that is correct.

MR. CARR: All right. At this time we would move the admission of Exhibits 11 and 12.

EXAMINER CATANACH: Exhibits 11 and 12 will be admitted as evidence.

MR. CARR: That concludes my direct examination of Mr. Wolle.

EXAMINER CATANACH: Mr. Kellahin?

MR. KELLAHIN: Thank you, Mr. Examiner.

CROSS-EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Wolle, did you generate Exhibit Number 11?

A. No, sir, I did not.

Q. Who prepared that?

A. It was prepared by Phoenix Drilling Services, an organization that is employed by Texaco through our Denver drilling office.

Q. What's your technical background, sir? You're a petroleum engineer?

A. I'm a petroleum engineer, yes, sir.

Q. Do you do reservoir engineering work?

A. Yes, sir.

Q. Do you do drilling engineering work?

A. No, sir.

Q. Describe for me this team concept that you're working in. Mr. Sadler referred to what I thought was a team. Did I misunderstand?

A. No, that's correct.

Q. Who's on the team?

A. It's just Mr. Sadler, geologist; myself, engineer; Mr. Lanning, our landman. We employ services of our drilling department in Denver for the generation of drilling cost estimates, situations like this for horizontal drilling. They generate the well plan according

to information we furnish to them.

Q. So you don't generate the AFE?

A. That's correct, I do not. That comes from our --

Q. You're not an expert in that area concerning comparison of vertical well costs to horizontal costs?

A. That's correct.

Q. Someone else in your company does that work?

A. Yes, sir.

Q. Have they provided you an analysis to compare vertical versus horizontal well costs for this area?

A. I don't know that we got a formal analysis for a vertical well. I can't remember one way or the other. In conversation, approximately twice the cost for a horizontal well as for a vertical well.

Q. Do you have a copy of your well plan or a prognosis with you here now? Did you bring it to the hearing?

A. Yes, sir.

Q. You didn't introduce it as an exhibit?

A. No, sir.

Q. Did you as a reservoir engineer do any drainage calculations?

A. No, sir, the concern that was addressed by Mr. Sadler, the uncertainty as to the extent of the reservoir to the east, is a big question mark, to the east and the

northeast.

Q. So when you look at the potential drainage from the south, from the "B" 7, did you attempt to try to quantify the area of drainage being affected by the "B" 7 well?

A. No, sir.

Q. One of your concerns is drainage of the spacing unit?

A. That is a question in our minds, yes, sir.

Q. Yes, sir. But you have not attempted to quantify whether or not there is any drainage occurring of the southwest quarter of 23 via the Rhodes "B" 7 well?

A. That is correct, I have not.

Q. And you have not done so for the "A" 4 well?

A. That is correct.

Q. Okay. Have you attempted to determine what in your opinion is the likely EUR for the horizontal well in the southwest quarter of 23?

A. Yes, based on very limited information that we have about recovery from horizontal wells and recovery of vertical wells in the area.

Q. Okay, do you have an opinion or have you done a calculation to determine gas in place in the southwest quarter of 23?

A. No, sir I have not, again because of the

uncertainty as to the extent of the reservoir in the eastern and northeasterly directions.

Q. Okay, have you looked at production decline curves on the "A" 4 well and used those curves by which to project an ultimate recovery for the "A" 4 well?

A. I have looked at the production curve from the "A" 4 well, and -- I don't recall offhand what the cumulative production is. I recall it's somewhere in the order of a quarter of a billion cubic feet, and I'm sure I ran through a decline analysis, and I do not recall what that indicated.

Q. You're unable to testify today as to what in your opinion would be the EUR for any of the existing gas wells in this area?

A. I do not have any information that I could find for the Rhodes "A" 7 well to the south, and again I did have the production information from either *Dwight's* or *PI* for the Well Number 4 to the west.

Q. Did you request that information of Burlington?

A. No, I did not.

Q. There are vertical gas wells in the gas pool, are there not?

A. Yes, there are.

Q. And there are gas wells older than the "A" 4 and the "B" 7?

A. Yes, sir.

Q. And a reservoir engineer could within reasonable probabilities calculate estimated ultimate gas recoveries for the vertical wells?

A. There is another well, I believe the Rhodes "A" Number 1, which indicates a cumulative production on the order of 25 billion cubic feet, if I remember correctly, so there is a significant disparity or difference from well to well.

Q. All right, sir --

A. It's --

Q. -- for the closest offsetting wells in that gas production, you have not done the work and are therefore unable to reach an opinion as to what those gas wells could recover; is that not true?

A. I do not have that information with me at this time.

Q. The cost of the horizontal multi-lateral wellbore is about half a million dollars?

A. $485,000, if I remember correctly.

Q. And that's without the surface facilities?

A. Yes, sir.

Q. And so you throw in the surface facilities, it's another $30,000 or --

A. $25,000 -- $20,000 to $30,000, somewhere in that

range, probably. I think Burlington's estimate was $19,000, and that's not dissimilar from ours.

Q. All right, so -- I'm a lawyer, I work better with round numbers and simple problems. So half a million; is that right?

A. Half a million.

Q. Okay, half a million. When you're looking at a half-million-dollar investment, don't you also see what the potential gas recovery is by which to justify that expenditure?

A. Yes, sir.

Q. And what did you look at and what did you find out?

A. Again, I'm going on memory. As I recall, something on the order of 1.7 billion cubic feet recoverable reserves from this well.

Q. So if that number is right, then it should be enough gas reserves to pay for a horizontal well which is twice the cost of a vertical well?

A. Yes, sir.

Q. If that number is not right, wouldn't it give you concern about the more expensive drill plan of using the horizontal well?

A. I have concerns about that, yes, sir, I do.

Q. Uh-huh.

A. I have concerns also about what we're going to encounter in this southwest quarter of the section.

Q. Pretty risky to do this, isn't it?

A. There is risk involved, yes, sir.

Q. When we look at the lateral in Sand 6 --

A. Yes, sir.

Q. -- by the time you get the 88 degrees, we're virtually horizontal in Sand 6?

A. Yes, sir.

Q. And if I understand the schematic here, by the end of the lateral, you're in the bottom edge of Sand 6?

A. That's the intent, yes, sir, that's what we are proposing.

Q. Okay. And I also understand that this well is not going to be artificially stimulated in any way?

A. That's correct.

Q. And as we move farther out into --

A. It will not be fracture-stimulated.

Q. That's what I'm saying.

A. Yes, sir.

Q. It will not be fracture-stimulated.

As we move farther out and towards the northwest quarter, we have completed the lateral for Sand 6, and you're in the bottom portion of Sand 6. And yet when we look at Mr. Sadler's display we see that Sand 6 further

subdivides; is that not true?

A. What we're actually intending is that we will enter the top of Sand 6, wherever we enter it --

Q. Uh-huh.

A. -- and then when we get to the end of the hole, we'll be at the bottom, so that we'll be passing through Sand 6 over the entirety of the lateral.

Q. Did you look at how he's interpreted Sand 6?

A. Yes, sir.

Q. Sand 6 is going to change in its -- He's got a structural cross-section here, doesn't he? Yeah, he's got a structural cross-section, so we see that the reservoir interval in "A" 4 is lower than you intend to find it both in each side? Are you with me? Let me show you.

A. No, I'm not following.

Q. Do you see the "A" 4? Do you see Sand 6, on the structural cross-section? Do you find it?

A. Yes, sir.

Q. All right. Look where it is; it's lower down in a vertical sense, it's lower on structure, all right? Do you see that?

A. Yes, sir.

Q. If you move to the left to see the next log, see the Sand 6 package? It's higher in the reservoir?

A. Yes, sir.

Q. All right. Look on the other side of that "A" 4. Do you see where your well is projected?

A. Yes, sir.

Q. You're higher. How are you going to account for the difference of change in vertical elevation in the sand with this horizontal lateral?

A. Our intention is to remain within Sand 6 at all times. Where at any particular point in the lateral we are, relative to the top or the base of the Sand 6, we won't know; we're not attempting to control that.

Q. Under this interpretation there's the probability that the Sand 6 is subdivided -- it's discontinuous laterally -- and as you move through it, you're going to miss some of those lenses, aren't you?

A. Yes, sir. We won't be in all of the lenses at all of the time in our lateral.

Q. Nor are these lenses long enough to be accessed by the lateral, at least at one point somewhere in that process? They're too small.

A. I can't say one way or the other on that, as to their areal extent.

Q. Okay. Were you part of the team prior to August of 1996 with regards to this plan?

A. Yes, sir.

Q. Prior to August of 1996, it was your

recommendation to develop the southwest quarter with one or more vertical wells --

A. Yes, sir.

Q. -- is that not true? And the first vertical well was to be the direct offset to the "B" 7 well, the one on the south?

A. I don't remember the precise location but it was in the southern part of the tract.

Q. All right, sir, let me show you the docket sheet. If you'll look at the Texaco advertisement, it says you're going to be in Unit Letter K. You're out of the southwest-southwest, okay?

A. 660 from the south line and 660 from the west line.

Q. Yeah.

A. Which it's not a direct offset, but --

Q. I didn't mean to confuse you. The vertical well that you were proposing, urging and willing to participate at that time, was that a well to be drilled vertically and to be artificially fracture-stimulated?

A. That was our proposal at that time for consideration, yes, sir.

Q. Okay. It is also -- There's also an opportunity to drill a second vertical well, if the parties desire to do so, along the western boundary to meet any competition,

if there exists any, from the "A" 4 well?

A. A possibility, yes. I'm not sure about the likelihood, because of various considerations. Pool rules call for a single well in a proration unit.

Q. Yes, sir.

A. And in the northern half of this proration unit, more or less, there's an area of shifting sand.

Q. There are some topographical problems.

A. Right.

Q. Have you examined to see whether the topographical problems of the shifting sand dunes can be overcome with a location that could be up in the north side of the spacing unit?

A. Without doing any specific work that can be overcome, probably there will be some additional cost entailed in the construction of the surface location, but that's not been quantified, and it's not -- That's not definitive, but it's a likelihood.

Q. Are you also aware, Mr. Wolle, that the Division allows for a second well in a nonprorated gas pool if the second well is necessary to meet offset competition from drainage that the original well cannot protect the spacing unit?

A. I might have known that at one time. I do not recollect it.

Q. Whose idea was it for Texaco to change from supporting the vertical well concept in the spacing unit, to go to the high-angle horizontal well?

A. I've thought about that since you asked a similar question of Mr. Sadler, and I do not recall a specific individual who put forth that idea. It was one that came up, best way I can describe it, in group conversation.

We, Texaco, have been doing more horizontal drilling, we're gaining more expertise in that, and this appeared to be a situation where that might have some application.

As far as a specific individual who first mentioned it, I just don't recall.

Q. This is a low-pressure reservoir, is it not?

A. Yes, sir.

Q. Have you examined the effect of a low-pressure reservoir on the practicality and the productivity of the horizontal wellbore technology?

A. No, sir, I have not.

Q. Have you attempted to apply Texaco's expertise in horizontal drilling to a simulation of performance by the horizontal well in this spacing unit versus a vertical wellbore?

A. We did some very basic simulation work, inputting the parameters as we knew them, and some of the models that

we have available to us, and quite frankly, they gave us what I considered non-believable numbers in terms of initial rate and ultimate recoveries. Initial rates in excess of 8 million a day.

Q. When we look at the design plan --

A. Yes, sir.

Q. -- I'm looking at Exhibit 11 -- I don't believe you talked about where you're going to hang the tubing in the well. I assume there's tubing in the well?

A. Initially, it would be inside -- or above the kickoff point, probably. I don't know that for sure.

One of the considerations that we had in drilling and casing the well to its TD, if sometime in the future there's any water production associated with this well -- and we have no indication that there will be, or not really any particular reason to expect it, but if there is in the future, that would give us some wellbore that would be available as a sump, if you would, to collect water if we have to pump the well.

We can set our set our tubing down there and remove water from the wellbore without having to support a column of water in the wellbore.

Q. Did you do any calculations or come to any conclusions with regards to the effect that will have on the pressure relationship in the laterals, in your ability

to recover the gas?

A. No, sir, I did not.

MR. KELLAHIN: I have no further questions, Mr. Examiner.

REDIRECT EXAMINATION

BY MR. CARR:

Q. Mr. Wolle, what you're proposing to do is drill a vertical hole and log the hole; is that right?

A. Yes, sir.

Q. And you're going to kick off, cut a window, based on your information, and drill a lateral in the fourth sand?

A. Yes, sir.

Q. Then you will come back and kick off of that first lateral and put a second lateral in the sixth sand; is that right?

A. That's correct.

Q. You testified that by doing that you're probably going to miss some of the lenses within the sixth sand?

A. Yes, sir.

Q. Do you have a better chance of intersecting the lenses within the sixth sand with a vertical -- or with a horizontal wellbore or with a vertical wellbore?

A. With a horizontal wellbore.

MR. CARR: That's all I have.

EXAMINATION

BY EXAMINER CATANACH:

Q. The plan is to go to the base of the Sand 6; is that correct --

A. Yes, sir.

Q. -- laterally?

So you will, in fact, encounter the bottom sand interval in the Sand 6?

A. Yes, sir, that's our intention to do that.

Q. In terms of draining the spacing unit, do you have an opinion as to whether the horizontal well would do a better job than two vertical wells?

A. I believe it will in the context that we should be able to contact with our borehole a greater portion of the reservoir with a horizontal lateral or laterals than we could with two vertical wells. I can't quantify that, but...

Q. What recent experience has Texaco had with horizontal wellbores? Have there been any drilled in the southeast part of New Mexico?

A. In New Mexico we have, within the last couple of weeks, been drilling our first horizontal well. To the best of my knowledge, that's our first well in southeast New Mexico.

Q. Have you been involved with a horizontal well

elsewhere?

A. No, sir, I have not.

Q. Do you have knowledge of what Texaco's experience has been with these wellbores anywhere else?

A. Yes, sir, we've had an active program in our Bryant G. Devonian field in -- or near Midland, the gas field in the Devonian. We've been successfully drilling some horizontal wells over in -- I believe it's Winkler County of New Mexico [*sic*], our Little Joe Area, some horizontal wells there. We have drilled multi-lateral wells in our Aneth Unit in Utah.

In this area, to the best of my knowledge, the well that we started a couple of weeks ago in Lea County is our first horizontal experience in Lea County.

Q. What formation is that well drilling to? Do you know?

A. It's in the North Vacuum-Abo West Unit, but I can't be more specific as to the formation.

Q. Have you actually started drilling laterals -- the lateral in that wellbore yet?

A. That's going to be a single lateral. And yes, we have, and I haven't checked in the last couple of days. We should be nearing the end of that. That's -- I've been just keeping up with the progress, but not actively involved in the work itself.

Q. The actual benefit you're getting from drilling a horizontal wellbore is, you're going to encounter a greater area of the sand lenses in that --

A. Yes, sir, and it will be a better opportunity to fully drain this proration unit.

Q. Is it Texaco's opinion that a single well probably wouldn't protect the entire proration unit from offset drainage?

A. That's correct, because we have a south offset and a west offset.

EXAMINER CATANACH: I have nothing further of the witness.

Mr. Carr?

MR. CARR: That concludes our presentation.

EXAMINER CATANACH: Okay.

MR. KELLAHIN: I have a follow-up question to the Examiner, if I may, sir.

FURTHER EXAMINATION

BY MR. KELLAHIN:

Q. Mr. Wolle, if two vertical wells cost the same as this one horizontal well, why don't you drill two vertical wells and place them, one in approximate competition with the 4 "A" and the other one in competition with the "B" 7?

A. Well, for one thing, I'm not -- again, as I mentioned earlier, I'm not sure that the cost for another

well in the northwest part of the proration unit will be the same as the cost for a vertical well in the southern part, because of the potential difference in location cost.

Q. As part of your analysis, did you explore the details of doing that and what it might actually be?

A. At the very least it should be equivalent to the cost of a well here.

Q. Okay.

A. There's no potential lower cost. Any potential cost would be higher than that, if additional location preparation is necessary.

Q. I'm having trouble understanding how you could formulate opinions about the preference for a horizontal well until you have done some type of work to determine what the recoveries would be of gas from the spacing unit, and you've not done that. Why not?

A. The uncertainty as to the extent of the reservoir, the opportunity for a horizontal well to contact -- or a multi-lateral well to contact more of the productive formation, were the primary considerations.

Q. In order to reach that judgment, though, you need to know how effective the vertical wells are being, right?

A. There's significant variation among the vertical wells as to exactly what their ultimate recoveries are going to be.

MR. KELLAHIN: All right, no further questions.

MR. CARR: No further questions.

EXAMINER CATANACH: Mr. Wolle may be excused.

Let's go ahead and take a break at this point, about 10 or 15 minutes.

(Thereupon, a recess was taken at 9:59 a.m.)

(The following proceedings had at 10:15 a.m.)

LESLYN M. SWIERC,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Ms. Swierc, for the record would you please state your name and occupation?

A. Leslyn Swierc, and I'm a senior staff landman with Burlington Resources.

Q. And where do you reside?

A. In Midland, Texas.

Q. On prior occasions have you testified before the Division and had your qualifications as an expert in petroleum land management accepted and made a matter of record?

A. Yes, sir, they have.

Q. And have you been the principal landman for Meridian, now Burlington, with regards to consolidating

ownership and responding to well requests in the Rhodes Gas Pool, particularly with emphasis on the southwest quarter of Section 23?

A. Yes, sir, I have.

Q. And when Mr. Lanning refers to individuals at Burlington that he's corresponding to about this topic on behalf of Texaco he, in fact, is corresponding with you?

A. Yes, sir.

MR. KELLAHIN: We tender Ms. Swierc as an expert petroleum landman.

EXAMINER CATANACH: She is so qualified.

Q. (By Mr. Kellahin) Let me ask you to help me go through the documents, to identify them. We'll do it rather quickly, and then we'll come back and we'll talk about the major components of your position.

A. All right.

Q. Let's start, first of all, Burlington Exhibit 1 is what, ma'am?

A. This is the well proposal dated October 9th from Texaco to Burlington, proposing the multi-lateral horizontal well that Mr. Lanning has been speaking of.

Q. Is this -- Your receipt of this letter, is this the first time that you were aware that Texaco was proposing a multi-lateral horizontal well for the southwest quarter of 23?

A. Yes, sir, it is. And we had our meeting on August the 14th. We discussed the possibility -- Actually, it was kind of a brainstorming session, and we discussed the possibility of a horizontal well, but there was no mention ever made of a multi-lateral. And when we got this letter it was the first indication that we had that Texaco was, in fact, anticipating a multi-lateral horizontal.

Q. In the meetings with Texaco in August of 1996, was that the first discussions you were aware of, of Texaco proposing anything other than one or more vertical wells in the spacing unit?

A. Mr. Lanning and I had had conversations prior to August of 1996. He was aware that I was trying desperately to close a transaction with Mr. Hartman concerning the acreage in question, and at that time Mr. Lanning had mentioned that in order to avoid a dispute over operations in the area, that if we would be willing to drill two vertical wells, that they would not object to Burlington or Meridian operating. But there was no mention of a horizontal well at that time.

Q. Okay. Upon receiving the October 9th proposal, now, for the well that's before the Examiner, what then did you do with that information?

A. I then generated a memo internally, and it was submitted to our reservoir engineer and to our geologist to

evaluate the well proposal and look at the possibility of participation with Texaco.

Q. Your Exhibit Number 2 is what?

A. Exhibit Number 2 is a letter from Mr. Carr with an attached amended application for Texaco's compulsory pooling of an unorthodox location with respect to the Rhodes 23 Fed Com Number 1, the horizontal well, and it was received in my office on November 4th.

Q. Okay, Exhibit 3?

A. Exhibit 3 is a letter dated November 19th from myself to Mr. Lanning wherein I stated to him that we were continuing to evaluate the horizontal well, that we were again a bit confused and needed more data to be able to carefully and completely evaluate the multilateral idea, and I needed a wellbore schematic and a drilling prognosis, or actually the engineer and geologist needed that information, and I had requested it.

But at the same time, within this letter, I suggested an alternative proposal to Texaco, and that was that we drill a vertical well at a legal location in the southwest quarter of the southwest quarter of Section 23 for $234,000, roughly, and pending evaluation of that well, then we could look at the viability of drilling a second vertical well.

Q. Why did you choose November 19th to propose an

alternative suggestion to Texaco with regards to pursuing the more conventional vertical well?

A. Well, I had been dealing with Mr. Hartman since February of 1996, trying to close a transaction with him. It was a very complicated transaction. It involved multi-phases and various transactions, and there was correspondence between Mr. Hartman and myself almost daily, and the question arose as to whether or not we would even close the transaction with Mr. Hartman.

Q. When did you finally get that transaction?

A. We finally closed that around the 10th of July. And then we had roughly -- later in the -- later on in our discussions with Mr. Hartman, I would say around June or July, was I made aware that there was even an operating agreement in place with respect to the southwest quarter of Section 23.

Then we closed with Mr. Hartman, and just because I closed on the documents with Mr. Hartman, my job didn't stop there. I then had to generate internal memos so that accounting, gas marketing, revenue settlement, division orders and numerous other departments were identified of the transactions that had occurred, and there was a lot of internal processes going on there with respect just to the ownership and the settlements with Mr. Hartman, but there was nothing -- no evaluation going on with the well at that

time, because my process was not completed yet.

Q. When were you able to direct your attentions to Mr. Lanning's requests that activity occur in the southwest quarter of 23?

A. The day -- I think it was a couple of days before he had requested that we sit down and discuss the possibility of development, and that was just prior to August 14th.

Q. In the November 19th letter, you're asking for information, and you're also proposing a counterproposal, again for the conventional well?

A. Right.

Q. At this point in time there is no disagreement. The -- If there was an operating agreement in existence, it has expired by now?

A. That's correct.

Q. And you have already received, now, Mr. Carr's compulsory pooling Application for the high-angle/multi-lateral horizontal well?

A. That's correct.

Q. In order to provide an alternative solution, then, you have suggested that Burlington go back and -- that Texaco go back and reconsider their position and return, then, to the original proposal of the vertical well?

A. That is correct. And I might add one other thing. The delay in getting the proposal out on November 19th -- We did not exactly understand the well proposal that was proposed in the October 9th letter, particularly the directions of the laterals and the length of both of them. And then it was not until we received, on November 4th, the amended application by Mr. Carr, we were able to get additional information as to the laterals within that well.

Q. Even with the force-pooling application, you did not have a complete well plan and you did not know the angle and the direction of the laterals?

A. That is correct.

Q. And you requested that on November 19th?

A. That is correct.

Q. And you agree that Mr. Lanning, as he testified, did not provide that to you?

A. That's correct.

Q. All right, let's turn to the next exhibit; it's Exhibit 4. Identify and describe this letter.

A. This letter is a letter dated November 27th, from myself to the other owners within the southwest quarter. I had proposed the alternative vertical well idea to Texaco on November 19th and had not heard anything from them, so I proceeded ahead and subsequently proposed the well to the

other owners within the southwest quarter, the horizontal -- or excuse me, the vertical well idea.

Q. Okay. And then Exhibit 5?

A. Exhibit 5 is the letter dated November 21st from Mr. Lanning to myself where he outlines a chronology of the events that have occurred leading up to their continuing on with the force pooling.

Q. Let's address yourself to the first paragraph of his letter of November 21st.

A. Yes, sir.

Q. It was not until July 10th of 1996 that Burlington was substituted in for Hartman in the southeast -- southwest quarter of 23?

A. That is correct.

Q. So prior to that, you would not have had any control over operations in the southwest quarter of 23?

A. No, sir, we would not.

Q. Was there a point in time where you were under the misimpression that you might have an interest in the southwest quarter of 23?

A. In early 1995, I had lease take-offs done, or mineral take-offs done, by an independent broker, and the results of those take-offs showed that Texaco owned the west half of the southwest quarter and that Oryx owned the east half of the southwest quarter.

I subsequently made offers to both Texaco and to Oryx to purchase their interests in those two 80-acre tracts. Various transactions and conversations occurred with respect to both Texaco and Oryx. Oryx actually still believed that they owned the interest, and I made a deal with Oryx to purchase that interest.

Prior to closing on the acquisition of Oryx's interest, I had a title opinion done by an attorney, and his results showed that Oryx did, in fact, not own the interest, and I did not close on the acquisition with Oryx.

Now, as --

Q. At that point, then, you --

A. At that point in time.

Q. You've abandoned, then, your suggestion that you should participate in a well in the southwest quarter because, in fact, you have no interest?

A. That is correct. Now, Mr. Lanning was aware that I was dealing with Oryx. I made him aware that we had made a deal with Oryx, and he said if we closed with Oryx, then they would look at participating in a vertical well with us at that time.

Q. Okay. Is the southwest quarter of 23 different than the ownership or relationship in other portions of this immediate vicinity in the Rhodes area?

A. Yes, sir, it is. The oil and gas rights are not

separated or segregated in the southwest quarter of 23. The oil and gas rights are common, whereas if you look to the south and to the west, within the Rhodes unit itself, the oil rights are owned by Texaco, the gas rights are owned by Burlington.

Q. And how are those resources and rights being developed? Who operates the wells, and what's happening?

A. Texaco operates and is drilling oil wells within the Rhodes unit area where they own the oil rights, and Burlington is drilling and operating the gas wells, and some of them are in the same proration unit.

Q. So there is agreement and cooperation with the companies in order to develop those resources in the oil pool?

A. Oh, yes, sir.

Q. This agreement here is simply over the type of well to be drilled; is that not true?

A. That is correct.

MR. KELLAHIN: Mr. Examiner, I have a certificate of notification with regards to the parties. I'll submit it following Ms. Swierc's testimony.

But that concludes my presentation of her evidence, and I would move the introduction of her Exhibits 1 through 5.

EXAMINER CATANACH: Exhibits 1 through 5 will be

admitted as evidence.

Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. Ms. Swierc, you were present for Mr. Lanning's testimony, were you not?

A. Yes, sir.

Q. And he presented figures that set out the ownership in the southwest quarter of Section 23. Were you present for that testimony?

A. Yes, sir.

Q. He indicated that it was 50-percent owned by Texaco and 48-percent owned by Burlington, roughly. Do you agree with the ownership numbers that were presented by Mr. Lanning?

A. Yes, sir, I do.

Q. He also testified that the acreage to the south and also to the west was 100-percent of the gas rights owned by Burlington Resources; do you agree with that testimony?

A. Yes, sir.

Q. Now, if we look at the testimony presented by Mr. Lanning, he also indicated there were certain wells offsetting this spacing unit in 23, in particular the "A" 7, 330 off of the lease line, south of the unit?

A. "B" 7.

Q. "B" 7, I'm sorry.

A. Yes, sir.

Q. And the "A" 4 offsetting to the west 660 from the lease line. Do you agree with that?

A. Yes, sir.

Q. Okay. Now, Burlington or Meridian actually proposed the well on this 160-acre unit in August of 1995, did we not?

A. (Nods)

Q. That's back when we had the title question?

A. Yes, sir.

Q. And because of that, there have been efforts between you, Hartman and Texaco to develop this acreage really off and on since that time; is that fair to say?

A. Yes, sir, that's fair.

Q. At the time that you actually closed the deal with Mr. Hartman, you were aware that Texaco had already filed an application to pool that acreage for one well and had backed off of that as part of the deal?

A. Yes, sir.

Q. And at the time you acquired that interest, you knew that since, oh, the beginning of 1996, or perhaps before that, Texaco had been trying to get a well drilled out in that acreage?

A. I wouldn't say that Texaco had been trying to get a well drilled. I think that that acreage had set dormant for some time, and Burlington actually was try- -- or Meridian, at the time, was driving the boat.

In our early conversations with Texaco, they seemed really disinterested in participating or trying to get a well drilled until we had said that we could get the interest from Oryx, and then began pushing. And so I wouldn't say that they were pushing to get the well drilled, but I think they were in cooperation to develop the acreage.

Q. When you acquired this interest, did you know that Texaco was interested in drilling a well in that tract?

A. I assumed that they were, yes, sir.

Q. And that interest was acquired, you said, in July?

A. Yes, sir, that's when we closed.

Q. All right. And you were involved with follow-up on the Hartman meeting after that time, I believe you said?

A. Yes.

Q. It was only shortly before your August 14 meeting that you really had time to devote to this project; is that right?

A. That is correct.

Q. And you were involved in the meeting with Mr. Lanning and Texaco representatives, and other Burlington representatives too, trying to think through what ought to be done; is that right?

A. Yes, sir.

Q. At that meeting, Texaco indicated that Burlington, if they would go out and drill a couple of wells, could, in fact, operate the tract; isn't that right?

A. That is correct.

Q. And they asked you to respond by September 13th, did you not?

A. Right.

Q. From the date of that August 14 meeting until your November, 1996, letter, did you, Burlington, respond to Texaco with any well proposal that acreage?

A. Not with any well proposal particularly, but we did let them know that we were in the middle of budget and that pri- -- or subsequent to our August 14th meeting and that we would need at least 30 days, because that was taking up all of our technical time and we couldn't devote it to looking at a well.

Q. But from August the 14th to November the 19th, you weren't dealing with Hartman?

A. That is correct.

Q. And you knew they had given you a 30-day period

within which to see if you would drill a well?

A. That's correct.

Q. And there was no response beyond that formally back to Texaco for that entire period of time?

A. That's correct.

Q. And that during that period of time, you stated you didn't know about what -- exactly what it was they wanted after you got the proposal for the horizontal well. It wasn't, though, until November the 19th that you even decided to ask; isn't that right?

A. We were still trying -- we were wrestling -- and I will defer this to our engineer, but we were still wrestling with trying to assume or make assumptions on what type of evaluation to run.

Q. But you stated that you didn't get that data, but you didn't even ask until November the 19th; isn't that right?

A. That's correct.

Q. And that was two-weeks-plus after you'd already received notice that we were force-pooling -- or seeking a force-pooling order --

A. That's correct.

Q. -- isn't that correct?

A. This is not the only well proposal we were working on at the time.

Q. But it's the only one for this acreage?

A. Yes, sir.

Q. It's the only one you were negotiating with Texaco on this acreage?

A. That's correct.

MR. CARR: Mr. Catanach, I am trying to beat an 11:30 time frame.

Q. (By Mr. Carr) But you proposed your well by your letter dated November 27th, correct?

A. (Nods)

Q. That is -- And you attached your AFE at that time; is that correct?

A. Yes, sir.

Q. And that went not only to Texaco but it also went to Nermyr, Sutton and Burr?

A. It only went to those three parties. It had not -- It did not go to Texaco.

Q. When was it formally proposed to Texaco?

A. On November 19th.

Q. Okay, and did you get any response at all from Mr. Nermyr?

A. No. No, sir.

Q. Did you get any response from Ms. Sutton or Mr. Burr?

A. No, sir.

Q. And you understand that they have executed the Texaco AFE?

A. I did not understand that until I saw Exhibit Number 2 this morning.

Q. You're not the person, actually, to question about comparing costs for a horizontal well with a vertical well; is that right?

A. That's correct.

Q. We just have the two AFEs, and those numbers speak for themselves?

A. (Nods)

Q. Has Burlington -- Has it not advised other operators in the area that its interests in these properties are for sale?

A. Yes, sir.

Q. And if we drill one well with you now, and you sell this to somebody else, we have no assurance that even if we need an additional well out there, that the successor operator would have any interest in that at all; isn't that right?

A. That is correct.

Q. Do you know anything about the surface of the location in the north half of this spacing unit?

A. I know there are sand dunes present, yes, sir.

Q. Do you know how they might complicate a second

location up there?

A. I believe that the research that we've done shows that a second well, vertical well, can be located within the north half of that northwest quarter -- or, excuse me, southwest quarter.

Q. Have you gotten an application or permit to drill approved for your well?

A. As it's not approved, no, sir.

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

THE WITNESS: Thank you.

MR. KELLAHIN: One quick follow-up question, Mr. Examiner.

REDIRECT EXAMINATION

BY MR. KELLAHIN:

Q. Am I correct in understanding that at least up until August of 1996, despite the fact that Texaco had the largest single percentage in the spacing unit, they were willing to let first Hartman and then Burlington operate the vertical well?

A. That is correct.

Q. And the first idea -- or the first time you had the idea that Texaco was going to propose or suggest a horizontal well was in August of 1996; is that not true?

A. That's true.

Q. And the first time you became aware that it would

involve multiple laterals was not until receiving the force-pooling application in early November of 1996?

A. Actually, it was when we received the letter of October 9th that we saw that it was multi-lateral, and then we got the additional information from the force-pooling application.

MR. KELLAHIN: Thanks, no further questions.

EXAMINATION

BY EXAMINER CATANACH:

Q. Ms. Swierc, Burlington is not proposing to drill two wells on the proration unit at this time?

A. No, sir, we would like to take what we feel is the smart approach and drill one well, watch the results, and then drill a second well if we believe it's necessary.

Q. Do you have any idea when that decision to drill the second well will take place?

A. Generally when we're developing an area, and again I may defer this to the engineer, but I would say that we would at least have to have six months' worth of production data to know whether or not it's economically viable to drill a second well.

Q. Have you been in contact at all with the Nermyr, Sutton or Burr interests in this proration unit?

A. I have tried to contact Ms. Sutton and have left messages with both she and Mr. Burr.

Q. The November 27th letter was the first time that the well was proposed to these interest owners?

A. Yes, sir, it was.

Q. And your compulsory pooling application was filed November 26th, the day before that; is that correct?

A. I believe that's correct.

Q. That's not common practice with Burlington, is it, to file a compulsory pooling application and then try and secure the voluntary agreement?

A. No, sir, it isn't. What I was hoping, or actually anticipating, was that we would be able to work out some sort of alternative proposal or alternative agreement with Texaco and then be able to acquire or get the joinder of the additional owners after that point.

I might also say that it was in response to having received the application by Texaco that we were being force-pooled.

Q. If this acreage is -- if Meridian is -- or Burlington is awarded operatorship of this proration unit and you drill the well and you subsequently sell the acreage, what obligation would the successor operator have to drill a second well on that proration unit? Would he be under any kind of obligation to do that?

A. I don't think contractually, but I think as an operator we have fiduciary responsibilities to our

nonoperators, and I would assume that anyone that would purchase this -- This part of a much larger package, and anyone that might purchase this interest would have enough operations experience that they would understand those responsibilities to nonoperators to fully develop the acreage, and it only makes economic sense to them to do so.

EXAMINER CATANACH: I have nothing further of the witness. The witness may be excused.

ADAM W. SZANTAY,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

Q. All right, sir, for the record would you please state your name and occupation?

A. Yes, sir, Adam William Szantay, and a geologist for Burlington Resources.

Q. Mr. Szantay, on prior occasions have you testified before the Division as a petroleum geologist and had your qualifications accepted and made a matter of record?

A. Yes, I have. Yes, they have.

Q. And have you continued with Mr. Chris Settle, the reservoir engineer for Burlington, to study the geology and to participate with him on making technical decisions

concerning the Rhodes Gas Pool?

A. Yes, sir, I have.

Q. We're about to look at Exhibits 6 and 7. Are these exhibits that you prepared yourself?

A. Yes, they are.

Q. And is it based upon your own personal study of and information that you have analyzed in order to prepare these exhibits?

A. Yes, it is.

Q. Based upon this information, are you now prepared to share with the Division Examiner your conclusions, recommendations and opinions?

A. Yes, I am.

MR. KELLAHIN: We tender Mr. Szantay as an expert petroleum geologist.

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Kellahin) Let's take a moment and set the geologic stage for the Examiner. It might be helpful if we'll just take Exhibit 6, which is the cross-section, and look at the locator map.

Texaco's Exhibit 1 had a color-coded map where they showed the acreage and outlined the pool boundary. When we look at the southwest quarter of 23, that's in the gas pool, is it not, Mr. Szantay?

A. Yes, it is.

Q. All right. And south of that line in Section 26, we're in the oil pool?

A. Yes, that's correct.

Q. Give us a quick geologic lesson and show us why that makes sense.

A. The structural dip in the area is to the southwest, so Section 23 structurally is going to be higher than Section 27. The naturally occurring deposits of oil are downdip in the Yates, the naturally occurring deposits of natural gas are going to be updip in the Yates sandstones.

Q. As we move downstructure, then, along that boundary, the lower portion of the reservoir is going to be oil-productive?

A. Yes, sir, that's correct.

Q. When we get before that structural line in the southwest quarter of 23, even the lower portion of Rhodes Pool, now, is gas-productive, as opposed to gas and oil?

A. That's correct.

Q. All right. Let's look at the southwest quarter. It appears that you have the same four logs that we saw from the Texaco expert?

A. Yes, that's correct.

Q. All right. Do you have a copy of his cross-section?

A. Not in front of me.

Q. All right, let me give you one. Mr. Sadler was specifically describing his target sands as the Sand 4 and the Sand 6.

So that we can make the connection, when we look at where you have identified the markers for the top of the Yates and the top and the bottom of the middle Yates sandstone, are you and Mr. Sadler identifying the same points?

A. In front of me I have Texaco's Exhibit Number 8 and Burlington Resources Exhibit Number 6. The top of the Yates -- top of the Yates agrees on both, as picked on both core sections, cross-section agrees, and the base of the Yates agrees on both cross-sections.

Q. And both you and Mr. Sadler have chosen a structural cross-section to display the logs?

A. That is correct.

Q. When we look at your cross-section, are we going to find Sands 4 and 6 contained within the middle Yates sandstone package?

A. That is correct.

Q. All right. Why have you chosen not to specifically identify Sands 4 and 6 as the target zones and instead have chosen a wider interval?

A. Sands 4 and 6 are gas-productive, but they are

not the only gas-productive sands in the acreage in question.

Q. Show us the others.

A. If I refer to Burlington Resources Exhibit Number 6, we have divided the Yates into a middle Yates sandstone and a lower Yates sandstone. The lower Yates sandstone is also gas-productive in the area.

Q. All right, let's look specifically at the log of the Rhodes "A" 4 well. It's the second from the left.

A. That's correct.

Q. You see it's perforated down in the lower Yates sandstone?

A. That's correct.

Q. All right. Do you believe that the lower Yates sandstone is a target at your proposed location in the southwest quarter of 23?

A. Yes, sir, we do.

Q. Would it be accessed by a vertical well as proposed by Burlington?

A. Not according to what I've seen today.

Q. No, your proposal --

A. Oh, oh, by --

Q. -- Burlington?

A. -- Burlington, yes, it would be accessed by vertical wellbore in the area -- in the acreage in

question.

Q. All right. As you have understood and seen and learned from Texaco, that horizontal lateral is not going to access, expose or otherwise be capable of production of the lower Yates sandstone gas?

A. That is correct.

Q. That's a big concern for you, isn't it?

A. Yes, it is, there's significant amounts of gas in the lower Yates sandstone.

Q. Do you agree with Mr. Sanders' conclusion that this use of high-angle horizontal wellbore technology with the dual lateral system is the most appropriate and effective way to develop the gas resources in this spacing unit?

A. No, sir, I do not.

Q. Why not?

A. Drilling a vertical wellbore on the acreage in question will penetrate all of the sands, it will address all of the sandstones which are not vertically continuous, and in my experience, this is not an appropriate application of horizontal technology.

Q. Describe for us from a geologic point of view why you conclude that this is not an appropriate reservoir in which to apply horizontal wellbore technology.

A. One needs to communicate all of the sand

packages, which are separated by less permeable dolomites and some shales, to the wellbore, and that's most effectively done with a vertical wellbore.

Q. Mr. Sadler believes to the contrary. He thinks he's going to access more of these little lenses with the horizontal laterals.

A. Examination of the permeability and porosity data from sidewall cores that we have from the Moberly Rhodes 2 Y, which is in Section 21, in the southeast quarter of Section 21, very close to the acreage, and worked on by our staff petrophysicist, which I supervised, indicates that the vertical permeability is one-third to one-tenth of the horizontal permeability in the Yates sand; therefore it is less than likely that there would be vertical communication between the sands.

Q. So how does that affect your recommendation with regards to the application of a horizontal wellbore?

A. I would not recommend the use of horizontal technology in this particular case.

Q. That normally is applied to reservoirs that have good relationships between vertical and horizontal permeability?

A. Yes, sir, in my experience, in horizontal wells that I've drilled, there's much better vertical communication, such as a natural fracturing system or

something, that you would want to communicate with a horizontal wellbore here. I believe a vertical wellbore, fracture-stimulated, would communicate all these sands and best drain the gas.

Q. Do you see this reservoir as having any kind of natural fracture system in it?

A. No, there's no indication to me that it is naturally fractured.

Q. It's not that kind of creature?

A. No.

Q. Let's turn to -- Let me ask you this: Why is it your preference to place the first well as a vertical well in the southwest quarter of 23, and place it along the southern boundary, as you propose, as opposed to along the western boundary to be in relationship with the 4 A well?

A. I should probably leave that question to another witness. I don't think I'm qualified to --

Q. All right. Geologically, in terms of looking at a position in the reservoir, let's turn to the -- Let's turn to Exhibit 7 and let me ask you this again. All right? Let's look at Exhibit 7. What are you -- I'm getting ahead of you and me. When we look at 7 --

A. Right.

Q. -- what interval is being mapped on 7 that we can find on 6?

A. Okay, Exhibit 7 is a net porosity map based on porosity greater than a 14-percent cutoff of all gas-productive porosity in the area, that contains both the middle and the lower sandstone. And I understand your question now. That location would best address both the gas-productive porosity in the middle Yates sandstone, and that location would also address the gas-productive porosity in the lower Yates sandstone.

Q. Okay. When we look at the isopach, it's a net map, is it not?

A. Yes, sir.

Q. And you've chosen a porosity value greater than 14 percent?

A. Yes, sir.

Q. Why have you chosen 14 percent?

A. Based on our drilling experience and our production experience in the area, we have 50-plus wells that pay less than 14 percent, the zones less than 14 percent are -- It's an economic cutoff.

Q. The isopach has been contoured based upon all the well data available to you in this area?

A. Yes, sir, to the best of my knowledge and ability.

Q. All right. The conclusion you reach with regards to the isopach is what, sir?

A. Is that this is a -- this is a good location to address both the middle and the lower. It's a relatively low-risk location, I should say, based on the fact that it's surrounded by gas production.

Q. All right. Now explain to me why you have a preference for drilling the first well in the southwest quarter at the location in the southern portion of the spacing unit, as opposed to some other place in that spacing unit.

A. There are surface restrictions out there that keep us from drilling, active sand dunes, I believe, that keep us from drilling.

Q. So this location is an easier location to get approved for surface restriction?

A. I believe so, that's correct.

Q. All right. You have not examined the surface issue, as Mr. Settle has, with regards to the availability of any other location?

A. No, I haven't.

Q. All right. So you don't know if another location is going to be condemned by surface or not?

A. I can't say at this time.

Q. Okay. The component of your decision was that geologically, this is suitable, and if it's easier to approve topographically, then there's no reason not to

drill this location?

A. That's correct.

Q. All right. Let's go back and have you characterize some of the geologic reasons, then, in a summary fashion, of why you're recommending to the Examiner that he deny the Texaco Application and approve the Meridian one. Give me your summary.

A. Okay. Based on our experience with drilling vertical and horizontal wells, this is a classic vertical well opportunity here. We have vertically discontinuous permeability, porosity horizons in here that are not naturally connected vertically. We have multiple pay zones, including the middle Yates sandstone and the lower Yates sandstone, that are proven gas-productive. A vertical wellbore is the appropriate method of addressing the pay in this area.

Q. As compared to a horizontal well, which will not be able to do what, sir?

A. Pardon? I couldn't hear.

Q. The horizontal well would not be able to do what?

A. The horizontal well would not be able to communicate efficiently all of the gas-productive sands on the acreage.

Q. Even if that horizontal well has the concept of two laterals, one in the Number 4 sand and the other in the

Number 6 sand?

A. You're still not addressing the lower Yates sandstone, which is proven gas-productive in the area.

MR. KELLAHIN: I have no further questions.

We move the introduction of Exhibits 6 and 7.

MR. CARR: No objection.

EXAMINER CATANACH: Exhibits 6 and 7 will be admitted as evidence.

Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Szantay, if we look at Exhibit Number 7, or if I look at your mapping, you do show, I believe, that there are reserves under the northwest of the southwest of Section --

A. Yes, there is.

Q. -- 23?

A. Yes, sir.

Q. And you have stated that you think a conventional well as you propose it is the best location initially on that spacing unit; is that right?

A. Yes, a conventional vertical well.

Q. It would be more effective to drain those reserves if you have one well on that unit, drain the reserves under the northwest of the southwest with a

horizontal wellbore than just by a vertical well down -- offsetting 7 B?

A. I believe previous testimony has indicated that that would be one, that would be a first vertical wellbore.

Q. And that -- But if we have only one well, the horizontal well would better access those than a vertical hole; isn't that right?

A. I still don't believe so.

Q. You believe, then -- It's your testimony that the well that you're proposing would better drain the reserves under the northwest of the southwest than a vertical well -- than a horizontal well?

A. I believe, from work that we've done with the team, that one vertical well in the proposed location will still recover more gas total than the horizontal well.

Q. And so your opinion is that you can better access the northwest of the southwest with a vertical well where you're proposing it than with the horizontal well being proposed by Texaco?

A. No, I'm saying that we can make more money drilling a vertical well at the proposed location, we can get more gas out of the ground with one vertical well than with a horizontal well.

Q. And it is your testimony, then, that one well is all that would be required?

A. No, I'm saying that --

Q. Do you believe that an additional well would be necessary?

A. After analysis of the production characteristics of that first well, we would then base our decision -- we would base our decision on the production characteristics of that first well and see if a second well would even be necessary.

Q. And you won't know that until you drill?

A. A vertical well, that's correct.

Q. And then if a second well is needed, that's a decision that will have to be made by whoever owns the property at a later date?

A. If they care to address it, yes, sir.

Q. Now, you mentioned sand dunes, but then you stated that perhaps you weren't the person to really get into detail on the topography of the surface. Should I ask you questions about the sand dunes?

A. No, I have not done detailed research on the sand dunes.

Q. There are sand dunes in the north half of the spacing unit, and with you we'll leave it at that; is that right?

A. I'm afraid we're going to have to.

Q. All right. Now, I think you were testifying

about the problems with these horizontal wells and that the proposal by Texaco would basically leave certain reserves in the lower Yates that would not be produced; is that right?

A. Yes, sir.

Q. Now, if we go to the Texaco cross-section, Exhibit Number 8 --

A. Yes, sir.

Q. -- and we look at that cross-section, the second well from the left is the Meridian Rhodes "A" Number 4, correct?

A. Yes, sir, that's correct.

Q. And the red in that shows the interval that was perforated in that well. Does that go into those other Yates reserves that you were concerned about?

A. Okay, let me cross-reference my cross-section. The "A" 4 -- Yes, sir, and if I can reference Exhibit Number 6 BR, there are detailed perforations on the Rhodes "A" 4 log.

Q. All right, so if we look at that, that was drilled in June of 1995, and you perforated that lower zone, that lower Yates zone that wouldn't be accessed by these horizontal wellbores?

A. That's correct.

Q. The next well on the cross-section,

chronologically, that you drilled would be the well on the far right, the Meridian Linebery "B" Federal Number 1. The completion date that's the bottom is June 12th, 1995.

A. Okay.

Q. Do you see that one?

A. Yes, sir, I do.

Q. Drilled at about the same time. That one also, did it not, -- it perforated that lower Yates interval that you're concerned about?

A. The Linebery "B" Federal Number 1.

Q. Yes.

A. Yes, sir. It is perforated.

Q. And that's the zone that you're concerned wouldn't be accessed by a horizontal wellbore, right?

A. That's correct, that's one of my concerns.

Q. All right. And then the next well that you drilled on this cross-section is the one second from the right. That was drilled in February of 1996, the Rhodes "B" 7; isn't that right?

A. That's correct.

Q. You didn't even drill into those, did you?

A. No, that well did not penetrate the lower Yates sandstone.

Q. Isn't it true that the Linebery was so poor in that, that it wasn't worth the drilling cost to go down

there for those reserves?

A. It's my understanding that there -- it's my understanding that there were -- that sand is oil-productive because of its location. And we do not have oil rights; we have gas rights at that location.

Q. And what about in the Rhodes "A" Number 4? Didn't that -- Doesn't that circumstance still apply there?

A. No, sir, the Rhodes "A" Number 4 is up in the gas pool and is -- different location.

Q. It is downdip, however, is it not?

A. I don't have the structure map in front of me right now, but I would guess, knowing the regional dip, that, yeah, it could be on strike or slightly downdip.

Q. It is fair to say, however, that the very last well that you've drilled in this area, you didn't even attempt to reach those reserves; isn't that correct?

A. You could -- That's correct.

Q. And that there is wellbore left below the horizontal, the laterals in the proposed Texaco well, that later could be used to access that zone if, in fact, it was deemed appropriate to do so?

A. Please rephrase the question.

Q. If you look at the schematic on the proposed Texaco well, it does go deep enough to touch and to reach those Yates reserves, does it not?

A. Yes, the pilot hole goes to 3200 feet.

Q. And if it was deemed advisable to go back later, they would be accessible in that wellbore?

A. I can't address the mechanical probability of success of doing that.

MR. CARR: All right, thank you.

EXAMINATION

BY EXAMINER CATANACH:

Q. The reason you didn't drill down into the lower Yates in the Rhodes "B" 7 is because that's an oil-producing zone in that --

A. That's my understanding, sir, yes.

Q. Within the Rhodes "A" Number 4, do you have any idea what percentage of reserves that the lower Yates is contributing to the production in that wellbore?

A. I'm afraid I can't address that subject; that's not my area of expertise. I don't know.

EXAMINER CATANACH: I have nothing further.

MR. CARR: I have a follow-up question.

MR. KELLAHIN: Go ahead, Mr. Carr.

FURTHER EXAMINATION

BY MR. CARR:

Q. My follow-up question is, the producing interval in the Rhodes "A" 4 -- I mean, you're producing these lower -- these reserves -- this interval in the lower Yates in

the Rhodes "A" 4; is that not correct?

A. Yes, sir, that's correct.

Q. And isn't that downstructure, isn't that lower than the "B" 7, that interval in the "B" 7, structurally lower?

A. The top is slightly lower by maybe ten feet, five feet. I don't know where the base of it is. We didn't penetrate it in the "B" 7, but structurally it may be a little downdip.

MR. CARR: That's all.

FURTHER EXAMINATION

BY MR. KELLAHIN:

Q. Well, let's straighten this up here. Mr. Szantay, let's look at the "B" 7. The lower Yates in the "B" 7 --

A. Yes, sir.

Q. -- was not drilled and not completed because look where it is in relation to the Texaco water injection well. They're putting water in the lower Yates, aren't they?

A. Okay, yes, that is correct.

Q. No point in drilling at that location for gas when it's been waterflooded by Texaco?

A. It's an active waterflood that we don't have the rights to.

Q. That's right, it's in the oil portion?

A. Right, absolutely.

Q. All right. So that doesn't tell us you're not going to have gas up in the southwest quarter of 23 when you move into the gas pool?

A. It doesn't address that, you are correct.

MR. KELLAHIN: All right, no further questions.

FURTHER EXAMINATION

BY MR. CARR:

Q. Did you know that before Mr. Kellahin asked you that question?

A. I didn't have that on the tip of my tongue.

MR. CARR: All right, thank you very much.

EXAMINER CATANACH: The witness may be excused.

CHRISTOPHER J. SETTLE,

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

DIRECT EXAMINATION

BY MR. KELLAHIN:

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

A. Christopher Joseph Settle. I am a project engineer for Burlington Resources Oil and Gas.

Q. Mr. Settle, on prior occasions have you testified before the Division as a reservoir engineer?

A. Yes, sir, I have.

Q. And you're part of the Burlington technical team that has responsibility for the Rhodes Oil Pool and the Rhodes Gas Pool area?

A. That's correct.

Q. Pursuant to your responsibilities and employment, have you made a reservoir study of the issue of the practicality of a horizontal well versus a vertical well in this area?

A. Yes, sir, I have.

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

EXAMINER CATANACH: He is so qualified.

Q. (By Mr. Kellahin) Let's start at the end. Let's get right down to the bottom line. Let's talk about the idea of a high-angle horizontal multi-lateral project, versus the conventional straight-up vertical well that you fracture-stimulate. What's your preference?

A. We prefer the drilling, completion, production of a vertical well over a horizontal well because of the discontinuous -- vertically discontinuous nature of the sands and the amount of contact with the pay that you have to the wellbore.

Q. Have you analyzed the cost components of those two methods of accessing the gas and compared it to what in your opinion is the recoverable gas to be achieved by each

process?

A. Yes, sir, I have.

Q. And what conclusion have you reached?

A. That we can develop more reserves with a vertical wellbore than a horizontal wellbore, for less money.

Q. You heard me ask Mr. Wolle the questions I asked him about his reservoir work, and he told me he had not done certain calculations and had no opinion.

A. Yes, sir.

Q. Have you done that work and do you have those opinions?

A. Yes, sir, I have, and I do.

Q. All right. Let's turn to Exhibit 8 and have you identify and describe the first display.

Q. Exhibit 8 is our determination of what the EUR is for the Rhodes B Federal Number 7 that's located in Section 26 of the area.

Q. This is the newest of the gas wells in the Rhodes Gas Pool?

A. That's correct. It was completed in February of 1996.

Q. All right. So you have some data and some production information from that well?

A. Yes, sir, we do.

Q. As part of your analysis, did you make

comparisons to the production curves for the Rhodes "A" 3 and the Rhodes "A" 4?

A. Yes, sir, I did.

Q. And based upon that methodology, were you able to forecast within reasonable probability what you expect to be the recovery of gas from the Rhodes 7 B?

A. Yes, sir, I did. It was 585 million cubic feet of gas.

Q. And to do so, have you applied standard, conventional reservoir methodology, formulas and techniques to come to this conclusion?

A. Yes, sir.

Q. All right, let's turn beyond the summary sheet, Exhibit 8, and look at the production curves, starting with Exhibit 9. Which one are we looking at here?

A. We're looking at Exhibit 9, and it's a production decline model of the Rhodes "A" 3 well, which is in the northeast corner of Section 22, and we have three years of production history on that well. Its current production is 159 MCF a day, and we forecasted an EUR of 780 million cubic feet of gas, using the hyperbolic model.

Q. Okay. That well is completed and producing out of what interval in the gas pool?

A. The middle and lower interval, I believe that's correct.

Q. All right. So we've got the middle and the lower in that one?

A. Yes, sir.

Q. All right. Let's turn to the Exhibit 10. That's the Rhodes "A" 4?

A. Yes, sir, that's immediately south of the Rhodes "A" 3. It's the direct western offset of the proposed proration unit. It's been on production for approximately a year and a half. Using the same hyperbolic model of the production history, we determined the EUR to be 645 million cubic feet for that well.

Q. Okay.

A. And its current production is down to 337 MCF a day.

Q. All right, let's turn to Exhibit 11.

A. Exhibit 11 is a production decline -- production curve of the Rhodes "B" Federal 7, which is the well just south of the proration unit that we're looking at. It's basically been flat for a period up until about September of this year, maybe August, and there was an allowable on this well, and we were also trying to not draw down the well too much to make sure we didn't have increased sand production.

Q. Now there's a reason for that, is there not? This is a gas well in the oil pool?

A. That's correct. There is an allowable of 800 MCF a day, as compared to the unrestricted allowable in the gas pool.

Q. All right, and as we go into the southwest quarter of 23, we're up under the gas pool rules?

A. That's correct.

Q. And so a well there in a standard location is not going to have an allowable limit other than capacity?

A. That's correct.

Q. Okay. What have you concluded about the probability of ultimate gas recovery, then, out of the Rhodes 7 B?

A. What I did was, once the well started exhibiting a production decline, I used the analogies of the Rhodes "A" 3 and the "A" 4 to best fit the decline data that we have on the well and determined an EUR to be 585 million cubic feet.

Q. Let's talk for a moment while we're looking at the Rhodes 7 B. That well -- Burlington intentionally did not complete this well in the lower Yates, did it?

A. That's correct.

Q. And why not?

A. Because of the injector well that Texaco operates that is injecting water into the lower Yates as a continuation of the waterflood of the lower Yates interval

for oil production.

Q. All right. Whatever reserves are in the lower Yates at that location are going to be compromised by the water injection?

A. That's correct.

Q. Let's turn to Exhibit 12. You now have, in your opinion, the reasonable probability of an EUR based upon the Rhodes 7 B. Have you then applied conventional engineering parameters to come up with an area of drainage for that well?

A. Yes, sir, I have. Using the EUR, the reservoir pressure of approximately 668 p.s.i. and an average pay of 81 feet, which includes all of the pay that's been perforated, there's about 14-percent porosity, that pay across the 81 feet averages 20-percent porosity, water saturation is 22 percent, and from that data I concluded that the drainage area of the well is 25 acres.

Q. All right. Mr. Carr expressed concern earlier this morning about having the southwest quarter subject to potential drainage by offsetting wells. Would that drainage come from the 7 B well?

A. Doesn't appear that way at this time, sir.

Q. Do you see any time-of-the-essence arguments, any urgency to get this wellbore in the ground, then, in order to meet offset drainage?

A. Not for this well, nor the Rhodes "A" 4.

Q. In your opinion, then, as an engineer, the southwest quarter of 23 is currently not exposed to drainage?

A. That's correct.

Q. Let's turn to the next exhibit, Exhibit 13. Identify and describe what we're looking at here.

A. Exhibit 13 is a determination of what a vertical well would recover at our proposed location in the southern part of the proration unit.

What we determine is that we have a drainage area that we're affecting in a reservoir, with the permeability characteristics of the sands, that we're going to drain 25 acres. And using that data in conjunction with the average pay map that Adam provided me, I was able to determine that the EUR of a vertical well in that location should be approximately 710 million cubic feet, which is greater, because of the additional pay, than the EUR of the Rhodes "B" 7.

Q. So at the Rhodes 23 location, in the southwest of 23, your engineering conclusion is that that well will ultimately recover 710,000 MCF?

A. That's correct.

Q. All right.

A. At an investment of $235,000.

Q. So where did the $235,000 come from?

A. $235,000 is a cost estimate generated for a vertical well.

Q. And what is included -- That's taken off the AFE?

A. Yes, sir.

Q. And that AFE includes costs of stimulation and doing the type of conventional vertical well that's been drilled in this pool?

A. That's correct, sir.

Q. All right. That would be a profitable well?

A. That would be a very profitable well.

Q. All right. Let's turn to Exhibit 14. In order to make a comparison and a judgment, ultimately, about which wellbore plan to execute, you have to make a comparison with regards to what would happen with the horizontal well, right?

A. Yes, sir.

Q. Let's look at 14 and have you describe for us how you've gone through the analysis and what conclusion you've reached.

A. What I was trying to determine was what was the drainage area going to be for a horizontal well. What I did first was evaluate the Rhodes "B" Federal Number 7. And what we're looking at, at the middle part of that page, is a cartoon plan view of the wellbore and how it affects

the reservoir around it.

We determine -- We know the drainage area is 25 acres from our prior work, and we determined that the hydraulic fracture length is 750 feet from using a hydraulic-fracture-stimulation simulator.

Q. Let me interrupt you. Why have you chosen to give the horizontal well the benefit of a drainage radius based upon a hydraulic frac length achieved by a process that's not going to be applied to the horizontal well?

A. What I'm trying to do is determine the effective distance from the wellbore that constitutes the 25 acres, and so every point along that fracture and in that wellbore, I'm trying to determine how much of the reservoir is affected, and then I can apply that to the length of the horizontal well.

Q. Well, you've given the horizontal well a bonus?

A. At this point, on this page, yes, sir.

Q. Okay, continue.

A. What I calculated using two radial drainage areas on each end of the hydraulic fracture and a rectangular linear flow area, along the hydraulic fracture, was an affected area of 407 foot from the wellbore and the associated fracture system.

If I apply for the Rhodes 23 Federal Number 1, the horizontal well, the horizontal lateral length that I

used was 1380 feet, and if the radius of the drainage area that we're going to affect in the reservoir is 407 foot, the our drainage area is 38 acres.

Q. All right, so you have given the horizontal well every possibility of a bonus, and by that method you can only increase the drainage area over the vertical well from 25 acres to 38 acres.

A. That's correct, sir.

Q. So you have added eight acres [*sic*], but you've doubled the cost?

A. A little more than eight acres, but yes, sir, doubled the cost.

Q. All right. Let's set that aside a moment and, separate and aside from cost, if we were willing to spend all the money that Texaco wants to spend and some more, is this still a good idea to drill a horizontal well here?

A. No, sir.

Q. We're not going to access any more of the reservoir than we would with a vertical well?

A. That's correct, and we will go into that in more detail on Exhibit 15.

Q. Let's do that now.

A. What we have in Exhibit 15 at the top is a model, a cartoon of a hydraulically fractured wellbore. This time we're looking at it from the side. And what we've done is,

we've got the interlayered sand-dolomite packages, and we know that we have perforated each of those sand packages. We have not ignored any of the pay.

And once we've hydraulically fractured it, we've created two fracture lengths away from the wellbore that contact each sand package the entire length of the hydraulic fracture. So the entire length of the fracture in that sand, we're communicated with the wellbore.

Now, if I take that and I move down to the bottom of the page and look at the horizontal wellbore -- and for the purposes of the cartoon I've left that length the same at 750 feet -- and you place two horizontal wells at an angle through the pays, the interlayered pays, what we came up with was a 40-percent vertical contact.

So for instance, if you look at the top sand and you look at the length of the horizontal well that's open and exposed to that sand, it's 40 percent of the entire lateral length.

Now, we did not understand what Sand 6 and what Sand 4 were, and so what I did was, I sat down and drew scale drawings of each of the package intervals in each of the lateral lengths, and I drew a multitude of wellbore paths that we could go through the pay, and the highest that I could come up with was 40 percent. There were numbers as low as 20 percent, depending on how you drilled

through the vertically discontinuous sand packages.

Q. Mathematically, then, you're drawing schematics that -- every possible, conceivable way to drill the horizontal well, whether it's 88 degrees or some other difference, to get this thing through the reservoir, and the greatest vertical contact that you can achieve by any of the calculations is only 40 percent?

A. That was the most optimistic.

Q. All right. Now, let's go back and put this in real-world terms and put some prices on it.

If you'll turn to 16, let's compare the EUR that you're going to get with the horizontal well using the 38 acres of drainage, and put a price on it and see what happens.

A. If we use the radius of the drainage area of the 407 feet that we calculated from our model, the fracture stimulation system, in their lateral length of 1380 feet, average pay is greater at 104 feet along the path of lateral, and apply our individual sand contact of 40 percent, then we come up with an EUR of 450 million cubic feet of reserves, and for an investment -- and that's a typo on your page, I apologize for that -- of $505,000, which was the $485,000 plus the $20,000 additional facilities that weren't included in Texaco's AFE.

The 40 percent is very important, because the

dolomites, or in shale strangers between the sands are impermeable, so there's not going to be a vertical path up into the wellbore once you exit that sand.

And even within the sand, the vertical-to-horizontal permeability relationship tells you that if you're at the base of that sand with a horizontal well and you're trying to flow gas into that wellbore vertically down into it, your flow rates are going to be lower because your permeability is lower, because we're only looking at reserves, and we're not looking at production. It's really not included in our analysis, but it's something that has to be addressed in the performance of the well.

Q. When we make the direct comparison, then, let's compare Exhibit 13 to 16. On a vertical well, the investment is $235,000 for a return of gas of 710 MMCF?

A. That's correct, and as I stated, that's a very attractive project.

Q. And if we turn to the horizontal comparison for an investment of half a million dollars, your forecast of ultimate gas recovery is only 450,000 MCF?

A. That's correct, and that is an uneconomic project.

Q. If the spacing unit is not being exposed to drainage -- And by your calculation you have come to that solution, is that not true?

A. That's correct.

Q. You drill the first well, and if it only drains 25 acres then you still have time an opportunity to have an infill well to drain the rest of your spacing unit, and you can still do so for the -- less cost than it is to drill a single horizontal well?

A. That's correct.

Q. And there is no urgency to drill the second well, because there's no competition for that gas from this spacing unit?

A. Not according to my calculations.

Q. Okay. Let's address the topographic question. Have you satisfied yourself that Burlington and Texaco -- we need the same surface location for the first well -- that that's an available topographic surface location?

A. Yes, sir, it is.

Q. This is a federal lease area, the BLM manages the surface, I guess. It's a federal lease effort. Anyway -- You don't know?

A. I don't know.

Q. Okay. You are aware that there are sand dunes on the surface?

A. Yes, sir, I am.

Q. And is there an individual at Burlington that manages topographic issues with regards to the BLM?

A. Yes, sir, there is.

Q. Have you inquired and have you been advised as to whether or not there is an available surface location in the northern portion of the spacing unit that could be utilized in the future in order to drill a well to access those reserves if they're not drained by the first well?

A. Yes, sir, I have.

Q. And what conclusion have you reached?

A. The conclusion was that we could locate a wellbore in the northern half, but it would have to be -- it would have to be a deviated wellbore, but the total deviation of wellbore would be less than 30 percent -- 30 degrees, excuse me.

Q. Based upon your study, is it necessary to have this high-angle horizontal well that Texaco proposes in order to access the reserves in the spacing unit?

A. No, sir.

Q. Let's turn to the summary sheet. Let's look at Exhibit 17. These are your conclusions?

A. Yes, sir, they are.

Q. Have you shared these conclusions with your other technical members on your team?

A. Yes, sir, I have.

Q. And do they also share this opinion with you?

A. Yes, sir, they do.

Q. Let's go through the summary and have you describe your concerns and your opinion.

A. Burlington Resources is a leader in horizontal technology, and we've done work horizontally across the nation. Our problem is, we think this is a gross misapplication of the technology. We believe that it produces reserve development waste, it's obviously a waste of money to go to such an extreme, complex wellbore in this type of environment. It's a misapplication.

The -- in addition, the completion -- The probability of a successful completion is going to be lower for the complex multilateral wellbore that they're proposing, as opposed to the conventional hydraulically fractured wellbore that we are proposing. There have been great improvements in the technology, but it's still inherently more risky than what we're proposing.

The other issue is, how do you operate the wellbore? The wells in the area have scale problems, they do have some sand problems occasionally, and what we're going to have here is two open-hole wellbores that are cutting across dolomite sand interfaces with possible debris, we're going to have scale precipitation. If it occurs out in the horizontal part of the wellbore, it's going to be more difficult to clean that up and keep the wellbore open for production than it will be for vertical

completion.

In addition, the wells in the area do make some water. And this is a very low pressure reservoir, you've got a pipeline pressure of less than 25 p.s.i. Reservoir pressure is in the -- just over 650 p.s.i.

A little bit of water will, without artificial lift, limit your recovery of the reserves from the well? And their proposal has two -- well, excuse me, a single kickoff point, and there's about a 100-foot radius, looking at their exhibit, before they're going to enter the wellbore. So they're going to enter a wellbore 100 foot higher than where they're in the sand.

And so if they're using the bottom cased interval of the wellbore as a sump to pump out of, as opposed to being able to lower their pump, they're going to have 100 foot of water head if that wellbore does fill up with water. So the drawdown they're going to get for that reservoir is going to be lower.

Now, I didn't take that into account in my work. I didn't know the radius of the wellbore. I thought it might be smaller, larger, and didn't put the numbers to that. But there's an additional 45 p.s.i. of drawdown you're not going to get if that wellbore does fill with water. And there is a history on a lot of wells in the area that do make some water, and they're very difficult to

operate vertically and are going to provide even more difficulty and expense operating horizontally.

Q. The wellbore instability, what are you talking about there?

A. If they were staying in one sand package, then -- and there's no interfaces between going in and out of these sand packages -- You know, in a hard rock area, I would think that maybe those issues are lower. But because they're going in and out of sand, dolomites and shales, that the interface, there could be potential problems of wellbore stability and sloughing into the well.

Q. What's your recommendation?

A. My recommendation is, we drill vertically. There's no offset drainage that we've calculated. We'll be able to address the issue of a second wellbore, if necessary, in the future, and there's no reason to hurry up and make a bad decision.

MR. KELLAHIN: That concludes my examination of Mr. Settle.

We move the introduction of his Exhibits 8 through 17.

MR. CARR: No objection.

EXAMINER CATANACH: Exhibits 8 through 17 will be admitted as evidence.

Mr. Carr?

CROSS-EXAMINATION

BY MR. CARR:

Q. Mr. Settle, you've testified about the "B" 7 well as your Exhibit Number 11. I have a couple of general questions. You've talked about that well being allowable-restricted because of the pool rules for the oil pool?

A. That's correct.

Q. And the allowable is what, 800 --

A. That's correct.

Q. -- 800 barrels a day, is that what it is? 800 MCF a day?

A. 800 MCF a day.

Q. And a well offsetting it to the north would be unrestricted. That's no concern on our part, is it, whether or not the well is unrestricted? You don't see any drainage anyway, do you?

A. No, sir.

Q. What would that "B" 7 well make if it was not allowable-restricted? Do you know?

A. Currently?

A. Yeah.

A. It is not restricted currently. It is down below 500 MCF a day.

MR. CARR: Okay.

MR. KELLAHIN: I'm sorry, I didn't hear your

answer.

THE WITNESS: It is not restricted currently. The wellbore is below 500 MCF a day.

Q. (By Mr. Carr) And so same rules that permit the oil wells to be 330 from the lease line and north of it, gas well 660; isn't that right?

So that's just a fact of our lives. I mean, we're not -- you're not making an issue about allowable restriction; I'm asking you that.

A. That's correct, I'm not.

Q. All right. When we look at that lower zone that you didn't complete in, in the "B" 7, you said that was because there is an offsetting waterflood operation by Texaco.

Were you involved with the drilling -- I think it's the Linebery well that was drilled prior to that time, that was completed down in that interval?

A. No, sir, I wasn't.

Q. Have you any -- Do you know that it was completed down in that interval?

A. Yes, sir.

Q. That Linebery well was a very poor well, was it not? Is it not?

A. It is a poor well.

Q. You don't have any idea of what is actually

coming out of that lower zone, do you? There's no way to know?

A. Not --

Q. -- in this poorer well?

A. That's correct.

Q. If we look at your schematic drawing, Exhibit Number 14, the top part of that exhibit is what you're estimating to be the number of acres drained by a vertical well; is that right?

A. That's correct.

Q. And that's 25 acres?

A. Yes, sir.

Q. If we go down to the bottom portion of that exhibit, that's what you are estimating would be drained, 38 acres, with the proposed horizontal well; is that right?

A. That's correct.

Q. And in doing this, what you're looking at is only the sixth sand, are you not?

A. I am looking at all of the sands as mapped by my geologist.

Q. Have you also factored into this exhibit the 500-foot horizontal lateral for the number 4 sand?

A. The -- I guess I'm confused by your question.

Q. What -- if I see this -- the bottom portion of this exhibit, you're showing a horizontal lateral of 1380

feet; is that right?

A. That's correct.

Q. And what we've got here is that you're draining 38 acres with that, all right?

A. Correct.

Q. Now, when you're looking at this bottom part of the exhibit, you're focusing just on what you're doing in the sixth sand, you're assuming there will be less drainage in the fourth sand; isn't that right?

A. No, I'm not. I'm assuming that --

Q. How did you factor in the fourth sand?

A. My analysis is based on the total package of all productive sands, and so it includes --

Q. All right.

A. -- the 4 and the 6 sand, plus sands that you guys are not considering gas-productive.

Q. So you have in this calculation rolled both together?

A. That's correct.

Q. Okay. If we then go to your Exhibit Number 16, where you're looking at the EUR for the Rhodes 23 Number 1 --

A. Yes, sir.

Q. -- and to get this 450 MMCF, are you again looking at the total package?

A. Yes, sir, I am.

Q. And when you say 40-percent individual sand contact, you're assuming that when you look at the horizontal portion of the wellbore in both the number 4 zone and the number 6 together, that they'll only be in contact with the sand 40 percent of the time? Is that what you're saying?

A. When you look at them together, they can only be in each individual sand package, and I'm defining a sand package smaller than just the 4 and the 6. The 6 is divided into many intervals on the cross-section that you guys submitted.

Q. And so you're looking at smaller intervals than what Mr. Sadler was looking at?

A. I'm looking at all of the intervals.

Q. And when we look at what Mr. Sadler had projected, the wellbore would be in what he shaded green on his cross-section as the sand throughout most of the interval; isn't that right?

A. Okay, the exhibits and the pay that are on your exhibits, for instance, for the Rhodes "B" 7, are 75 feet. And what we're looking at there is -- Oh, I'm sorry, I'm looking at the wrong map. I am looking at a greater interval of the sand packages than the exhibits that were submitted by Texaco.

Q. You're looking at a greater interval and then you're breaking out individual sand packages within that interval, isn't that right?

A. That's correct, and what I'm saying is, you wind up with in a horizontal well, as you go in and out of each of those intervals, you wind up with an ellipse of production that is 40 percent of the entire wellbore length, and that ellipse moves down as you enter each sand package, going further and further along the lateral.

Q. And are you saying that only 40 percent of that wellbore is actually going to be in contact with the sand packages?

A. I'm saying that 40 percent of the wellbore will be in contact -- I'm saying that the wellbore will only be in contact with that sand package 40 percent of the entire length of the wellbore.

Q. And if it was 50 percent, then your EUR would go up?

A. That's correct.

Q. And what you have done is characterized this as a number of individual sand lenses, where Mr. Sadler has looked at a larger interval and shaded that green on his cross-section? He's looking at larger --

A. That's correct.

Q. And so if we take his interpretation, and the

fact that that sand is there, you may have more than 40-percent contact; isn't that possible? I mean, we're --

A. Well --

Q. -- looking at just two interpretations, aren't we?

A. Correct, but the two interpretations are, one, that you stay in one sand package, but you're ignoring the rest of the pay when you do that you do that.

The other interpretation is, you cut across the multiple sand packages, and when you do that you're only contacting the reservoir 40 percent of the time.

Q. And if you were drilling a horizontal well, would you recommend cutting across all the sand packages to get all of them tied in, or would you stay in the sand?

A. No matter which technique that I drew up on a scale model, I never came out with over 45 -- 40 percent of the total sand package -- or excuse me, for each individual sand package.

MR. CARR: That's all I have.

EXAMINATION

BY EXAMINER CATANACH:

Q. Mr. Settle, did you calculate a drainage area for the "A" Number 4?

A. Yes, I did.

Q. What was that?

A. It was 26 acres.

Q. Is it typical for these wells in this area to exhibit small drainage areas such as you've calculated for the "A" 4 and the "B" 7?

A. I have not calculated drainage area of -- for an area outside of this area of interest, so I can't answer that.

Q. Well, based upon what you know of the drainage area of the "B" 7 and the "A" 4, do you believe that a single well would effectively drain the southwest quarter, a vertical well?

A. I think it more effectively drains it than a horizontal well.

Q. Do you think it effectively drains the southwest quarter?

A. I think an evaluation would have to be done with additional data from the first well to make that determination.

Q. Well, do you have any indication that the drainage area would increase in that vertical well, as opposed to the offset wells?

A. No, sir.

Q. Do you know what the -- You said that if you drilled a well in the north half of the southwest quarter, it would have to be deviated?

A. Yes, sir, it would.

Q. Do you know what the cost of a deviated wellbore would be in the north -- in that --

A. It was an additional $50,000 over the vertical wellbore.

EXAMINER CATANACH: I have nothing further of the witness.

Anything further?

MR. KELLAHIN: That concludes my presentation of Mr. Settle.

I have the certificate of notice buried here somewhere.

I've marked the certificate of notification for hearing, Mr. Examiner, as Burlington Exhibit A. I would ask that you introduce it at this time.

EXAMINER CATANACH: Exhibit A will be entered as evidence in this case.

May I suggest we dispense with closing statements and submit rough draft orders in this case?

MR. KELLAHIN: I understand you're pressed for time, and we would be more than happy to submit our draft orders to you, Mr. Examiner.

EXAMINER CATANACH: Any preference as to a time frame for that, Mr. Kellahin?

MR. KELLAHIN: I understand that you'll be out of

the office for a while on or after the first of the year.

MR. CARR: If we can't have an order by Wednesday...

EXAMINER CATANACH: Good luck.

MR. CARR: I don't see any reason to make everybody work between now and Christmas and New Year's when you're not going to be here.

Could we contact you and just agree on a date after we see what everyone's schedule is and get it in as early as possible to you in January?

EXAMINER CATANACH: Sure, I mean, I'll be back the 2nd. Give me a call and --

MR. KELLAHIN: Let Bill and I talk to it, and we'll get it to you as soon as we can.

MR. CARR: We'll file on the same date, and we'll do it just as quickly as we can get it to you.

EXAMINER CATANACH: There's going to be a backlog on cases at that point anyway, surprisingly enough, so I don't know what the schedule -- my schedule -- is going to be, so...

MR. KELLAHIN: So you don't want to hear any fishing stories about Mr. Carr?

MR. CARR: I could tell you fishing stories about Tom, but he never catches a fish.

EXAMINER CATANACH: Okay, is there anything

further, gentlemen?

There being nothing further, we will take Case 11,678 and 11,656 under advisement.

(Thereupon, these proceedings were concluded at 11:39 a.m.)

* * *

CERTIFICATE OF REPORTER

STATE OF NEW MEXICO)
) ss.
COUNTY OF SANTA FE)

I, Steven T. Brenner, Certified Court Reporter and Notary Public, HEREBY CERTIFY that the foregoing transcript of proceedings before the Oil Conservation Division 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 December 31st, 1996.

STEVEN T. BRENNER
CCR No. 7

My commission expires: October 14, 1998

I do hereby certify that the foregoing is a complete record of the proceedings in the Examiner hearing of Case No. 11656, 11679 heard by me on December 19 1996.

David R. Catanach, Examiner
Oil Conservation Division